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Reassembling Local E-Government: A study of actors' translations of digitalisation in public administration

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To my mother and father!

Meno: And how will you search for something, Socrates, when you don't know what it is at all? I mean, which of the things you don't know will you take in advance and search for, when you don't know what it is? Or even if you come right up against it, how will you know that it's the unknown thing you are looking for?

Plato, Meno and Other Dialogues

The question then is how to get lost. Never to get lost is not to live, not to know how to get lost brings you to destruction, and somewhere in the terra incognita, in between, lies a life of discovery... The things we want are transformative, and we don't know, or only think we know, what is on the other side of that transformation.

Rebecca Solnit, *A Field Guide to Getting Lost*

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As I'm writing these words, the sun is shining and I'm crying a little. Out of gratitude. For the opportunity to fulfil a dream: a thirst for more knowledge, a craving to understand the world we live in. I'm grateful for the possibility to meet so many extraordinary, bright, and kind people. I've had a chance to listen to them, to talk with them, and to work with them. I've been able to learn from them. I'm deeply thankful to them. As learning and knowledge are transformation, filled with tensions and anxieties, these people have been with me in different moments along the way. They have helped me at the crossroads of my journey. They have contributed in various ways to who I am today.

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Linköping, 2017.05.15

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ABSTRACT

The digitalisation of society decidedly affects public administration. Swedish public administration has long worked with information technologies for an effective and improved management of public services. But new and increased use of information technologies in society poses new challenges. New demands on information security are increasing, while accessibility and transparency are important priorities in policies on digitalisation in public services. However, the central government's ambitions and expectations with regard to digitalisation face a slow and hesitant implementation in local governments. There are important differences between municipalities in priorities, local needs, and implementation mechanisms in connection with e-government. In this thesis, I argue there is a need to reconsider the role of governance mechanisms in e-government. There is a need to understand local translations of national policies and technological developments in relation to the goals of more effective and legitimate public administration. The main purpose of this thesis is to analyse tensions that emerge in the implementation of e-government in local public administration.

On the basis of a constructivist and interpretivist approach, I have undertaken two empirical studies. One focuses on municipal administration of education in Linköping. The other focuses on a governance network on digitalisation policy in Östergötland. The studies are presented in four papers. The issues addressed in the papers are further analysed with a focus on four fields of tension, using network governance theory and translation theory. This shows that the implementation of e-government in local public administration is a tension-laden process. The four fields of tension relate to: different logics and dilemmas for adoption and implementation; concerns and ambiguities in a context of unclear organisational and institutional arrangements; concerns and resistance from professional users; and a reassessment of the meaning of security as a reference for the interpretation of information security. I contend that established managerial and

evolutionary models of e-government leave important process-related aspects out of the analysis of change in public administration. The contribution of this thesis lies in its description and analysis of the four identified fields of tension. One significant implication of my analysis is that reassembling current governance mechanisms, both in theory and practice in local public administration is crucial.

LIST OF PAPERS

- I. Gustafsson*, M., & Wihlborg, E. (2013). Safe Online e-Services Building Legitimacy for E-government. A Case Study of Public E-services in Education in Sweden. *JeDEM. The eJournal of eDemocracy and Open Government*, 5(2), 155–173
- II. Gustafsson, M. (2014). Constructing Security: Reflections on the Margins of a Case Study of the Use of Electronic Identification in ICT Platforms in Schools. *Privacy and Identity Management for Emerging Services and Technologies. 8th IFIP International Summer School, Nijmegen, The Netherlands, Revised Selected Papers*, IFIP AICT(421), 224–236
- III. Hedström, K., Wihlborg, E., Gustafsson**, M. S., & Söderström, F. (2015). Constructing identities – Professional use of eID in public organisations. *Transforming Government: People, Process and Policy*, 9(2), 143–158.
- IV. Gustafsson, M. (2017). Is small always beautiful? Studying the logics of small units in governance of digitalisation. Learning from a case study on adoption and implementation of the Regional Digital Agenda for Östergötland, in Sweden. *Working paper****

* My contribution in this paper was collection and analysis of empirical material and an active revision of the entire paper in accordance to the peer-review comments.

** My contribution in this paper was collection and primary analysis of the empirical material focusing on the school study. During the peer-review stages I contributed partly to the revision of the text, focusing on the case analysis and the conclusions.

*** This paper is currently under revision for re-submission to Information Polity. It has initially been presented and discussed at EGPA 2015, Toulouse 26-28 august, 2015.

ABBREVIATIONS

ANT	Actor Network Theory
eID	Electronic Identification Card
ICT	Information and communication technologies
NPM	New Public Management
OPP	Obligatory Passage Point
RDA	Regional Digital Agenda
SALAR	The Swedish Association of Local Authorities and Regions (<i>Sveriges Kommuner och Landsting</i>)

I. ADVANCED DIGITALISATION IN LOCAL GOVERNMENT: POLICY EXPECTATIONS VERSUS IMPLEMENTATION CHALLENGES

Expectations and policy goals for advanced digitalisation in public administration are connected with greater efficiency, with new and better ways of solving tasks (Nielsen, Medaglia, & Andersen, 2009), and with more democracy in terms of enhanced institutional transparency and accountability (Bertot, Jaeger, & Grimes, 2010; Bonson, Torres, Royo, & Flores, 2012; Grimmelikhuijsen & Meijer, 2015; Wihlborg, 2014). Policy-making bodies as well consider modern information technology a core driver for improving the efficiency of public administration and for encouraging transparency, greater openness, and trustworthy government (OECD, 2014). The enabling potential of technological modernisation affects society in various ways. It pervades contemporary patterns of societal development, and challenges them as well (Castells, 1996). There is thus a need to study how digitalisation reframes local public services and their administration. These, namely, are closest to the citizens in most welfare states, and they frame how citizens interpret the traits and legitimacy of the governmental system (Rothstein, 2009; Rothstein, Samanni, & Teorell, 2012).

Digitalisation of local public services and their administration is central for sustaining and developing new steering and governance practices. At the same time, the changes that advanced digitalisation involves affect relations between citizens and public service providers. Still, it is not uncommon for governments not to perceive information and communication technologies (ICTs) as collaborative means for the governance of public services. International comparisons show that ‘business as usual’ is still a mainstream approach to

technology, and that its effect is to reinforce extant government processes and to lead to failed projects (OECD, 2014). The context, marked by the advancing digitalisation of markets and the public sphere, is characterised by changing expectations regarding the ability of governments to create public value (OECD, 2014). Public demands – for transparency, accountability, efficiency, quality, responsiveness, and proximity – are fuelled by citizens’ attitudes towards the governmental system, and their degree of trust in it.

Electronic public administration, or e-government, is widely defined as ‘the use of information and technology to support and improve public policies and government operations, engage citizens, and provide comprehensive and timely government services’ (Scholl, 2010). Principal goals include improving governmental efficiency and effectiveness, increasing access to public services, and promoting democratic values through facilitating citizens’ engagement, promoting administrative transparency, and increasing the accountability of civil servants and politicians (OECD, 2014). Due to established digitalisation processes in governments, we can speak of advanced digitalisation as a characteristic of ‘mature e-government’ or ‘digitally mature government’ (Eggers & Bellman, 2015).

Advanced digitalisation brings on new concerns about personalisation of services, digital access to public services and infrastructure, and effective and secure communication with public servants and politicians (Ailsa & Liz, 2008). Questions of information security and privacy arise as well (Martin & Rice, 2010; Piotrowski & Van Ryzin, 2007). Research into e-government – e.g., by (Bekkers & Homburg, 2009); Bekkers and Moody (2009); Norris and Reddick (2013) and Zhang, Luna-Reyes, and Mellouli (2014) – confirms that incremental change rather than transformation has taken place in dominant governance models. These concerns, combined with the increasing diversity of technological options, raise new challenges for governments. They also point out a need to focus on the difference between expectations and practices in connection with digitalisation.

A central theme of this thesis, then, is whether local governments are equipped to use new digital technologies to work closely and in practice with citizens, businesses, and civil society, as well as with other governmental actors. One way to approach these challenges is to focus on the dilemmas, paradoxes, and tensions that arise in different local practices in connection with e-government implementation (Bertot & Jaeger, 2008; Ritala, Huizingh, Almpnanopoulou, & Wijnbenga, 2017; Savoldelli, Codagnone, & Misuraca, 2014; Wagenaar, 2006). Basically, tensions appear when new practices become part of an individual’s sense-making of social reality (Berger & Luckmann, 1966; Searle, 1996). In the context of organising activities, tensions have been studied in terms of strategic dualities and contradictions (Karlsson & Montin, 2013; Ritala et al., 2017; Smith & Lewis, 2011).

In this thesis, I focus on tensions in local practices of digitalisation in public services. Local practices in this context concern the organisation and

administration of public service delivery in terms of work methods, routines, and operations in local public administration. I proceed on the notion that public services are of key importance in the reality of everyday activities in public organisations. It is at this level – the everyday use and administration of e-services – that e-government becomes meaningful for users. At the same time, this is a reality rife with tensions.

The Challenge of Integrating ICTs into Public Administration

A central challenge of integrating ICTs with core development reforms in public administration becomes clear when we look more closely at local practices of e-government. It is this specific challenge in local practices to which I refer in this thesis as ‘the challenge (or problem) of *integration*’. An OECD (2014, p. 2) report identified integration as a central challenge, emphasising that:

... public administration capacities, workflows, business processes, operations, methodologies and frameworks still need to be adapted to the rapidly evolving dynamics and relations between the stakeholders that are already enabled by the digital environment.

On the other hand, insufficient funding, security concerns, a lack of overall strategy, a lack of organisational agility, and an excessive number of competing priorities are among the primary challenges facing the digital transformation of governments (Eggers & Bellman, 2015).

In e-government research, the challenge of integrating information technologies in public services has largely been addressed from two perspectives: one managerial, the other evolutionary. Managerial approaches look mainly at local practices of e-government, with a focus on efficiency and cost challenges (Madsen, Berger, & Pythian, 2014). Factors such as expertise, standardised processes, common IT applications, transaction-based services, and meeting user needs are found to be vital for the successful implementation of e-government, together with leadership, job redesign, and comprehensive training (Borman & Janssen, 2012; Borman & Janssen, 2013). Similarly, the evolutionary approach focuses on modelling development and on providing practice-oriented advice. From these perspectives, e-government is always managed. It evolves towards greater complexity and contextualisation, much as other processes (e.g., industrialisation) transformed societies historically (Janowski, 2015).

Importantly, in the context of advanced digitalisation, information security is a key concern with implications for upholding legitimacy in public administration. By information security, I mean protection of information stored, exchanged, and processed through advanced information systems. This is a key dimension for understanding the challenge of integrating ICTs in local practices of e-government.

Most studies approach information security from a managerial perspective. Threats, risks, and success factors in this area are mainly analysed either on the basis of models for management and implementation (Berghmans & Van Roy, 2011; Brechbuhl, Bruce, Dynes, & Johnson, 2010; Reddick, 2009; Zhao & Zhao, 2010), or from a technical standpoint, in terms of compliance with specific technical standards and rules (Hulitt & Vaughn, 2010).

However, both managerial and evolutionary approaches to e-government have been criticised for seeking straight cause-and-effect relationships in an otherwise much more complex digitalisation process (Bannister, 2010). The need for a thorough understanding of the concepts, processes, and functioning of e-government is becoming more salient (Madsen et al., 2014). I will argue in this thesis that, in order to understand the challenges of advanced e-government more fully, we must focus on practices of digitalisation in local government. It is in these practices – in the frequent and intricate interactions between municipal professionals, policy-makers, and users of e-services – that important tensions lie. The study of such tensions can provide key clues concerning integration challenges in the implementation of advanced e-government. I will pursue this argument with a focus on Sweden, which has adopted some of the most advanced practices in the area of e-government.

Sweden: A country with advanced e-government practices

Swedish government agencies joined the digitalisation wave already in the 1960s (Johansson, 1997). Sweden thus presents a valuable case for the study of advanced digitalisation in public administration. In international performance benchmarking, Sweden has been assessed as advanced or mature in terms of practices of e-government (Tinholt & van der Linden, 2015). The country has a very high level of usage of online government services and of digitalisation of internal procedures in public administration (Tinholt & van der Linden, 2015). Being an early adopter, Sweden has pursued a range of institutional reforms relying on ICT-based mechanisms for the modernisation of government (Baller, Dutta, & Lanvin, 2016; Lidén, 2013; Melin, 2009). This history, presented in Chapter IV, has predisposed public institutions in Sweden towards building and prioritising the digitalisation of services (SOU 2015:91)¹.

The Swedish government's ambition to make Sweden a leading country in the use of new technologies for democracy and the public good is well-known. It builds on a vision shared by both governing and opposition parties in the country (ICT for Everyone, 2011; 2011; Regeringskansliet & SALAR, 2016). The government is straightforward in its directive about changing conditions for publicly financed activities, stating clearly its high expectations regarding the opportunities afforded by digitalisation for efficiency and higher quality in public

¹ Recent indications that Sweden has started falling behind other early adopters (Brundin, 2016) has furnished Swedish policy-makers with further motivation in this area.

services (Dir. 2015:123; SOU 2015:91). The directive makes clear that, in their efforts to meet demands for modernisation, public services and their administration are to rely on digital solutions (Dir. 2015:123; Government Offices, 2011; SOU 2015:91).

The shift of focus towards users and their needs changes the way that public services are designed and administered, putting the needs of these groups at centre (SOU 2014:13; SOU 2015:91). These groups of actors – users of public services and employees who provide the services – become the starting point for the development of services and public administration (Chen, Vogel, & Wang, 2016; Gidlund, 2015). This shift brings central concerns of security and integrity to the fore within the context of advanced digitalisation of services (Melin, Axelsson, & Söderström, 2013). It challenges existing structures and power relations, and points to the importance of new governance arrangements. Additional structural challenges in Sweden are posed by the robust but decentralised model of public administration, whereby local governments enjoy wide powers of self-government (SOU 2015:91).

At the same time, Swedish municipalities differ considerably in size and in their capacity to address such expectations. While four out of five offer e-services, one in five municipalities – usually small ones – provide no e-services at all (SALAR, 2014a). This raises questions of democracy. Ought not all citizens to enjoy equal access to transparent and effective services, regardless of where in Sweden they live? It is almost always smaller, rural municipalities that have been unable or hesitant to prioritise digitalisation of their services (SALAR, 2014a). It is these municipalities which currently meet the greatest difficulties in coping with digitalisation. The Swedish case thus presents a relevant basis for studying challenges encountered in the advanced digitalisation of public services. More specifically, it enables us to study how e-government penetrates different levels of government in political systems with a multi-level government structure. A thorough understanding of and a sharp focus on sub-national levels of government is necessary.

To summarise the empirical problem: the case of advanced digitalisation in public administration presents a multifaceted problem that needs to be thoroughly addressed, both empirically and theoretically. Resistance to change, a business-as-usual logic, incrementalism, and preservation of governance structures (rather than their transformation) need to be explained in the context of advancing digitalisation. These link to challenges of coordination in connection with policies and structures at different levels of administration. The task of such policies and structures is to provide the necessary conditions for operationalising digitalisation, as well as implementing it through public e-services at lower levels of the polity. Currently, however, several challenges are impeding the performance of this task. Concerns about providing equal access to public services, ensuring their quality, and guaranteeing information security and privacy in public services and

administration – all of these affect the legitimacy of public administration, and underlie the complexity and centrality of the problem.

In the Swedish case, high expectations in this area on the part of both government and societal actors, together with the shift towards users in the design of public services, are accompanied by serious concerns about information security. These are to be viewed in the context of varying results in the municipalities when it comes to meeting the challenge of integrating ICTs into public services and administration. Challenges of policy and implementation are particularly pronounced at local levels of government, which either do not have local digitalisation policies or which lack adequate translations of national digitalisation strategies into their local practices (SOU 2014:13; SOU 2015:91). These challenges require us to make a renewed effort to understand how different actors of widely differing capacities relate and act in changing governance arrangements.

The Aim and the Research Questions

The main purpose of this thesis is to analyse tensions that emerge in the implementation of e-government in local public administration.

This thesis focuses on local processes of digitalisation in Swedish public administration, within the context of network governance. Through two empirical studies – one on the implementation of secure login onto digital platforms in schools, the other on the adoption of a regional digital agenda – I analyse actors' interpretations of the digitalisation of services in relation to their own practices. The overall analytical framework of the thesis is based on translation theory and network governance theory.

These two perspectives allow us to uncover an array of *tensions* in the implementation of e-government that appear in a context of change in governance networks. *Tension* in this study is defined as a state of latent striving, unrest, or pressure in networks of actors undergoing change. The tensions under focus here lie specifically in contests of meaning, in mismatch and opposition between old and new beliefs, in perceptions of failure or limited knowledge, and in interpretation dilemmas that arise in the practice of e-government.

The following three research questions, therefore, will be explored and answered:

- What tensions can be observed in practice when local public administration is undergoing advanced digitalisation?
- How can such tensions be comprehended through the perspectives of network governance theory and translation theory?

- How can such tensions affect networks and advanced digitalisation in public administration?

In this analysis, I apply a bottom-up approach to e-government processes in local public administration that operate in a governance system. Advanced digitalisation, in this thesis, is understood in terms of a heavy use of e-government – both internally and vis-à-vis citizens – through public e-services.² Also, in line with the argument presented by Brennen and Kreiss (2014), I distinguish between *digitalisation* and *digitisation*. The processes examined in this thesis concern digitalisation, meaning a process through which social domains are restructured through the advanced integration of information technologies in public services and administration.

The Role of the Papers

This thesis includes and builds on four papers which address its main purpose by focusing on certain aspects. These include (a) the relationship between organisational arrangements, legitimacy, and actors' perceptions of information security; (b) professional users' translations of secure digital systems in practice; and (c) different logics of engagement in policy networks on digitalisation by actors such as municipalities and regional authorities. The specific research questions, as well as the summaries of the papers and their findings, are presented in Chapter VI. The full texts are featured in Appendix C.

More specifically, the papers by Gustafsson and Wihlborg (2013a) and Hedström et. al. (2015) look at actors' interpretations of digitalisation changes that occur in local practices – in a number of schools, hospitals, and municipal administrations. In Gustafsson (2014), a translation of the concept of security is presented, using some analytical tools from Searle (1996) social theory. Finally, the fourth paper addresses advanced digitalisation as an issue in governance network-building. The main theme running through these papers is that, in a context of decentred governance (where Sweden is a key case), networks of actors translate the ideas and policies of digitalisation in relation to their local practices – revealing a process characterised by tensions in terms of ambiguities, resistance, and contests of meaning.

Building on the findings from these papers, I focus in this thesis on several tensions that emerge around the ambiguities and concerns in local practices. The research presented here approaches the problem of integration as a translation process of policy and meaning mediated by actors who act in conditions of network governance. Specifically, I focus on translation processes that occur in relation to

² The terms 'advanced digitalisation' and 'advanced e-government' – which I use interchangeably here – focus on the process perspective, and thus aim to avoid the idea that there is an end-stage of the process, as is implied by the term 'mature e-government'.

local practices in public administration. In my analysis of the tensions involved (Chapter 7 and 8), I look at:

1. how e-government is reassembled through actors' translations, which involves significant tensions for small municipalities when new governance networks are formed (this is based mainly on the analysis in Gustafsson (2017);
2. tensions resulting when new and unclear organisational arrangements meet old and resisting ones, when a municipality is implementing secure digital platforms in education administration services (this is based mainly on the analysis in Gustafsson and Wihlborg (2013b);
3. tensions arising when professional groups, such as teachers and nurses, face changes connected with the digitalisation of services and with their concerns about control and surveillance (this is based mainly on the analysis in Hedström, Wihlborg, Gustafsson, and Söderström (2015); and finally
4. tensions that emerge in translating the meaning of security at individual level, when one is facing a new social reality where services and the interaction with authorities are increasingly digitalised (this is based mainly on the analysis in Gustafsson (2014).

Advanced Digitalisation: A case of network governance

Advanced digitalisation is a process that is implemented by networks of actors, where the central government plays a more coordinative role. It is the actors from different levels of government, civil society, and the market who are central in both operationalising and implementing digitalisation policies. These governance networks are commonly formed within established institutional frames that both enable and constrain pluricentric interaction (Sørensen & Torfing, 2014, 2007). The actors negotiate their decisions within an existing set of internal rules and a body of external regulations that govern the public sector. They also act based on limited resources. The policy outputs, as an outcome of the processes within governance networks, are therefore contingent on negotiated interactions between interdependent and autonomous actors (Sørensen & Torfing, 2014).

In relation to the purpose of this study, this theoretical approach builds on the questions of whether and how network governance theory adequately explains problems of governance connected to advanced digitalisation in public administration. Important questions to ask here are: In what way does advanced digitalisation of public administration affect governance networks and vice versa? Who are the actors in these networks? In relation to institutional and organisational arrangements in local government, how do these actors interpret digitalisation policies? What are their beliefs and meanings in connection with practices of digitalisation? Can there any contests of meaning or dilemmas be discerned in

these processes? What aspects in these governance processes are left out by the theory?

Understanding these matters should help us address some broader questions on the dynamics of governance networks (Sørensen & Torfing, 2007), namely: How do these networks form, function, and change when digitalisation policies are formulated and implemented in public administration? How do they cope with the challenges of digitalisation? Can the case of digitalisation of public administration in Sweden say something new about the formation, functioning, and development of governance networks in general? And vice versa, can advanced digitalisation in public administration be understood through network governance theory?

The Translation Perspective: Uncovering ambiguities overlooked by dominant explanations

In a governance set-up like that in Sweden, with powerful and independent actors operating across several levels of government, modernisation policies such as digitalisation of public services cannot be simply ‘pushed’ from the top (Bernhard & Wihlborg, 2012). They need to be ‘filtered and configured’ through organisational translations into local practices. Nevertheless, there are very few studies focusing on translation in e-government literature.³ The few that can be found are limited to the Swedish public administration context.

In this thesis, the implementation of advanced digitalisation in public services and administration is viewed as a form of translation, in the sociological sense. The concept of translation has been used in sociological research (Callon, 1999; Callon & Law, 1995; Latour, 2007), with a focus on how meanings are translated from one setting to another. In this thesis, the translation of digitalisation process is seen as a sense-making activity between actors, their work processes, and policies that are anchored in local practices. Here, actors’ interpretations of the ideas of e-government and how they translate new policy ideas into practice are essential. The concept helps to uncover how the meaning of new policies and ideas is contested and negotiated (Giritli Nygren, 2009a; Ulbrich, 2010). These translations also show that ambiguities, contests of meaning, and interpretation dilemmas follow when meanings change about the status quo, due to the gaps between old practices and new technologies and new expectations that are inherent in processes of advanced digitalisation.

To summarise, in this thesis the object of inquiry will be approached using concepts from network governance and translation theories. The analysis will focus on tensions identified in processes of service delivery, administration, and policy in local government. Translation theory facilitates the analysis of relationships, agency, and meaning construction in network structures, making it a useful perspective for generating alternative or complementary explanations to the dominant ones presented above.

³ Based on a systematic search of e-Gov Reference Library (EGRL) and Web of Science by 2016.07.20.

Outline of the Thesis

This thesis is divided into two main parts and draws on four papers. The first part is most of all a conceptual discussion that introduces, synthesises, and elaborates on main findings from the four papers, with a main focus on a number of tensions found in the implementation of advanced e-government. The four papers make for the second part of this thesis.

The first part comprises eight chapters. This *introduction* presents the challenges of advanced digitalisation and justifies using the case of Sweden. It also presents a critique of the dominant theoretical perspectives in the study of e-government, and argues for the advantages of the translation and network governance perspectives. The main purpose and the research questions are introduced and related to the Swedish case and the papers. The *second* chapter offers an introduction to the field, by presenting and discussing the definition of e-government adopted in the thesis, as well as a literature review in which studies from the translation perspective are contrasted with others from the managerial and evolutionary perspectives. The chapter concludes with an argument on the need for more knowledge on challenges in advanced digitalisation processes using translation perspectives.

In the *third* chapter, I present a theoretical discussion on how advanced digitalisation processes can be studied as forms of translation in the context of network governance. I introduce the constructivist approach to e-government and the two main perspectives: governance network theory and translation theory. Concepts borrowed from translation theory and network governance theory – such as networks, actors, translation, interpretations, and meanings – are subsequently described and discussed. A presentation and discussion of a critique of the translation perspective is included. Finally, the concepts are further operationalised and connected with the digitalisation of public services and administration. The chapter finishes with an elaboration of the concept of ‘tension’, through an application of the two theoretical perspectives.

The *fourth* chapter presents a short history of e-government in Sweden, and reviews the policies and institutions involved. I elaborate further on the case of Sweden therein, with a focus on the challenges it illustrates. The *fifth* chapter presents my methodology, explaining the structure of my analysis and the materials used. Questions of ontology, issues of epistemology, and the limitations of my method are addressed in this chapter. It is also here that I introduce the empirical material used in the papers, and how these relate to the purpose and research questions of the thesis.

The *sixth* chapter provides summaries of each of the four papers and presents their main contributions to the theory of advanced digitalisation in public administration. In the *seventh* chapter the main findings are synthesised. Using analytical tools derived from network governance and translation theories, I describe and analyse four tensions. These tensions are:

- tensions related to actors' different logics for adoption and implementation,
- tensions related to organising public administration and information security in ambiguous institutional arrangements,
- tensions related to professional use of digital platforms versus resistance and control,
- tensions related to security as purpose and value versus information security.

In the *eighth* and last chapter, finally, I return to the main research questions and the research problem, with a summarising and concluding discussion and a look at issues for further research.

II. DIGITALISATION IN PUBLIC ADMINISTRATION: A LITERATURE REVIEW

This literature review aims to continue where the problematisation presented in the introductory chapter has stopped. The chapter will anchor the arguments in the existing literature, by presenting analytical concepts and main results connected to advanced digitalisation in public administration. I will first address the definition of e-government and present the one adopted in this thesis, after which I shall provide a more detailed account of the managerial and evolutionary perspectives on e-government and their limitations. Finally, preparing the basis for the theoretical presentation in the chapter to follow, I review the translation and interpretive approaches to the integration of ICTs into local practices. This has been done with a focus on studies most similar to this thesis.

The basis for my literature search was the E-Gov Reference Library (EGRL), in its latest version at the time of the review (July 2016): i.e., 12.0, including 8,181 references of peer-reviewed studies published in English (Scholl & Friends, 2016). This library, maintained by Hans Jochen Scholl and his colleagues at the University of Washington's Information School, includes interdisciplinary research on electronic government, electronic governance, and electronic democracy. The EGRL provides a robust and systematically updated database, making it an important tool for e-government researchers from different disciplines. Systematic and successive searches for literature, via both keyword and full text surveys, have been done in Web of Science and Scopus. Attention has been paid among other things to most cited papers and to most similar studies (i.e., studies that take up research problems similar to the one addressed in this thesis). However, I found that most of the papers addressing e-government written in the last decade, including research in political science and public administration,

appeared in the EGRL. I have also reviewed a number of research publications in Swedish journals and dissertations which were not included in the EGRL. The selection criteria for the Swedish papers were the same as the ones used in the EGRL search.

It is worth noting initially that, despite its integrative and interdisciplinary ambitions (Scholl, 2014), the research field is still dominated by information systems and computer science research. Analyses based on theories and perspectives from public administration and political science are scant, despite the embeddedness and pervasiveness of digitalisation in government and public administration structures. For example, out of 29 top contributors to the field (Scholl, 2014), only one – Donald F. Norris – is a political scientist. A review of the publication statistics of these 29 top contributors in Web of Science (as of 28 March 2017) reveals that some of their publications fall under the heading of public administration (ranging from 3–5 papers per contributor), but that most are studies of information management systems.

Definitions of E-Government

The research on how information technologies affect public administration and services makes use of the concept of ‘e-government’. This concept is used to describe a phenomenon found in connection with digitalisation reforms in government structures. Elements of e-government can be found in processes whereby working methods and procedures within public administration or central government agencies are changed. They can also feature changes in communication channels and means of interaction within government structures, as well as changes in patterns of interaction between civil servants or public service providers on the one hand and citizens or societal actors on the other.

However, there are still no clear-cut definitions of the concept of e-government. These evolve as ICTs develop and as the research on e-government adds more insight to our understanding of the phenomenon (Dunleavy, Margetts, Bastow, & Tinkler, 2006). Previous reviews of research in this field show that the concept of ‘e-government’ still lacks a degree of rigour and is still under-theorised (Bekkers, 2012; Bekkers & Homburg, 2007; Yildiz, 2007). However, it seems that an underlying understanding exists in later leading research on e-government, which defines it in broader terms as:

... the use of the Internet by the government to deliver services and information to citizens and businesses (Madsen et al., 2014).

A more specific definition includes policy and governmental operations as well as citizen participation, and is characterised by Scholl (2010) as:

... the use of information and technology to support and improve public policies and government operations, engage citizens, and provide comprehensive and timely government services.

Bekkers (2012) builds on Sholl's definition and stretches it towards governance, stressing the interactive relationship between actors with the purpose of achieving added value:

... the use of ICT, especially network technologies, to facilitate or redesign the interactions between government and relevant stakeholders (citizens, companies, other governments) in both its internal and external environments in order to achieve added value.

Depending on one's perspective and purpose, the added value of e-government can be specified in goals such as: increasing access to government, raising the quality of public service delivery, stimulating internal efficiency, supporting public and political accountability, and increasing the political participation of citizens. It can thus be observed that, the more nuanced the definition of e-government, the more the meanings about it acquire a normative content, linked to principles and ideas for democratic forms of steering. This implies that knowledge about the concept still needs to cover meanings for those governments that are not democratic but which use information technologies in their operations and interactions.

The definition used in this thesis aligns with Bekkers' definition of e-government, since it includes the relational dimension of e-government, with a stronger focus on a variety of actors collaborating with the government. Both the purpose guiding this thesis and my approach to the case of advanced digitalisation in Swedish public administration justify the choice to use a definition aligning with Bekkers' in this study.

E-government has been used as a key term by academics and practitioners in connection with government reforms. It has sometimes been called 'the magic concept' (Bekkers, 2012). Pollitt and Hupe (2011) warn that magic concepts have limitations which should not be overlooked, whether by practitioners or by researchers.⁴ The concept can have an explanatory value, they argue, but only if it is positioned, operationalised, and applied in a systematic way.

A clarification of distinctions between the concept of e-government and the related concepts of e-democracy, e-governance, and e-services is important to take

⁴ Magic concepts, or power words, are terms that are widely used in both scholarly and practitioner discourse. The terms are particularly flexible in terms of meaning and wide in scope, providing a positive and powerful message to the discourse. See for example Pollitt & Hupe (2011) analysis of governance, accountability and networks as magical concepts or Bekkers' (2012) analysis of e-government as a buzzword in modernisation reforms in public administration. The belief is that the phenomenon that the concept is denominating can in itself, or by making use of it, solve any problem.

up. While e-government has been used to characterise the relationship between politics, policy, and the implementation of digitalisation in government structures, e-services cover development of government services and the exercise of authority through electronic channels (Giritli Nygren, 2009a). E-democracy has been used to denominate those processes aiming to increase citizen influence and participation in politics. And e-governance has been associated with the new and different ways of doing government, networks included, using digital technologies. It is as important to make these distinctions as it is difficult to make them in a clear-cut manner. Bannister and Connolly (2011) make a good point here, suggesting normative and structural dimensions of governance in order to catch the impact of digitalisation and the nature of the 'e-' in front of 'government', 'governance', 'service', and 'democracy'.

