

A Clash of Modernities in a Digital Age

Marcus Heidlund

Main supervisor: Katarina L Gidlund

Co-supervisor: Leif Sundberg

Faculty of Science, Technology and Media
Thesis for Licentiate degree in Information Systems
Mid Sweden University
Sundsvall, 2023-10-20

Akademisk avhandling som med tillstånd av Mittuniversitetet i Sundsvall framläggs till offentlig granskning för avläggande av filosofie licentiatexamen fredag, 20 oktober, klockan 09:00, O102, Mittuniversitetet Sundsvall. Seminariet kommer att hållas på svenska.

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Printed by Mid Sweden University, Sundsvall

ISSN: 1652-8948

ISBN: 978-91-89786-34-9

Faculty of Science, Technology and Media

Mid Sweden University, Holmgatan 10, 851 70 Sundsvall

Phone: +46 (0)10 142 80 00

Mid Sweden University Licentiate Thesis 198

To Lovis and Selma

Acknowledgement

Saying 'thank you' never seems to be enough, although I would like to take this opportunity to extend my deepest gratitude. First and foremost, to Katarina my main supervisor whom on several occasions gone over and beyond to help and support me. To my second supervisor, Leif, it has been a pleasure to learn from you. I have found tremendous joy in co-authoring papers with you, I am looking forward too many more years of collaboration. I would also like to express my appreciation to Katarina Giritli-Nygren for being a critical friend and helping me sort out the messiness. My heartfelt thanks extend to my colleagues in the various groups and constellations I have been a part of, including IST, KKI, FODI, VIS, and DIVÄ. With that in mind, I extend my gratitude to Örnsköldsvik's Kommun for funding my research and for their cooperation in research studies. A special acknowledgment goes to my fellow PhD students: Annika, Erica, Victoria, Joakim, and Lisa. I am equally thankful for the feedback and discussions I have received at conferences and workshops such as the e-Gov conference, ECIS, and SWEG. I want to thank my dearest friends for the many inspiring conversations and lots of fun playing boardgames. To my biggest supporters in life, my parents Dick and Maria, who have always had my back and believed in me. Last but certainly not least, I am profoundly thankful for Angelica. Not only have we shared the highs, but more importantly, you've stood by and supported me during every single low. Thank you, Angelica, for helping me find balance in life

Hällingsjö

2023-08-16

Table of contents

List of tables	ix
List of figures	ix
Abstract	x
Summary in Swedish	xi
List of papers	xiii
1. Introduction	1
1.1. Motivation	3
1.2. Research positioning, purpose, and research question	4
1.3. Disposition	5
2. Previous research	6
2.1. Research on modernity and meta-theories	6
2.2. The forgotten paradigm and a lost legacy	8
2.3. Public-sector digitalization and e-Government	12
3. Theoretical lenses	14
3.1. The metaphysics of digitalization.....	14
3.2. What is Modernity?	18
3.2.1. Demarcations of modernity theories	22
4. Methodology	23
4.1. Philosophy of science: Constructed facts and lousy theories.....	23
4.2. Research design.....	27
4.3. How can digitalization be studied from a wider perspective?	29
4.3.1. The case: Public sector in Sweden	30
4.3.2. Relationship between papers and the overall aim of the thesis.....	30
4.3.3. Analytical approach using theories of modernity	31
4.4. Ethical considerations.....	33
5. Key findings from the included papers	34
5.1. Paper I: The making of digitalization – Like nailing jelly to a wall	34
5.2. Paper II: What is the value of digitalization? – Strategic narratives in local government.....	35

5.3. Paper III: Digital Solutions to What? – WPR as a model for public servants seeking a better grip on their local digitalization policy.....	35
5.4. Overview of results	36
6. Analysis.....	39
6.1. The Efficient Juggernaut.....	39
6.2. We Have Never Been Modern.....	42
7. Conclusion	45
7.1. Contributions	46
7.2. Future research	47
Bibliography.....	49
Appendix A: Related works	61

List of tables

Table 1: Attributes of modernity in the different stages	20
Table 2: Research papers, empirical material, analytical frameworks, and individual contributions.....	28
Table 3: Unit of analysis (see, Bijker, 2010)	30
Table 4: Representative attributes of different stages of modernity and findings from the papers.....	36
Table 5: Evaluation-related statements without reference to any value.....	44