Evolutionary and Managerial Perspectives on E-Government

The changing nature of e-government has an impact on how it is understood. The evolutionary approach has been a strong focus of interest for both researchers and practitioners, in terms of evaluation, monitoring, and benchmarking studies (Janowski, 2015; Luna-Reyes & Gil-Garcia, 2013). This perspective implies looking at e-government as an evolving phenomenon that goes through certain development phases, from simple and rudimentary forms to more complex and institutionalised structures. Predicting changes and coping strategies for integrating e-government into existing institutional arrangements has been a central purpose of this approach.

Janowski (2015) argues that the development of e-government in western democracies during the last 20 years can be understood as an evolution-like process that develops in several overlapping stages. He identifies four crucial stages in this process: Digitization (Technology in Government), Transformation (Electronic Government), Engagement (Electronic Governance), and Contextualization (Policy-Driven Electronic Governance). In a similar study, Luna-Reyes and Gil-Garcia (2013), building on institutional approaches, look at how institutions, technologies, and organisations co-evolve through the integration of technology into work practices. Taking an historical evolution perspective on e-government, finally, Roman (2013) identifies three interdependent vectors – security, functionality, and transformation – influencing the evolution in question.

Integration of ICT into public services has been a central object of study in another prominent strand of e-government research – that which takes a managerial perspective. A managerial rationale implies a logic of simplification, measurement, and monitoring of problems in e-government. A managerial perspective is often taken here, especially for analysing the integration of e-government into local practices (Borman, 2010; Borman & Janssen, 2012; Madsen

et al., 2014; Müller & Skau, 2015). Usually these are implementation studies that most often develop models of successful implementation, in a search for critical success factors and obstacles to avoid. For example, Borman and Janssen (2012) suggest a three-dimensional model, comprising outcome-related, implementation-related, and operational-environment factors. Their model includes critical success factors such as standardised processes, common IT applications, transaction-based service offering, as well as retaining expertise, and meeting user needs. As implementation-process factors, they identify commitment of senior leadership, job redesign, comprehensive training, and an evolutionary approach to roll out. Finally, factors such as management structure, organisational structure (unified or not), and governance structure (centralised or not) are some of the critical factors relating to the operating environment. According to Borman and Janssen, some of the crucial factors identified will also be central in other cases of implementation (thus making it possible to generalise), while other factors will be more context-dependent (Borman & Janssen, 2012).

Other studies, using a similar managerial lens, have identified critical factors associated with challenges in integrating e-government into local public services. For example, IT usability, technology utility, and interoperability are critical technology-related success factors. Organisational and managerial success factors include skills, expertise, and training, as well as competent IT-leaders (Nam & Pardo, 2014). User involvement, best-practice reviews, and planning with measurable milestones are also important (Gil-Garcia & Pardo, 2005). Distinguishing between high- and low-level success factors, Müller and Skau (2015) find result orientation and process management to be critical for implementation of e-government.

Information security, a central theme in the problem of integration, is also mostly approached from a managerial or technical perspective. The security risks identified include: difficulties combining e-service solutions from different suppliers, unclear relations between customers and suppliers, loss of organisational and technical competence, tools not meeting business requirements, and security risks arising from poor product quality – just to name a few among many. Security risks and solutions are handled through models for management and implementation (Berghmans & Van Roy, 2011; Brechbuhl et al., 2010; Reddick, 2009; Zhao & Zhao, 2010), or in terms of compliance with technical standards and rules (Hulitt & Vaughn, 2010).

Summing up, the focus of these studies is on managing and monitoring the integration of ICT into public services, and on preventing or addressing technical and organisational problems (Chadwick & May, 2003; Madsen et al., 2014). Or, in the case of evolutionary perspectives, the integration of ICTs into local practices depends on the stage of e-government development and its level of complexity.

These perspectives on integration are useful in terms of providing practice-oriented advice for organisation managers. They have been criticised, however, for seeking straight cause-and-effect relationships in an otherwise much more

complex phenomenon (Bannister, 2010; Bekkers & Homburg, 2007; Meijer & Bekkers, 2015). Bekkers and Homburg (2009) identify two serious weaknesses of rational information management logics in managerial approaches to the integration of e-government through ICTs. The first concerns the difference often found in actual practice from the models of information systems management. This is linked to the argument that changes induced by ICT-driven innovation, in both private and public organisations, are mostly impelled by new ideas coming from the bottom (Bekkers & Homburg, 2009). The second weakness in this approach is the assumption that organisations act on their own. This is not in line with governance forms of steering or with current network-based structures and collaborations between actors.

In a review of the most cited papers in the field of e-government, Madsen et al. (2014), find a common pattern: a strong dominance of positivist assumptions and an over-optimistic view of technology (Madsen et al., 2014). Their findings confirm a similar pattern identified earlier by Heeks and Bailur (2007). Madsen et al. (2014) argue that, although the rigour of methodologies has improved and more empirical cases have been studied, e-government research is still dominated by optimistic and deterministic views on technologies in government and positivistic approaches to social reality.

Bannister (2010) asks in a study whether the e-government literature is too often only 'scratching on the surface'. He argues that positivistic studies searching for simplified causal relationships are not sufficient for understanding the changes happening in e-government. Instead, he argues, a multitude of major variables must be taken into account – beyond the technological and institutional factors that are the focus of existing studies. Bannister also calls for approaching all levels of government – not just the central one – in order to uncover problems at a deeper level of e-government. Such an approach, he believes, would lead to deeper and broader conceptual interpretations that go beyond a mere focus on technology (Bannister, 2010).

Translation and Interpretive Studies of E-Government

The translation perspective is an alternative view, extending the meaning of the social domain and focusing on association networks and actors as *effects* of individuals' interpretations and negotiation of meaning. Originated by Latour (1987) as part of the actor-network theory (ANT) and followed by classical writings of Callon and Law (1995) and Callon (1999), the purpose of the translation perspective is not primarily or essentially to prove causation, but rather to re-analyse the existing relationships in the light of non-essentialist and non-determinist assumptions about the social domain and (science and) technology (Grint & Woolgar, 1997). Importantly, this stance implies that the divide between

society and technology, adopted by traditional perspectives, is eliminated in ANT. Instead technology is viewed as embedded in intricate assemblages among human and non-human actants, where meanings are translated (Latour, 1991). Through these continuous translations entangling human and technology actors, the networks stabilise; and each time they stabilise the social order is reassembled. I will come back to this in the next chapter, where further detail on the translation perspective is presented.

In terms of the integration problem in advanced e-government, as formulated in this thesis, the perspective is useful when studying e-government in the making rather than as a result or a process of planned, controlled, sequential steps (Cordella & Hesse, 2015). By following what happens in and with the networks, it uncovers negotiation mechanisms, transformation of meaning, power relations, and the construction of new agency as effects of changes that involve advanced digitalisation. The translation perspective zooms in on what happens in the micro-universe of everyday work operations in local practices. Different translations of technology take place in practices of technology integration and in relations between heterogeneous constellations of actors who activate in networks.

So, what can translation studies tell us about the problem of integration? Giritli Nygren (2009a), for example, used a theory of 'organizational receipts' (Røvik, 2000) as well as 'idea translation processes' (Czarniawska-Joerges & Sevón, 1996) and discourse theory to study e-government as rhetoric and as practice in a Swedish municipality. She found that the general vision of e-government in national and EU strategies was quite different from the specific and practical one in the municipality. The general rhetorical vision was clearly connected to better service for the citizen, while the implementation vision in practice was connected to increased efficiency, cost effectiveness, and rationalisation of administrative activities and personnel. The employees in this case had difficulties translating the general symbolic content of e-government into their specific practices and the organisational changes that it was expected to cause.

Giritli Nygren also identified several different frames of understanding or interpretation of e-government in the organisation. These frames depended on the position of the actors, such as division directors, IT-directors, and lower-level administrative personnel. This organisational positioning of different frames, she concluded, was crucial in the way in which they attributed meaning to the e-government reforms. These frames of interpretation included different 'organizational and institutional memories' (Giritli Nygren, 2009a). Importantly, when these strategies were negotiated in terms of which one of them would be given interpretative precedence, it was not common that they were 'returned' to their 'author'; instead, they were assessed in terms of the most reasonable interpretation.

E-government is perceived by municipalities as a sophisticated steering technique within public administration. From these studies we learn that municipalities understand e-government through integrating it with new public

management structures (Giritli Nygren, 2009a). IT-development actors and other actors in public administration development are perceived as competing for power to influence how the administration further evolves. Giritli Nygren found that e-government was translated into the municipal organisation as a new and more sophisticated steering technique that could be combined with the existing ones. Interestingly, she argued, the municipality had adopted parts of the vision of e-government by both connecting it to, and interpreting it in terms of, the more general, established, and dominant vision of New Public Management, thus pursuing an integration of both visions in order to legitimise the adoption of the former. In this context, Giritli Nygren uncovered anxiety and resistance to a perceived IT-steered organisational trend (Giritli Nygren, 2009a). IT-development visions and organisational development visions appeared to compete with each other in terms of influencing the future development of public administration.

Translation studies have also pointed to gaps between policy and practice, involving antagonistic discourses and struggles for power. A case study by Hall (2008) draws on the implementation of ICT policy in schools and public administration, and focuses on visionary discourse analysis and Swedish ICT policy outcomes. Hall shows that decisions-making actors 'de-coupled' responsibility for implementation from the information society discourse (i.e., modernisation through digitalisation) at local level, where self-governance discourse rules.

Using Foucault-inspired discourse theory and a multiple stream approach (Kingdon, 1995) to analyse the gap, the author enters the domain of translation of meanings in different discourses. Hall concludes that visionary discourses were important for the identity-building of decision-makers, while the discourse of self-governance dominated decision-making in practice. Hall argues that the two discourses are contradictory, because information society (and modernisation) visionary discourses are state-centred. But in practice, in the municipal structures, the self-governing discourse rules when difficult problems requiring resource-intensive solutions need to be addressed.

In the same case, Hall shows that on local levels other discursive struggles also take place, between the organisational identity of the municipality harboured by chiefs of staff and division directors on the one hand, and the discourse of professionalism in schools on the other. ICT policy at this level is uncertain and likely to differ between different contexts. The most common strategy of municipalities was to create separate, internal administrative ICT-functions, instead of contributing to modernising the entire local bureaucracy (Hall, 2008). An antagonistic struggle between the discourses – information society and ICT-discourses versus self-governance discourses and professional discourses – takes place at both central and local levels of governance.

Similarly, Ulbrich (2010) study, by focusing on actors' translation of policy ideas into specific configurations of local practices, has shown how meanings of new ideas are negotiated in the adoption of shared services in the public sector in

Sweden. His study illustrated how the translation process has shaped personal and factual outcomes. The translation process involves an ideological shift from traditional decentralisation towards a networking approach, revealing dynamic negotiations of meanings of the idea of shared services as supported by management, but resisted by the affected employees.

A study by Bernhard and Wihlborg (2012) also focuses on policy and technology translation in the context of the Swedish governance set-up. They find that, in a context of powerful and independent actors on multiple levels (local, national, and European) of governance, e-government policies cannot be pushed from the top; instead they are filtered and configured through specific organisational settings by professionals in local public administrations.

In relation to a different governance context – e-government implementation in East Malaysia – Yeo and Marquardt (2015) explore the role of technology in organisational change and performance. Using concepts of actors' perspectives (Orlikowski & Gash, 1994) and technology enactment theory (Fountain, 2001), they find that actors' interpretations of technologies affected the way they used ICTs, either through constraining or enabling innovation and disruption in work practices. The different enactments in turn were important in shaping organisational structure and strategies. The findings of the two authors have many practice-related implications, including the need for enhanced accountability, for increased employee awareness, and for collective sense-making concerning technology-induced change.

Shifting the focus from technology enactment to actors' perspectives and stakeholders, we find studies that emphasise the role of the different actors involved in the implementation of e-service projects (Axelsson, Melin, & Lindgren, 2013; Lindgren, 2014). Actors examined in this research are usually technical developers, or local administrators who provide public services, or citizens who are the end users and beneficiaries of e-services. Studies of other actors – e.g., police, social workers, professional teachers, front-line workers – are rare in the surveyed literature.

In their study of a local e-government project in health and social care, Baines, Wilson, and Walsh (2010) examine the claim that professional cultures can pose barriers to change. They find that the project in question was successful at a strategic level – in terms of engaging partner agencies – but much less so at engaging local practitioners. They conclude that the e-government policy was only partially put into practice on the front line, and they find that the pressures of everyday practice were more significant than the barriers to change posed by professional cultures. In contrast, Ben and Schuppan (2016) argue in their study of police that e-government leads to a transformation of the profession, by rendering some tasks, competences, and qualifications obsolete, while expanding other competences affecting discretionary decision-making power and jurisdictional boundaries. These point to concerns about information processing and security.

A few studies take a sociotechnical stance on the question of information security, but without analysing actors' different interpretations in depth. In a study of individual attitudes, for example, Gilbert, Balestrini, and Littleboy (2004) find that trust and security were key predictive factors for users' choice of e-services rather than traditional methods.⁵ However, they do not address how individual users made sense of security and trust in the new conditions. Similarly, an Australian study of beliefs and attitudes surrounding the introduction of a national Health and Social Services Smart Card finds that questions of information security and personal privacy were at the heart of users' concerns (Martin & Rice, 2010). The authors of this study find a strong semantic relationship between personal data security concerns and privacy concerns; but, like Gilbert et al. (2004), they offer no further details about what security and privacy meant specifically for the practices of the different users.

Summary of the Review

Summing up this research review, it can be concluded that e-government research is overly focused on studying causal relationships between different factors influencing deeper or successful integration into local practices. Evolutionary models tend to present a macro-perspective, where development of e-government, as it advances, follows a trajectory towards more complex structures as more elements of e-government undergo institutionalisation. However, this perspective leaves out specificities provided by the different governance and professional contexts in local practices, as well as different actors' roles in the process. Managerial models can provide streamlined templates for implementation, but they do not take into account the different actors' interpretations, coming from their different practices in multiple networks.

Phenomena such as resistance, confusion, ambiguity, and critique are seen as obstacles to be managed and solved, rather than as a process of sense-making and a struggle for understanding and for power on the part of employees, professionals, or other actors from outside the organisational boundaries. Translation studies open up for a different insight into the challenges of advanced integration of e-government, by following the actors closely and focusing on processes as they happen on the ground – where relations are established as a result of interpretation, resistance, and the negotiation of meaning.

⁵ The sociotechnical standpoint is based on the assumption that social and technology domains are fundamentally interwoven. Knowledge, actors, organising processes, institutions, and technologies are thus ontologically shaped by both domains. As described by Russell and Williams (2002), the concept emphasizes 'the pervasive technological mediation of social relations and the inherently social nature of all technological entities'. The concept shares the same foundation as ANT and translation, by denying the fundamental divide between the two domains and by studying the dynamics of change in structures involving human and non-human entities, i.e., sociotechnical entities.

III. TRANSLATION IN GOVERNANCE NETWORKS: A FRAMEWORK FOR STUDYING TENSIONS

The main purpose of this thesis is to analyse tensions that emerge in the implementation of e-government in local public administration. I have argued so far that advanced digitalisation in public services and their administration faces a number of implementation challenges. These challenges show up in the uneven digitalisation of local public services, in resistance to change in the public administration, in a business-as-usual logic, and in incrementalism in local government. The challenge of integration involves difficulties of reforming administration practices when public services are digitalised. These challenges are further amplified by users' concerns about information security.

In this study, advanced digitalisation is conceived as a process taking place in dynamic networks that act within the confines of highly institutionalised public services. Importantly, these networks are also engaged in informal local governance processes. The different actors in these networks – governmental and non-governmental – continuously build meaning that changes the inter-subjective structures in society. Theories of network governance and translation theories are therefore useful when studying such processes. Used together in this study, they help uncover and explain tensions of advanced digitalisation in local public administration.

In this chapter, I present and discuss the overall theoretical framework used in this thesis. I analyse the above-mentioned tensions through a combined model that frames the processes of advanced digitalisation in local governments as an

outcome of translation and the formation of governance networks. First, I briefly introduce some of the more recent theoretical perspectives in network governance, against the background of the classical ones. I take the reader through these theories in order to show the change of logic from an institutional and rationalist one in the classical theories to the interpretive logic. I also present a critique of the translation theory, as well as my own view of the matter. I further specify translation as a concept in relation to the problem of the advanced integration of digitalisation, as formulated in the research problem. Finally, I discuss the relationship between the two theoretical perspectives I have adopted – network governance and translation – and I discuss my reasons for choosing them.

Network Governance: Institutions as a focus and a frame for explaining change

Governance is generically defined as process of steering society through collective action, based on common objectives (Kickert, Klijn, & Koppenjan, 1997; March & Olsen, 1995; Torfing, Peters, Pierre, & Sørensen, 2012). Network governance has been described as:

... self-organizing, inter-organizational networks characterized by interdependence, resource exchange, rules of the game and significant autonomy (Rhodes, 1997).

Governance is done in collaboration among a diversity of actors, including the governmental ones that interact in networks across organisational and conceptual divides (Enroth, 2011). Governance theories build on observations that the capacity and the role of state authorities in governing the society is changing, parallel with the emergence of well-organised non-governmental actors in society. In such a context, actors can transcend jurisdictions and cooperate across levels of government in policy-making and implementation and solve complex and messy problems (Bevir, 2011b; Rhodes, 1997; Sørensen & Torfing, 2012). As governing political systems and the challenges their face become more complex, the steering of society also evolves. New forms of governance are emerging (Bevir, 2011b). These require governing strategies to transcend traditional functional jurisdictions of government, to link people across different levels of government, to include a broader range of social groups, and to mobilise a wider variety of stakeholders (Bevir, 2011b).

In this thesis, network governance theory is used as a frame to study tensions that arise when local public administration undergoes digitalisation reforms. An important notion is thus *the actors* themselves and the specific configurations of those networks that are categorised as *governance* networks. Governance networks

are those constellations of actors who contribute to public policy-making and governance (Sørensen & Torfing, 2007). A plurality of interdependent, yet autonomous actors from the state, market, and civil society negotiate and coordinate activities in order to produce new or shape existing political visions, policies, norms, and regulations. These networks activate themselves in – and have to relate to – an institutionalised framework of norms, rules, and regulations. Their interaction in the networks and their policy outputs are thus both enabled and constrained by existing institutional, cognitive, and imaginary frames (Sørensen & Torfing, 2007).

Governance networks change over time. They are formed from organisational actors that themselves are far from stable, unified, or formalised as institutional organisations. Initially they lack an overarching and unifying objective. They also lack political or administrative hierarchical steering and control – as is the case in traditional, Weberian-type of organisations. Nor can governance networks be characterised as institutions, in the sense of tightly integrated systems of social activity and interaction rooted in legally and socially adopted rules, norms, and procedures, and in clearly defined roles and identities on the part of the actors (Sørensen & Torfing, 2007). They are instead complex and dynamic structures. They are marked by institutional ambiguity, and they lack – especially at the start – clear and commonly accepted rules, norms, and procedures, as well as any formal arrangements establishing how legitimate decisions are made (Sørensen & Torfing, 2007).

Network governance researchers have urged the need for research on factors that trigger, facilitate, or hinder the formation of governance networks, as well as reasons and conditions for networks being dysfunctional or obsolete. This is crucial for understanding how networks are formed, how they function, and how they develop (Sørensen & Torfing, 2007). The question is nevertheless largely approached from an institutional perspective. Therefore a central need is to understand the processes that lead to and trigger the construction of networks and their consolidation or reassembling of the relationships between actors, their organisations, and the institutions.

Well-established and often used theories of governance network include interdependency theory (Jessop, 2002; Kickert et al., 1997; Rhodes, 1997), governability theory (Kooiman, 1993; Mayntz, 1993; Scharpf, 1993), and integration theory (DiMaggio & Powell, 1983; March & Olsen, 1995; Powell & DiMaggio, 1991). All of them provide institutional explanations of governance networks, but differ in principle on their assumptions regarding drivers of social action (Sørensen & Torfing, 2007). The first divide concerns whether social action is driven by actors' rational calculations of cost-benefits and risks, or instead is shaped by actors following rules, norms, values, and imaginaries pertaining to individual cultures and traditions. The second divide concerns whether society is steered by necessary albeit destabilising forces of conflict (i.e., power struggles by

self-interested actors), or instead by forces of coordination (i.e., actors' abilities to cooperate for common goals).

Interdependency theory defines governance as a process of mediation of conflicting interests of different independent actors with rules and resource bases. Governance networks are a result of strategic action by actors who, while independent in one sense, are increasingly interdependent in terms of their resources and capacities. This mutual dependence arises with the need to tackle complex challenges in society that the actors cannot address individually. In this perspective, networks emerge as incremental, bottom-up activities where actors struggle to realise their individual interests through internal power struggles. Forces of interdependency underlie the formation and development of governance networks (Sørensen & Torfing, 2007).

Governability theory (Kooiman, 1993, 2003; Mayntz, 1993, 2003; Scharpf, 1997) has a similar view on governance in terms of independent, rational, and calculating actors. However, it puts a heavier emphasis on coordination and negotiation games that engage the actors. To increase the efficiency of governance of modern democratic society, horizontal coordination based on negotiation of interests is central. In order to cope with collective action problems, the actors engage in game-like collaborations, anticipating gains from joint action, resources pooling, trust, and institutional rules.

Theories from social-constructivist perspectives address limitations in the positivistic view on governance adopted by interdependency and governability theories. Some of these are integration theory (DiMaggio & Powell, 1983; March & Olsen, 1995), governmentality theory (Dean, 1999; Foucault, 1991), and the decentred theory of governance (Bevir & Rhodes, 2007). While integration theory uses new institutionalism concepts in its explanation models, governmentality and de-centred analyses move away from institutions and structures to focus predominantly on meanings and ideas.

Integration theory on networked governance is applied by political sociologists when studying decentralised and multi-level government systems. According to this theory, governance networks are relatively institutionalised. The interactions between actors are 'integrated' in a community with common norms and perceptions (Sørensen & Torfing, 2007). Governance networks are, in this perspective, constructed bottom-up in order to improve the effectiveness and legitimacy of democratic governance. These are governed by negotiated self-regulation principles. Interdependence of actors is acknowledged, assessed, and addressed according to institutionalised logics of appropriateness, which is then put at the basis of activities for coordination. The integration of actors' different identities, norms, and regulations occurs when governance networks develop their own identity, their own logic of appropriateness, and their own common reference frames. In *governmentality theory*, governance networks arise as a result of the shift of government powers to local networks. In networks, a plurality of actors are mobilised through technologies and narratives in order to follow and ensure the

governing imperatives. Or, as Sørensen and Torfing (2007, p. 19) remark, governance networks are:

...an attempt of an increasingly reflexive and facilitating state to mobilize and shape the free actions of self-governing actors.

From Institutions to Actors' Interpretations as Drivers for Action and Change

However, Bevir and Rhodes (2007) have proposed to shift the study of governance from institutions to individuals' interpretations and contingent meanings that inform their actions. Their decentred theory of governance – or, as it has been called more recently, the *interpretive theory of governance* (Bever, 2011a) – is opposed to positivistic views on governance. They question the argument that impersonal external forces, such as modernisation, interdependency, or the functional fragmentation of the modern state, are driving the shift from government through hierarchy to governance through networks and leading to a 'hollowed out state' (Bever & Rhodes, 2007). The positivistic views, they argue, reduce the diversity of network governance to classifications and correlation analyses that accommodate rationality and institutional norms.

Governance, according to the interpretive theory, is created by individuals' construction of meanings through their local practices, based on their beliefs, traditions, and responses to dilemmas. In contrast to the positivist accounts, decentring the analysis of governance and focusing it on individuals' interpretations and meanings in action means focusing on the social construction of patterns of rule. The theory aims to examine the ways individual actors act on their beliefs in relation to creating, sustaining, and changing governance patterns and structures. Therefore, it highlights the importance of beliefs, traditions, and dilemmas in governance networks (Bever, 2011a). When individual actors perceive failings in governance, or new situations that do not correspond with or cannot be accommodated by their existing beliefs and frames of interpretation, a contest of meanings emerges and gives rise to interpretation dilemmas. Change in governance is therefore driven by these contests of meanings that arise in practice and that underlie the construction of networks. As activities of governance take place in local practices, a complex and continuous process of interpretation, accommodation, and change of meanings contributes to a change in patterns of rule (Sørensen & Torfing, 2007).

The concepts of belief, tradition, and dilemma build an analytical triad in analysing governance. Tradition is here seen as a set of theories, stories, and associated practices that people inherit. These form the background, a frame of reference, against which they hold beliefs and perform actions in local practices. Beliefs are defined as interpretations of experience. When a mismatch, a conflict,

or an opposition between beliefs and tradition occurs in practice, a dilemma arises which prompts a change in the latter (Bevir, 2011a, p. 58). It is further contended that actors – people – draw on different traditions when they interpret experience and construct their beliefs. These beliefs include also perceptions of failure of existing arrangements. When these conflict with other existing beliefs, dilemmas arise. Importantly, when actors cope with these dilemmas against the background of existing frames of references or traditions, a ‘political contest’ arises over the nature of the failings and how to address them (Bevir, 2011a). Such political contests, it is argued, lead to changes in governance structures or patterns of rule. Thus the reforms of governance that arise are a contingent product of a contest of meanings in action. Understanding the processes involved in such contesting of meanings and their effects on networks and actors has also been the focus of translation perspectives.

To summarise: institutions, as we learn from these theories, are pivotal; they are shaped by actors from the bottom up; and they present frames for action and are actors themselves. These theories provide a macro-perspective on building and changing networks. Importantly, in the context of advanced digitalisation, new arrangements are negotiated, new actors are included (or excluded), and there is a certain scope for interpreting or translating new digitalisation policies and technologies in relation to existing norms and procedures. The realm of tension lies in these spaces of interpretation and negotiations of meaning in networks. It is in this realm of tension where interpretation and translation take place.

Network Governance Analysis in E-Government: Operationalisation

As noted earlier, the empirical problem in this study is framed as a network governance problem. This means that the empirical problem will be approached by focusing attention on networks that govern processes of digitalisation in public services. As the processes I am studying take place in a context characterised by highly institutionalised activities such as education and, marginally, healthcare (more on this in Chapter 4), support from the institutionalist network governance theory is valuable. On the other hand, governance mechanisms regulating the internal organisation of public administrations in local governance are characterised by weak formal institutions and informal processes (Copus & Erlingsson, 2013; Karlsson, 2013; Montin, 2016; Montin & Granberg, 2013). For grasping these informal processes, the concepts provided by the interpretive network governance theory – such as ‘individuals’ interpretations’, ‘beliefs’, ‘meanings in action’, and ‘interpretation dilemmas’ – are especially useful.

For the purpose of this study, I will make most use of the concepts of individuals’ interpretations and meanings. When surveying the empirical analyses and findings in the four papers, I will devote particular attention to how the different actors interpret the digitalisation processes in their local practices, be

these policy-related or implementation-related processes in e-government. These interpretations and meanings will be analysed in relation to beliefs, traditions, and possible dilemmas. These interpretations specifically relate to how they perceive their work practices in connection with e-services, the policies and priorities governing them, and their perceptions of the e-service in relation to their role as service provider or as user. I will seek the frames of reference supporting their interpretations. I will pay particular attention to whether any differences in perception arise in relation to their practices.

From Interpretation to Translation in Networks

In the context of advanced digitalisation and the challenges it poses in public administration, the network approach to governance in this analysis also needs to take into account the role of technology and the meanings associated with it. As digitalisation in public administration advances, technological artefacts need to be analysed in relation to their role as objects of negotiation of meaning in networks, as well as their role as agents shaping the governance networks themselves. In relation to such digitalisation challenges, network governance perspectives need to include technological artefacts in their conceptualisations of complex steering and coordination structures that extend beyond traditional actorship. Thus the framing of the analysis in this thesis will build on conceptual tools to highlight the changes that occur when technology permeates the relationships in governance networks.

When technological artefacts become part of governance networks, it is reasonable to assume that the structure of the networks and actors that are part of it become affected in some way. The theory of translation grasps how actors build these networks, how these networks change, and what challenges and opportunities technologies pose to such networks. Using translation theory (Callon & Law, 1995; Latour, 2007) for this purpose allows for zooming in on the process of network-building in their association with technologies. It allows to identify subtle configurations of power struggles and negotiations of meanings to establish facts, such as knowledge, policy directions, or changed institutional set-ups.

The concept of translation is a central concept in actor-network theory (ANT). ANT is also called referred to as the ‘sociology of translation’ or the ‘sociology of associations’. It was developed by Callon (1999) and Latour (Callon & Latour, 1981), who in turn ‘borrowed’ it from a philosopher of science, Michel Serres. They defined ‘translation’ as:

... all the negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on behalf of another act or force (Callon & Latour, 1981).

Three meanings of translation can be distinguished within ANT (Barry, 2013). One sense, of translation – the one adopted in this thesis – is associated with power and depicts a process that is inherently political. Translation in this sense is a lens for looking at political process that shape governance networks, where the ‘micro’ dimension is found in the subtleties and intricacies of the different associations. Callon and Latour (1981) understood translation as a process of transformation happening in associations of actors-mediators which exercise power over each other through alliances and negotiations of interests and roles.⁶ In line with this meaning, artefacts and ideas can themselves possess agency and thus become actors in the network.

Actors contributing to a translation process are not physical and individual agents primarily and essentially. They are rather entities in a network defined by alliances within a heterogeneous and shifting relational field. The identity of the actors enrolled in translation changes as a result. According to this view, artefacts and ideas, if they act as intermediaries, can undergo transformation while actors connect, mobilise, and build alliances with each other. On the other hand, if artefacts and ideas act as mediators, they can *make* other actors, i.e., exercise the power to make them transform allocation or the (re)definition of attributes or roles of the actors (Wihlborg & Söderholm, 2013). This contrasts with the metaphor of physical diffusion, according to which ideas and artefacts are transposed from one context to another without being altered (Sørensen & Williams, 2002).

Besides the political dimension, the process of translation integrates a geographical and a literary meaning. Latour (1987) used the concept to describe movement in (or transformation of) space, as seen in his analysis of the circulation of records in the development of geographical maps of distant countries (Barry, 2013). In his example, the use of compasses and similar technological artefacts enabled actors at the centre of the empire to visualise and to ‘act at a distance’. This enabled them to enrol peripheries into more viable alliances. By this analysis, the alliance-building relationship rests on another association – that of knowledge and empire. Translation, in the literary sense, is a process of replication and differentiation at the same time – of the text from its original. This meaning of the term in ANT was connected to the observation that a social process of translation always involves differentiation and the possibility of invention (Barry & Thrift, 2007).

However, it is worth emphasising that ANT is a complex theory that has developed a variety of applications, since the classic writings of Callon and Latour from the 1980s. For example, Star and Griesemer (1989) application of translation theory in the sociology of information has led to their concept of ‘boundary objects’ as instruments for accommodating tensions. Applications of ANT in organisation studies have been led by Czarniawska and Hernes (2005). One of the

⁶ Not to be confused with causation between variables. Causality in a translation process is reversed, meaning that what is traditionally studied and measured as explanatory factors are in ANT to be explained themselves. More on this, see Latour (2007).

results of their ANT application suggested studying ‘action-nets’ rather than organisations and reversing the time perspectives in their analysis (Czarniawska, 2004). But for the purpose pursued in this thesis, only the translation concept will be used as a main analytical tool. It is translation in terms of a process of change or transformation – involving interpretation and negotiation of meanings of technology in networks of actors – that I aim to apply in my analysis of the empirical material.

Translation is a process whereby actors negotiate and delimit their identities, the possibility of interaction, and the limits of their action space (Callon, 1999). A new network starts with a process called *problematization*. It occurs when some actors start building relationships with other actors through negotiation of identities, roles, and interests. Some of the actors thereby form their identities in such a way as to establish themselves as so-called ‘obligatory passage points (OPP)’ in the network (Callon, 1999). The purpose of the OPP, as its name suggests, is to condition the relationships, the actions, and the viability of the network. The OPP is defined as a social construction, as the case of the researchers’ programme in Callon’s scallop case.

In the phase of *intressement*, the identities of the actors and the relationships between them are to be tested (Callon, 1999). It is in this process that allies are ‘locked into place’. Their actions envisage ‘trials of strength’ in relation to the target actors that result in the ‘solidity’ of the problematisation process described above. Thus, *intressement* is ‘the group of actions by which an actor attempts to impose and stabilise the identity of the other actors it defines through problematisation’ (Callon, 1999). In *intressement* the actors define the identity, goals, and preferences of their allies, who in their turn are involved in problematisation of other actors. Following from this is another characteristic act of *intressement*, which is seen when actors build artefacts, or devices, that can serve as intermediaries between dominating actors and those who strive to define their identities differently.

Intressement can fail, but if it is successful it will result in an *enrolment* process. Enrolment involves the process by which the distinct roles of actors are defined in relation to each other, and mechanisms of role coordination are established. If enrolment succeeds, the actors accept their designated roles and the governance rules in the network. This takes place through multilateral negotiations and strength and resistance trials.

If and when enrolment succeeds, the network will pursue a *mobilisation* process where representatives of groups or ‘populations’ and their spokesmen are established. Speakers are authorised by a series of intermediaries from the different populations to represent and speak in their name. The speakers in their turn use artefacts (e.g., graphics representations, maps, and tables) to operate with information and negotiate and decide in the name of the populations that they represent.

Critique of the Translation Approach in ANT

Before proceeding further, it is important that we be aware of the limitations and weaknesses of this perspective. Barry (2013) argues that the theory is based on a faulty assumption that actor networks operate in a world without boundary constraints – without divisions or inequalities in resources:

The world of actor-network theory appears to be a world in which all translations are in principle possible, and structural inequalities are flattened. It is a world of circulating references, fluids and flows, in which rigid borders do not exist, or are unimportant and untheorised.

This critique was met by the argument that grasping the process of network formation as it happens, where different turns and scenarios can develop, is one of the underlying purposes of ANT (Grint & Woolgar, 1997). The assumption invoked by Barry (2013) is true if the perspective taken on the network is a macro-perspective aiming to establish a single static picture of the structure under investigation. By contrast, the translation lens zooms in on the process of how these structures change, transform, or emerge. This last comment is important to have in mind, especially as in this thesis network governance theory shows a macro-perspective, while translation provides a micro-perspective on the same problem.

One underlying ANT feature is that translation in actor-networks involves associations between both human and non-human actors; this is also known as the ‘supersymmetry problem’. This attribution of actorship to non-human subjects has been fiercely questioned by among others Winner (1993) and Collins and Yearley (1992). Winner argues that objects or things do not inhabit political will and therefore cannot be reasonably considered participants in decision-making (Winner, 1980), as they do not possess intentionality. But this is a misunderstanding of the notion of agency and actorship on the part of those making the critique. According to ANT, agency is achieved through associations between human subjects and non-human objects. Such agency can indeed exercise intentionality in activities. In other words, intentionality lies in the agency that is acquired by associations of actors. In this thesis, I choose not to focus primarily on the supersymmetry dimension, as the focus of my analysis lies primarily on translation as the interpretation of meanings and artefacts among human actors.

Another objection is that ANT follows actors’ choices in different translations, but it does not pay attention to cultures and practices. However, any activities that actors perform are done in the context of existing cultures and practices (Sismondo, 2010). Practices, according to this objection, are accepted patterns of action and styles of work, while cultures define the scope of resources for action. Practices and cultures provide the context and the structure for translations. But these distinctively human and subjective constructions are left uncovered

according to the critics. Trust is essential in both practices and cultures, and ANT fails to take it into account. The main purpose of this thesis, however, is to look at translation processes as they occur in local practices.

A Constructivist Approach to Advanced Integration of E-Government

In order to grasp how actors translate digitalisation in their local practices, I will use 'translation' as my main analytical tool. In broad terms, translation is a concept that builds on the notion that actors, through interpretations of their social reality, reconsider their accustomed meanings, change their meanings, and construct new meanings, actions, and relations in their networks. Therefore, integration challenges of ICT in an advanced e-government are here analysed through a constructivist perspective. This approach came in the e-government field as a response to the pervasively used positivist approaches (Heeks & Bailur, 2007).

The constructivist approach aims to study meanings attributed to work processes, organisational arrangements, and technical artefacts with the purpose of finding out how meanings are constructed in socio-technical interactions. Knowledge resulting from this approach can eventually contribute to a more in-depth understanding of processes of e-government and related challenges (Bijker, Hughes, & Pinch, 1987; Meijer & Bekkers, 2015). Authors like Barry (2001) and Bevir and Rhodes (2007) understand intentionality, meanings, and discourses as constitutive parts of human action. From this perspective, advanced integration of e-government through digitalisation of public services arises out of meaningful and intentional actions that are contingent on historical, linguistic, and normative contexts.

According to a constructivist approach, actors build and make sense of their social reality in a process of transforming or translating subjective judgements into objective facts, which eventually are established on a group level as 'institutional facts' (Searle, 1996). It is when a collective human agreement is reached – when individual subjective judgements of reality become objectivised through the act of collective agreement – that an institutional fact is established. According to this view, the realms of education, public administration, and power are shaped and transformed through social facts constructed in layers of translation by the actors – individual and organisational. Building on this, the analysis in this thesis portrays such processes of translation not as smooth and straightforward, but instead as filled with tension.

Knowledge and institutions are constructed in networks of actors (Callon, 1999; Callon & Latour, 1981; Latour, 2007). Actors, in this perspective, include humans, organisations, and artefacts such as technology. These actors shape and transform each other through their mutual associations. Agency, knowledge, and institutions are thus both subjects of networks, objects of negotiation of meanings,

and effects of network-building. Networks are formed through a translation of knowledge and meaning among the actors enrolled in them (Latour, 2005). Through such processes, knowledge and meaning are translated: they are unpacked, remade, or even reframed to fit into the formation of a network (Wihlborg & Söderholm, 2013).

The inquiry in this thesis is based on the understanding that collective human agreement on the institutions of an advanced e-government is mediated by networks of actors who translate the ideas of e-government through their local practices. However, until an agreement is reached (if it is reached), the process involves various tensions, conflicts of interest, struggles for power, alliances, exclusions, and ambiguities. It is the ‘translation’ process that takes place in networks that I choose to focus on. Therefore, I embed translation theories in the practice of network governance and use some of their analytical tools to analyse the social reality of e-government. In the next section, I proceed to operationalise the translation concept in relation to the research object.

Translation Analysis in the Implementation of E-Government: Operationalisation

In this study, I use the concept of ‘translation’ to study the implementation of digitalisation in local public administration. Translation is understood here in terms of a process of transformation of meaning that involves interpretation and negotiation of meanings of digital technology in networks of actors. In line with Callon and Law (1995) analysis, I understand translation processes as involving a political dimension in terms of struggles for power, alliance-building, and the representation of interests among networks of actors. For the purposes of this study, I operationalise the concept of translation (as applied to the problem of digitalisation in public administration) in terms of:

- Actors
- Interpretation of technology
- Network-building

Translation Actors in Public Administration

One important delimitation that concerns actors will be done in this analysis. As actors in such translation processes also can involve hybrid agency that is formed of sociotechnical associations, I will choose to focus on the social actors (human and organisational), and more specifically on their interpretations in relation to their practices. Depending on the structure, actors who are involved in translations can be individual persons, but also sections or branches within local administration or even the entire local government. Municipal officials from local public administration are the actors who have a central role in the delivery of e-services.

These actors have different backgrounds, interests, competence and resources to act in organisational structures steered by laws and regulations of local public authority, but also different professions. Other actors of translation come from outside the public administration, but are connected to it through the e-services. These are citizens of the local community, associations from the civil sector representing different interests. These actors connect to the former ones through the technologies involved in e-government. In a translation process, actors redefine their identities, roles and interests in relation to a problem, new information or a new situation.

Translation as Interpretation

Translation is the key process under focus in this study. Actors translate ideas and artefacts in order to make sense of other actors and associate with them in different structures. Digitalisation in public services involves use of information technologies by citizens, by public authorities, by bureaucrats and by politicians. Municipal officials who deliver and administer services, in a context of institutional and professional regulations, need to understand what the introduced digital technologies mean for their work practices. They will consider what the specific ICTs mean for their relations with the peers from public administration, and what the e-services mean for their relations with the citizens. Depending on their knowledge, interest and experience of information technologies, they will build meaningful associations with them. Such translations will reflect how they use the technologies and what possibilities and challenges they connect to them.

Translation as Network-Building

Through the process of translation, these actors build various relations, associating and connecting with each other or with new actors in different networks. The intentions of the actors performing translation define whether it is a matter of power (building obligatory passage points, alliances and defining the roles of others) or a matter of knowledge (sense-making), or both. Importantly, networks in public services must build on trust if they are to be legitimate.

A problematisation process takes place where actors in local government perceive new information, a change in old information, or a lack of information that results from the introduction of information technologies in their practices. In a problematisation process, through translation of meanings, these actors engage in a reconsideration of their identities and start building relations with other actors in the network. The change in such a network are conditioned by one or several obligatory passage points. In my case, such an obligatory passage point can be found in the regulations and other institutions governing the education in Sweden.

Finally, it is relevant to ask whether it is possible, based on their ontological and epistemological stands, for network governance analysis to be combined with translation analysis in order to produce any new or extended insights on the

mechanisms of governance networks or advanced integration of e-government. This is indeed a theoretical challenge. Institutional network governance theory grasps the formal configurations and the principles of governing problems of implementation. But it still does not shed much light on the underlying, emergent and informal processes of translation that form and shape the relations in these networks. Among network governance theories, it is the interpretive network governance theory that provides useful concepts to approach such processes.

On the other hand, translation analysis will aim to open the dimensions that are left outside by the institutional network governance lens. Translation analysis zooms in on the informal, messy and hidden processes that underlie formal network structures. By using the concept of translation, one puts the association of actors and the construction of meaning under a magnifying glass. It is by analysing translation processes that we can learn why the relations in networks become stable, change or fail.

How Can Tensions Be Identified and Analysed?

Importantly, when one looks through the lens of network governance theory, with an interpretive focus and through the lens of translation theory in ANT, it is possible to identify and study tensions that are inherent in change or transformation processes in network structures. Analytical concepts from these theories take account of differences in actors' interpretations and contests of meanings, interpretation dilemmas, perceptions of failure (from network governance), associations of meaning, problematisation, obligatory passage points (from translation theory) – and lead the analysis towards a realm of tension.

Consequently, the tensions analysed in this study should be understood as tensions underlying change in structures such as governance networks and implementation networks. More specifically, these tensions are found in processes of advanced digitalisation in public administration. I describe and analyse these tensions using concepts such as users' concerns, contests of meanings, and dilemmas – in a context of ambiguous institutional and organisational arrangements perfused with informal governance arrangements. With the help of such concepts the tensions reveal themselves as a state of striving, pressure, and unrest existing in networks of actors.

Therefore, in this study the tensions under focus are defined as a state of latent striving, unrest or pressure in networks of actors undergoing change. The tensions lie in contests of meaning, in mismatch and opposition between old and new beliefs, in perceptions of failure or limited knowledge, or in dilemmas that arise in the practice of digitalisation. When several related tensions can be observed in a specific policy or implementation process in a network, we can talk of a *field of tension*. A similar term is 'tension-laden context', mentioned by Ritala et al. (2017), or tension-laden process.

Tension approaches can be found in the literature on organisation studies. These focus on institutional isomorphism (DiMaggio & Powell, 1983), strategic dualities and contradictions in organisational processes (Smith & Lewis, 2011), dilemmas, dialectics and paradoxes (Birkinshaw, Crilly, Bouquet, & Sun Young, 2016). In a study of R&D networks, Ritala et al. (2017) discuss dialectical and paradoxical tensions related to knowledge exchange and network coordination mechanisms. Karlsson and Montin (2013) study goal conflicts in Swedish local governance arrangements. Thoresson (2015) finds and discusses an array of tensions characterizing energy assemblages when energy issues are translated and negotiated in practice.

In relation to the purpose and the research problem in this study, the three main research questions studying tensions are operationalised in the following way:

- What tensions can be observed in practice when local public administration is undergoing advanced digitalisation?

What expressions of latent striving, unrest or pressure can be discerned in networks that are governing or implementing digitalisation in local public services? How are these expressions informed by actors' interpretations of e-services and information security? Are there any differing interpretations associated with the practice? What specifically are the actors concerned about?

- How can such tensions be comprehended through the perspectives of network governance theory and translation theory?

How are these tensions expressed by the different actors? What is being questioned? Are there any meanings that are questioned? Are there any actors in the network that are being questioned? Where are these interpretations rooted in? What is made an obligatory passage point in the structure? How are these interpretations associated with the actors' concerns? What meanings are associated with these concerns? How are these meanings associated with dilemmas? What is being perceived as failing in the governance structure? What is being perceived as failing in the practice structure? What is the failing associated with in these meanings? Who are the actors associated with it? What are the perceptions and the meanings associated with the obligatory passage point?

- How can such tensions affect networks and advanced digitalisation in public administration?

How can challenges of advanced digitalisation in practice be understood using knowledge about such tensions? How can the challenge of integration be

understood in the light of such underlying tensions? How can change in governance networks be understood in the light of such underlying tensions? What practical knowledge can be constructed out of such an analysis of tensions?

IV. THE SWEDISH CASE

Sweden presents a dynamic and favourable context for advanced e-government. In terms of coverage, accessibility and use, the proportion of households with internet access is steadily increasing, reaching 91% in 2015 (above the EU average of 80%) (EUROSTAT, 2015). Enterprises' access to the internet was 98% in 2015 (EUROSTAT, 2016b). 91% of individuals used the internet at least once a week in 2014 (EUROSTAT, 2016a), which is more than 20% higher than the average for the EU. 73% of individuals used the internet for interacting with public agencies, which is 30% higher than the average for EU countries (EUROSTAT, 2016c). In 2015, 69% got information from public agencies via the internet, while 42% downloaded official forms and as many sent filled-in forms to public using internet in 2015 (EUROSTAT, 2016c). Over 3000 e-services are offered by government and local authorities. Also the adoption of systems for making public data available, so-called open data is provided by 40% of government agencies and 8% of local authorities (municipalities) (Open Government Partnership, 2014; SALAR, 2014a).

I will argue that in the Swedish case, despite a favourable and dynamic context, advanced digitalisation of public services is not uniform across the different levels and sectors of government. Challenges of e-government relate to decentralised power of decision across levels of government, fragmented administration organisation as well as variations in size and capabilities among the regions and municipalities. In this chapter, I intend to describe the context of e-government in Sweden and to provide further elaboration on the Swedish case. In the following text, I first briefly present the Swedish governance model. Then, a short historical presentation will focus on the milestones of e-government. Then will follow a presentation of the main policies and agencies governing digitalisation. The chapter will close with a reflection on the Swedish digitalisation challenges in e-government.

Swedish Local Governance and the Self-Government Principle

The Swedish governance model presents a combination of a centralised unitary state and strong, self-governing local government. The Swedish unitary state builds on a tradition originating in the 16th century. It relies on a powerful Parliament (*Riksdagen*), a central government that steers through a constellation of agencies, and a universalistic welfare model. The central power is combined with a strong subnational government of locally elected representatives and robust, professional public administrations. These are in charge of providing key welfare services and have autonomy to collect taxes and design policies according to specific local conditions (Granberg, 2008, p. 364). This model of governance has been described as *governance by (local) government* (Davies, 2002). Sweden, like its Nordic neighbors, has built up and relies on a complex welfare system. In order to sustain the quality, the viability, and the legitimacy of the welfare schemes over time, Sweden is keen on securing a well-functioning public administration (Tallberg & Bergmann-Winberg, 2010).

The Local Government Act (LGA) (*Kommunallagen* 2004:31) established the decentralisation model in 1862. The act has been amended subsequently – in the 1950s, 1960s, and 1970s – as the welfare state became more complex and the legal, financial, political, and professional responsibilities of local governments increased in relation to it (Montin, 2016). NPM reforms and the marketisation of local public administrations characterised the 1980s and 1990s transformations in local government. Decentralisation of primary and secondary education was set down in the LGA amendment at the beginning of 1990s (LGA, 1993). However, this decentralisation tendency was paralleled with development of new mechanisms for central government control and supervision (Montin, 2016, p. 368).

Such a multilevel government system, with powerful central and local governments, based on complex organisations, is imbued with governance tensions. One central tension lies at the intersection of the fundamental principle of equal access to high quality services throughout the country and the principle of local self-government, according to which local government chooses political priorities and adapts national policies to local needs and conditions (Karlsson & Montin, 2013). At the same time reforms from the last decades, among them NPM and digitalisation, brought in new organisation forms and values that create a basis for tensions and conflicts (Hall, 2016; Hedlund & Montin, 2009).

Local autonomy of the municipalities and counties is based on the self-government principle. It is considered a prerequisite for representative democracy and the legitimacy of policy decisions. The principle is stipulated in the Local Government Act (LGA, 1991) and is backed up by the Constitution (Instrument of Government, Ch. 14). Nevertheless, the principle has no clear definition and is an object for negotiation between political parties and between SALAR (the Swedish

Association of Local Authorities and Regions) and the central government (Montin, 2016).⁷ More recent amendments to the constitution from 2010 further clarify the decision-making powers of the local authorities and their right to collect taxes. Importantly, two fundamental mechanisms – financial equalisation and the system of proportionality – support the principle of self-government in order to cope with differences in size, socio-economic level, and demographic conditions among the various municipalities and counties. By redistributing resources from richer regions and municipalities to poorer ones, these mechanisms alleviate the tensions described above, although they have also been criticised (Montin, 2016, p. 369).

Local government in Sweden includes municipalities and county councils or regions, which overlap territorially but have different responsibilities. In certain cases, the county councils have acquired broader responsibilities such as regional development, which makes them regions. There are currently 290 municipalities and 21 county councils in Sweden (SALAR, 2016c). Municipalities and the county councils are autonomous authorities. Both county councils and municipalities are governed by councils (elected political assemblies), executive committees, and standing committees (Montin, 2016).

While the county councils' core responsibility is health and medical care, the municipalities decide over a wide range of welfare services such as primary and secondary education, social care, elderly care, and land and urban planning. The organisation of activities, both in municipalities and in counties, takes a variety of forms, among which the most common are: the sectorial model (e.g., education, culture, construction), the functional model (e.g., purchaser-provider) and the joint committees model (Montin, 2016). The latter model, based on intermunicipal cooperation, is especially common for small municipalities that need to pool their professional resources to cope with increasing demands posed by national policies and regulations.

Current regionalisation processes in the country are conducive to larger, stronger regions. This has implications for the roles of the municipalities in local governance and their relations to the counties. A redrawing of geographical configuration of these regions will have further implications, especially for the local governments' self-government and legitimacy (Johansson, Niklasson, & Persson, 2015). New dependency relations, resulting new networks, new political problems, new types of relations, and new channels for acquiring legitimacy for political action that emerge between the new regions and the municipalities will be some key challenges for local and regional authorities to address (Johansson,

⁷ SALAR functions both as an employers' organization and as knowledge producer to enhance evidence based policy-making. It represents local and regional governments in relation to the national government and authorities (SALAR, 2016a). It has played an active role in the constitutional revisions of 2010 concerning local self-government principle and proportionality principle, as well as introduction of specific procedures of local consultations in matters that concern or affect the local government (Feltelius, 2010).

2010). In this fluid new set-up, questions of democratic legitimacy in terms of difficulties for the actors both inside and outside the government to influence and monitor decision-making and require accountability from responsible politicians and bureaucrats become reactualised.

Importantly, although initiated, monitored, and evaluated by the national government, so-called third-generation policies (Hedlund & Montin, 2009), digitalisation policies are to be anchored in the councils at regional and local tiers of government. Their implementation relies greatly on actors' knowledge and participation from different levels of public administration, and from actors across the different sectors of the economy and civil society. Importantly, implementation of these policies have been made a central task for the county and municipal administrations.

Short History of E-Government in Sweden

Sweden joined the internet and digitalisation wave already in the 1960s (Johansson, 1997) and initiated the discussions on common Nordic standards for mobile phone communications, NMT (*Nordiskt mobiltelefonisystem*) (SOU 2015:65). The history of Swedish e-government can be traced back to the 1990s, with the project 'Government eLink', launched in 1997 (European Commission, 2015). It was supposed to define the standards for secure exchange of information among government agencies, both among themselves and in relation to citizens.

As a part of late 1990s modernisation reforms in public administration, the central government established the centrality of ICTs to improve public services (Prop. 2004/05:175). It emphasised the country's determination to be a leader information society using ICT for growth, employment, regional development, democracy, and efficient public administration. Also in this period the concept of 24/7 Agency (Prop. 2001/02:9) was launched, and the 'Public eForum', – a cooperation council for government agencies – was created (European Commission, 2015).

During the first decade of the new century, the government initiated revisions of laws and regulations in order to remove obstacles to electronic communication and digital handling of documents (Prop. 2009/10:193). Electronic signature started to be used by the Patent and Registration Office, making it possible to handle cases online (European Commission, 2015). In 2003, the government appointed the IT Policy Strategy Group and 24/7 Agency Delegation (Regeringskansliet, 2006; Skr. 2004/05:48)⁸. The former had an advisory role, while the latter was tasked with promoting the development and use of electronic services in the public sector. In order to further enhance public e-services, the

⁸ *Regeringskansliet* is rendered as the Government Offices throughout this text. The reason for the different names of the same source is that, when the document is in English, I refer to the Government Offices; whereas when the document is in Swedish, I refer to Regeringskansliet.

government launched 'Infra Services' framework to provide government agencies with standards, infrastructure services and interoperable solutions.

In 2004, the Swedish Agency for Public Management (*Statskontoret*) developed and introduced a series of guidelines concerning cost-benefit analysis of ICT projects (Statskontoret, 2005:6). In 2005, these were followed by models for assessing progress and performance of e-government that aimed to follow up e-government projects in the public sector. Also, in 2005, a new ICT policy was introduced by the government. This new policy succeeded the bill of 1999 ('An Information Society for All') and declared anew the country's ambition to be a leader of information society (European Commission, 2015). By the end of 2005, Sweden was one of the first countries in Europe to introduce biometric passports and ID cards. National Guidelines for Public Sector Websites were developed in order to support public administrations with procurement activities, development, and website maintenance.

In 2009, the E-delegation (*E-delegationen*) was established by the government to lead and to coordinate across government agencies the implementation of the Action Plan for e-government (Dir. 2009:19). The main aim was to contribute to creating conditions for developing user-friendly interfaces for e-services for citizens and businesses. In 2010 the Swedish Migration Board (*Migrationsverket*) launched electronic services for visas, residence permits, and citizenship applications. The same year the Social Insurance Agency (*Försäkringskassan*) campaigned for raising citizen awareness of the existing electronic service 'My Pages', enabling them to manage most of their cases and communication with the agency online. The following year, the Swedish Employment Agency (*Arbetsförmedlingen*) introduced the mobile application for the existing online job database 'Platsbanken'. And during the same year, 2011, Sweden joined the Open Government Partnership committing to continue and promote open government reforms (Open Government Partnership, 2014).

In 2011 the government also presented the new IT-strategy, 'ICT for Everyone – A Digital Agenda for Sweden' (dnr N2011/342/ITP) and established the Digitalisation Commission (*Digitaliseringskommissionen*) to support it (Dir. 2012:61). The new strategy integrated IT initiatives, goals, and challenges in all policy domains (Government Offices, 2011). Also in 2011, a test bed for the eID infrastructure was initiated by the Swedish E-Identification Board (*E-legitimationsnamnden*) (Dir. 2010:69).

In 2012, regional and local authorities engaged in developing their digital agendas (SOU 2014:13), while SALAR launched the 'Centre for e-Society – CeSAM' to stimulate development of online public services in municipalities, counties, and regions (SALAR, 2014b). By 2013, most of the counties and municipalities had launched electronic welfare services addressing primary and secondary education, housing, or elderly care, and initiated strategies for open data (SALAR, 2013). In 2014–2015, the work focused on measuring and evaluating ongoing e-government initiatives and responsible agencies. This has led to the

development of digitisation monitoring tools such as digitalasverige.se and platforms for open data, such as oppnadata.se (European Commission, 2015).

Current National Policies and Agencies in E-Government

Currently, the main strategic objectives and principles of e-government are stipulated in three main policy texts. These policies are: the Open Government Partnership Action Plan, OGP (2014–2016), the Strategy for Collaborative Digital Services in Government Administration, ‘Putting the citizen at the centre’, and the Swedish Digital Agenda. Regional and local strategies, including digital agendas, build basically on these, in addition to their respective growth programmes and SALAR’s Strategy for e-Society (SALAR, 2011b). Importantly, these policies are governed by the Swedish principle of public access to official records (Freedom of the Press Act, *Tryckfrihetsförordningen* 1766). This is the fundamental democratic principle that gives the general public and the media access to official documents on the work of the parliament, government, public agencies, and public administration (Ch. 2, Art. 1, Freedom of the Press Act, 1766).

Through its current OGP Sweden aims to meet two major challenges: more effectiveness in managing public resources, and more corporate accountability (Open Government Partnership, 2014). In order to achieve more effective management of public resources, the government commits to promoting citizen-centred government administration reforms. For this purpose, it also commits to further developing the work on re-using public administration documents (Open Government Partnership, 2014). Through ‘citizen-centred’ administration reforms, it aims to bring added value primarily for citizens. Values such as transparency, accountability, and accessibility in public administration, as well as effective management of public finances, are for the benefit of citizens. It is on such values that the legitimacy of government rests (Government Offices, 2012). The OGP further emphasises that digitalisation of services should be rooted in citizens’ needs for simple and secure use of e-services.

In the Swedish Digital Agenda, the government formulated the aim to become the best country in the world in exploiting the opportunities of digitalisation (dnr 2011/342/ITP). The Agenda established four strategic areas for action: easy and secure digital services for everyone; varied and adjusted digital services that create benefit for citizens; an accessible, open and robust digital infrastructure; and deeper integration and exploitation of IT for the development of the society (Government Offices, 2011).

These policies are further developed, implemented, and followed up by a constellation of agencies. The Swedish multi-level model of government entails e-government actors with main roles and responsibilities at national, regional, and municipal levels. At the national level, the Ministry of Enterprise and Innovation

shares with the E-Government Delegation the responsibility for policy and strategy. The following agencies share the responsibility for coordination of activities: the Swedish National Financial Management Authority (*Ekonomistyrningsverket*), the Swedish Association of Local Authorities and Regions, the Programme for e-Collaboration (*eSamverkansprogrammet*), the Legal, Financial and Administrative Services Agency, and the National Procurement Services (*Kammarkollegiet*). Finally, responsibility for implementation lies with the central government bodies. In addition, a range of national institutions such as the Swedish Agency for Public Management (*Statskontoret*), the IT Incident Centre, and the Swedish Data Inspection Board support the actors above. At the regional and local level, in accordance with the principle of self-government, it is the Regional Councils (*Regionfullmäktige*) and Municipal Councils that are responsible for developing, coordinating, and implementing strategies and policies on digitalisation (European Commission, 2015).

Regional Digital Agenda for Östergötland

The region of Östergötland was one of the first to align its digitalisation strategy with the national and European digital agendas. Regional actors in the county of Östergötland signed a letter of intent in June 2012, wherein they committed to sharing the vision stated in the National Digital Agenda (Länsstyrelsen, Regionförbundet Östsam, & Landstinget i Östergötland, 2013). The three actors, also called ‘signatories’ – the Regional Development Council Östsam, the County Administrative Board and the County Council – committed to formulating a Regional Digital Agenda in cooperation with actors in commerce, industry, academia, and civil society.

The Regional Digital Agenda connects to the region’s specific priorities for growth and development. More specifically, the priorities are: generating processes supporting all the municipalities in the region, and promoting opportunities for high quality of life for the inhabitants. Other priorities targeting growth and attractiveness of the region are: increasing and consolidating the region’s urban core, and stimulating a dynamic entrepreneurial and innovation climate (Länsstyrelsen et al., 2013; Regionförbundet Östsam, 2012). The agenda has five focus areas: broadband infrastructure, digital competence and participation, digital services for the public, digital support within the public sector, and IT for business and entrepreneurship (Länsstyrelsen et al., 2013). Each of the focus areas result into specific priority measures for the period 2014–2016 that are connected to the different strategies from the Regional Development Programme (Regionförbundet Östsam, 2012). Seeking further alignment, the agenda calls for respective parties to develop goals, strategies, and action plans in each of the five focus areas. At the same time, the document primarily serves as an orientation policy document.

Why Östergötland is an Interesting Case

The region of Östergötland, in southeastern Sweden, has 430,000 inhabitants. This makes it the fifth largest region in the country. The region comprises 13 municipalities that vary considerably in size. The region has a pluricentric urban core, consisting of the towns of Linköping and Norrköping. Both towns have about 150,000 inhabitants each. The smallest municipalities in the region, Ydre and Ödeshög, are rural centres with only a few thousand inhabitants each. The region is a dynamic economic and research environment with a large university and a number of renowned research-intensive companies such as SAAB, Ericsson, Siemens, and Holmen Paper. Together with regional and local authorities, these are the largest employers in the region (Ekonomifakta, 2017).