List of figures

Figure 1: Distribution of values in municipal digitalization strategies	40
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Abstract

The importance of digitalization is increasingly recognised in academia, practice, and social life as a whole. In discussions of digitalization, the terms “transformative” or “transformation” are used to highlight the future ideal future as a result from intensified use of computers and digitalized technology. In the pursuit of this desired future, the notion of modern comes to mind, with Latour’s statement that how modern and non-modern are a demarcation of time: when something is modern, it is of a different time. Thus, in order to study digitalization with an emphasis on the larger, transformative scale and considering different interests, this thesis provides an exposé the phenomenon of digitalization’s wider ramifications using theories of modernity. Whilst modernity theories have been extensively used in sociology, they have rarely been applied in information systems or e-Government research. To operationalise modernity theories, first and second (reflexive) modernity are used. The thesis is based on three research papers on the Swedish public-sector context, focusing on digitalization and regional development (Paper I), municipal policies (Paper II), and local municipal employees’ translations of their digitalization policy (Paper III). In order to aid me in looking into digitalization I drew on previous research from fields such as philosophy of technology and science and technology studies, which have long studied technology in relation to society. The analysis revealed two distinct ideas. The first is that of digitalization as an efficient juggernaut, a large runaway engine going full throttle towards its desired destination: a digitalized society that utilises all of the benefits digitalization provides. Second, Latour’s notion, described in *We Have Never Been Modern*, of the public sector as stuck reproducing 19th century values of industrialisation, when closer inspection reveals that these 19th century values of efficiency, control, and rationality are not equipped to handle second modernity issues such as democracy and participation. The contribution of this thesis is twofold: i) a theoretical contribution, using modernity as a theoretical lens in order to understand digitalization and society; and ii) a methodological contribution, operationalising the discursive landscape of digitalization, using different levels of analysis to aggregate the findings to a higher abstraction level. Suggestions for future research include consideration of the problems regarding democracy and participation, which were the core of Scandinavian information systems research during the latter half of the 20th century. I advocate for revisiting these ideas and taking inspiration from both critical information systems and participatory design in Scandinavia.

Summary in Swedish

Digitalisering har blivit tilldelad prioritet inom forskning, praktiken och det sociala livet som helhet. När digitalisering diskuteras används termerna "transformerande" eller "transformation" för att belysa den framtida förväntade utvecklingen som förväntas följa av en intensifierad användning av datorer och digital teknik. I strävan efter denna önskade framtid kommer tanken på konceptet modern i åtanke, med Latours påstående att det moderna och det icke-moderna markerar en tidsskillnad: när något är modernt tillhör det en annan tid. Således, för att studera digitalisering med tonvikt på den större, transformerande skalan och med hänsyn till olika intressen, ger denna avhandling en avtäckning över digitaliseringens bredare konsekvenser med hjälp av teorier om modernitet. Även om modernitetsteorier har använts omfattande inom sociologi har de sällan tillämpats inom forskning om informationssystem eller e-förvaltning. För att operationalisera modernitetsteorierna används första och andra (reflexiva) modernitet. Avhandlingen bygger på tre forskningsartiklar om den svenska offentliga sektorn och fokuserar på digitalisering och regional utveckling (Paper I), kommunala digitaliseringsstrategier (Paper II) och anställda inom kommunen och deras tolkningar av sin digitaliseringsstrategi (Paper III). Analysen avslöjade två distinkta idéer. Den första är digitalisering som en "efficient juggernaut", en stor okontrollerad motor som rusar mot sin önskade destination: ett digitaliserat samhälle som utnyttjar alla fördelar med digitaliseringen. Det andra, Latours idé om att vi aldrig har varit moderna, där den offentliga sektorn fastnar i att reproducera värderingar från 1800-talet som är förknippade med industrialiseringen, men vid närmare granskning är dessa värden av effektivitet, kontroll och rationalitet inte utrustade för att hantera problem som rör andra modernitet, såsom demokrati och deltagande. Denna avhandlings bidrag är tvådelat: i) ett teoretiskt bidrag, genom att använda modernitet som en teoretisk lins för att förstå digitalisering och samhälle, och ii) ett metodologiskt bidrag, genom att operationalisera det diskursiva landskapet kring digitalisering, med hjälp av olika nivåer av analys för att sammanfatta resultaten till en högre abstraktionsnivå. Förslag till framtida forskning inkluderar att överväga problemen kring demokrati och deltagande, vilka utgjorde kärnan i skandinavisk forskning om informationssystem under den senare delen av 1900-talet. Jag förespråkar att återbesöka dessa idéer och hämta inspiration från både kritiska informationssystem och deltagande design i Skandinavien.