The region's demographic trends reflect the trends and challenges characteristic of the country as whole. Population growth and age structure varies considerably between the different parts of the region, with an aging population and resulting social-economic limitations in the long run – developments with which the region needs to cope pro-actively (Regionförbundet Östsam, 2012). Especially challenging is the situation of the so-called 'shrinking municipalities': Kinda, Valdemarsvik, Ydre, Åtvidaberg, and Ödeshög (Erlingsson, Syssner, & Ödalen, 2015; Syssner, 2014). The problem of an aging population is expected to affect how services – both public and private – will be organised. Ensuring a high quality of services is central from a regional and local development perspective, as it is a precondition for inhabitants' staying and working versus moving to such metropolitan municipalities as Stockholm, Göteborg, and Malmö (Erlingsson et al., 2015).

In terms of use of local e-services and mobile applications, the region of Östergötland includes municipalities that rank among the highest (Linköping and Norrköping, second and third in the ranking respectively) and among the lowest (Åtvidaberg, Ydre, and Kinda municipalities, fifteenth in the ranking) (SALAR, 2014a). While there is a general increase in cooperation among the municipalities in the development of e-services, there are no significant differences in the degree of cooperation between the highest-ranking municipalities and the lowest-ranking ones (SALAR, 2014a).

Analysis of this general trend should be further nuanced in the case of Östergötland, because of the variations characteristic of the region and the resulting consequences for the availability and forms of public services for its various inhabitants. More detailed knowledge of the processes that organise digitalisation of services and their effects should bring further insights for practitioners and policy-makers. This should concern implementation problems, policy shortages, and strategic action both for the front-runner municipalities and for the laggards in e-government.

ICT for Administration in Education

In Sweden, it is the local authorities that are responsible for managing services connected to compulsory education. Public schools are run by municipalities; independent or free schools (*friskola*), are run by private companies and foundations (The Education Act, *Skollagen* 2010:800)⁹. Schools make up an essential part of local public services for inhabitants. Digitalisation of schools involves ICT integration both in pedagogical work and in all related administrative work. This study focuses primarily on the digitalisation of administrative work in schools.

The need for an IT infrastructure in schools emerged with the breakthrough of personal computers and their increasing use in individual households during the 1980s. Financing for ICT initiatives in compulsory education was scant, and the use of computers and software was limited to computer classes, which did not affect in any way the content and form of classes (Jedeskog, 2005), or of administration work. With the ambition of creating modern schools for the knowledge society, the Swedish Knowledge Foundation (*KK-stiftelsen*) initiated so-called 'light house' projects in 50 municipalities in the 1990s, with the aim of creating best practices of ICT use in these schools that could show the way for the rest (Nissen, 2002).

By the end of the 1990s, a broader initiative laying the foundations for schools' IT infrastructure – so-called ITiS (IT in School) – had been introduced, involving all of the municipalities. 70,000 teachers participated, learned, and became engaged using computers in their classes. Combined with the commitment by the state to ensure secure and functioning technology, this has led to wider integration of ICTs in schools (Jedeskog, 2005). Interestingly, it seems that administration of school work has gained most from these initiatives. Follow-ups of the early ICT initiatives in schools have found that IT integration took place mainly and most successfully in administration and communication, rather than in teaching and learning activities (Hansson, Löfström, & Ohlsson, 2003; Löfström, 2004; Selander, 2005).

A higher professionalisation of teachers and other school personnel – accompanied by increased demands for systematic measurement, evaluation, and reporting of pupils' school progression, as required by the new Education Act (Utbildningsdepartementet, 2009/10:165) – involves the advanced use of IT systems for teaching and pupil administration. Digital platforms are currently used in schools to manage pupils' individual development plans and pupils' written assessments. In a study by SALAR, 72% of school principals reported having personnel with responsibility for administrative support for the IT system of their

⁹ Independent schools, like municipal schools are publicly funded based on a voucher system. They follow the same regulatory framework as municipal schools, among others the principle of public access to records, as well as national curricula and syllabuses. They provide education for compulsory school and upper secondary school. In contrast to municipal schools, independent schools in Sweden may be run for profit.

school; 70% reported that their staff used digital tools for pupil documentation and evaluation; and 75% reported using digital tools for scheduling and attendance registration (SALAR, 2015). Systems for secure login and identification for involved actors (such as eID) are considered viable solutions for secure interaction between individuals and local authorities. The transfer of sensitive information about pupils through teaching and administration platforms is increasing.

ICT for Administration in Healthcare

In Sweden, it is the county councils or regional councils which are responsible for managing healthcare services. The patient-centred services are based on values such as patient safety, accessibility, and high quality standards. The purpose of digitalisation is to help raise the quality of services, ensure more equal healthcare, and promote more efficient use of resources (SALAR, 2016b). Population, aged 16–74, use of healthcare-related digital information and services is steadily increasing (Digitaliseringskommissionen, 2016). For example, from 20% in 2003 to 60% in 2013 searched healthcare information online in this population group. In 2014, in the same group, 20% booked an appointment with the doctor online. From 2% in 2008 to 17% in 2014 registered an account in the e-service ‘My healthcare contacts’ (*Mina vårdkontakter*).

Swedish Challenges

In this thesis, the engagement of Swedish municipalities and regions in the governance of digitalisation will be analysed as policy and implementation processes. Understanding how government authorities at different levels join in governance networks on digitalisation is important in order to identify and analyse new governance structures that re-define conditions for public services (Paper IV). Grasping the role and the logics of small municipalities versus those of larger municipalities and of regions is central in the study of small units’ autonomy dilemma versus their capability to cope with digitalisation challenges (Paper IV). Furthermore, understanding how digitalisation as a process affects the organisation of work in the public sector in Sweden and how it connects to issues such as political legitimacy (Paper I), information security (Paper II), and professional identities (Paper III) is central in this sense. Consequently, the need for more research into process intricacies of an advanced e-government construction, focused on the tensions emerging in local practices, justifies the choice of the Swedish case in this thesis.

In Swedish e-government, the focus is on public services in education and to some extent healthcare. Education and healthcare are two essential parts of the universalistic Swedish welfare system. A heavy emphasis is put on the digitalisation of public services in these areas in both national and local policies (Länsstyrelsen et al., 2013; Regeringskansliet & SALAR, 2016). It is in these

institutions and through these services that most of the interaction between citizens and local public authorities takes place. It is in education and healthcare structures that actors in regional and local politics and administrations base their legitimacy for their policies and budgets (Hedlund & Montin, 2009; Montin, 1990). Importantly, the case of Swedish e-government is to be understood in the context of a tension arising from the autonomy of local government, based on the principle of self-government, versus the strong national demands for equal access to public services of high quality in education and healthcare. That is why the cases under focus in this thesis point to critical aspects of advanced digitalisation.

Both education and healthcare are driven by strong actors such as professions, parent associations, and patients' associations, putting high demands on the quality of services in the system. These groups need to understand how the different digitalisation initiatives affect the core of their activities and organisations. The actors need to filter the new practices of digitalisation in public services in relation to values such as efficiency, transparency, neutrality, and accessibility of services, which are some of the fundamental values underlying the modernisation of Swedish public services (Andréasson, 2015; Montin, 1990). In addition, new practices of self-service and self-management emerge with the integration of ICTs into the administration of welfare services, where citizen involvement and 'do it yourself logics' through e-services and digital platforms become increasingly common (Jansson, 2013). The essential role of education and healthcare in local public administrations currently undergoing heavy digitalisation and modernisation underlies my choice to focus both on the e-services themselves and on the actors who are connected to these services.

To summarise the argument: since the digitalisation of public services in an extensive welfare state like Sweden's has become a core feature of the relationship between citizens, government, and other actors in society, it is crucial to understand what tensions these involve in policy and implementation practices. As the digitalisation of public services advances, requiring government agencies and local authorities to collaborate with a multitude of actors, new ways of organising work methods and processes are evolving in Sweden (SOU 2015:91). Therefore, more knowledge about new organising processes in an advanced e-government is required. This is important both for practitioners trying to understand the new reality they are working with, and for researchers trying to understand how new forms of organising affect public services and public institutions. As this thesis focuses on the processes that occur in local practices of public services in education and to some extent healthcare, it is municipal and regional authorities that may be primarily interested in reading this analysis.

V. METHODOLOGY AND MATERIAL

The main purpose of this thesis is to analyse tensions that emerge in implementation of e-government in local public administration. Sweden presents a valuable empirical case for studying integration challenges in advanced e-governments, due to its implementation of digitalisation projects in its local public administration under conditions marked by high technology expectations, high expectations for the quality of services, and far-reaching concerns for information security.

Östergötland is a region that reflects the diversity of outcomes in digitalisation in local public administration. It includes municipalities ranking both highest and lowest in the country in terms of use of e-services and mobile applications. I link this difference to the governance of digitalisation in the different municipalities. In analytical terms, I approach the case as one of network governance in which different translation processes take place. The case thus presents a basis for theoretical inquiry into how mechanisms of network governance work and change when public administration structures undergo change in connection with digitalisation.

The research is based on two empirical studies of e-government policy and implementation in local government practices. One study investigated the use of eID in digital platforms in schools and municipal education administration for accessing public services (named 'School study' in the following tables). The second study focused on the adoption and implementation of a regional digital agenda (named 'RDA' study in the following tables) by regional and municipal actors in Östergötland. The focus of the studies on educational services primarily, and to some extent on healthcare services, is due to the centrality of these public services in the Swedish welfare system. These services are undergoing systematic change in connection with digitalisation, and studying them offers an important

basis for understanding what happens in digitalisation processes and how these affect relations between authorities, civil servants, citizens, and civil society actors.

In what follows, I present the interpretivist approach taken in my construction and analysis of the empirical material. Next, I provide an in-depth description and explanation of my research design, with its implications for the selection of empirical cases. A detailed description of my empirical materials and analytical methods then follows. Finally, I close this methods chapter with a reflection on constructivist ontology and epistemology.

A Constructivist Approach: Interpretation and reflection

When I introduced the empirical problem earlier – concerning the challenges involved in practice when governments pursue advanced digitalisation of public services – I argued that managerial and evolutionary perspectives dominate research on the subject. This study is designed in line with the approach taken by Bannister (2010) and by Meijer and Bekkers (2015), who call for more constructivist approaches in e-government research. The two empirical studies and the overall analysis in this thesis were designed in accordance with an interpretative approach to the phenomenon of digitalisation in local public administration.

This approach acknowledges that the nature of the empirical material is constructed (Alvesson & Kärreman, 2011; Denzin & Lincoln, 2013). It assumes that understanding of the social world – the world out there – is based on making sense of individual's subjective meaning (the researcher's meanings included). As Alvesson and Kärreman (2011, p. 5) put it:

... In interpretative work it is assumed that we can access and study social reality through indications of the meanings and symbolic interactions that are viewed as crucial elements in social communities.

According to the interpretive approach, we know about the world by collecting and studying meanings about it. Based on this approach, this thesis strives to connect to existing theories and frameworks of understanding in order to make sense of the empirical material.

It is the different perspectives and ways of thinking anchored in subjectivity and inter-subjectivity (Alvesson & Sköldberg, 2009) – about the different elements and processes that make up e-government – that are central in this study. Thus, teachers, principals, municipal officials, and policy-makers all have their individual experiences and their perceptions of the social reality they live in and

the social structures they act in. They all have their own perceptions of how digitalisation affects their social reality.

The methodological rationale in this thesis is that, by using a constructivist approach to address the empirical problem, we come closest to the actors, their networks, and their associations. This ‘follow the actors’ rationale is also a central methodological feature of the translation approach in ANT. By following the actors and understanding how they perceive digital technologies and policies right where they work – in their everyday life – we can understand better the phenomenon of digitalisation and its effects upon social and political structures. Thus, an interpretive stance makes room for diversity of the empirical world, enabling us to gain the more detailed knowledge required for understanding how e-government works in different practices, and for appreciating the challenges that it involves.

Research Design at the Crossroads of Theory and Empirical Material

From a methodological perspective, it is important to clarify what role is played by the theory and the empirical material in the choice of the methods, research tools, and analysis rationale employed in the thesis. An inductivist logic involving the use of case studies (Eisenhardt, 1989; Yin, 1989) has been followed in papers I, III and IV, while an abductive logic (Alvesson & Kärreman, 2011) has been used in paper II and the analysis of the tensions (see List of Papers and Table 2). The case studies present an in-depth description of two empirical cases of e-government: the implementation of digital platforms in public services in the one instance; the adoption and implementation of digitalisation policy in the other.

List of Papers

Paper nr	Reference
Paper I	Gustafsson, M., & Wihlborg, E. (2013). Safe Online e-Services Building Legitimacy for E-government. A Case Study of Public E-services in Education in Sweden. <i>JeDEM. The eJournal of eDemocracy and Open Government</i> , 5(2), 155-173
Paper II	Gustafsson, M. (2014). Constructing Security: Reflections on the Margins of a Case Study of the Use of Electronic Identification in ICT Platforms in Schools. <i>Privacy and Identity Management for Emerging Services and Technologies 8th IFIP WG 9.2, 9.5, 9.6/11.7, 11.4, 11.6 International Summer School, Nijmegen, The Netherlands, June 17-21, 2013, Revised Selected Papers', IFIP AICT(421)</i> , 224-236
Paper III	Hedström, K., Wihlborg, E., Gustafsson, M. S., & Söderström, F. (2015). Constructing identities – Professional use of eID in public organisations. <i>Transforming Government: People, Process and Policy</i> , 9(2), 143-158.
Paper IV	Gustafsson, M. (2017) Is small always beautiful? Studying the logics of small units in governance of digitalization. Learning from a case study on adoption and implementation of the Regional Digital Agenda for Östergötland, in Sweden. <i>Working paper</i>

Although both approaches employ qualitative methodology based on interpretive epistemology, there are some essential differences between them concerning their views on the relation between theory and the empirical material. The inductivist case study methodology builds on the belief of separation between theory and empirical material: empirical ‘dataism’, a faith in data that guides theory generation and research processes as a premeditated process (Alvesson & Kärreman, 2011, p. 2).

Theory is supposed to ‘fit’ data – either by design, where a lack of fit should lead to rejections or revisions of a theory, or by default, where theory is understood as emerging from data. (Alvesson & Kärreman, 2011, p. 3).

Theory and empirical data are thus seen as two different bodies that should relate to and match each other. The research design thus involved a primary focus on the empirical material. The practical problem in question guided the searching for patterns and categories either in the established theories or in the material itself. In the school study, the practical problem was the set of implementation challenges that arose when eID was introduced in educational administration (see Table 2). As a number of organisational issues and concerns for information security were mentioned in the interviews, we consulted concepts from organisation theory and information security with the purpose of analysing the processes. In the RDA study, the primary focus was on the adoption and implementation of the agenda and the problem of actors’ engagement (see Table 2). As the engagement problem was described in terms of cooperation issues and institutional constraints in the

empirical material, institutional theories and network governance theories were chosen as a frame for analysis.

Table 2. Objects of Study, Methods, and Empirical Material

	Paper I	Paper II	Paper III	Paper IV
Object of study	Information security and organizational arrangements (for legitimacy)	Construction of information security	Construction of professional identities in education and health care	Engagement of small actors in governance of digitalization
A case of	Use of eID by schools and bureaucrats to access services and secure data	Use of eID by schools and bureaucrats to access services and secure data	Use of eID by schools, hospitals and bureaucrats to access services and secure data	Adoption and implementation of a regional digitalization agenda
Method	Case study Qualitative data analysis	A 'dialog' with the theory and the empirical data	Comparative analysis of two qualitative case studies	Case study Qualitative data analysis
Empirical material	Interviews Focus groups Documents	Interviews Focus groups Documents	Interviews Focus groups Documents	Interviews Observations Documents Questionnaire
Time frame (Data collection & analysis)	October, 2012–November, 2013	October, 2012–November, 2013	January – June, 2014	October, 2014 – October, 2015

The abductive approach taken in Paper II and in the analysis of the tensions in chapters 7 and 8 follows Alvesson and Kärreman (2011) approach of fusing theory with empirical material in the research process. Following this approach, I engaged in a critical dialogue between the empirical material and the theoretical ideas, wherein these ideas challenged and enforced each other through problematisation and questioning. I return to this further below, but first an introduction to the empirical cases.

Selection of the Empirical Cases

The School study on the use of ICT platforms and secure login was conducted in Linköping municipality. It was part of the research project 'Future Safe Electronic Identification' (FUSE), funded by the Swedish Civil Contingencies Agency. Therefore, the selection of the case was guided by the wider empirical problem focusing on eID applications in the different public services covered by FUSE.¹⁰ Within Östergötland, the group of local practices to choose my case from consisted of municipalities that had different demographic and economic structures and conditions (such as population, commuting patterns, tourism and travel industry, education, and employment). The municipalities ranged from towns with public

¹⁰ FUSE aimed to study and critically analyse the development, implementation and use of new e-legitimation mechanisms in Sweden. Social, organisational and technical perspectives were sought to examine how e-legitimation mechanisms were framed by the policy and how the local practices were affected by it. More information on FUSE: <https://www.iei.liu.se/is/forskning/projects/fuse?l=en>

administrations serving up to ca 155,000 inhabitants and smaller municipalities with fewer than 5000 inhabitants. I assumed, therefore, that the practices in the schools and in the administration of the municipalities would look different depending on the differing structural conditions in the municipalities.

In SALAR (2011a) classification of Swedish municipalities, Linköping fell in the group of 'Large cities' and could thus be comparable in the selection of the case (but also in terms of results), with other towns within the group, such as Norrköping, Örebro, Sundsvall, or Luleå.¹¹ If structural parameters such as taxpaying power, total structural costs per inhabitant, total inhabitants, or costs for compulsory school per inhabitant are considered, Linköping comes much closer to Örebro than to other municipalities in this group.¹² Thus Örebro could have been chosen as a most similar case to compare with. It can thus be concluded that Linköping municipality, as a subject of the case, from the group including 38 municipalities according to the 2011 classification, can be categorised as a *key case* within the group (Thomas, 2011), in terms of its capacity to produce exemplary knowledge about e-government practice.¹³¹⁴

The research design strove to reach key participants who could inform us about the school organisation and their experience with using the platforms FRONTER, DEXTER, SKOLA 24, and other ICT systems in their work and studies. In this study we focused both on the municipal administration, which is responsible for education and schooling, and on the platform use at 7 schools. The school principals were key persons with an overview of the school organisation and the strategies and priorities for school development. Apart from the leadership function, the principals held administrative responsibility at the schools and were key decision-makers with regards to allocation of resources in their respective school. The IT or FRONTER administrators in the municipality were in charge of the practical implementation of the platforms and held important knowledge on their functioning and teachers' perceptions of the platforms. Teachers, pupils, and parents held important information about the functionality and usability of the platforms and could give insight about their experience with using them in their work and in interaction with each other. In addition, local policy documents were analysed in order to learn about the background of the processes and policy statements made both regarding these specific systems and the municipal e-government in general.

¹¹ The classification of 2011 was updated by 1 January 2017 and Linköping remained together with 21 other municipalities in the same group, but the group was renamed to 'Medium-sized towns' in the 2017 classification (SALAR, 2017a).

¹² Based on the search in Kolada - a database run by the Council for Municipal Analyses, with SALAR and the Swedish state as members. The counties/regions and municipalities can be compared on: <http://www.kolada.se/index.php?p=index>

¹³ And 'medium-sized towns' group, consisting of 108 municipalities in the new classification (SALAR, 2017b, p. 19).

¹⁴ I chose Thomas' categorisation as a 'key case' rather than Yin (2009) 'representative' or 'typical' case, as I agree with Thomas discussion on the problematic epistemology of the typicality of cases, where he argues that typicality of the case is contained by how the 'typicality' is framed and that the frames will vary depending on researchers and perspectives (Thomas, 2016).

The choice of the case in the RDA study was determined by my interest in continuing and extending the study of digitalisation practices in municipalities to other subjects that would present interesting or revealing examples. I sought a new and different subject that would help understanding my object of inquiry. As intensive work was being carried on with adoption and implementation of digital agendas by the regional and municipal authorities in Sweden, the opportunity to follow such work seemed actual for the purpose of my research. Important for the selection of this case was also the initiative of the RDA work group in Östergötland to involve a researcher in the work with the agenda.

Out of 21 counties, it was only Norrbotten, Uppsala, and Östergötland that adopted their regional digital agendas by January 2014 (SOU 2015:28, p. 57), followed by Örebro and Blekinge in March 2014.¹⁵ This made them early adopters that have come further ahead, relative to the other counties, in terms of policy-making and engagement of municipalities, civil society, and market actors. Östergötland qualifies as a key case and can thus be compared with similar cases for these counties in the *group of early adopters*. In terms of regional demographic and socio-economic structures, or ‘most similar municipalities and counties’ as measured by Kolada, Östergötland is closer to Örebro and Uppsala than Norrbotten and Blekinge. The former could thus present cases for a comparison within the group.

The research design differed from that in the School study, as it involved importantly a closer and more participative connection with the subjects of study, i.e., with the RDA work group. The RDA study targeted both the practical work on the agenda itself, and the network and cooperation processes among the actors connected to the agenda. In this study, the key informants were the members of the RDA group who were public servants coming from the regional, municipal, and state authorities. Another group of key informants consisted of public servants and politicians in the municipalities. The research design involved a variation of qualitative techniques such as participative observations, a mapping questionnaire, semi-structured interviews, and document analyses. More detail about them is presented below.

To sum up the research design, and using Thomas (2011) multiple typological criteria, it can be concluded that this thesis presents *two single key case studies* on the implementation of digitalisation. In terms of the subjects for the study, Linköping municipality and Östergötland have been chosen as offering an opportunity to learn about the object of inquiry. The two individual cases have instrumental value in terms of producing knowledge about the wider phenomenon of e-government. In terms of theoretical connection, the approach is a mixed one. It is descriptive in the papers, with theoretical concepts being used to describe and explain the processes identified through the empirical material. In the analysis of

¹⁵ Some of the counties’ administrations have got increased and extended mandates for regional development are currently called Regions. This is also the case for Östergötland.

the tensions, and in Paper II, the approach is abductive, involving elements of description, theory development, and testing.

Empirical Materials Construction

The empirical material is mainly based on semi-structured interviews (individual or group, face-to-face or telephone), focus groups (which in practice resembled group interviews), and documents in the school study. The RDA material is based on semi-structured interviews, meeting observations, documents, and a mapping questionnaire. The material is constructed through a dialogue with informants knowledgeable about digitalisation activities through their role in the respective organisations, their engagement in policy-making or implementation of digitalisation projects, and finally their experience of the use of the digital platforms. An overview of the material, methodological tools, organisations, and informants is presented in Table 2.

School Study: Interviews, focus groups and observations

Following an inductivist rationale, the interviews, focus groups, and observations focused on studying the use of digital platforms in schools. Thus the questions and the dialogue concerned challenges that arose in everyday practice and a thorough description of these. The selection of the informants in the school study was based on a preliminary mapping of ‘history of use’ of ICT platforms in 56 schools in the municipality of Linköping. Another criterion for selection was to include both public and private schools, among large (more than 300 pupils) and small (less than 300 pupils) schools. The outcome of this process led us to interviews in 7 schools at compulsory and upper secondary level.

There were 18 semi-structured interviews and 9 focus groups. 55 participants were the main source of interview material (see Table 3): school principals (4), teachers (17), schools’ platform administrators (2), pupils (13, with parents’ approval), parents (11), and municipal officials/users of platforms (8). Interview guides were designed and used for each group of informants: pupils, parents, teachers, school principals, and municipal officials. These can be found in Appendix A. The research design targeted key informants in the schools and the municipal administration. Based on their responsibility, competence, and experience of ICT use in their work, they could provide valuable information about the use of the digital platforms in their daily practice. Further details on the selection and the informants, see Gustafsson and Wihlborg (2013a).

The focus groups and the interviews were carried out in a pre-set setting (Frey & Fontana, 1991): i.e., schools, municipal offices, and regional authority offices (see Table 3). My role as interviewer was moderately directive and followed a semi-structured questioning format. To facilitate the discussion and allow informants to recall their experiences, I had informed them about the main questions prior to the interview. During the interviews I allowed them considerable

time space to develop their expressions. The interviews had a phenomenological purpose (Denzin & Lincoln, 2013) of collecting the informants' meanings and interpretations for the topic. The questions focused specifically on perceptions and experiences of use of the platforms in their everyday practices (see interview guides in Appendix A).

Table 3. Material Collection School Study: Interviews and focus groups

Activity	Place	Position	Nr. Part.	Date
Interview	School 1	Principal	1	2012.11.27
Focus group	School 1	Teacher	4	2012.11.27
Focus group	School 1	Pupils	9	2012.11.27
Interview	School 2	Principal	1	2012.11.14
Focus group	School 2	Teacher	4	2012.11.14
Interview	School 3	Principal	1	2012.10.30
Focus group	School 3	Teacher	5	2012.10.30
Interview	School 4	Principal	1	2012.12.05
Focus group	School 4	Teacher	3	2012.12.04
Focus group	School 4	Pupil	3	2012.12.04
Interviews	School 4	Parents	4	2013.08*
Interview	School 4	Teacher	1	2012.11.06
Interview	School 4	Fronter administrator	1	2012.12.04
Interview	School 5	Fronter administrator	1	2012.12.05
Interviews	School 5	Parents	4	2013.09.03
Interviews	School 6	Parents	2	2013.08.03
Interview	School 7	Parents	1	2013.09.04
Interview	The Municipality	IT-coordinator	2	2012.10.22
Interview	The Municipality	System administrator	2	2012.11.07
Focus group	The Municipality	Administrator	4	2012.10.23

* These individual interviews were done in the period 2013.08.26–2013.09.04

As can be seen in Table 3, all groups of informants – i.e., principals, teachers, pupils, administrators, and parents – could only be reached in one of the largest schools (School 4). The rest of the schools had variable coverage of the user groups. This outcome reflected a limited availability of informants, as representatives from all these groups were initially and repeatedly invited to participate in the study. Importantly, however, the focus was on the experience of use of eID when accessing FRONTER and meanings related to it, which was the case for all the schools. The informants talked about the same platform, but had different experiences of using it.

RDA Study: Interviews, observations, mapping questionnaire, documents

In the RDA study, the material was generated through observations on 6 occasions during the RDA workgroup meetings (see Table 4). These meetings were monthly gatherings supposed to follow up implementation and anchoring of the agenda in the signatory (regional) organisations and the links to the municipalities. My role in these meetings was to apply a participative observation technique. I participated in the discussions moderately, and presented results of the mapping questionnaire to the group.

On 7 other occasions, observations were carried out in meetings between a representative of the RDA workgroup and municipal executive boards in 7 different municipalities. These meetings were aimed to inform and discuss with the highest decision-making body in municipalities about the RDA. Also, they were aimed to follow up on whether RDA was anyhow connected to the municipalities' own work on digitalisation. My role in these meetings was to observe and document what the top officials and politicians in municipalities thought about RDA and their own digitalisation work in their respective municipalities. My observations from these meetings were then discussed with the representative of the RDA group. The material generated in these observations was then used to select the informants for the interviews and the mapping questionnaire.

Furthermore, 12 semi-structured interviews (see Table 4) were conducted with top officials in the municipality and members of the work group for RDA. Selection criteria for the interview informants were based on the informants' leading position in the organisation and their being knowledgeable about the digitalisation policies and implementation in their respective organisation. Interview guides for different actor groups, regional actors, and municipalities were used and are attached in Annex B. Similar to the School case, I had informed the interviewees about the main questions prior to the interview, giving them enough time to check on activities, facts, and policies that were relevant for the discussion. During the interviews I allowed them considerable time space to develop their expressions.

Table 4. Material Collection RDA Study: Interviews and observations

Activity	Place	Position	Nr. Int.	Date
Interview	Commuter municipality * 1	Administrative Director	1	2015.06.22
Interview	Commuter municipality 1 & Mun. Densely populated reg 1	Director Division Environment and Health Protection	1	2015.06.06
Interview	Commuter municipality 2	Director Division Child & Youth Care & Education	1	2015.06.25
Interview	Commuter municipality 2	Director Division Health & Social Care	1	2015.06.23
Interview	Mun. Densely populated reg 2**	Administrative Director	1	2015.06.30
Interview	Mun. Densely populated reg 2	Procurement Director	1	2015.06.22
Interview	Mun. Densely populated reg 2	Director Division Environmnet, Construction & Rescue	1	2015.06.22
Interview	SME Association	Regional Director	1	2015.06.25
Interview	Large City 1	IT-Strategist	1	2015.01.12
Interview	Regional Library	Project leader for RDA	1	2015.04.30
Interview	County Council	Project leader for RDA	1	2015.05.21
Interview	County Administrative Board	Project leaders for RDA	1	2015.05.04
Observation	Commuter municipality 1	Municipal executive board meeting	1	2014.10.14
Observation	Commuter municipality 2	Municipal executive board meeting	1	2014.11.04
Observation	Commuter municipality 3	Municipal executive board meeting	1	2014.10.15
Observation	Commuter municipality 4	Municipal meeting	1	2014.10.16
Observation	Manufacturing municipality	Municipal meeting	1	2014.11.12
Observation	Commuter municipality 5	Municipal executive board meeting	1	2014.11.24
Observation	Mun. Densely populated reg 2	Municipal executive board meeting	1	2014.12.08
Observations	County Administrative Board	RDA Work Group	6	2014-2015

*According to SALAR Classification of Swedish municipalities, 2011.¹⁶ The municipalities in SALAR's classification are divided into ten groups based on structural parameters such as population, commuting patterns, tourism and travel industry, and economic structure. See Appendix B for definitions. When several municipalities from the sample fell into the same category, the municipalities were numbered. The categorisation per municipal type was the chosen unit of analysis in the reporting to the RDA work group, and was also used in the anonymisation of the interview material in Paper IV.

**Abbreviated from 'Municipalities in densely populated regions' in SALAR's classification.

Mapping questionnaire

The purpose of the questionnaire was to map the work and the perceptions of digitalisation and the RDA in the municipalities. All 13 municipalities in the region were invited to fill in an on-line questionnaire. The questionnaire targeted top officials, lower officials and politicians. A probability sample model was followed targeting 4–5 respondents in each municipality: the administrative director, two division directors and two members of the municipal executive board. The questionnaire consisted of 22 posts of open and closed questions (See Appendix

¹⁶ The 2011 classification was used in the empirical analyses done in 2014-2015. There is an updated classification as of 1 January 2017.

B). There were open questions on the challenges, the needs and the areas of concern in the municipalities' work on digitalisation. Closed questions were asking the respondent to assess the importance of the different priorities from the RDA according to five categories (not important at all, not so important, quite important, very important, and extremely important). A third of the totally invited 60 respondents have answered the questionnaire. An overview of the respondents, their position and the municipality type is presented in Table 5. A copy of the questionnaire is attached in Appendix B. The questionnaire was also presented and discussed in the RDA workgroup.