List of papers

This thesis is based on the following three papers, later referred to by their Roman numerals:

- Paper I Heidlund, M. & Gidlund, K. L. (2023). The making of digitalization: Like nailing jelly to a wall. *Information Polity*, 28(1), 29-42.
- Paper II Heidlund, M. & Sundberg, L. (2023). What is the value of digitalization? Strategic narratives in local government. *Information Polity Preprint*: 1-17.
- Paper III Heidlund, M. & Gidlund, K. L. (2023, April). Digital Solutions to What? -WPR as a Model for Public Servants Seeking a Better Grip on Their Local Digitalization Policy. In *Information Systems: 19th European, Mediterranean, and Middle Eastern Conference, EMCIS 2022, Virtual Event, December 21–22, 2022, Proceedings* (pp. 242-250). Cham: Springer Nature Switzerland.

1. Introduction

In *We Have Never Been Modern*, Bruno Latour (1993) outlines the impact of certain discoveries such as the laws of gravity, the steam engine, the atomic bomb, and finally the computer. He suggests that people will use “BC” and “AC” to distinguish the time periods “Before Computers” and “After Computers”. The same demarcation can also be made for digitalization as Devereux and Vella (2018) note, a comparable phenomenon to digitalization would be electrification (see, Reis et al., 2020). This comparison serves as a good analogy: electrification is not only a technological discovery, it is also a denotation of the period of time (roughly the late 19th century to early 20th century) in which the electrical grid was built to facilitate technological innovation such as the radio and the lightbulb. The period of electrification transformed society by making the development of certain artefacts possible

When talking about digitalization one has to differentiate between the concepts of “digitization” and “digitalization”, where the former is concerned with converting analogue data into digital format, and the latter is concerned with the restructuring of social life around digital technologies (Brennen and Kreiss, 2016). The term “digitalization” has been used in research for almost 100 years, but prior to becoming associated with ICT and digital technologies, it referred to a flower used in medicine to treat heart disease (Gidlund and Sundberg, 2022). With the turn of the millennium, digitalization became known by its modern association. However, the idea what digitalization *is* remains rather elusive. Brennen and Kreiss (2016) refer to it as a transformation of business and society, but also as a convergence of data, artefacts, and sectors. Digitalization also entails societal changes, and with that comes a transformation of government that both changes its values and creates new ones (Bannister and Connolly, 2014). Gidlund and Sundberg (2021) divide it into three dimensions of technology, as proposed by Winner (1977; see, Gidlund and Sundberg, 2021, p. 6): “social arrangements”, “skills and procedures”, and “physical artefacts”.

While computers and digitalization are presented as the latest innovations to transform society, and scholars have long argued about ways of studying such phenomena, and theories of modernity are one way of doing so. Brey (2003) argues that technology made modernity possible. As the two concepts are so closely related, he (2003) explains, the modernity field naturally studies “modernity theory” and the technology field studies “technology”. However,

he claims, there are few works studying both fields or using modernity to study technology or vice versa. This line of argument is echoed by Feenberg (2003, p. 76), who poses the following questions:

“How can one expect to understand modernity without an adequate account of the technological developments that make it possible, and how can one study specific technologies without a theory of larger society in which they develop?”

Furthermore, it is not only philosophers, historians, and anthropologists who have noted that technology and society need to be studied together; this has also been observed in the information systems (IS) or (“informatics”) research discipline. In 1995, Dahlbom wrote a paper titled *Göteborg Informatics* in which he expresses this view of technology as becoming much more than a value-neutral tool. He (1995) argues that technology in the modern world can be described as an extension of our interests or the implementation of our values.

In this thesis, I intend to shift the analytical perspective from the investigation of an artefact or a system in a specific organisation to consider digitalization in what Bijker (2010) calls a “sociotechnical ensemble” or a “technological culture” (see Section 4.3). In order to shift the perspective to a higher level of abstraction, I use theories of modernity as a meta-theory. Bostrom et al. (2009) states that meta theories in IS has been applied to understand the organisational context. Meijer and Bekkers (2015, p. 237) states that a meta-theory can be used to “facilitate a debate about e-Government between researchers with different perspectives” and this is not only true for electronic-government (hereinafter e-Government or e-Gov). Meta-theories can be used to facilitate debate amongst researchers from different disciplines and practitioners. Stolterman (1995) found in a review of papers in *The Scandinavian Journal of IS (SJIS)*, where he notes that, of the 40 papers, 34 are devoted to the improvement of system-design and development practices. Stolterman (1995, pp. 126-127) recommends the study of information systems in a wider context:

“If we try do this it will be important to study the nature of information systems (or IT artifacts). We should ask questions such as: What is information technology, where is the technology shaped, decided and

produced, what are the driving forces and the influences in this development, where is the technology evaluated and by whom, how is it distributed and deployed, how do large scale implementations of information systems change society and the basic structures in organizations and people's everyday life, etc.? These are large and very difficult questions, but that is why research exists. Society should not spend money on research resulting in knowledge that could have been produced based on a commercial interest[sic]"

Thus, this thesis is an attempt to do what Meijer and Bekkers (2015) advocates for in facilitating a debate using meta-theories but also what Stolterman (1995) argue for: namely, studying digitalization with an emphasis on the larger, transformative scale and considering different interests.

1.1. Motivation

The motivation for this thesis is two-fold. The first motivation for this thesis is the lack of research on a meta-theory level investigating digitalization and technology in the discipline of information systems and the field of e-Government (see Section 2.1). As previously expressed, there are other ways of studying technology and society on a macro level, and this has been achieved in many other fields (e.g., philosophy of technology, social construction of technology, science and technology studies) and in different disciplines (e.g., anthropology and sociology). But it is vital that this type of analysis is performed in information systems. It is the information-systems researchers and practitioners who are to a larger extent responsible for and expected to make the artefacts and systems; hence, it is in this discipline that these sorts of analyses have to be made. Feenberg was asked in an interview (see, Schmidt-Gleim et al., 2019) how one could be part of the "technosystem" and also intervene critically at the same time, and I think his answer is much more aligned with the argument I make for why this research must be conducted in IS:

"In sum, we are all as you put it 'part of the Technosystem,' but that is the condition, not an obstacle, to intervention". (Schmidt-Gleim et al., 2019, p. 3)

The second motivation is anchored in the spending of fiscal funds, on a European level, billions of euros are being invested in the "digital transition"

(European Commission, 2018; 2021). This can further be found on a national level where for example in a McKinsey (2016) report the prognosis is that public sector can save between 75 and 110 billion SEK yearly by 2025 from digitalization efforts. Furthermore, operating costs for IT in Swedish government agencies amounted to 297 billion SEK in 2018 (Digg, 2020). With this in mind we need to understand the wider ramifications that digitalization has on our public sector and by extension society and our everyday lives. By doing so we can make sure that fiscal funds is being spent in order to support all citizens promoting equality over certain specific interests (e.g. Nyhlén and Gidlund, 2022; Gidlund and Sundberg, 2021; Webber et al., 2022).

1.2. Research positioning, purpose, and research question

Whilst this thesis uses theories commonly associated with sociology – namely, modernity theories – it is grounded within the academic discipline of information systems (IS). The topic of the thesis (a wider perspective on digitalization) is highly relevant to the IS discipline, as exemplified by the new definition of the discipline proposed by the Swedish Information Systems Academy (SISA), in which digitalization plays a vital role:

“Information systems / Informatics is the scientific subject that develops knowledge about digitalization and its prerequisites, meanings, values and consequences in individual, organisational and societal contexts”. (SISA, 2021)

Further, this definition acknowledges that digitalization is always bound by both technical and social conditions, emphasising its fleeting nature as a phenomenon. It is therefore useful to study not only the artefacts produced as a result of the digitalization initiative but also the structural changes in society and organisations that result from digitalization. Finally, the definition touches on how IS can contribute to practice through its “questioning, clarifying, exemplary, guiding and renewed character” (SISA, 2021, p. 4). Thus, it is worthwhile to unveil the wider ramifications of digitalization to contribute to changes where the systems are researched and developed, in information systems (for a more thorough positioning see Section 2.2).