Table 5. Material Collection RDA Study: the questionnaire

Municipality	Position	Nr resp
Municipality densely populated region* 2	2 Politicians Administrative Director	3
Commuter municipality 3	Administrative Director Director Division Child & Youth Care & Education	2
Large City 1	IT-development director IT-coordinator IT-strategist	3
Commuter municipality 2	Administrative Director Director Division IFO	2
Manufacturing municipality	Director Division Information	1
Suburban municipality	Administrative Director	1
Commuter municipality 1	Director Library	1
Commuter municipality 5	Director Division KSO E-Health Strategist Administrative Director	3
Large City 2	IT-Strategist	1
Tourism industry municipality	IT-Strategist	1
Mun. Densely populated reg 1**	Director Division Development	1
Mun. Densely populated reg 3	Director Division Development IT-Strategist	2

*According to SALAR's Classification of Swedish municipalities, 2011

**Abbreviated from 'Municipalities in densely populated regions' in SALAR's classification.

Documents

I have continuously done document studies during the research stages with various purposes. In the School study the preliminary mapping of schools to be included in the sample was done based on a review of the protocols and reports from the schools and the administration (see Table 6). More materials from the specific schools, the municipality and SALAR were consulted when the interview questions were designed so that more specific information about the schools' activities and their context could be taken into account. Information on parents' and pupil's concerns with the use of the new platform, challenges of

implementation and information meetings could be found in these materials. Also important contact persons from these documents were identified. Material from SALAR provided evaluation and follow-up information on digitalisation projects in the region, which was useful context information for the analyses.

In the RDA study a large part of documents that were consulted were policy documents developed at local, regional, national and EU level (see Table 6). National and EU Agendas were analysed in their content and relation to the local agendas. They were primarily consulted with the purpose of understanding the wider context of the local digital agendas. Material in form of notes and summaries of meetings and workshops (see Table 6) that contributed to the work on RDA were also carefully examined for the purpose of understanding the networking processes and identifying the actors and their engagement in the work on the agenda. Some contact persons were found in this material. The material also provided good context information that facilitated understanding of the subjects discussed during my observations of the work group meetings in 2014.

Legislative material such as the Education Act in the School study and the Constitutional acts on local self-government in the RDA study were also consulted. These were consulted with the purpose of understanding the institutional regulations governing the studied practices. However, the focus and the weight of the document studies was on policies and organisational documents connected to the practices themselves.

Table 6. Material Collection School and RDA Studies: Documents

Source	Document
Municipality of Linköping, administration	Digital Agenda for Linköping 2012-2015 Information on processing of personal data, 2011 IT Security Policy, Rules for using e-mails, 2008 IT Infrastructure programme 2010-2014 Committees interim reports 2012 eVision and eProgramme for Linköping Municipality, 2006
Municipality of Linköping, schools	Action Plans (2010, 2013), Quality reports 2009 Board meeting protocols 2012-2013
SALAR	Strategy for eSociety, 2011 Evaluation reports on digitalization in municipalities
Regional Library Östergötland	Evaluation report on the regional library's work with Digidel (digital participation initiative) 2013
The Regional Council Östergötland	Regional Development Plan Regional Digital Agenda
Commission on Digitalization	Interim reports on digitalization 2013-2015 Follow up reports on development of regional and local digital agendas
Work group for RDA	Internal notes, lists of participants and reports from meetings and workshops on RDA, 2012-2013

Interpretive Analysis Methods

Following a pattern-seeking and coding logic, a part of the empirical analysis, especially in the papers, employed theoretically informed categories and concepts in order to assist structuring and organisation of the material. However, actors, structures, technology – the material of society and the social reality we live in – does not easily and without compromises let itself be boxed into categories and linear relationships. As Alvesson and Kärreman (2011, p. 15) put it:

... social reality never speaks for itself. It always speaks through a language that is familiar to and favoured by the speaker.

In this study, the empirical material did not lend itself to be easily explained through categories and concepts, without a certain tension. The tension lay in relating the specific language and interpretations of the informants (raw material from interviews and questionnaire) through my own interpretations. For example when I ask the teacher about the security of pupil data, how differently or similarly do we understand *security*? When I ask the parent questions about *trust* as an element of legitimacy, how do I interpret their different expressions of trust? Then, how to relate different representations on security or trust to the social reality of digitalisation, presented another layer of tension. Such a process involved choices, and such choices were influenced by my own language and pre-understanding of

the problem. The process involved a repeated, deepened or widened survey of existing research. In all such cases, both in the papers and in this thesis, the aims and the research questions guided my choices.

Methods of Analysis in the Papers

In the analysis in Paper I the interpretive rule is based on the concepts of output legitimacy (Rothstein & Teorell, 2008) and information security as a core element of it (Wihlborg, 2014). In the light of these concepts we studied the practice of introduction of e-ID as a login onto the new platforms both in schools and in municipal administration of education. Interview questions included themes such as: information security challenges, organisational arrangements and potential development – all as perceived by the users of the platforms. These themes served as a three-armed anchor for the topics that were operationalised out from the research questions: ‘pre-conditions for technology use’, ‘experience of use’, ‘effects upon daily work’, ‘challenges in practice’, ‘trust’ and ‘information security’ guided the core questions in data analysis. These topics were based partly on a pre-understanding of the practices of use of electronic platforms for administration and partly on existing research on e-government implementation. Finally, the empirical analysis was structured so as to present the use of e-ID in practice at two organisational levels: in the municipal administration and in the schools. This was done with the purpose of presenting a detailed picture of the practice from the key user perspectives: municipal bureaucrats, school principals, teachers, pupils and parents.

In Paper II the empirical material is constructed as a dialogue between theory and the empirical case. Searle (1996) social theory concepts of ‘objectivity’, ‘assignment of function’ and ‘institutional facts’; as well as the concepts of ‘actual and perceived security’ (Oscarson, 2007) are used. The empirical material was initially structured according to *categories*, such as participants’ assumptions, attitudes, and beliefs about security. Subsequently, I looked for *patterns*, in terms of recurring themes on security. The dialogue was guided by questions such as how do people perceive ‘security’ in the context of their work in school; what is security believed to be, what are the assumptions, the attitudes and the actions involved (Gustafsson, 2014).

In Paper III the analysis involved describing and comparing two cases of eID implementation in order to study how it was translated (Latour, 1987) in two different public services: education and healthcare (Hedström et al., 2015). The analysis focused on how different professions translated eID in their practices and how these translations affected professional identities in turn. ‘Follow the actors’ rationale was applied when describing the actors, their associations and the networks involved with eID.

In Paper IV the analysis uses concepts such as ‘policy communities and issue networks’ (Rhodes & Marsh, 1992) to study the type of the network around RDA.

Also, 'interlocal cooperation' (Andersen & Pierre, 2010) is used to study obstacles to engagement on the part of the actors in the network. The analysis involved interpretation of the answers across the groups of municipalities in terms of underlying organisational logics to digitalisation.

Analysis of the Tensions

The interpretation, or the dialogue with the empirical material and the informants, is driven by the interest in both pattern-seeking and deviations from it. A search for conflicts, ambiguities and tensions justified a search 'beyond the surface' of obvious, established and known patterns of activity or taken-for-granted assumptions. The interpretation process followed what Alvesson and Kärreman (2011, p. 42) call:

... a dialectics between patterns and fragmentation, where 'the non-obviousness of meaning as well as the potential of multiple meanings, ambiguity is emphasized.

These analyses were to different extents unpacked or 'defragmented', especially the analysis of the tensions in Chapters 7 and 8 and to some extent in Paper II. The analyses involved looking for ambiguities and deviations from patterns. More specifically, it involved focusing on what was perceived as ambiguous in practice or what presented a matter of concern for the informants. In a dialogue with the two theoretical perspectives, governance networks and translation, I then sought to see how these explain the implementation tensions and vice versa. A challenge here lay in relating the vocabularies and ontologies of the network governance (based on institutional theories) and translation theory (in ANT) to the empirical findings. It required deeper reflexivity and understanding of the theoretical argument on the one hand and understanding of the empirical material, on the other.

Two main criteria were followed when choosing the tensions: The first concerned their importance and relevance for the study of the empirical problem and the aim of the thesis. The second requirement was that the tensions could have an explanation potential for the practice and theory of network governance on the one hand and on advanced integration of e-government in public administration, on the other. The tensions – as objects of analysis – should thus present both a practical and theoretical interest.

Three steps are then followed in the analysis:

1. The tensions are firstly described based on the empirical analyses in the papers and complemented where relevant with more material that could not be included in the limited space of the papers.

2. The tensions are analysed, using the vocabularies of network governance theory and translation theory.
3. Implications for practice and research on advanced integration and e-government and network governance are finally presented and discussed.

Reflections on Ontology and Epistemology

This study and the analyses it contains do not position themselves in the most radical stance of social-constructivist research, according to which there is no objective reality out there whatsoever (Alvesson & Sköldbberg, 2009). The reality, *our* reality exists in *time*, in a specific *natural environment* and is constrained by these on a fundamental level. Our reality is inhabited by a diversity of inter-related and interacting entities and phenomena of different natures, where human beings organised in structures, are just one of them. The analyses in this study position with more moderate constructivists (Berger & Luckmann, 1966; Searle, 1996), such as social critical perspectives and constructivist epistemologies. According to these, knowledge about the reality is constructed and one way of doing it is identifying taken-for-granted truths in social reality and re-considering their value and effects upon structures (Alvesson & Sandberg, 2011, 2013).

This study of advanced digitalisation builds on a position that assumes that society and its institutions are socially constructed (Alvesson & Sköldbberg, 2009). The objects of study: the policy and the practices of digitalisation are perceived as uninterrupted construction processes where social actors engage in meaningful actions. The public administration is a central institution, itself an object to change, presents a structure for the practices and policies to be implemented. The social reality is formed by actors' ordering and disordering intentions. According to the former, they tend towards constructing of structures and rules for meaningful activity and interaction. According to the latter, they tend to question, re-consider and change the existing structures, due to new developments in the environment or in the respective contexts, such as systemic crises, failures, revolutions or new challenges etc.

Social reality is inter-subjective. In this study the inter-subjective reality of different actors is studied. Each of them attributes certain meanings to actions and artefacts that they encounter in the inter-subjective reality. These actors are engaged in a continuous objectivisation or construction of meanings through signs, symbols and language, in order to 'materialize' and 'establish' essential pieces of meanings that govern action in society (Berger & Luckmann, 1966).

Importantly the social order, a result of human activity aiming to stabilise the inter-subjective world, is governed by institutions. These are a result of mutual categorisation of actors' habitual behaviour (Berger & Luckmann, 1966, p. 72). In this study the actors perform their activities in structures, both organisational and institutional that on one hand are clearly delimited: such as local public

administration, municipal administration, schools, and homes – but on the other, they become ambiguous. When public services undergo advanced digitalisation changes, the actors' inter-subjective meanings about everyday social reality are affected in certain ways.

Knowledge of inter-subjective reality is necessary for meaningful interaction among the actors. It is a result of the actors' need for integration of meanings, in terms of their context and coherence, both within and among institutions (Alvesson & Sköldberg, 2008, p. 87). Importantly, this process is driven by the human actors and not by any inherent property of the institutions. In this study, knowledge of how advanced digitalisation affects public administration is necessary if we are to understand how it integrates into and affects the social order. As a researcher in this process, I am yet another actor who collects the different actors' meanings, interprets them according to my interpretative repertoire, relates them to existing knowledge, and externalises them in the confines of theoretical and methodological conventions. I do this in a mutual process of meaning perception and interpretation – a dialogue – with my informants, which means that we shape each other's understanding. Knowledge about society thus involves perceiving and understanding the objectivised social reality, at the same time as the actors create it.

In the following chapter, a summary of the four papers included in this thesis will be presented. This will prepare the reader for the following analysis of the tensions.

VI. SUMMARIES OF THE PAPERS

This thesis includes and builds on four papers (three published and one submitted). The challenges, ambiguities and concerns that could be identified through analyses in the papers made up the basis for the identification and analysis of the tensions described and analysed in Chapter 7 and 8. In this chapter, a brief summary of the papers follows.

Safe Online e-Services Building Legitimacy for E-government

The paper by Gustafsson and Wihlborg (2013a) was published in the *eJournal for eDemocracy and Open Government*, with the title 'Safe Online e-Services Building Legitimacy for E-government'. The paper focuses on implementation of secure login process and factors that may have implications for the legitimacy of public e-services. The aim was to present a case study of use of electronic identification to access ICT platforms in schools focusing on security, organisational, and potential developmental aspects of the platforms as aspects in legitimacy-building for public e-services. The research questions that guided the study were (the interview guides can be found in Appendix A):

- How was the use of the ICT platforms organised in the schools and how did the use of the platforms influence relations between schools and homes?
- How was secure login actually arranged, and how was it perceived among key groups of users of the platforms in the municipality and at the schools? What information security aspects were connected to the use of the ICT platforms?
- What challenges and potential for change were perceived by the key user groups of the platforms and e-services?

- How did these information security and organisational aspects manifest themselves as aspects of a legitimacy-building process in local public e-services in education and childcare?

The study was designed as a case study of implementation in e-government, employing interviews, focus groups and documents as sources for empirical material. A detailed account on the methods and material is provided in Chapter 5. We describe the implementation process and analyse information security and organisational arrangements connected to the use of the platform. Using this material we address the argument that secure identification tools are essential for increased use of e-services and that they lead to greater trust in the public e-services. The analysis uses the concepts of ‘legitimacy’ from institutional theory (Rothstein, 2009; Rothstein & Teorell, 2008) and ‘actual and perceived information security’ from information systems theory (Axelsson et al., 2013; Oscarson, 2007).

The analysis is anchored in the argument that information security and the organisational set-up play an important role in building legitimacy for the implemented service. The paper concludes that introduction of advanced secure login tools, such as eID, presents new challenges for users in the educational services. These challenges include: institutional and organisational ambiguities in handling heterogeneous information, various information security concerns, and muddling of trust. These challenges raise the need for reconsidering existing arrangements of trust and legitimacy in public services. Some of these challenges concerned information security, where a gap between factual and perceived security could be observed. The challenges identified in this paper present the empirical basis for the analysis of the tensions in Chapter 7 and 8.

Constructing Security: Reflections on the margins of a case study

The paper by Gustafsson (2014) was published in *Privacy and Identity*, as one of selected and revised papers that were presented at The 8th International IFIP Summer School on Privacy and Identity Management for Emerging Services and Technologies. The full title of the paper is: ‘Constructing Security: Reflections on the Margins of a Case Study of the Use of Electronic Identification in ICT Platforms in Schools’. This analysis has its starting point in the development of the administration of public services where a shift of focus towards individual users of services and ‘do it yourself logics’ is promoted by the reforms (Andréasson, 2015; Jansson, 2013; SOU 2015:91).

User perspectives are to guide design of services as well as further organisational change in public administration (Axelsson & Melin, 2012; Melin et al., 2013; SOU 2015:91). This shift implies importantly that individual users of

public services get more responsibilities of accessing and handling their cases through e-services. This is however not unproblematic and involves questions of legitimacy and trust for the authorities. The aim of the paper is to reflect on the concept of security by identifying and analysing how people build their own understanding of security when using ICT platforms in schools. I discuss how people construct meanings regarding ‘the concept of security’, based on descriptions collected from the participants in the case study of the use of electronic identification in ICT platforms in schools.

Besides specifically searching for users’ meanings of information security and what lies behind these, the analysis presents an open inquiry concerning ‘information security’ as an object of study in itself. The questions that guided the analysis were: ‘what am I (really) studying in this case’ (the ontological) and ‘how can it be understood’ (the epistemological)? The analysis identifies three ontological instances of security: security as an ideal state of affairs, security as a value, and information security. Grounded in a constructivist theory of social reality (Berger & Luckmann, 1966; Searle, 1996), the analysis also clarifies the difference between the objective and subjective nature of ‘security’. It presents a further reflection on and explanation of the differences between factual and perceived information security (Oscarson, 2007). As a result, I raise several research questions concerning ‘security’ and identify common assumptions with regard to constructing the concept of security. Through these accounts I have clarified some basic questions that need to be asked before building more meaning and argument about information security challenges and their effects upon legitimacy in public services. The study opens up for further reflection on institutional arrangements, such as eID, that are currently created in the context of e-government.

Constructing Identities: Professional use of eID in public organisations

The paper by Hedström et al. (2015), with the title: ‘Constructing Identities – Professional use of eID in public organisations’ was published in *Transforming Government: People, Process and Policy*. In this paper we study how identities and roles are constructed by looking at how e-ID is used in different professional contexts (Hedström et al., 2015). The aim of the study is to analyse how professional identities are constructed when eID is introduced in public organisations. The research questions are:

- How is identity constructed through the introduction and use of eID?
- Why do different professional roles imply different uses of eID?

The paper builds on the argument that eID changes organisational practices and that more context-specific research is needed if we are to understand eID as a

socio-technical arrangement. Implementation of eID is here analysed from a translation perspective (Latour, 1991, 2007; Wihlborg & Söderholm, 2013). Identity, more generically studied through the multiple roles that persons can take on (Clark, 2008), is connected to digital identity that emerges when technologies are used when performing these roles. The analysis adopts a constructivist stance on technology, rejecting the view that technology is merely technical or a neutral artefact (Bijker & Law, 1992; Pinch, 1996). We argue instead that technology is an assemblage of different but related components embodied in people, tools, organisational routines and policies (Latour, 1987, 2007). Such a perspective implies that roles, identities, associations and actorship (or agency) undergo changes depending on how the different translations evolve in practice when new technologies are introduced in organisations.

The study compares two cases of implementation of eID in two different local public service organisations: local elementary schools, and the County Council which manages hospitals in the region of Östergötland. Drawing on translation theory, we find similarities and differences between local translations of eID in the two organisational and professional contexts. Common for both cases is that eID – the artefact – is made an obligatory passage point for the actors to define their roles. In order to access patient data or pupil data, healthcare personnel or teachers are required to identify themselves using eID. In the studied hospitals, eID is made an OPP by attaching additional functionalities (e.g., payment tools, passage keys to facilities...) to the ID card. In the schools eID is made an OPP by using the teachers' private eIDs to login to the administrative platforms. In effect, the roles played and the services accessed by these actors at work, at home and in society are intermixed. This assemblage of private and public spheres of activity and the resulting resistance it generates among the players, we argue, is a part of identity-building in these professional and organisational set-ups.

Is Small Always Beautiful? Studying the logics of small units in governance of digitalisation

The full title of the paper by Gustafsson (2017) is: 'Is Small Always Beautiful? Studying the logics of small units in governance of digitalisation. Learning from a case study on adoption and implementation of the Regional Digital Agenda for Östergötland, in Sweden'. The paper was revised after first peer review in the journal *Information Polity*. This study addresses digitalisation in local government by focusing on the problem of autonomy of small municipalities versus their capability of coping with digitalisation challenges (Gustafsson, 2017). The aim of the study is to understand the rationale and the difficulties of engagement of small municipalities in collaborative action in network governance. Questions such as what rationale guides the municipalities in their engagement in the network, and how this can be understood in relation to the autonomy versus capability dilemma, have guided the analysis. Based on theories about network governance and

institutional collective action, an analysis on the logics of small units in a case of governance of digitalisation through a policy network is presented.

Adoption and implementation of a regional digital agenda in the region of Östergötland is analysed as a case of digitalisation policy adoption and implementation by a network of local and regional actors. The Regional Digital Agenda aligns with national and EU strategies for digitalisation and calls for creating and exploiting the economic and social benefits of a digitalised market and society. The importance of collaboration between businesses, academia and authorities in five focus areas is emphasised. However, I found that the agenda was not known among municipalities in the region, more than a year after its adoption. I also found that the network had certain challenges to engage municipal actors in the network. More specifically, the network was struggling to hold together on account of three things:

- changes in the composition of *the core group*, which consisted mainly of regional actors;
- a weak and problematic anchoring of the agenda and the connections with the other actors – especially the municipalities, which are key actors; and
- ambiguity concerning the continued mandate for the work group and the resources to be invested.

It is argued that one underlying explanation for the challenge of engagement of small municipalities could lie in their approaches to digitalisation. For the regional actors and Linköping municipality, digitalisation is clearly *a strategic matter* that gave them a fundamental basis for collaborating and creating new policy; whereas for the small municipalities, digitalisation is *just an issue* that had to do with technical solutions. The former actors saw a necessity to transform, adapt and align existing structures, in terms of policies and strategies, so as to embed the digitalisation perspective. In contrast, the smaller municipalities hesitated; they did not perceive any problems with the existing structures or feared the challenges that digitalisation posed to their already constrained organisations and budgets.

Importantly, the findings in the four papers were re-analysed in relation to each other and in relation to the problem of integration in advanced e-governments. The following concerns, ambiguities or issues have been re-analysed from the perspectives of translation and governance networks:

- institutional and organisational ambiguities in handling new and heterogeneous information,
- sensitivity of information and security concerns,
- muddling of trust in technology with trust in educational service,
- changes of meaning of security when information technologies pervade services and administrations,

- concerns for blending private and public matters when eID is made obligatory for access to public services,
- power struggles that emerge in technology translation processes, and
- different logics in the implementation of digitalisation among regional and municipal authorities.

These ambiguities and matters of concern are synthesised and explained in the analysis of the four fields of tension in the following chapter.

VII. FOUR FIELDS OF TENSION IN PRACTICE: TRANSLATION AND GOVERNANCE NETWORK ANALYSES

This thesis approaches the research problem based on the argument that a combination of policy and implementation challenges underlie local governments' difficulties in perceiving and creating new conditions for advanced digitalisation in public administration. The challenges include information security concerns, coordination of new governance networks, and legitimacy concerns in local implementation of e-government. These challenges, it is argued, are linked to local governments' capacity to develop and sustain new structures for supporting democratic governance. They need to be addressed in policy, practice and research.

In this thesis, I approach this research problem with the main purpose to analyse tensions that emerge in implementation of e-government in local public administration. I pursue this aim, through the following three research questions:

- What tensions can be observed in practice when local public administration is undergoing advanced digitalisation?
- How can such tensions be comprehended through the perspectives of network governance theory and translation theory?
- How can such tensions affect networks and advanced digitalisation in public administration?

Four fields of tension have been identified based on the analyses in the four papers. The following fields of tensions are presented and analysed in this chapter:

- tensions related to actors' different logics for adoption and implementation,
- tensions related to organising public administration and information security in ambiguous institutional arrangements,
- tensions related to professional use of digital platforms versus users' resistance and perceptions of control, and
- tensions related to security as purpose and value versus information security.

In this study, the tensions are defined as a state of latent striving, unrest or pressure in networks of actors undergoing change. When several related tensions can be observed in a specific policy or implementation process in a network, we can talk of a *field of tension*. The tensions under focus here lie in contests of meaning, in mismatch and opposition between old and new beliefs, in perceptions of failure or limited knowledge, or in dilemmas that arise in the practice of digitalisation. These tensions, I will argue, have important implications for governance networks and for upholding their legitimacy in the context of advanced digitalisation of services. I will further argue that these tensions have implications for further research and policy changes, which will be discussed in the final chapter.

Tensions Related to Actors' Different Logics and Dilemmas for Adoption and Implementation of E-Government

A field of tension is found in governance cooperation structures among regional and municipal actors adopting digitalisation policies. Two different attitudes to digitalisation among regional and municipal actors created a field rife with tension. Proactive and open attitudes or reactive and hesitant ones, in relation to digitalisation of services, affected municipalities' decisions to engage in governance networks. Tensions in this field are also fuelled by a dilemma, which will be called here '*small units' dilemma*', which is encountered by municipalities with fewer resources for handling advanced digitalisation projects on their own. As they faced the need to pool their resources with other actors, they also faced the issue of losing power when engaging in networks with larger, more resourceful actors. These different logics and the dilemma of small units seemed to affect these actors' engagement in governance networks on digitalisation. In the following, I describe these tensions thoroughly and interpret them using network governance theory. This field of tension has been identified through the empirical analyses in the RDA study, based on Gustafsson (2017).

Different Logics of Digitalisation as between Municipal Actors and Regional Actors

Digitalisation of public services, as part of a wider strategy for digitalisation, was governed by a hybrid, asymmetric and heterogeneous policy network including regional governments and municipalities in Östergötland (Gustafsson, 2017). The formal network was a result of political ambitions to operationalise and adapt the national digital strategy to regional and local conditions for development and growth. The network's relations with the municipalities, except for Linköping municipality, was mostly indirect and loose through the Regional Development Council Östsam. Closer engagement of more municipalities in the region was an acknowledged challenge and prompted further efforts by the regional actors to consolidate the network with the support and participation of the municipalities. However, a drastic reorganisation of the Regional Development Council Östsam and its incorporation with the County Council (see more on this in Chapter 4) severely affected the anchoring of the network and the agenda with the municipalities.

Both the regional actors and the municipal actors in the study expressed a main concern with 'ownership' of digitalisation in terms of responsibility to decide priorities, to finance projects and to implement digital services (Gustafsson, 2017). While the regional actors initiated cross-level collaboration on digitalisation strategies through the work on RDA, the municipalities still considered digitalisation a specific matter of their respective service area, reflecting their silo-organisation and logics. This tension arose from the main concern of some of the municipalities (usually among the smallest in the region) on the 'ownership' of digitalisation.

On the one hand, they acknowledged that they could not manage advanced digitalisation on their own. They feared that other actors – regional governments or large municipalities – could 'interfere' with their self-government powers in setting up priorities and direction for development. A lack of tradition of collaboration with regional actors, and a lack to perceive them as natural partners, made these municipalities more keen to engage in networks with other, neighbouring, small municipalities, which were perceived as facing similar challenges (Gustafsson, 2017).

Differences in Size and Capabilities

The actors in the studied region differed considerably in size and capabilities for digitalisation of public services. These differences affected in turn their respective needs for digitalisation. The two largest municipalities, Linköping and Norrköping stood out. Size had here implications for socioeconomic conditions, organisational resources and advances in digitalisation of their organisations and services. The smaller municipalities, especially those with decreasing population, referred to as 'shrinking municipalities' (Syssner, 2014), compared to the larger ones, had very

limited resources and had problems identifying needs and applying digital solutions. They seemed also to have difficulties to acquire relevant knowledge on digitalisation and assess the utility of digital solutions.

Common challenges for all of them, both small and large municipalities, concerned digital healthcare services, broadband infrastructure, procurement and citizens' habits and knowledge of digital systems (Gustafsson, 2017). Nevertheless, smaller municipalities struggled to identify service areas to start digitalising. They had difficulties assessing which technical solutions to use and their utility for both internal administration and for the citizens using the e-services. Small and shrinking budgets, insufficient knowledge and ability to operate the systems posed serious challenges for the smaller municipalities to integrate costly and risky digital solutions.

Small municipalities acted in conditions where they needed to cope with their socio-economic challenges. At the same time they needed to digitalise their services in order to provide equal access to public services for their inhabitants. In these conditions they faced the issue of looking beyond the existing vicinity networks and considering cooperation with other actors across levels of government, market and civil society. As digitalisation of administration and services was costly, they needed to cooperate and pool resources with other actors who had both resources and experience.

However, engagement in these networks involved at the moment a perceived power dilemma. Smaller municipalities, with less resources, expressed the need to be in control of their digitalisation processes. Therefore, engagement in such networks involved a dilemma for them. For them, it meant on the one hand, a certain loss of power over policy decisions in favour of large municipalities or the regional authority. They were perceived to take over the power to decide over digitalisation processes, and they had more knowledge of and experience in a governance network. On the other hand, non-participation in them would mean difficulties to address problems connected to digitalisation of services, quality of services and equal access. These decisions were especially stringent for the very small municipalities with decreasing populations.

Importantly, the central government's more active role in such a process was emphasised among municipalities. A perception of the central government's weak and unclear role in the governance of advanced digitalisation at local level also seemed to lead to uncertainty. According to them, more active involvement on the part of the central government in advanced digitalisation was required in order to provide access to equally secure public e-services of high quality throughout the country. The municipalities expressed a need for a national infrastructure for local public services. They sought more knowledge, management by recommendations and standardisations and also more resources from the state. Therefore the municipal informants asked for a more active and visible role from the central government and its agencies. The central government's involvement with few

resources and capacities for local digital infrastructures was thus perceived as a governance failing by the municipalities.

How Can Such Tensions Be Understood?

In the regional actors' frames of reference, the digitalisation policy was perceived as part of a broader structure of policies for regional development. At the municipal level digitalisation policies were either missing or in process of drafting. Interpretations of the policy thus differed, depending on the actors' regional or municipal perspectives. Different frames of reference among regional and municipal actors concerning digitalisation seemed to affect how the actors engaged in the studied network.

In the interviews with representatives of the small municipalities a logic could be discerned. In their interpretation of the new situation imposed by the national digitalisation policy, they seemed to refer to existing beliefs and institutional traditions. Specifically, these were in terms of new public management priorities, municipal and regional public administration regulations, the principle of local self-government, and sectorial administration. Some of the municipalities tended to focus their understanding of utility of the digital solutions versus costs and risks. Other municipalities, having decided on utility, focused their efforts on seeking and applying new digital solutions. In case of the former, their focus on utility assessments difficulties and problems to accommodate it with other existing priorities seemed to affect their engagement in governance networks.

When policies and expectations on more advanced digitalisation were introduced by the central government, the municipalities faced a new and uncertain situation. They appraised it in relation to the utility of the digital solutions for their organisation and service delivery. It seemed that in evaluating the utility of digitalisation versus its costs a contest of meanings emerged. In such a contest of meanings, the utility of the digital solutions was considered in relation to existing problems in service quality or delivery, in relation to failings in governance, or in relation to existing digital solutions. My findings showed that those actors who found a positive utility were also more positive and willing to advance digitalisation of their services and to engage in governance networks.

The findings showed that utility of the different digital solutions weighed against the costs and the current outputs of non-digital solutions seems to be a central issue for the small municipalities. In their decisions about digitalisation policies, municipalities sought primarily to assess the utility in relation to specific, isolated problems in their different service areas and in the pursuit of efficiency goals. For many of the informants, digitalisation seemed to be a costly affair with no guarantees of success. For others, digitalisation was perceived as an abstract affair that did not match any real needs (Gustafsson, 2017), so that cooperating in such networks was not an issue.

The dilemma of small units can be understood as a perceived governance failure among certain municipalities. In line with the Local Government Act and the principle of self-government, policy decisions concerning digitalisation of local government are the responsibility of the municipalities. In their turn, smaller municipalities with much less resources to govern digitalisation expect the central government to allocate more resources and play a more active role. At the same time, these municipalities are hesitant to engage in networks across government levels, with larger municipalities and the regional actors, as these are perceived to infringe on their self-government powers.

These different logics vis-à-vis the governance of digitalisation and difficulties in appraising the utility of digitalisation seemed to be connected to difficulties in assessing organisational implications of the different digital solutions and their priority in highly strained budgets. The following field of tensions focuses on the implementation of digitalisation in local practices. It should be understood in the context of the field of tensions that has just been analysed.