Against this backdrop, the purpose of this thesis is to unveil the phenomenon of digitalization’s wider ramifications using theories of modernity. I do this with three academic papers, grounded in the context of

the Swedish public sector. Specifically, the following research question is posed:

RQ: How can the phenomenon of digitalization's wider ramifications be unveiled using theories of modernity?

1.3. Disposition

This thesis has the following structure. Chapter 2 outlines previous research including positioning in the research discipline IS. Chapter 3 consists of two theoretical lenses, philosophy on technology and modernity. The methodological underpinnings are presented in Chapter 4, including the methods used in the papers, the operationalisation of the theoretical lenses, and the ethical considerations. Chapter 5 presents the key findings from the three research papers. In Chapter 6, a discussion of the findings is presented; and finally, Chapter 7 details the conclusions, contributions, and recommendations for further research.

2. Previous research

This chapter consists of Section 2.1 previous research on modernity and meta-theories in both IS and in the field of e-Government. It also includes 2.2 which is a positioning within the information systems discipline. Lastly, 2.3 consists of previous research related to e-Government.

2.1. Research on modernity and meta-theories

The relation between technology and society being studied together has been widely discussed elsewhere (e.g., Feenberg, 2003; Brey, 2003; Misa, 2003; Latour, 1993; 2003), it has not been discussed to the same extent in the discipline of information systems. Meta-theories and general theories have been applied to understand IS in an organisational context (Bostrom et al., 2009). Furthermore, the notion of a meta-theory of electronic government is raised by Meijer and Bekkers (2015), who note that the research field of e-Gov is focused on the function of e-Government rather than a holistic perspective of how e-Government is linked to other parts of public administration. They refer to this as an “explaining perspective”, with research describing how ICT can be implemented to bring about change and that the technology has values that are not questioned. Meijer and Bekkers (2015) state that the political nature of the public sector has to be considered. Another finding from the authors (2015) is the notion of change. Whilst e-Government and digitalization are associated with the transformation of society (as alluded to previously), Meijer and Bekkers (2015) identify that papers are more concerned about incremental change rather than the transformative aspects.

Studies in IS have used modernity as a tool for investigating the globalisation of research (i.e., Galliers and Meadows, 2003), discussing risks using the notion of Beck’s risk society (1998; i.e., Ngwenyama et al, 2021), or questioning techno-economic rationality from the perspective of Western modernity, as perspectives are implemented in IT-adoption in developing countries (Avgerou, 2000). On the theory wiki provided by the Association for Information Systems (AIS), which lists common theories used in IS research, modernity cannot be found (Larsen and Eargle, 2015). Furthermore, although a search of the AIS electronic library (AISel) for the term “modernity” reveals 54 papers, most of these do not refer to modernity theory. Notable exceptions include Soe (1997), investigating VR from a modernity and post-modernity perspective; Díaz Andrade (2010), looking into how modernity affects

political liberation in terms of information and communication for development (ICT4D); Bryant (2006), investigating e-Government and liquid modernity; and Islam et al. (2016), studying digital innovation start-ups with regard to knowledge acquisition and collaboration. However, the term “modernity” only appears in their title and not in the paper. Doyle and Conboy (2020) recently published a paper on liquid modernity in relation to the information systems discipline. In the paper, the authors argue for 12 principles of liquid modernity that could be used to enrich IS theory and explore new potential applications in practice. And lastly, El Idrissi and Corbett (2016) state that, whilst modernity is frequently used in sociology, there has been little research on modernity and information systems. I argue that this is a serious shortcoming and, once again, in order to understand digitalization as a sociotechnical ensemble, we need to combine theories of technology with theories of society. Here, modernity plays an important role in increasing understanding of digitalization from a wider perspective.