Tensions Related to Organising Public Administration and Information Security in Ambiguous Institutional Arrangements

If the previous field of tension lay in governance cooperation structures among regional and municipal actors, this field of tension was found in the local implementation of specific digital platforms. In this field, tensions lay in the concerns for information security, contestation of utility and added-value of the digital platforms in a context of unclear organisational arrangements and institutions. This field of tension emerged in conditions of unclear methods for managing higher volumes and new types of information, unclear internal policies and ambiguous institutional regulations concerning pupil-related data. It has been identified through the empirical analyses in the School study, based on Gustafsson and Wihlborg (2013b), Hedström et al. (2015) and Gustafsson (2014).

Different Organisational Practices and Perceptions of the Digital Platforms

When new digital technologies are integrated in schools, a field of tensions emerges between new information security concerns and existing organisational arrangements which can affect the content and quality of educational services. The schools in the municipality, as in the rest of Sweden are using a diversity of digital systems to administer their work. As national regulations require systematic documentation and follow up of pupils' school progress (Utbildningsdepartementet, 2009/10:165), the municipalities and the schools are

using different digital tools in order to store, process and communicate pupil-related data.

However, we found that integration of digital platforms in the schools' everyday practices was partial and difficult to coordinate by the municipality (Gustafsson & Wihlborg, 2013a). Perceptions by the users and applications of the platforms in the different schools differed largely in the municipality. This was partly due to the institutional arrangements according to which the schools enjoyed large autonomy in relation to the municipality. This meant in our case that the school principals and their staff decided upon compulsory or optional use, frequency and extent of use of these digital administrative tools.

The findings showed that the use of platforms like FRONTER, DEXTER and SKOLA24 by the teachers, pupils and parents was highly influenced by the principals' perceptions about digitalisation. This was reflected in their leadership and prioritisation of digital solutions for the administrative burden. The schools' work with the platforms depended also on the teachers' perceptions about the effectiveness, utility and security of the IT-platforms. Other important and affecting aspects were the schools' internal organisation of skills and responsibilities connected to the use of IT-tools and the existing work methods on pupil administration. When the principal promoted the platforms, the school was more advanced in their work on the platforms. The platforms' integration into the schools' work methods and routines was more 'natural'. In those cases the platforms were given attention, time and resources in terms of IT-skilled teachers and IT-support personnel. In those schools where the utility of the platforms was unclear for the principals – coordination and decisions concerning the use of the platforms was problematic. As interviews showed, the management in some schools were critical of the added value of the platforms for their work and thus did not give clear decisions to the personnel on whether the platform should be used obligatorily and systematically. To conclude, there were few established and clear organisational practices in relation to digital platforms in the studied schools.

Difficulties in Categorising the Information

Teachers, school principals and municipal administrators perceived increasing difficulty in categorising the sensitivity of pupil data. The growing volume of heterogeneous information to be stored on the platforms as a result of more integration of ICT in their everyday administration practices created difficulties and concerns. More and new information meant a burden for the teachers to categorise it in relation the old definitions of sensitive data in the regulations and under the pressure of access to public data principle. The need for secure login to the platforms was acknowledged by the users as important and necessary, for the purpose of better protection of pupil data.

The findings showed that the tension was sustained by teachers coping with management of administrative and documentation burdens. There was a

conspicuous problem of time and skills related to using information technologies and introduction of new tools for teaching and administration. The teachers reported that it took longer time than otherwise to process the information through the platforms. The lack of skills in part of the personnel – more general IT skills, but also related to the specific platforms that were recently introduced – added to this difficulty. Difficulties also emerged due to the rigid design of the digital platforms that did not match and could not be adapted to match the schools' own templates for the pupils' progression monitoring and planning. There was no translation between different administrative practices in place that could embed the digital platform into the work practice. This led to concerns on changing the content of the schools' methods of pupil assessment, which met resistance.

Technical Issues

Besides the organisational matters, the integration of the platform was also challenged by technical issues. A range of digital platforms, not connected with each other and with overlapping functionalities, seemed to complicate teachers' work rather than facilitate it. The use of different platforms and with different and overlapping functionalities was an issue of great concern for them. They perceived this as an increase in the administrative burden rather than a reduction of it. Comparing their previous experience of platforms from other organisations, some teachers did not perceive FRONTER as effective.

We also found that the platforms' technical usability was problematic in practice. These issues were primarily connected to the platforms' technical performance and support – an area that went outside the competence of the schools. In addition, the need for secure login to the platforms such as eID complicated the issue, since different support systems (e.g., BankID, Telia, SEB, Posten, Nordea) were provided by a chain of different authorities. The information about which authority was responsible for what support service was not clear at that stage. This meant that municipal administration could only provide partial support, which generated concerns among the users of the platforms.

It was also emphasised by the municipal IT-coordinators that more technical development was needed in order to make the platforms and the secure login to them more user-friendly. This was necessary so that it would not disrupt the administrative workload through rigid structures and imposed templates, or increase the work load further. A technical dilemma was acknowledged as being based on demands for higher security of the digital tools on the one hand, and their intuitive and flexible usability in practice on the other. In addition, making eID a key for accessing information to multiple platforms, both professional and private, raised concerns among teachers about tracing user activities for the purpose of surveillance (Gustafsson & Wihlborg, 2013a; Hedström et al., 2015).

Trust Matters

Users' trust in the e-services was found to rest upon a range of conditions. Among these, the development of support structures with clearly defined roles for the agencies was found to be important. Also important conditions were users' skills and attitudes towards the use of digital systems in schools and competence development measures targeting the different groups of users in the schools. Trust in the digital systems used by the municipality (and other authorities) seemed to be a core element for acceptance and use of the different IT-solutions. Users' in the systems was challenged in several ways. The unclear and unpredictable login by eID made the users add extra back-up systems and printed copies of information in the systems. Thereby the trust in the information in the system could be further questioned. The limited support for the users, when the users only could get support for some type of issues by the municipal administration, further challenged their trust in the platform.

These platforms had a standardised and coordinative function that did not fit into the decentralised and flexible organisation of the schools and their work methods. Software companies have designed and provided all-inclusive platform solutions, especially in the case of FRONTER. But the local implementation in schools was to various extents limited, making space for frustration. In addition, the Swedish national eID connection to these systems presents a challenge, which I will return to by the end of this chapter.

How Can These Tensions Be Understood?

In generic terms, digitalisation of education can be viewed as a governance process. It is a process of steering society through collective action based on common objectives of improving quality and effectiveness in management of educational services (Torfing et al., 2012). The actors that are involved are: the local public administration in municipalities and the schools, the companies designing digital tools, and the authorities providing technical support. Thus a diversity of actors are involved that cuts across public and market domains, across professions (bureaucrats in the municipality, school principals, teachers) and across levels of government (local, regional, national). Teachers are central as they act here as nodes between *governance* – contributing to policy, strategy, rules and norms in local practices of digitalisation – and *implementation*: through their use of the platforms and contact with pupils and parents. These networks activate and have to relate to a system of national laws and regulations concerning education, public administration, and access to public information, among other things.

When applying an institutional perspective on networks, a central question is how requirements for pupil systematic monitoring, on the one hand, and pupils' integrity due to information security and storage concerns, on the other, enable or constrain integration of ICTs in educational services. This intersection of policy aims created a lot of concern and tension. The schools struggled to develop work methods to deal with the administrative work. Tensions emerged in forms of

interpretation dilemmas, when some of the teachers and sometimes the leadership in schools were not certain about the effectiveness of the digital platforms and the security of stored information. Especially in the leadership case, this uncertainty in the utility of the platform resulted in unclear priorities and policies concerning integration of the platform into the schools' work methods and routines.

In addition, ambiguities emerged in practice when different regulations were to be applied to the larger volume and more heterogeneous information generated and stored in the platforms. Regulations on systematic pupil monitoring and on what counts as sensitive pupil information left much of this information in a grey zone, as did the principle of access to public information.

The interdependency and governability explanation models would approach such tensions by focusing on the conflicting interests of the actors and treat them as a problem of coordination. The analysis would focus on understanding the different interests that underlie actions of negotiation and coordination for the purpose of joint action and resources pooling in the network. Such models would examine the basis for trust among the municipal administration, the schools, and the companies. Resource interdependence, complexity of the challenges in education, and actors' rational thinking will eventually drive their actions towards eventual closure or failure of the network. Finally, institutional adaptation will occur and digital services will be incrementally combined with existing practices in the schools and the municipal administration.

However, in order to understand the actions and the processes that occur when decisions are made inside the networks, in informal processes – their internal politics – we need more detailed information about everyday practices. The decentred or interpretive accounts on governance focus on actors' interpretations in local practices as drivers of change in governance (Bevir, 2011a). Our material showed that everyday actions abounded in individual users' struggles to make sense of the new digital tools. They had difficulties combining the new platforms with existing methods and tools. Importantly, they met difficulties in assessing the new tools' utility for their work practices under the conditions of strong institutional and organisational constraint that govern educational services. It is thus individuals' interpretations of digitalisation policies and their perceptions and meanings that were created when digital platforms were integrated into their work that eventually could lead to changing the networks and their behaviour.

The findings also show that there were perceptions about failings in organisational arrangements and contests of meanings about use of the platforms. These concerned primarily smooth usability of the new tools, doubts about their utility, and unclear policy of use. In the time frame for our empirical research (October 2012 – November 2013), the different platforms were being implemented differently. Dexter was an older platform, while FRONTER was relatively new. This meant that DEXTER had been practiced for a longer time, while FRONTER was just in the initial phase for integration into the schools' practices. Some teachers, pupils and principals, as well as parents, had thus less experience, more

questions and doubts about the new platform, having thus difficulties combining the latter with their current perceptions. A contest of meanings took place. Attitudes towards the new digital platform varied among the teachers: from being positive and perceiving the platform as providing useful tools for managing data, to being sceptical and critical of yet another complicated tool. But a shared perception that dominated among the actors concerned the need for a clear policy or a decision on the compulsory or free use of the tools by the teachers.

Another contest of meanings that generated tension concerned the perceived security of the platforms. Contesting meanings emerged when the users compared their previous experience and knowledge of platforms with the new tools to be integrated. Such a comparison brought up the security questions. The platforms were perceived as not totally secure. An interesting finding pertaining here was the role of trust in technical experts and the authorities, expressed by those users who lacked technical knowledge, a frame of reference. Reliance on the municipality's competence and responsibility to ensure the security of ICT platforms substituted for the lack of knowledge and the contest was thus partly solved. This substitution of knowledge seemed to be enough for at least some of the users to assume that the platforms were secure. This substitution also sustained trust in the authorities and their role in ensuring the security of the platforms (Gustafsson, 2014).

Another source in the contest of meanings concerned information security and sensitive data. It created ambiguities in how to categorise new pupil data stored on the platforms. One central object of concern in public services – in our case education and healthcare – was the content for sensitive data about pupils and patients and its proper administration through digital systems. These two service areas differed considerably in their practice and experience of managing sensitive data. Sensitive data implied higher demands for secure handling of information – both in technical terms, through the digital systems and in procedural terms, through organisational routines and methods for addressing sensitive information.

In our study we found that sensitive pupil-related data was of different character and was regulated differently depending on its nature. Information was clear when it came to institutionalised processes such as those connected to medical and psychological investigations where pupil information was categorised as 'patient data'. That kind of information was not stored in platforms such as FRONTER or DEXTER, but on securely stored paper files (as was the regulated practice). This kind of data was however stored in patient journals that are currently digitalised and available for healthcare actors.

The picture became much more complex and unclear when it concerned the rest of the information that was produced in the schools. Contesting meanings on what information was to be considered sensitive and how it should be handled was a central tension in the schools. The schools produced and handled a much larger amount of information that was not categorised as sensitive and still could be valued as sensitive by the pupils, parents or teachers. This could be compared with the protection of sensitive data in the patient journals from healthcare, which was

highly regulated and formalised in institutions. In the healthcare, the organisations have also had a longer tradition to translate sensitive information in the context of these institutions and develop methods and routines in local practices.

The users' experience in this study showed that the area was grey in the sense that there were no clear legal regulations or policies to address this new type of sensitive data produced in schools. For example, Pupil Written Assessment and Individual Development Plan could be perceived differently. When asked about regulations, it seemed unclear for the teachers in our study whether these documents were subject to the principle of public access to official records. Depending on this, teachers wrote these assessments with different levels of detail, which in its turn provided a different utility for the pupils and the parents. The interviewed pupils confirmed that this information was of quite general character and provided only limited help for development of their learning. In this case we could see how the categorisation of information as public and how uncertainty of how to categorise and administer the information could influence teachers' work with pupil information.

To sum up: the use of digital platforms in schools happened in a context of uncertain and unclear organisational and institutional arrangements. In such a context the implementation seemed rife with tension based on the users' differing perceptions of the platform and difficulties to categorise information produced through the platform. These tensions are understood as implementation related tensions, where the users contest the meanings of information and information security and perceive governance failings in their local practices.

Tensions Related to Professional Use of Digital Platforms versus Users' Resistance and Perceptions of Control

Like the previous field of tension, the third identified field also lay in the local implementation of specific digital platforms. It was expressed in resistance and concern of the professional users when eID was made obligatory for accessing the platforms. Importantly, the teachers and healthcare personnel expressed concern that their private and public activities (through their work in the public sector) and the information that is generated as a result – are mixed. By extending the functionality of the eID for work purposes the private and public information about these users could be mixed. Acknowledging the importance of secure login to such systems, they were concerned by the blurring of private and public spheres through the digital tools. The concern related to intrusions by unauthorised users, threats to integrity, and surveillance from other authorities or market actors (Gustafsson, 2014). These concerns seemed to fuel an underlying resistance from the users, which in the context of advanced digitalisation could have implications for the

legitimacy of public administration in terms of trust. Translation on deeper levels can lead to networks of resistance and reassessment of power and control relations between professional groups and local public administration.

This field of tension has been identified through the empirical analyses in the School study, based primarily on Gustafsson (2014) and Hedström et al. (2015). The tensions' different outcomes and expressions in school and to some extent healthcare practices are thoroughly described and analysed below.

Extending the Use and Functionality of Digital Tools

To understand the issue of extending functionality of secure digital tools, a short description of the context to the Swedish eID will follow. Information security requirements grounded in the Patient Data Act (*Patientdatalag* 2008:355) and the Personal Data Act (*Personuppgiftslag* 1998:204) concerning pupil and patient data – demand a secure login to the registry and storage platforms in Sweden. The national eID system, is issued by different authorities and banks. It is connected to the personal number and serves as an ultimate authentication tool equivalent to the personal ID. It is currently one of the most secure tool that is used to access such platforms. In policy and practice, eID is also generally considered a key-enabler in pursuing efficient and secure contacts between citizens and the authorities. Secure login, such as eID or security cards in our study, is increasingly used (with the prospective to make it obligatory) in order to use the digital systems in schools and hospitals, in order to meet the requirements for security authentication (Hedström et al., 2015).¹⁷ But the use of secure login tools is extended to a variety of services and advanced platforms. It is no more solely limited to specific digital platforms and intranets, but as in the case of the hospitals in our study, also include access to the buildings, parking facilities, and services at work.

However, the eID and similar security tools, through their extending functionality and frequent use in highly digitalised public and private service systems, becomes more than a key to pass. Especially, this is due to the volume and the character of information that it generates. More connected digital platforms need to be used increasingly in order to access e-services, for both private and public purposes. As the systems become inter-linked and data is easier aggregated for analysis, it creates a library of information about each and every user's activities. In conditions of ambiguous regulations (see tension 1), the sources of users' main concern are their limited knowledge about who has access and control over such a library. Also, who has the tools to analyse it and the rights to share parts of it with other actors, are of main concern for these users. This implies that the user and her information finds herself no longer in a clear, regulated relation between the citizen and a state authority, but instead facing a network of different actors – not entirely known and clear to her.

¹⁷ For more research on eID implementation in Sweden see also Söderström (2016).

When systematically using an eID with extending functionalities, it leads to a mix of private and public activities. This mix of activities and information, I argue, is creating tension. This raises concerns as – eID becomes a key with highly sensitive information, both private and professional. This key leaves traces of the user's activities when interconnected e-services are accessed and used. When the systems interact, an entire library of information about the user is becoming available for analysis. The questions and concerns that arise are what information is stored, who has access (as different authorities now issue the keys) to it, for what purposes it is used, what principles are governing access and use of the personal information and who is accountable when breaches occur? The user loses track of her own information and who has access to it, as different actors – besides the authorities, such as banks, developer companies, insurance companies, and private healthcare companies – are involved in development and use of different IT systems. The tension arises from knowing that information is gathered, but not knowing who has access to it and for what purposes it is used or what shall be possible to do with it in the future.

How Can These Tensions Be Understood?

This field of tension arises in practice and is rooted in individuals' increased and extended use of technologies. Such tensions imply that in the context of advancing digitalisation something is changing the relations between the professional groups in the public administration. Also, a context of both strong and weak institutions allows for different translations of digitalisation in local practices. Because advanced information technology and their systematic use enables for information gathering and storing – new actors, with unclear roles and identities – not one single authority as earlier – enter the field. This means that current networks of actors, both in policy and in implementation, are undergoing change. The connections between them, principles, and rules governing them, are unclear or not sufficient to respond to the concerns described above. How these relations stabilise and how the new associations in these networks arrange can have certain effects on how power is distributed and how new agency is formed.

This field of tension can be understood as a translation process. In such a translation process the actors: teachers, healthcare personnel, the school principals, the municipal education or Regional Council bureaucrats, politicians, municipal IT support – negotiate and delimit their identities in relation to each other. When advanced digital platforms are to mediate delivery of services in education or healthcare, the configuration of these actors' interests, identities and roles undergo changes or transform in one way or another. Identity of the user as an individual person is associated with personal data, integrity, history or patterns of action. The identity of the teacher as a professional and authority, is associated with collecting and storing pupil data. These are perceived by the teachers and healthcare personnel as enmeshed through the frequent and obligatory use of the eID. These tensions can be viewed as being a part of the problematisation in a translation

process. In this process eID is gradually made an obligatory passage point (OPP). This means that the users can only access the platforms by using the secure digital tool. The actors who provide and support the eID (and the information generated by it) will thus have a more powerful role in the network. But it can also be that the introduction of eID triggers problematisation. In such a case problematisation does not solely encompass questioning the tool itself (its extending functionalities) or the obligatory and systematic action that is associated to it. It extends to searching and questioning the network of actors, their identities and roles in the context of delivering public services. The teachers and the healthcare personnel find themselves in a new situation where they need to use secure login to the different digital platforms, both those in their work and outside it. As they work and interact with different digital systems, they need to use their eID for security purposes. It is when eID is made a key to access different platforms for services - both public and private, when they express hesitation, questioning or resistance to use it.

This translation relates also to the different purposes that are associated with the eID. This means when eID is used for private purposes, it is part of one network of associations, while when it is used for professional purposes, it is part of another network. Thereby the use of eID in professional contexts are embedded in several practices and can be overlapping or even clashing with other meanings given to the eID. In each separate network, the actors are clear, their identities are established and rules, modes of action are known and practiced. In the relation between citizen and local authority, the citizen knows exactly where to turn to, who to contact, what services are offered and where to access. The citizen also knows what the options are when the authority fails to deliver a service, what the principles for good service are and how it should be held accountable. Such a network is stable and the relations between the actors are 'institutionalised' in form of norms, rules and procedures of conduct, as network governance perspective would show.

Similarly, when the eID is used for private banking purposes: the relation between a private person and a bank is clear. The actors know who they are and what they can expect from each other. In terms of our tension, the struggles and resistance occur when networks from these different translations overlap and as a result, new parts of their identities, interests and activities are revealed by a digital tool that is made an OPP for both. This generates a new condition for the networks. It triggers a new problematisation, where again the identities, interests and roles need to be clarified and new associations in terms of rules and modes for action need to be negotiated.

Importantly, the tensions generated by concern, struggle or resistance to OPPs analysed here are understood as an inherent process of change in networks. Therefore, these tensions are neither a positive nor a negative phenomenon in themselves. Therefore the professional users' translation of secure login systems, such as eID, are important to be understood, in order to follow both the context

and the process in which integration of advanced digitalisation happens and the challenges that it involves.

Tensions Related to Security as Purpose and Value, versus Information Security

While the former field of tension was based in translation of actors' new identities, roles and relations in the different networks, this last field was identified in the *translation of meanings* of security. This tension was dwelling in the subjective realm of perception. It was specifically connected to the problem of protection of new and increasing personal information volumes that was produced in advanced digital platforms. More specifically, this tension lay in the contestation of meanings when old concepts of security were meeting the new reality posed by digitalisation in public services. Security related meanings of purpose and values were meeting new meanings when sensitive information was to be secured. This translation was rife with tension and was at the root of trust that supports legitimacy of digitalisation processes, I will argue. This tension has been identified through the empirical analyses in the School study, based on Gustafsson (2014).

Security as Purpose, Value, and Information Property

What security meant for the individual's identity, her interests and her roles in practice – became central for the actors when they started systematically using advanced platforms for accessing and storing sensitive information. These concerned in our case educational services and healthcare services and their respective administrations. The teachers, the principals and the healthcare personnel perceived extension of functionalities of the tools and platforms as gradually producing sensitive information about their pupils and patients. Both their perception of the character of the information being stored, but also security tools such as eID or ID-cards that were made OPPs to access this information – triggered a problematisation process where the meanings of security were reassessed and reassociated.

As discussed, security of information was becoming a prerequisite for advancing digitalisation of public services. Due to the advancing digitalisation and technology development, much focus and work was put into *security* to give it a specific institutional meaning and agency (Gustafsson, 2014). My analysis showed that individuals on a most basic level associated at least three dimensions of security: security as purpose, security as value and security as technology or information property. I will describe these briefly below, but for a more elaborated description see Gustafsson (2014).

Security was associated with *purpose and intentionality*. The individuals have experienced different situations of insecurity or no security earlier. They compared their previous experience with their current practices and perceived differences.

They had a belief that security, associated with a protected state – that she herself (the user), or somebody (the pupil, the patient) or something (the information) was to be protected from abuse. In the individuals' assumptions about security, an intentionality could be discerned. This intentionality was connected to the belief that security was desirable and necessary, which led to the attribution of purpose to security.

Security was also associated with *value* of protection of the person's integrity and privacy. As much of the practice and information concerned children, perceived as a vulnerable group – protection of their integrity and privacy was highly valued. Importantly institutional arrangements concerning protection of children's integrity and privacy were referred to and problematised as being ambiguous in the context of higher volumes heterogeneity of pupil data generated in advanced digital platforms.

Security as technology property was associated closer with the digital platforms and security tools. Security was associated with technology. But it also associated with the information generated and stored by the technology. If the technology was secure, the information was secure too. Associations here referred to abuse risks, technical requirements, compliance, operation, breaches. The individuals – the users – differed in their associations depending on how much they knew about the technology involved and what they did in their practices.

Importantly, for some of the users (both among teachers and school principals) limited or lack of technical knowledge about the platforms was acknowledged and justified that it was not their primary responsibility, as their core activity was to teach and not solve security issues. What seemed to play an important role for what I called *substitution of knowledge* in Gustafsson (2014) concerning security as a technology property, was their *trust* that more knowledgeable resources were employed by the municipality to handle technology related security matters. On the other hand, the interviewed FRONTER administrators and IT-coordinators firmly believed that the teachers and other education personnel needed to be more knowledgeable about technology security. An advanced use of the platforms involved considerable more knowledge and understanding about how to adapt the platforms to their work methods, how to solve problems related to that, including security matters. Among the teachers and school principals, however a certain distance towards the technological aspects could be observed. Responsibility for technological security was not perceived as being shared. It was not seen as a primary responsibility of the teachers.

How Can These Tensions Be Comprehended?

In a translation process, actors redefine their identities, roles and interests in relation to a problem, new information or a new situation. The teachers are thus facing a change in their practices connected to accessing the platforms for registering, editing and using the stored information. Struggles are rooted in users'

different beliefs, experiences and attitudes towards technology related properties of security. Systematic and extended use of eID in this case is required in order to protect the information that is stored on the platforms. eID is thus made an OPP for the different users of the services and the platforms that administer them. These users are now in a problematisation process where security meanings connected to their practices and the information generated in these practices are reconsidered.

Problematisation in this case involves a struggle and negotiation of meaning concerning security. As described above, translation of meanings happens through association of security meanings with the eID and the platforms, with the information in these platforms, the pupils' integrity and privacy. Intentionality and attribution of purpose for achieving security can be understood as part of associating it with basic human activity. The individuals perceive security as desirable and necessary. Protection of sensitive information for guarding pupils' integrity and privacy associates security with a certain value. These associations are then correlated with their respective roles and practices as educator, pupil, parent, and administrator. Because each of these will have different identities and interests, but also different relations to each other, e.g.: pupil vs teacher, teacher vs principal, teacher vs parent, meanings of security will thus undergo different interpretations. Some of them will seek absolute security and pursue compliance, others will be hesitant and questioning, fearing control and abuse, yet others will be indifferent.

Importantly, following these different associations, protection of the vulnerable child and information about it seems to be a bottom line. Protection seems to be a value that is not negotiable. The meaning associations connected to it seem to be stable. The need for protection of the pupil information is an OPP that was previously assessed, negotiated and strongly regulated. It is an OPP that is not questioned in this translation. What is new now is that it needs to be re-associated with the new OPP – i.e., eID. Struggle and tension on how to accommodate these obligatory passage points will be inherent in such problematisation process. This explains the tensions that arise when questions are asked about who others than the users have access to the OPPs and how these can be held accountable. Such questions are posed both in relation to the user producing the information and in relation to the protection of pupil information as an established OPP.

What also seems to be of importance here is the existence of limited knowledge on the security as technology property and the individual's choice to accommodate it with trust in authority (i.e., security experts and the municipality that employs them). In such a translation, limited knowledge about the intricacies of the OPP seemed to be compensated with trust that there were other actors in the network who had more knowledge and were accountable through the authority (municipality). That would suffice their translation of meanings of security as technology property. This observation is important to have in mind since it further

associates with legitimacy of networks that implement advanced digitalisation processes.

To sum up, translation of meanings of security is rife with tension. Important tensions lay in the contestation of older meanings of security such as purpose and value, versus security as technology property when sensitive information in schools was to be secured. In this translation of meanings of security, trust seems to play an important role, as knowledge about the security as technology property is limited.

VIII. REASSEMBLING LOCAL E-GOVERNMENT? CONCLUSIONS AND DISCUSSION

The empirical problem that has justified this study has been described in terms of local governments' practical challenges to create and sustain conditions for advanced integration of ICTs in public services. In multi-level government systems, and especially in local government, these challenges link importantly to difficulties in governance and coordination mechanisms that have effects upon legitimacy aspects, in terms of equal access to services, trust and accountability in public administration. In the Swedish context, these challenges are to be addressed in collaborations and joint actions by autonomous state, regional and municipal actors marked by strong self-government powers. Advanced digitalisation in this government structure, challenges existing power relations and requires considering new forms of governance and collaboration networks. To approach this problem, the main purpose of this thesis is to analyse tensions that emerge in implementation of e-government in local public administration.

Based on the analysis of the empirical material as presented in the four papers included in this thesis, four fields of tension that emerge in practice of digitalisation of public services in Sweden have been identified and analysed in Chapter VII. Two fields of tension have been described (first research question) and analysed using interpretive network governance theory (second research question): the tensions related to information security challenges, in the context of unclear organisational arrangements and institutions; and the tensions generated by the small units' dilemma. Using translation theory, two other fields of tension have been described (first research question) and analysed (second research question): the tensions related to public service providers' perceptions and concerns for

privacy, integrity and control; the tensions involved in reassessment of meanings of security in the context of advanced digitalisation.

Into the Depth of Advanced Digitalisation Challenges: A discussion of the four tensions in relation to the empirical problem

The third and the last research question in this thesis asks how tensions affect networks and advanced digitalisation in public administration. I will address this question by discussing them in relation to the empirical problem. So, in what way do these tensions help understand challenges of advanced integration of ICTs in public services? What new insight does this analysis bring to understanding this empirical problem? In the beginning of this thesis I have described how high expectations on digital technologies in modernising public services, as expressed in digitalisation policies, are faced by demands on transparency, accountability, efficiency and quality of services in the public sector. These are posing significant challenges for local public administration that can affect their legitimacy supporting mechanisms. New concerns such as information security, privacy and surveillance emerge in the relations between public service providers and service users. Moreover, these concerns multiply as new actors from public and private sectors become involved in the process of public service provision and support of the digital information systems.

Digitalisation of services generates unprecedented volumes of information of different sensitive character. How this information is to be handled by public administration, in practice and in regulations, and how to reconcile ambiguous institutional frames are issues that generate significant tension. Relevant skills to adequately handle this information through digital platforms and respective adaptation of work methods in the schools seems challenging. Adequate categorisation of new types of information and institutional arrangements on public access to information and protection of personal data are currently unclear and generate grey zones for the public service providers in practice.

Using interpretive network governance (Bevir, 2011a; Bevir & Rhodes, 2007) I argued that these ambiguities were rooted in the actors' differing perceptions of information security that seemed to come from inexperience of use, low trust for the technology and technical problems with the platforms. Using translation theory (Callon, 1999; Latour, 1991), I argued that actors' revising of meaning and functionality of information security on a more basic level seemed to play a role. Ambiguities concerning integration of new digital tools into the work routines were rooted into unclear organisational arrangements in terms of policy of use, leadership's engagement with schools' adoption and integration of new digital tools, and the resources invested therein. This shows how the outcome of the translation is contingent on the interplay of the actors' interpretations, knowledge and resources in the networks.

The concerns linked to the volume and character of information stored and handled through the different platforms were reinforced by the users' critical perceptions towards the mix of private and public information that eID enabled. Extending the functionalities of the security tools was perceived to blur the private and public sphere of activities. This perception raised users' concerns about unauthorised intrusions, as well as integrity and surveillance risks. The tension that emerged was based on admitting the need for secure platforms, while meeting the concerns for the character of information that these platforms enabled and the eventual decisions affecting the users.

Using translation theory, I also argued that this dilemma and the tensions it sustained seemed to be alleviated by trust in public authorities. The users of the platforms – both service providers in administration and service consumers – trust that accountability mechanisms and security expertise in the public administration would address the technical and security aspects on their behalf.

Furthermore, to connect back to the challenges of adapting work methods and priorities in public administration to the digitalisation concerns, referred to as an integration problem, it is important to understand what fuels the users concerns and what alleviates them. From network governance and translation perspectives, I have shown that uncertainty and ambiguity of the existing institutional and organisational arrangements on information security seemed to both be alleviated by the trust in the authorities, while at the same time it seemed to put their trust under pressure. It can further be argued that while trust and accountability mechanisms were under pressure from the different tensions, it could have important implications for the legitimacy of digitalisation processes in public administration.