Neither has modernity been explored to a larger extent in e-Government research. A search in the Digital Government Reference Library (Scholl, 2022) for “modernity” yields 5 results from almost 18,000 available publications. Two of these papers are by Svensson (2011a & 2011b), who studied political participation using the concept of late modernity, or “digital late modernity” (Svensson, 2011a). Nagano (2018) advocates for a transition from industrial modernity to digital modernity based on the development and capabilities of digitalization, emphasising that the least-developed countries will suffer due to the automation of certain jobs. Jegede (2017) considers ideas of risk and crime in “late modernity”. Díaz Andrade and Urquhart (2012) contributed a paper on a “modernity bias” connected to ICT4D initiatives. Finally, Gidlund (2011) uses the e-Government setting to represent the characteristic of public sector, and highlight a drive towards societal development through political decisions. Gidlund (2011, p. 2) notes:

“To then understand them [technology and modernity] as co-constructed gives opportunities to analyse them together, how they are interconnected”.

The findings from Gidlund (2011) study of a European e-Government policy reveal that e-Government concerns themes represented by both first and second modernity. There is a reoccurring story of standardisation that is related to rationality. This idea of using ICT to enhance efficiency and productivity (the narrative of economic growth in relation to e-Government

and digitalization is further discussed by Nyhlén and Gidlund, 2022). Second, there is also a theme of empowerment associated with democratisation and modernity. Here, the idea is that ICT will contribute to the distribution of knowledge and power. Gidlund (2011) notes that e-Government is somehow asked to both contribute to ideals associated with industrialisation (first modernity) and promote empowerment associated with the second modernity.

2.2. The forgotten paradigm and a lost legacy

I choose to approach information systems from a critical perspective. The idea of critical information-systems research (CISR) as a freestanding paradigm was first considered by Richardson and Robinson in 2007. Their review of the literature classifies a small minority of papers as critical. This sparked a discussion among scholars (e.g., Falconer, 2008; Avison et al., 2008; Liu and Myers, 2011; Avison and Fitzgerald, 2012) as to whether critical IS should be seen as a freestanding paradigm or as a subcategory of interpretivism (the second-largest paradigm after positivism in IS). Richardson and Robinson used material from the 1990s, and later scholars used material from the early 2000s. However, since then, the debate over the CISR paradigm has ebbed out, but I suggest that the arguments made for a freestanding paradigm continue to hold. As shown by Walsham (2005), being critical is not about the use of certain methods but rather a question of personal motivation. Furthermore, Ellul (1990, p. 411) argues that being able to criticise is a question of freedom:

“Following Hegel, Marx, and Kierkegaard, I have often said that we show our freedom by recognizing our nonfreedom. But this is no longer a philosophical or theoretical matter of the mind. It is no longer a matter of debate between the servile and the free will. Our back is to the wall. We must not cheat or think that we can extricate ourselves by talk. Seeing the Hydra head of trickery and the Gorgon face of hi-tech, the only thing we can do is set them at a crucial distance, for it is by being able to criticize that we show our freedom. This is the only freedom that we still have if we have at least the courage to grasp it. Nothing is more certain”.

Critical IS aims to challenge established social conditions and to reveal hidden interests and agendas (Cecez-Kecmanovic, 2011). As Mitev (2005) states, some argue that technologies are designed to benefit certain interests and actors. By subscribing to critical IS, the researcher is able to question the

taken-for-granted roles and purposes of IS. Critical IS builds on critical theory, which is associated with the social theorists of the Frankfurt school – including Adorno, Fom, Horkheimer, Marcuse, and Habermas¹ (Cecez-Kecmanovic, 2011). Critical theory builds on two fundamental concepts: power and emancipation (Cecez-Kecmanovic and Klein, 2008). It is about “going against the grain” and asking questions that might seem odd or even offensive at first (Alvehus and Bay, 2020). This is in line with what Myers and Klein (2011) describe as the first principle of critical IS: namely, using core concepts from social theorists. Here, modernity theory is useful not only because it is a social theory, but also because it is a less-common theory to use in the IS field overall and thus could contribute to greater theoretical diversity.