Governance Challenges: Different logics

The challenge of advanced integration of ICTs is framed in this study in terms of a challenge of governance. Business-as-usual strategies reinforce existing government processes and promote incremental changes when public services are digitalised (Bekkers & Homburg, 2009; Norris & Reddick, 2012; Zhang et al., 2014). Cross-level collaborative models of governance focusing on advanced digitalisation of services are emergent (Bevir, 2011b), but business as usual behaviour and drainpipe models of governing are prevailing. In this study, with the help of network governance theory, the business as usual logics and incrementalism in advanced integration, can be explained by the tensions arising from actors' different logics concerning digitalisation.

Namely, the proactive and open attitudes, observed in regional actors and some municipalities facing the reactive and hesitant attitudes observed in smaller municipalities. The latter come up most obviously in two aspects: a) in municipalities' difficulties to assess utility of new ICT solutions for their services and organisation, in the context of their limited budgets. And b) in their concerns

for unclarity in ownership of digitalisation resources, processes and effects when they consider engagement and commitments in governance networks. In the Swedish context, under the self-government principle, interference of other actors in the affairs of the different local and regional affairs is guarded and protected by robust regulations. Advanced digitalisation is by these actors considered a specific matter of the respective municipality.

This governance challenge is underpinned by the dilemma of small municipalities in my study. These actors' limited capacity to manage advanced digitalisation changes on their own or in existing networks, faces the prospects of losing control and powers in favor of larger actors, with more resources and capacity. In many cases they had acknowledged their limitations in managing advanced digitalisation of services. They had also acknowledged that they had to commit to collaborative actions. However, these collaborations had so far been limited to the existing networks with other small municipalities from their vicinity, as these were perceived as most similar in their challenges and needs. However, emergent cross-jurisdictional governance networks similar to the e-Health programme, were perceived by these municipalities as a new governance structure providing valuable experience for the new forms of collaboration in digitalisation of local public services. To address this governance challenge, further digitalisation of public services in education may follow similar governance mechanisms as in the case of the healthcare services.

Tensions Underlie Change in Governance Networks

In relation to the third research question, how can these tensions affect networks for governance of advanced digitalisation of services? What can these tensions say us about new forms of governance or changes in governance forms? As the analysis and discussion above have shown, *trust* seems to play an important role in coping with some of the tensions and uncertainty that digitalisation brings for the users. But their trust is in its turn affected by the nature and perceptions of the tensions by both the service providers and citizens using these services. As users trust their organisations – in this case public administration – to cope with information security threats, their trust may be either strengthened or eroded depending on how public administration – at the different levels of government – handles it in practice. Out of this analysis, it can further be reasoned that the trust may be at stake when service providers feel uncertain about how to categorise, handle and protect higher volumes of heterogeneous information in a context when the existing institutions leave a growing part of it in a grey zone and when organisational arrangements about implementation are not clear. As trust is a central legitimacy supporting mechanism – these tensions should be carefully addressed.

From this analysis, it can also be concluded that power versus capability dilemma, or as it was called, *the dilemma of small units*, constrains small

municipalities' engagement in cross level governance networks. A logic of ownership of digitalisation in the respective administration – supported by the principle of self-government – make the municipalities to search for own solutions in neighbourhood networks. A logic that differentiates the smaller municipalities and their specific problems from the larger ones, and even more from the regional actors, enables them to maintain local vicinity-based networks and preserve collaboration at local level, 'among the likes'. This, in some cases, can hinder their engagement in larger, new or cross-level governance networks.

Main Conclusions

Finally, based on the four fields of tension presented and discussed in this thesis, with the help of network governance and translation theories, the following two main conclusions can be drawn:

- Advanced digitalisation in public administration is underpinned by certain fields of tension. These tensions are states of latent striving, unrest or pressure in networks of actors undergoing change. Different logics of implementation of e-government in governance cooperation structures make up a tension-laden context in local practices. In local public administration, uncertainty about rising volumes and character of information generated by digital platforms emerges in a context of unclear organisational arrangements and institutional ambiguities. Professionals' use of the digital platforms is also rife with tensions, where the perceptions and the meanings of security are undergoing change. Users' trust and accountability perceptions seem to alleviate some of these tensions. But such tensions may also put the trust mechanisms under pressure. Depending on how actors in public administration cope with these tensions in practice, citizens' trust for them will be affected.
- New governance networks focusing on advanced digitalisation in public services are emergent and meet significant tensions especially among the municipal actors. The reactive and hesitant attitude among smaller actors, resulting in business-as-usual and drainpipe strategies – still persist in practice. The identified small units' dilemma in such governance arrangements is imminent for the networks. A more clear and proactive role of the central government in such networks can be one important channel to address this dilemma by supporting local government of different sizes with different resources.

Contribution

The contribution of this research is a more detailed insight on the processes and challenges involved in integrating of ICTs in public services and administration. This kind of knowledge is important in order to understand deeper the complexity of problems that are involved in constructing and steering e-government. Context specific knowledge about: uncertainty and structural ambiguities involved in collaboration between actors in local practices, tensions that arise in networks, lack of engagement of actors, and actors' contingent interpretations of technology – is important in order to understand what processes are involved in construction of e-government.

Most of managerial and evolutionary studies of e-government frame problems similar to the one approached in this thesis as management or development problems. Therefore they construct instrumental models to solve or monitor them, i.e., knowledge for practical management. Such perspectives downplay the importance of governance and policy collaboration between actors that extend beyond specific organisational structures. This thesis argues that managerial framing of e-government problems is limited to specific organisational boundaries and managerial logics and that other perspectives need to be taken into account. Thus the knowledge that this thesis has produced is not directly about solutions to e-government problems or more specifically to the problem of deeper integrating ICTs in public services and administration. The analysis has aimed to understand the process itself, in its complexity. It has done this by identifying and focusing on certain fields of tensions inherent in the process of change that is involved in implementation of advanced digitalisation. This knowledge in its turn can lead to a different or new framing of problems of e-government. Such a framing shows how the change in networks of actors that govern or implement digitalisation happens through translations of meanings, interpretations, concerns and dilemmas.

Further Research

In terms of further theory development the question is how can the two theoretical perspectives used here, interpretive network governance and translation theory, inform theory development research. In this study they have helped to identify and explain tensions that lie beneath the 'surface' of existing structures, by focusing on the individual actors' perceptions, questioning and interpretations of the new reality; and concerns posed by advanced digitalisation in their work of providing and administrating public services. Both perspectives are helpful to catch processes of change or construction of relations in existing networks or in those not yet fully established, that are still under construction or are undergoing change.

Interdependency and integration theories of network governance can argue that it is uncertain and improbable that individual actions can spark any significant change to transform an entire network. Still, as the analysis in this study shows,

significant tensions and dilemmas are rooted in individuals' applications in practice and translation of existing regulations to new types and higher volumes of information enabled by information technology. To respond to the call on understanding how networks form, function and develop (Sørensen & Torfing, 2007), it is important to thoroughly analyse if these tensions add up or reinforce each other and in what ways they spark changes or create new agency that affect or challenge the existing patterns of rule, institutions. The questions about how the different tensions reinforce each other and how they affect networks and governance patterns need more attention and are matters for further research. The extended definition of *actors* and especially the notion of *agency* as associated with technology, as inspired by ANT, can bring valuable knowledge on the nature and the functioning of new, reassembling networks in the context of advanced digitalisation and governance networks.

Finally, a few last words to refer to the existing studies that approach similar empirical questions as in this thesis. The information security tensions and different logics for digitalisation found in our case are similar to the findings on policy translation difficulties met by municipal employees in practice as found in the studies by Giritli Nygren (2009b) and by Baines et al. (2010) on pressures in everyday practices. Similarly to Giritli Nygren's findings about the steering utility-logic of efficiency, cost-effectiveness and rationalisation of administration, this study also finds such a logic in some of the municipalities. Concerning the gaps and discursive struggles that emerge in translation of ICT policies through different professional and organisational frames as found by Hall (2008), I can relate the logic and the dilemma of small units found in this study.

REFERENCES

Literature

- Ailsa, K., & Liz, L. K. (2008). Citizens' attitudes towards e-government and e-governance: a UK study. *International Journal of Public Sector Management*, 21(7), 723-738.
- Alvesson, M., & Kärreman, D. (2011). *Qualitative research and theory development: mystery as method*. Thousand Oaks, CA: SAGE Publications.
- Alvesson, M., & Sandberg, J. (2011). Generating research questions through problematization. *Academy of Management Review*, 36(2), 247-271.
- Alvesson, M., & Sandberg, J. (2013). *Constructing research questions: Doing interesting research*. London: SAGE.
- Alvesson, M., & Sköldberg, K. (2008). *Tolkning och reflektion: Vetenskapsfilosofi och kvalitativ metod*. Lund: Studentlitteratur.
- Alvesson, M., & Sköldberg, K. (2009). *Reflexive methodology: new vistas for qualitative research*. Los Angeles: SAGE.
- Andersen, O. J., & Pierre, J. (2010). Exploring the strategic region: Rationality, context, and institutional collective action. *Urban Affairs Review*, 46(2), 218-240.
- Andréasson, E. (2015). *Digitalisering i den offentliga förvaltningen: IT, värden och legitimitet*. Linköpings universitet, Institutionen för ekonomisk och industriell utveckling, Linköping. Retrieved from <http://urn.kb.se/resolve?urn=urn:nbn:se:liu:diva-121837>
- Axelsson, K., & Melin, U. (2012). *Citizens' attitudes towards electronic identification in a public e-service context: An essential perspective in the eID development process*. Paper presented at the Electronic Government: 11th IFIP WG 8.5 International Conference, EGOV 2012, Kristiansand, Norway.
- Axelsson, K., Melin, U., & Lindgren, I. (2013). Public e-services for agency efficiency and citizen benefit-Findings from a stakeholder centered analysis. *Government Information Quarterly*, 30(1), 10-22.

- Baines, S., Wilson, R., & Walsh, S. (2010). Seeing the full picture? Technologically enabled multi-agency working in health and social care. *New Technology Work and Employment*, 25(1), 19-33.
- Baller, S., Dutta, S., & Lanvin, B. (2016). *The global information technology report 2016. Innovating in the digital economy*. Retrieved from: http://www3.weforum.org/docs/GITR2016/WEF_GITR_Full_Report
- Bannister, F. (2010). Deep e-government: Beneath the carapace. In H. J. Scholl (Ed.), *E-Government: Information, Technology, and Transformation* (Vol. 17, pp. 33-51). Armonk, NY: M.E. Sharpe.
- Bannister, F., & Connolly, R. (2011). *New problems for old? Defining e-governance*. Paper presented at the The 44th Hawaii International Conference on System Sciences (HICSS-44), Kauai, Hawaii USA.
- Barry, A. (2001). *Political machines: Governing a technological society*. London: Athlone.
- Barry, A. (2013). The translation zone: Between actor-network theory and international relations. *Millenium Journal of International Studies*, 41(3), 413-429.
- Barry, A., & Thrift, N. (2007). Gabriel Tarde: Imitation, invention and economy. *Economy & Society*, 36(4), 509-525.
- Bekkers, V. (2012). Why does e-government looks as it does? Looking beyond the explanatory emptiness of the e-government concept. *Information Polity: The International Journal of Government & Democracy in the Information Age*, 17(3/4), 329-342.
- Bekkers, V., & Homburg, V. (2007). The myths of e-government: Looking beyond the assumptions of a new and better government. *Information Society*, 23(5), 373-382.
- Bekkers, V., & Homburg, V. (2009). The myths and ceremonies of egovernment: Beyond the hype of a new and better government? In A. Meijer, K. Boersma, & P. Wagenaar (Eds.), *ICTs, citizens and governance: after the hype!* Amsterdam: Washington, D: IOS Press.
- Bekkers, V., & Moody, R. (2009). *Visual culture and electronic government: Exploring a new generation of e-government*. Paper presented at the Electronic Government: Proceedings of the 8th (IFIP WG 8.5) International Conference, EGOV, Linz, Austria.
- Ben, E. R., & Schuppan, T. (2016). *e-Government and the transformation of professionalism: The case of the police*. Paper presented at the 49th Hawaii International Conference on System Sciences (HICSS), Kauai, HI, USA.
- Berger, P. L., & Luckmann, T. (1966). *The social construction of reality: A treatise in the sociology of knowledge*. Garden City, N.Y.: Doubleday.
- Berghmans, P., & Van Roy, K. (2011). Information security risks in enabling e-government: The impact of IT vendors. *Information Systems Management*, 28(4), 284-293.
- Bernhard, I. A., & Wihlborg, E. A. (2012). *Trust in secure public e-services: Translating policies into use*. Cheltenham: Edward Elgar Publishing.

- Bertot, J. C., & Jaeger, P. T. (2008). The e-government paradox: Better customer service doesn't necessarily cost less. *Government Information Quarterly*, 25(2), 149-154.
- Bertot, J. C., Jaeger, P. T., & Grimes, J. M. (2010). Using ICTs to create a culture of transparency: E-government and social media as openness and anti-corruption tools for societies. *Government Information Quarterly*, 27(3), 264-271.
- Bevir, M. (2011a). Interpretive theory. In M. Bevir (Ed.), *The SAGE handbook of governance*. Los Angeles: SAGE.
- Bevir, M. (2011b). *The SAGE handbook of governance*. Los Angeles: SAGE.
- Bevir, M., & Rhodes, R. (2007). Decentred theory, change and network governance. In E. Sørensen & J. Torfing (Eds.), *Theories of democratic network governance* (pp. 77-94). Basingstoke: Palgrave Macmillan.
- Bijker, W. E., Hughes, T. P., & Pinch, T. J. (1987). *The social construction of technological systems: New directions in the sociology and history of technology*. Cambridge, Mass.: MIT Press.
- Bijker, W. E., & Law, J. (Eds.). (1992). *Shaping technology/building society: Studies in sociotechnical change*. Cambridge, Mass: MIT Press.
- Birkinshaw, J., Crilly, D., Bouquet, C., & Sun Young, L. E. E. (2016). How do firms manage strategic dualities? A process perspective. *Academy of Management Discoveries*, 2(1), 51-78.
- Bonson, E., Torres, L., Royo, S., & Flores, F. (2012). Local e-government 2.0: Social media and corporate transparency in municipalities. *Government Information Quarterly*, 29(2), 123-132.
- Borman, M. (2010). *The formation of shared services partnerships in local government to manage resource dependencies*. Paper presented at the 16th Americas Conference on Information Systems (AMCIS), Lima, Peru.
- Borman, M., & Janssen, M. (2012). *Critical success factors for shared services: Results from two case studies*. Paper presented at the The 45th Hawaii International Conference on System Sciences (HICSS-45), Maui, HI, USA.
- Borman, M., & Janssen, M. (2013). Reconciling two approaches to critical success factors: The case of shared services in the public sector. *International Journal of Information Management*, 33(2), 390-400.
- Brechbuhl, H., Bruce, R., Dynes, S., & Johnson, M. E. (2010). Protecting critical information infrastructure: Developing cybersecurity policy. *Information Technology for Development*, 16(1), 83-91.
- Brennen, S., & Kreiss, D. (2014). Digitalization and digitization. *Culture Digitally*, 8.
- Brundin, S. (2016). It-experterna: Sverige halkar efter. *NyTeknik*. Retrieved from <http://www.nyteknik.se/digitalisering/it-experterna-sverige-halkar-efter-6588500>
- Callon, M. (1999). Some elements of a sociology of translation: Domestication of the scallops and the fishermen of St Brieuc Bay. In J. Law (Ed.), *Power, Action and Belief* (pp. 196-233). London: Routledge & Kegan Paul.
- Callon, M., & Latour, B. (1981). Unscrewing the big Leviathan: How actors macro-structure reality and how sociologists help them to do so. *Advances*

- in social theory and methodology: Toward an integration of micro-and macro-sociologies*, 277-303.
- Callon, M., & Law, J. (1995). Agency and the hybrid collectif. *South Atlantic Quarterly*, 94(2), 481.
- Castells, M. (1996). *The information age: economy, society and culture. The rise of the network society*. (Vol. 1). Malden, Mass.: Blackwell.
- Chadwick, A., & May, C. (2003). Interaction between states and citizens in the age of the internet: "e-Government" in the United States, Britain, and the European Union. *Governance - an international journal of policy and administration*, 16(2), 271-300.
- Chen, Z.-J., Vogel, D., & Wang, Z.-H. (2016). How to satisfy citizens? Using mobile government to reengineer fair government processes. *Decision Support Systems*, 82, 47-57.
- Clark, R. (2008). Dissidentity: The political dimension of identity and privacy. *Identity in the Information Society*, 1(1), 221-228.
- Collins, H. M., & Yearley, S. (1992). Epistemological chicken HM Collins and In A. Pickering (Ed.), *Science as Practice and Culture* (pp. 301): University of Chicago Press.
- Copus, C., & Erlingsson, G. Ó. (2013). Formal institutions versus informal decision-making. On parties, delegation and accountability in local government. *Scandinavian Journal of Public Administration*, 17(1), 51-69.
- Cordella, A., & Hesse, J. (2015). E-government in the making: An actor network perspective. *Transforming Government: People, Process and Policy*, 9(1), 104-125.
- Czarniawska-Joerges, B., & Sevón, G. (1996). *Translating organizational change*. Berlin: Walter de Gruyter.
- Czarniawska, B. (2004). On time, space, and action nets. *Organization*, 11(6), 773-791.
- Czarniawska, B., & Hernes, T. (2005). *Actor-network theory and organizing*. Malmö: Liber.
- Davies, J. S. (2002). The governance of urban regeneration: A critique of the 'governing without government' thesis. *Public Administration*, 80(2), 301.
- Dean, M. (1999). *Governmentality: power and rule in modern society*. Thousand Oaks, Calif.: SAGE.
- Denzin, N. K., & Lincoln, Y. S. (2013). *Collecting and interpreting qualitative materials*. London: Thousand Oaks, SAGE.
- Digitaliseringskommissionen. (2016). Digitalasverige.se: vård och omsorg indikatorer. Retrieved from <http://digitalasverige.se/>
- 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.
- 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.
- Eggers, W., & Bellman, J. (2015). *The journey to government's digital transformation* (D. U. Press Ed.). Australia: Deloitte University Press.

- Eisenhardt, K. M. (1989). Building theories from case study research. *The Academy of Management Review*, 14(4), 532-550.
- Ekonomifakta. (2017). Regional statistik. Ditt län i siffror. Retrieved from <http://www.ekonomifakta.se/Fakta/Regional-statistik/Ditt-lan-i-siffror/?compare=1®ion=0500>
- Enroth, H. (2011). Policy network theory. In M. Bevir (Ed.), *The SAGE handbook of governance* (pp. 19-33). Los Angeles: SAGE.
- Erlingsson, G. Ó., Syssner, J., & Ödalen, J. (2015). *Strategier för att möta småkommunernas utmaningar* (Vol. 26). Stockholm: SNS förlag.
- European Commission. (2015). eGovernment in Sweden. Retrieved from https://joinup.ec.europa.eu/sites/default/files/egov_in_sweden_-_january_2015_-_v_17_0_final.pdf
- EUROSTAT. (2015). *Eurostat Information Society Indicators. Households - level of internet access*. Retrieved from <http://appsso.eurostat.ec.europa.eu/nui/show.do>
- EUROSTAT. (2016a). *Eurostat Information Society Indicators. Digital inclusion - individuals*. Retrieved from <http://appsso.eurostat.ec.europa.eu/nui/show.do>
- EUROSTAT. (2016b). *Eurostat Information Society Indicators. Enterprises - level of internet access*. Retrieved from <http://appsso.eurostat.ec.europa.eu/nui/show.do>
- EUROSTAT. (2016c). *Eurostat Information Society Indicators. Individuals using the internet for interacting with public authorities*. Retrieved from <http://appsso.eurostat.ec.europa.eu/nui/show.do>
- Feltenius, D. (2010). En progressiv agenda? Om Sveriges Kommuner och Landsting och författningspolitiken. In P. Tallberg & M.-L. von Bergmann-Winberg (Eds.), *Flernivåstyrning: Framgångsfaktor för kommuner, regioner och staten* (pp. 00-00). Kristianstad: Region Skåne.
- Foucault, M. (1991). Governmentality. In G. Burchell, C. Gordon, & P. Miller (Eds.), *The Foucault Effect* (pp. 73-86). Hertfordshire: Harvester Wheatsheaf.
- Fountain, J. E. (2001). *Building the virtual state: Information technology and institutional change*. Washington, DC: Brookings Institution Press.
- Frey, J. H., & Fontana, A. (1991). The group interview in social research. *The Social Science Journal*, 28(2), 175-187.
- Gidlund, K. L. (2015). *Makers and shapers or users and choosers participatory practices in digitalization of public sector*. Paper presented at the Electronic Government: Proceedings of the 14th IFIP WG 8.5 International Conference on Electronic Government (EGOV), Thessaloniki, Greece.
- Gil-Garcia, J. R., & Pardo, T. A. (2005). E-government success factors: Mapping practical tools to theoretical foundations. *Government Information Quarterly*, 22(2), 187-216.
- Gilbert, D., Balestrini, P., & Littleboy, D. (2004). Barriers and benefits in the adoption of e-government. *The International Journal of Public Sector Management*, 17(4/5), 286-301.

- Giritli Nygren, K. (2009a). "E" i retorik och praktik: elektronisk förvaltning i översättning: Sundsvall: Mittuniversitetet.
- Giritli Nygren, K. (2009b). The rhetoric of eGovernment management and the reality of eGovernment work - The Swedish action plan for eGovernment considered. *International Journal of Public Information Systems*, 5(2), 135-146.
- Granberg, M. (2008). Local governance 'in Swedish'? Globalisation, local welfare government and beyond. *Local Government Studies*, 34(3), 363-377.
- Grimmelikhuijsen, S. G., & Meijer, A. J. (2015). Does Twitter increase perceived police legitimacy? *Public Administration Review*, 75(4), 598-607.
- Grint, K., & Woolgar, S. (1997). *The machine at work: Technology, work and organization*. Cambridge: Polity Press.
- Gustafsson, M. (2014). Constructing security: Reflections on the margins of a case study of the use of electronic identification in ICT platforms in schools. *Privacy and Identity Management for Emerging Services and Technologies 8th IFIP WG 9.2, 9.5, 9.6/11.7, 11.4, 11.6 International Summer School, Nijmegen, The Netherlands, June 17-21, 2013, Revised Selected Papers, IFIP AICT(421)*, 224-236.
- Gustafsson, M. (2017). Is small always beautiful? Studying the logics of small units in governance of digitalization. *Working paper*.
- Gustafsson, M., & Wihlborg, E. (2013a). Safe online e-services building legitimacy for e-government. A case study of public e-services in education in Sweden. *JeDEM. The eJournal of eDemocracy and Open Government*, 5(2), 155-173. Retrieved from <http://www.jedem.org/index.php/jedem/article/view/223>
- Gustafsson, M., & Wihlborg, E. (2013b). Safe online e-services building legitimacy for e-government: A case study of public e-services in education in Sweden. *JeDEM - eJournal of eDemocracy and Open Government*, 5(2), 155-173.
- Hall, P. (2008). Throwing discourses in the garbage can: The case of Swedish ICT policy. *Critical Policy Studies*, 2(1), 22-44.
- Hall, P. (2016). The Swedish administrative model. In J. Pierre (Ed.), *The Oxford handbook of Swedish politics* (pp. 299-328). Oxford: Oxford University Press.
- Hansson, H., Löfström, M., & Ohlsson, Ö. (2003). *Skolan och informationstekniken - en fallstudie av grundskolan i Stenungsund*. Retrieved from <https://login.e.bibl.liu.se/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=edsswe&AN=edsswe.oai.services.scigloo.org.39077&lang=sv&site=eds-live>
- Hedlund, G., & Montin, S. (2009). *Governance på svenska*. Stockholm: Santérus Academic Press Sweden.
- Hedström, K., Wihlborg, E., Gustafsson, M. S., & Söderström, F. (2015). Constructing identities – Professional use of eID in public organisations. *Transforming Government: People, Process and Policy*, 9(2), 143-158.

- Heeks, R., & Bailur, S. (2007). Analyzing e-government research: Perspectives, philosophies, theories, methods, and practice. *Government Information Quarterly*, 24(2), 243-265.
- Hulitt, E., & Vaughn, R. B. (2010). Information system security compliance to FISMA standard: a quantitative measure. *Telecommunication Systems*, 45(2-3), 139-152.
- Janowski, T. (2015). Digital government evolution: From transformation to contextualization. *Government Information Quarterly*, 32(3), 221-236.
- Jansson, G. (2013). *En legitim (elektronisk) förvaltning? Om IT-utveckling i kommunal förvaltning*. Linköping: Linköpings universitet, Institutionen för ekonomisk och industriell utveckling.
- Jedeskog, G. (2005). *Ch@nging school: Implementation of ICT in Swedish school, campaigns and experiences 1984-2004*. Uppsala: Pedagogiska institutionen, Uppsala universitet.
- Jessop, B. (2002). *The future of the capitalist state*. Cambridge: Polity.
- Johansson, J. (2010). Regionkommuner och kommunal självstyrelse – politiska utmaningar i relationen mellan lokalt och regionalt. In P. Tallberg & M.-L. von Bergmann-Winberg (Eds.), *Flernivåstyrning: framgångsfaktor för kommuner, regioner och staten*. Kristianstad: Region Skåne.
- Johansson, J., Niklasson, L., & Persson, B. (2015). The role of municipalities in the bottom-up formation of a meta-region in Sweden: Drivers and barriers. *Scandinavian Journal of Public Administration*, 19(4), 71-88.
- Johansson, M. (1997). *Smart, fast and beautiful on rhetoric of technology and computing discourse in Sweden 1955-1995*. Linköping: Linköping University Electronic Press.
- Karlsson, D. (2013). The hidden constitutions: How informal political institutions affect the representation style of local councils. *Local Government Studies*, 39(5), 681-702.
- Karlsson, D., & Montin, S. (2013). Solving municipal paradoxes: Challenges for Swedish local democracy. In W. Hofmeister (Ed.), *Panorama - Insights into Asian and European Affairs. Local Politics and Governance* (pp. 125-136). Singapore: Konrad Adenauer Stiftung.
- Kickert, W. J. M., Klijn, E.-H., & Koppenjan, J. (1997). *Managing complex networks: Strategies for the public sector*. London: SAGE.
- Kingdon, J. W. (1995). *Agendas, alternatives, and public policies*. New York: HarperCollins College Publishers.
- Kooiman, J. (1993). *Modern governance: New government - society interactions*. London: SAGE.
- Kooiman, J. (2003). *Governing as governance*. London: SAGE.
- Latour, B. (1987). *Science in action: How to follow scientists and engineers through society*. Cambridge, Mass.: Harvard University Press.
- Latour, B. (1991). Technology is society made durable. In J. Law (Ed.), *A Sociology of Monsters Essays on Power, Technology and Domination* (pp. 103-132). London: Routledge.
- Latour, B. (2007). *Reassembling the social: An introduction to actor-network-theory*. Oxford: Oxford University Press.

- Lidén, G. (2013). Supply of and demand for e-democracy: A study of the Swedish case. *Information Polity*, 18(3), 217-232.
- Lindgren, I. (2014). *Stakeholder involvement in public e-service development – broadening the scope of user involvement*. Paper presented at the Electronic Government and Electronic Participation: Joint Proceedings of Ongoing Research and Projects of IFIP WG 8.5 EGOV and ePart, Dublin, Ireland.
- Luna-Reyes, L. F., & Gil-García, J. R. (2013). *Understanding the co-evolution of institutions, technology, and organizations: The enactment of the state government portal of uebla*. Paper presented at the Proceedings of the 14th Annual International Conference on Digital Government Research, New York, NY, USA.
- Löfström, M. (2004). Skolan och informationstekniken – en fallstudie av grundskolan i Tingsryd. Working paper in *Studies of Organisation and Society*, 1.
- Madsen, C. Ø., Berger, J. B., & Phythian, M. (2014). *The development in leading e-government articles 2001-2010: Definitions, perspectives, scope, research philosophies, methods and recommendations: An update of eeks and Bailur*. Paper presented at the Electronic Government: Proceedings of the 13th IFIP WG 8.5 International Conference, EGOV, Dublin, Ireland.
- March, J. G., & Olsen, J. P. (1995). *Democratic governance*. New York: Free Press.
- Martin, N. J., & Rice, J. L. (2010). Building better government IT: Understanding community beliefs and attitudes toward smart card technologies. *Behaviour & Information Technology*, 29(4), 433-444.
- Mayntz, R. (1993). Governing failures and the problem of governability: Some comments on a theoretical paradigm. *Modern governance: New government-society interactions*, 9-20.
- Mayntz, R. (2003). New challenges to governance theory. In H. P. Bang (Ed.), *Governance as social and political communication* (pp. 27-38). Manchester: Manchester University Press.
- Meijer, A., & Bekkers, V. (2015). A metatheory of e-government: Creating some order in a fragmented research field. *Government Information Quarterly*, 32(3), 237-245.
- Melin, U. (2009). The Emperor's new clothes? Analysing the Swedish action plan for e-government. *International Journal of Public Information Systems, Special Issue on E-Government in Sweden: New Directions* (2), 97.
- Melin, U., Axelsson, K., & Söderström, F. (2013). *Managing the development of secure identification – investigating a national e-ID initiative within a public e-service context*. Paper presented at the ECIS. European Conference on Information Systems, Utrecht.
- Montin, S. (1990). Den kommunala multiorganisationen. Om nya normer och institutioner i kommunerna under 1980-talet. *Statsvetenskaplig tidskrift*, 3.
- Montin, S. (2016). Municipalities, regions, and county councils: Actors and institutions. In J. Pierre (Ed.), *The Oxford Handbook of Swedish Politics* (pp. 367-382). Oxford: Oxford University Press.
- Montin, S., & Granberg, M. (2013). *Moderna kommuner*. Stockholm: Liber.

- Müller, S. D., & Skau, S. A. (2015). Success factors influencing implementation of e-government at different stages of maturity: A literature review. *International Journal of Electronic Governance*, 7(2), 136-170.
- Nam, T., & Pardo, T. A. (2014). Understanding municipal service integration: An exploratory study of 311 contact centers. *Journal of Urban Technology*, 21(1), 55-76.
- Nielsen, J. A., Medaglia, R., & Andersen, K. N. (2009). Time to give in: Firm belief in administrative reform as a driver for delivering benefits from IT. *Electronic Government*, 103.
- Nissen, J. (2002). "Säg IT - det räcker": att utveckla skolan med några lysande IT-projekt. *Utvärdering av KK-stiftelsens satsning på större skolutvecklingsprojekt*. Stockholm: Stiftelsen för kunskaps - och kompetensutveckling.
- Norris, D., & Reddick, C. (2012). *eGovernment among US local governments: Current status and recent trends*. Paper presented at the 12th European Conference on eGovernment (ECEG), Barcelona, Spain.
- Norris, D. F., & Reddick, C. G. (2013). Local e-government in the United States: Transformation or incremental change? *Public Administration Review*, 73(1), 165-175.
- OECD. (2014). *Recommendation of the Council on digital government strategies*. Retrieved from <http://www.oecd.org/gov/digital-government/recommendation-on-digital-government-strategies.htm>
- Open Government Partnership. (2014). *Sweden's open government partnership action plan 2014-2016*. Independent Reporting Mechanism.
- Orlikowski, W. J., & Gash, D. C. (1994). Technological frames: Making sense of information technology in organizations. *ACM Transactions on Information Systems*, 12(2), 174-207.
- Oscarson, P. (2007). *Actual and perceived information systems security*. Linköping: Department of Management and Engineering, Linköping University.
- Pinch, T. (1996). The social construction of technology: A review. *Technological change: Methods and themes in the history of technology*, 35, 17-35.
- Piotrowski, S. J., & Van Ryzin, G. G. (2007). Citizen attitudes toward transparency in local government. *The American Review of Public Administration*, 37(3), 306-323.
- Pollitt, C., & Hupe, P. (2011). Talking about government: The role of magic concepts. *Public Management Review*, 13(5), 641-658.
- Powell, W. W., & DiMaggio, P. J. (1991). *The new institutionalism in organizational analysis*. Chicago: University of Chicago Press.
- Reddick, C. G. (2009). Management support and information security: An empirical study of Texas state agencies in the USA. *Electronic Government, an International Journal*, 6(4), 361-377.
- Rhodes, R. A. W. (1997). *Understanding governance: Policy networks, governance, reflexivity and accountability*. Buckingham: Open University Press.

- Rhodes, R. A. W., & Marsh, D. (1992). New directions in the study of policy networks. *European Journal of Political Research*, 21(1-2), 181-205.
- Ritala, P., Huizingh, E., Almpantopoulou, A., & Wijnbenga, P. (2017). Tensions in R&D networks: Implications for knowledge search and integration. *Technological Forecasting and Social Change, In Press, Corrected Proof*.
- Roman, A. V. (2013). Delineating three dimensions of e-government success: Security, functionality, and transformation. In J. R. Gil-Garcia (Ed.), *E-government success factors and measures: Theories, concepts, and methodologies* (pp. 171-192).
- Rothstein, B. (2009). Creating political legitimacy: Electoral democracy versus quality of government. *American Behavioral Scientist*, 53(3), 311-330.
- Rothstein, B., Samanni, M., & Teorell, J. (2012). Explaining the welfare state: Power resources vs. the quality of government. *European Political Science Review*, 4(01), 1-28.
- Rothstein, B., & Teorell, J. (2008). What is quality of government? A theory of impartial government institutions. *Governance*, 21(2), 165-190.
- Russell, S., & Williams, R. (2002). Social shaping of technology: Frameworks, findings and implications for policy with glossary of social shaping concepts. In K. H. Sørensen & R. Williams (Eds.), *Shaping technology, guiding policy: Concepts, spaces and tools* (pp. 35-82). Cheltenham: Elgar.
- Røvik, K. A. (2000). *Moderna organisationer: Trender inom organisationstänkandet vid millennieskiftet*. Malmö: Liber.
- 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, S63-S71.
- Scharpf, F. W. (1997). *Games real actors play: Actor-centered institutionalism in policy research*. Boulder, Colo.: Westview Press.
- Scharpf, F. W. (Ed.) (1993). *Games in hierarchies and networks: Analytical and empirical approaches to the study of governance institutions*. Frankfurt am Main: Campus.
- Scholl, H. J. (2014). *The EGOV eSearch Community: An Update on where we stand*. Paper presented at the Electronic Government: Proceedings of the 13th IFIP WG 8.5 International Conference, EGOV, Dublin, Ireland.
- Scholl, H. J. (Ed.) (2010). *E-government: Information, technology and transformation*. Armonk, N.Y.: M.E. Sharpe.
- Scholl, H. J., & Friends. (2016). E-gov reference library (EGRL). University of Washington's Information School. Retrieved from <http://faculty.washington.edu/jscholl/egrl/>
- Searle, J. R. (1996). *The construction of social reality*. London: Penguin.
- Selander, M. (2005). Skolan och informationstekniken: En fallstudierapport om två gymnasieskolor i Göteborg. Working paper in *Studies of Organisation and Society*, 1.
- Sismondo, S. (2010). *An introduction to science and technology studies*. Chichester: John Wiley & Sons, Ltd.

- Smith, W. K., & Lewis, M. W. (2011). Toward a theory of paradox: A dynamic equilibrium model of organizing. *Academy of Management Review*, 36(2), 381-403.
- Star, S. L., & Griesemer, J. R. (1989). Institutional ecology, 'Translations' and boundary objects: Amateurs and professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39. *Social Studies of Science*, 19(3), 387-420.
- Syssner, J. (2014). *Politik för kommuner som krymper* (Vol. 4). Linköping: Linköping University Electronic Press.
- Söderström, F. (2016). *Introducing public sector eIDs: The power of actors' translations and institutional barriers*. Linköping: Linköping University Electronic Press.
- Sørensen, E., & Torfing, J. (2012). Introduction: Collaborative innovation in the public sector. *Innovation Journal*, 17(1).
- Sørensen, E., & Torfing, J. (2014). Collaborative innovation and governance capacity. In M. Lodge & K. Wegrich (Eds.), *The Problem-solving capacity of the modern state: Governance challenges and administrative capacities* (pp. 238-000). Oxford: Oxford University Press.
- Sørensen, E., & Torfing, J. (Eds.). (2007). *Theories of democratic network governance*. Basingstoke: Palgrave Macmillian.
- Sørensen, K. H., & Williams, R. (2002). *Shaping technology, guiding policy: Concepts, spaces and tools*. Cheltenham: Elgar.
- Tallberg, P., & Bergmann-Winberg, M.-L. v. (2010). *Flernivåstyrning: Framgångsfaktor för kommuner, regioner och staten*. Kristianstad: Region Skåne.
- Thomas, G. (2011). A typology for the case study in social science following a review of definition, discourse, and structure. *Qualitative Inquiry*, 17(6), 511-521.
- Thomas, G. (2016). *How to do your case study: A guide for students and researchers*. Los Angeles: SAGE.
- Thoresson, J. (2015). *Omställning – Tillväxt – Effektivisering: Energifrågor vid renovering av flerbostadshus*. Linköping: Linköpings universitet, Institutionen för Tema.
- Tinholt, D., & van der Linden, N. (2015). *Future-proofing eGovernment for a digital single market*. Retrieved from http://ec.europa.eu/newsroom/dae/document.cfm?action=display&doc_id=10032
- Torfing, J., Peters, B. G., Pierre, J., & Sørensen, E. (2012). *Interactive governance: Advancing the paradigm*. Oxford: Oxford University Press.
- Ulbrich, F. (2010). Adopting shared services in a public-sector organization. *Transforming Government: People, Process and Policy*, 4(3), 249 - 265.
- Wagenaar, R. W. (2006). *Governance of shared service centers in public administration: Dilemma's and trade-offs*. New York: Association for Computing Machinery.
- Wihlborg, E. (2014). *Legitimate e-government – public e-services as a facilitator of political legitimacy*. Paper presented at the Hawaii International Conference on System Sciences (HICSS), Hawaii.

- Wihlborg, E., & Söderholm, K. (2013). Mediators in action: Organizing sociotechnical system change. *Technology in Society*, 35(4), 267-275.
- Winner, L. (1980). Do artifacts have politics? *Daedalus*, 1.
- Winner, L. (1993). Upon opening the black box and finding it empty: Social constructivism and the philosophy of technology. *Science, Technology & Human Values*, 18(3).
- Yeo, R. K., & Marquardt, M. (2015). Think before you act: organizing structures of action in technology-induced change. *Journal of Organizational Change Management*, 28(4), 511-528.
- Yildiz, M. (2007). E-government research: Reviewing the literature, limitations, and ways forward. *Government Information Quarterly*, 24(3), 646-665.
- Yin, R. K. (1989). *Case study research: design and methods* (Rev. ed.). Newbury Park, California: SAGE Publications.
- Yin, R. K. (2009). *Case study research: design and methods*. London: SAGE.
- Zhang, J., Luna-Reyes, L. F., & Mellouli, S. (2014). Transformational digital government. *Government Information Quarterly*, 31(4), 503-505.
- Zhao, J. J., & Zhao, S. Y. (2010). Opportunities and threats: A security assessment of state e-government websites. *Government Information Quarterly*, 27(1), 49-56.

Government Documents

- Dir. 2009:19. *Kommittédirektiv. Delegation för e-förvaltning*. Stockholm.
- Dir. 2010:69. *En myndighet för samordning av elektronisk identifiering och signering*. Stockholm.
- Dir. 2012:61. *Kommittédirektiv. Digitaliseringskommissionen – en kommission för den digitala agendan*. Stockholm.
- Dir. 2015:123. *Kommittédirektiv. Beslut vid regeringssammanträde den 26 november 2015*. Stockholm. Retrieved from <http://www.regeringen.se/rattsdokument/statens-offentliga-utredningar/2015/12/sou-201591/>
- Prop. 2001/02:9. *Regeringens proposition. Vissa socialförsäkringsfrågor*. Stockholm.
- Prop. 2004/05:175. *Regeringens proposition. Från IT-politik för samhället till politik för IT-samhället*. Stockholm.
- Prop. 2009/10:193. *Regeringens proposition. Tillgängliga elektroniska kommunikationer*. Stockholm.
- Regeringskansliet. (2006). *Verksamhetsberättelse 2003-2006. Regeringens IT-politiska strategigrupp*. Stockholm. Retrieved from <http://www.regeringen.se/rapporter/2006/10/verksamhetsberattelse-2003-2006---regeringens-it-politiska-strategigrupp/>
- Skr. 2004/05:48. *Regeringens skrivelse. Regeringens handlingsprogram för minskad administration för företagen m.m.* Stockholm.
- Statskontoret. (2005:6). *Avropa användbart! Vägledning för bedömning av användbarhet vid avrop från ramavtal*. Stockholm. Retrieved from <http://www.statskontoret.se/upload/publikationer/2005/200506.pdf>

Policies

- Government Offices. (2011). *ICT for Everyone - A Digital Agenda for Sweden*. Stockholm: åtta.45.
- Government Offices. (2012). *The Strategy for Collaborative Digital Services in Government Administration, "Putting the citizen at the centre"*. Stockholm: Elanders Retrieved from <http://www.regeringen.se/informationsmaterial/2012/12/n2012.37/>.
- Länsstyrelsen, Regionförbundet Östsam, & Landstinget i Östergötland. (2013). *Digital Agenda för Östergötland: 2014-2020*.
- Regeringskansliet, & SALAR. (2016). *Vision e-hälsa 2025 - gemensamma utgångspunkter för digitalisering i socialtjänst och hälso- och sjukvård*. Retrieved from <http://www.regeringen.se/contentassets/79df147f5b194554bf401dd88e89b791/vision-e-halsa-2025.pdf>.
- Regionförbundet Östsam. (2012). *Regionalt utvecklingsprogram: 2030 för Östergötland*. Retrieved from <http://www.lansstyrelsen.se/ostergotland/SiteCollectionDocuments/Sv/lantbruk-och-landsbygd/landsbygdsutveckling/RUP.pdf>.

SALAR

- SALAR. (2011a). *Classification of Swedish Municipalities*. Retrieved from <http://skl.se/download/18.5e95253d14642b207ee86e1a/1402935657348/SKL-Kommungruppsindelning-Definitioner-2011-engelska.docx>
- SALAR. (2011b). *Strategi för eSamhället*. Retrieved from <http://webbutik.skl.se/sv/artiklar/strategi-for-esamhallet.html>
- SALAR. (2013). *Sveriges IT-kommun 2013*. Retrieved from <http://webbutik.skl.se/bilder/artiklar/pdf/7585-001-6.pdf?issuusi=ignore>
- SALAR. (2014a). *E-tjänster och appar – hur är läget i kommunerna?* Retrieved from <http://skl.se/download/18.5ee878d5146f0d7c62a81eb2/1405596081470/skl-undersokning-2014-etjanstappar.pdf>
- SALAR. (2014b). *IT-stöd för BBIC*. Retrieved from <https://skl.se/download/18.99cec5e1477430727c8ea32/1407917465788/IT-st%C3%B6d+f%C3%B6r+BBIC+-+en+f%C3%B6rstudie.pdf>
- SALAR. (2015). *Skolans digitalisering. Hur långt har vi kommit*. Retrieved from <http://skl.se/download/18.16df26f114fdef8cb4813232/1442993619059/Skolans+digitalisering+-+hur+l%C3%A5ngt+har+vi+kommit+sep2015.pdf>
- SALAR. (2016a). *About SALAR*. Retrieved from <https://skl.se/tjanster/englishpages/aboutsalar.995.html>
- SALAR. (2016b). *E-hälsa*. Retrieved from <http://skl.se/halsasjukvard/ehalsa.1067.html>

- SALAR. (2016c). *Municipalities, county councils and regions*. Retrieved from <https://skl.se/tjanster/englishpages/municipalitiescountycouncilsandregions.1088.html>
- SALAR. (2017a). *Classification of Swedish Municipalities*. Retrieved from <https://skl.se/download/18.6b78741215a632d39cbcc85/1487772640274/Classification+of+Swedish+Municipalities+2017.pdf>
- SALAR. (2017b). *Kommungruppsindelning 2017. Omarbetning av Sveriges Kommuner och Landstings kommungruppsindelning*. Retrieved from Stockholm: <http://webbutik.skl.se/sv/artiklar/kommungruppsindelning-2017.html>

Laws

- LGA. (1991). *Swedish Local Government Act (Law 1991:900)*.
- LGA. (1993). *Swedish Local Government Act (Law 1993:1295)*.

Swedish Government Official Reports Series

- SOU 2014:13. *Digitaliseringskommissionen: En digital agenda i människans tjänst – en ljusnande framtid kan bli vår. Delbetänkande*. Stockholm: Elanders Sverige AB.
- SOU 2015:28. *Gör Sverige i framtiden - digital kompetens. Delbetänkande av Digitaliseringskommissionen*. Stockholm: Fritzes AB.
- SOU 2015:65. *Digitaliseringskommissionen: Om Sverige i framtiden : en antologi om digitaliseringens möjligheter. Delbetänkande*. Stockholm: Fritzes AB.
- SOU 2015:91. *Digitaliseringskommissionen: Digitaliseringens transformerande kraft - vägval för framtiden. Slutbetänkande*. Stockholm: Wolters Kluwer.

APPENDIX A: SCHOOL STUDY

Interview guide

This guide is a compilation of questions from the six separate interview guides that were used in the collection of material in the School Study. Each interview guide focused on the distinct interviewee group.

Interviewees: school principals, pupils, teachers, parents using FRONTER or other similar platforms.

Municipality system administrators (for FRONTER among others) and other administrators (for the e-service ‘School on the web’) received similar questions as presented below.

Short introduction about the study. Information about anonymization of the material.

Background information

School Principal

- How did you introduce in practice FRONTER or similar platforms in your school? Have you organized competence development for the staff, a specifically designated project, changed work routines or methods)?
- Do you experience that platforms such as FRONTER fulfil your needs (administration, communication, teaching, learning, other) in the school?
- What function do FRONTER or similar, play in your school currently? How are you going to develop your services in connection to these?
- Are there any connections between the FRONTER and other platforms in your school?
- How is your school equipped in terms of computers, competence, budgets for using ICTs in teaching and administration today?

Pupil, Teacher, Parent

- When did you start using FRONTER
- Where in your work/studies do you use FRONTER?
- How was it presented for you?
- Have you used similar platforms before? Can you compare with FRONTER?
- Have you used your eID to log in to FRONTER? In which other contexts have you used your eID?
- Are there any personnel (ex. teacher, it-group, it-support) in your school with specific IT-support tasks?

Municipality system administrators

- Why and how was FRONTER chosen to be introduced in schools' administration of pupil data?
- How long have the schools come in using FRONTER?
- How do you monitor the use of FRONTER in the schools?
- How secure is the platform?
- How is the support in case of technical problems provided for the platform?

The practical use/trust

School Principal & Municipality system administrators

- What does the leadership of the school think of such platforms as FRONTER in terms of their utility, security, quality of service for the school?
- Do you consider the platform as secure for administration of pupil data? Why, why not?
- How did the introduction and the use of FRONTER work in general for the school's purposes?
- Have you changed your work methods and routines for pupil data administration as a result of use of FRONTER? In what ways?
- What were the pupils, teachers and parents reactions to these changes in work methods and routines?
- Concerning the secure log in to the platforms and specifically eID, what was the experience in your school? What concerns or requirements were raised from the pupils, teachers, and parents in this respect?

Pupil, Teacher, Parent

- Describe in detail how and when you use FRONTER in school/at home? Do you log in with e-ID or with a password? Why?
- Do you experience FRONTER as a useful tool in your studies? Why, why not? In what way useful?
- How do the teachers/pupils/parents react to FRONTER? Positively: easy to use, secure, quick. Negative: difficult to use, it hardly works, double job?
- Did you notice any differences in reactions among the different parents, pupils concerning the use of FRONTER? Can you give an example of difference? Why do they react differently, according to you?
- What do you think about the content of FRONTER? Is it useful information? In what way?
- Did you receive any questions or complaints concerning the content of FRONTER (ex. too little information, unclear information, wrong information)?
- Do you trust FRONTER as a secure tool to be used in school?
- What do you think of using your eID to log in to the platform, compared to other forms of log in?
- Did you experience problems or questions of doubt concerning FRONTER? Can you give an example? Can you describe the problem more specifically? How was the problem addressed?
- Did you experience problems or questions concerning pupil data security and privacy in connection to FRONTER or a similar platform, in your work? Can you specify what exactly you experienced?

EffectsSchool Principal & Municipality system administrators

- What effects did FRONTER have on the administration of pupil data?
- What effects did FRONTER have on the communication among teachers, pupils and parents?
- How did the personnel, the pupils and the parents react to the platform?

Pupil, Teacher, Parent

- What specifically did the introduction of FRONTER mean for you as pupils/teachers/parents?
- Do you discern any changes that the introduction of FRONTER has brought in your studies/work/relation with school personnel? For example, changes in communication among teachers, pupils, parents. Can you describe the change more specifically?

- What kind of change do you experience most strongly or most frequently in your studies/work/relation with school as a result of using FRONTER? For example, has your work practice changed considerably? Please, describe your experience.
- Do you experience it as being easier or more difficult to keep track of your information in FRONTER compared with how you had it before it was introduced?
- What other changes did you experience due to increased use of FRONTER?

Challenges/concerns

School Principal & Municipality system administrators

- What challenges have you experienced in introducing and using FRONTER in your school?
- What role played eID or similar secure log in to the platform in these challenges?
- Pupil, Teacher, Parent
- Did you experience any difficulties in connection to using FRONTER? Which ones? How did you solve these issues?
- Were there any specific problems that you experienced in connection to the log in to the platform?
- According to your experience what are the biggest challenges with FRONTER? How can these be addressed?

Future

School Principal & Municipality system administrators

- How do you see the use of FRONTER or similar platforms as a key tool for pupil data administration in the future?
- How do you see the use of eID or similar secure log in tools to such platforms in future use?

Pupil, Teacher, Parent

- Overall what do you think of the platform as a tool to manage pupil data in your school?
- What do you think of increasing the use of FRONTER in your school?
- What do you think of increasing the use of eID log in to platforms such as FRONTER?

APPENDIX B: RDA STUDY

Interview guide

This guide is a compilation of questions from the three separate interview guides that were used in the collection of material in the RDA Study. In practice each interview guide focused on the distinct interviewee group.

Interviewees: officials from municipalities (administrative director, director of division, IT-strategist), actors in the work group on Regional Digital Agenda (RDA-project leaders from County Council, Regional Library, Country Administrative Board), SMEs associations (Director)

Short introduction about the study. Information about anonymization of the material.

Background <ul style="list-style-type: none"> • What role do information technologies play in the growth and development of the region? • Do we need a regional digital agenda? What purpose does it serve? • What challenges or problems does the need for such an agenda rest upon? • Who is responsible for its implementation? 	Comments Note. RDA is not a steering document. It is a support document.
Governance <ul style="list-style-type: none"> • What kind of governance arrangements are in place in the case of RDA? • Draw a map of the network together with the interviewee. Mark the key actors. What actors are missing? Show and complete the map throughout the subsequent interviews. • What is the mandate of the work group on RDA on the behalf of the signatories? What is your role in this? What are your expectations from the other members of the group? 	Comments In network governance, the public official is required both to fulfill the formal mandate of his office and to transcend the conventional public sector hierarchies and structures to forge cooperative, collaborative, and quasi-market arrangements with other state and non-state actors' (Considine, 2005).

<ul style="list-style-type: none"> • How would you describe the relation between these three actors in the context of digitalization of services and administration • Have these actors a common goal? What is it? • What other actors outside the core group were involved? How were they involved? 	By contrast, governance networks involve a large number of interdependent actors who interact in order to produce public purpose. (Sörensen & Torfing)
<ul style="list-style-type: none"> • How was the work on the agenda coordinated internally in the work group, in your respective organisations and with the signatories? Were there any tensions in these relations? Were there any negotiations involved? What was negotiated? • What challenges have you encountered in the coordination work on the agenda? 	By contrast, governance networks make decisions and regulate various issues in and through negotiations between interdependent and autonomous actors that might facilitate negative or positive coordination. (Sörensen & Torfing)
<ul style="list-style-type: none"> • How is it meant to implement the agenda? What is required in such a process in order to achieve its goals in the municipalities and the region? • The county is being currently reorganized. How does this effect the coordination work on the agenda? 	Hence, compliance is neither ensured by means of the legal sanctions of the state nor out of fear of economic loss on the market. Rather, it is ensured through trust and political obligation which, over time, become sustained by self-constituted rules and norms. (Sörensen & Torfing)
<ul style="list-style-type: none"> • Refer to the report SOU 2015:28, p. 59: 'Most of the counties have organized workshops or conferences to formulate starting points, focus and content of the work on the agendas. Commonly representatives from public organizations, industry, academia and civil society have been invited. Many counties raise the issue of facing considerable difficulties to involve SMEs in the work. Other counties have focused on mobilizing public actors ' • What is the case in Östergötland? • RDA is hardly known among the public servants and politicians in the smaller municipalities in Östergötland. Why do you think this is the case? What does it depend on? 	Smaller counties, with few municipalities, have aimed to involve a wide group of actors. Larger counties with many actors, as well as counties where the tradition of regional cooperation is perceived as weak, have focused primarily to involve public actors. This (engagement) is a considerable challenge in itself.
e-Government in the municipalities <ul style="list-style-type: none"> • How do you work with digitalisation of services in your municipality/division? • What challenges do you currently face in this work? • What views on digitalization do you have in your division among the personnel? • How is the responsibility for digital issues organized in your municipality/division? • What problems have you considered in your municipality/division where digital solutions were sought and/or implemented? 	Refer to municipal digitalisation policy/ies, if they have any: Ex. Norrköping municipality (2010): 'developing the organization goes hand in hand with digitalisation of administration'.
Relation to RDA & other policies <ul style="list-style-type: none"> • What do you know about RDA? • How do you relate to this agenda? Specifically, how do you connect your work on digitalisation with the RDA? • How do you work on your own digital policies? 	Translation Refer to prioritized initiatives 2014-2016 from RDA ex: a. Develop regional IT-cooperation in education sector.

<ul style="list-style-type: none"> • What does a., b., c., d involve for your municipality/division in practice? Specify some examples. 	b. Increase the use of common regional IT-systems and digital services. c. Further develop the cooperation work in eHealth d. Establish regional cooperation on digital services.
The e-service portal <ul style="list-style-type: none"> • What cooperation initiatives are you involved in that focus on digitalisation of services? • Are you involved in the cooperation on the e-service portal? How? Why not? 	
Actors <ul style="list-style-type: none"> • Which are your most important networks dealing with digitalisation of services? • Which are you key partners in these collaborations? 	
Re-organisation of the regional county <ul style="list-style-type: none"> • How does the incorporation of Östsm into the regional county affect these collaborations? • How does the re-organisation of the county affect your work with digitalisation of services? 	

SALAR Classification of Swedish municipalities, 2011

The following classification of Swedish municipalities is made by the Swedish Association of Local Authorities and Regions. The municipalities are divided into ten groups on the basis of structural parameters such as population, commuting patterns, tourism and travel industry and economic structure.

1. ***Metropolitan municipalities*** (3 municipalities)
Municipalities with a population of over 200,000 inhabitants.
2. ***Suburban municipalities*** (38 municipalities)
Municipalities where more than 50 per cent of the night population commutes to work in another municipality. The most common commuting destination must be one of the metropolitan municipalities.
3. ***Large cities*** (31 municipalities)
Municipalities with 50,000-200,000 inhabitants and more than 70 per cent of the population lives urban areas.
4. ***Suburban municipalities to large cities*** (22 municipalities)
Municipalities in which more than 50 per cent of the night population commutes to work in a large city.
5. ***Commuter municipalities*** (51 municipalities)
Municipalities in which more than 40 per cent of the night population commute to work in another municipality.
6. ***Tourism and travel industry municipalities*** (20 municipalities)
Municipalities where the number of guest nights in hotels, youth hostels and camping sites is higher then 21 nights per inhabitant and the number of holiday homes is higher then 0.20 per inhabitant.
7. ***Manufacturing municipalities*** (54 municipalities)
Municipalities where more than 34 per cent of the night population aged 16 to 64 is employed in manufacturing, mining, energy, environmental and construction industries. (SNI 2007)
8. ***Sparsely populated municipalities*** (20 municipalities)
Municipalities where less than 70 per cent of the population lives in urban areas and less than eight inhabitants per km².
9. ***Municipalities in densely populated regions*** (35 municipalities)
Municipalities with more than 300,000 inhabitants within a 112.5 km radius.
10. ***Municipalities in sparsely populated regions*** (16 municipalities)
Municipalities with less than 300,000 inhabitants within a 112.5 km radius.

Mapping Questionnaire

Mapping the needs for digitalisation in municipalities of Östergötland.

Instructions:

These questions require certain preparation before you answer them. You will be asked, for example, to refer to policy documents, initiatives, networks and projects that your municipality uses in connection to digitalization of services and administration. You may choose to go through all the questions first and then answer them after you have consulted relevant material and responsible personnel in your organization.

- The questions marked with *, ask you to choose among several answer alternatives. Choose all those that are relevant for your municipality.
- The questions marked with ** are open questions. Please fill in the information in your own words, or cite, naming the source, as accurately as possible.
- The questions marked with ***, ask you to choose among several answer alternatives. For each post, please choose among: not important at all, not so important, quite important, very important, and extremely important.

Kindly, send us your completed questionnaire by 2014-12-10.

Thank you for your participation! For any questions or comments, please contact (the name of the contact person from the work group on the RDA, the email and the phone number).

Contact information

1. First name, second name, position, email, municipality

Policy and responsibilities

2. What policies and other steering documents does your municipality follow in its work on digitalisation of services and administration?*
- The National Digital Agenda
- The Regional Digital Agenda in Östergötland
- Strategy for e-Society
- The municipality's own IT-strategy/ies
- The Library Policy
- Other policies (please specify)
3. How are the responsibilities for digitalisation issues divided among the different administrations/divisions in your municipality?***

4. Who has the strategic responsibility for digitalisation for the entire municipality? **
5. What cooperations exist or are planned in your municipality that focus on digitalisation of services and administration? **
6. Comparing with larger, smaller or similar municipalities in Östergötland, what are the specific conditions for digitalisation that apply to your municipality, in the work with digitalisation of services and administration? **

Needs

7. What challenges do you face in your municipality where digital solutions to them are considered? **
8. In connection to what questions is digitalisation brought to the fore, in your municipality? **
9. What challenges do you face in implementation of digital solutions? **
10. Within which service or administration fields do these challenges fall? **
11. Based on the challenges presented in questions 7 – 10, what needs relating to digitalisation have you identified? **
12. Based on your municipality strategic priorities and specific conditions for digitalisation, how important are the fields below? ***

- Digital competence and citizens participation
- Digital services for the public
- Digital support in public administration
- IT for business and entrepreneurship
- Broadband infrastructure
- Other (please specify)

13. What needs do the citizens have in order to access digital services in your municipality (ex. the homepage, e-services, electronic files, communication channels). **
14. Based on your municipality's priorities and conditions for digitalisation, how important are the following needs? ***

- A clear political steering
- Clear strategies and policies
- A clear leadership within the organization
- Involving of citizens in the development of e-services
- Involving the personnel in the development of e-services
- Competence development in e-services and technology use for the personnel
- Competence development in e-services and technology use for the citizens
- Establishing new work methods based on ICT

- Other (please specify)

15. What aspects from the Regional Digital Agenda that focus on: ‘Digital competence and participation’ are important for the citizens in your municipality?*** Please, answer all the questions.

- Increase the citizens’ digital competences
- Increase the citizens’ digital participation
- Increase the use of digital tools in school
- Develop work methods to match requirements for citizen accessibility and openness through digital channels
- Other (please specify)

16. In order to develop e-services for the public, how important are the following activities for your municipality?***

- To cooperate in the field of eHealth, due to increased responsibilities in home care services for the elderly
- To engage in regional cooperation for development of e-services
- To engage in regional cooperation for provision of open data
- Increase the use of e-services in the municipality
- Increase the accessibility to cultural heritage and arts through digital channels
- Other (please specify)

17. In order to increase effectiveness in the municipal organization using ICT, how important are the following activities?***

- Participate in the regional cooperation on ICT in education
- Participate in the regional cooperation on Geographic Information System, planning and visualization
- Participate in the regional cooperation on digital archives
- Increase the use of joint regional IT-systems and e-services
- Increase the use of digital meetings
- Other (please specify)

18. In order to encourage businesses and entrepreneurship in your municipality, how important are the following activities?***

- Participate in the regional cooperation on business and IT
- Support the entrepreneurs with competence on e-commerce, social media and digital marketing
- Support networks for research and innovation in ICT
- Other (please specify)

19. To supply broadband and internet infrastructure for the citizens, how important are the following activities in your municipality?***

- Increase the coordination on IT-infrastructure using regional and municipal strategic policies, such as Regional Development Plan, Master Plan (Översiktsplan) and IT-Infrastructure Programme
- Support communities in their efforts to build broadband networks
- Increase coordination for digging and collocation of broadband ducts in urban and sparsely populated rural areas
- Participate in the regional cooperation with focus on joint analyses of needs, priorities and roles for deployment of broadband infrastructure
- Other (please specify)

Cooperation

20. How important is cooperation with the following actors in your work with digitalisation of services and administration?***

- Cooperation with other municipalities
- Cooperation with regional actors
- Cooperation with central authorities
- Cooperation with other national actors
- Cooperation with companies

21. Specifically, which actors do you cooperate with in your work with digitalisation of services and administration?**

22. Is there anything else that you would like to add?**

Thank you!

Papers

The articles associated with this thesis have been removed for copyright reasons. For more details about these see:

<http://urn.kb.se/resolve?urn=urn:nbn:se:liu:diva-138859>