The notion of emancipation is vital for critical theory (Howcroft and Trauth, 2004). Alvehus and Bay (2020) conclude that emancipation is essentially the unveiling of asymmetrical power relationships and promotion of freedom in all its forms. Myers and Klein (2011) divide their set of principles for critical IS between critique of the current social order and the transformative aspect of acknowledging what things could be. Similarly, Richardson and Robinson (2007) identified challenges for critical IS, one being the question of transformative redefinition. The authors are concerned with whether critiquing the current order is sufficient or if critical researchers must also seek to overturn oppressive social relations. They (2007) go on to state that a belief that CISR could change the world would reflect an inflated view of its importance. Howcroft and Trauth (2004) also acknowledge the problem with transformative redefinition, whilst stating that critical researchers often avoid telling people what to do. Such researchers can, however, with transformative redefinition, suggest alternative views that contribute to change. Critical information systems are not necessarily about having all the answers but rather about highlighting certain power relations.

Critical IS has a special place in Scandinavia, where – as noted by Bansler (1989) – systems development has three theoretical schools: the systems theoretical school, the sociotechnical school, and the critical school. The critical tradition in Scandinavia is centred around strengthening the position of employees and unions with regards to information technology. Bansler

¹ Habermas could be considered a second-generation critical theorist, being the doctoral student of Adorno. Further inclusions to the Frankfurt school are Leo Lowenthal and Walter Benjamin, although Keller (2002) identifies Benjamin as only loosely connected to the institution.

(1989) explains that there is a significant difference between Scandinavian countries and “developed capitalist countries”. The biggest difference is with regards to labour. At the time of his writing,² 60–70% of the total workforce in Scandinavia was unionised and 90% of workers in the private sector. This highly unionised workforce contributed to unions having a strong influence on how employers are to introduce new technology to their employees. Which then ended in Scandinavian managers often committed to policies of participation and cooperation (Bansler, 1989). The author explains that, in the 1950s and early 1960s, the trade unions had positive attitudes towards the introduction of new technology into the workspace, believing that it would increase the standard of living for both workers and managers. However, during the 1960s and early 1970s, this attitude changed. Workers began to criticise the introduction of new technology, claiming that it was having negative effects on their working conditions. The new technology promoted higher productivity but at the cost of more accidents amongst workers, who for example, were exposed to more dangerous chemicals. As a result, workers were being disabled and left unable to work. Bansler (1989) continues, stating that the critical tradition in research is a product of the political radicalisation in Western Europe during the late 1960s; hence, much of the critical tradition is influenced by these values – the most important one being that of democracy. Furthermore, in the critical tradition, the unions must actively seek out and conduct investigations of their own in order to contribute to the “democratization of system development”.

Iivari and Lyytinen (1999), in their mapping of Scandinavian information systems development, also recognise the critical school, which they call the “trade unionist approach”. Here, there is an important distinction between the critical tradition in IS (which is not bound to Scandinavia) and the Scandinavian trade unionist approach. The latter, as Bansler (1989) notes, is an approach in which the researchers sided with the workers, rather than the managers, contributing to the fair use and development of IS in organisations promoting emancipation. Iivari and Lyytinen (1999) define three generations of trade unionist approaches, with Marxist tones gradually being toned down in favour of values centred around cooperative design. To understand cooperative design, one first needs to look at participatory design (PD) – although similar in their approaches, they are distinct. In addition, this Scandinavian approach to participatory design (like critical IS and the trade

² This statistic has been verified more recently in 2016 (Nordics.info).

unionist approach) distinguishes itself by a deep commitment to democracy (Gregory, 2003, p. 63):

“Scandinavian participatory design practices are not distinguished by particular methods but rather by political commitments to societal concerns and relationships with participating users and communities”.

“User participation” refers to the involvement of the user in the design process. Bjercknes and Bratteteig (1995) note three reasons to use participatory design: I) to improve the knowledge upon which the system is built, II) to give people realistic expectations and reduce resistance to change, and finally, III) to increase workplace democracy (see, Bjercknes and Bratteteig, 1995, p. 74). The fundamental idea here is aligned with the Scandinavian tradition of critical research: namely, to increase workplace democracy (Howcroft and Trauth, 2004). Gregory (2003) writes that this is a result of the culture and politics of Scandinavia. Cooperative design, on the other hand, is more focused on use and future use, involving the users early on in the design process. Although much of the work in cooperative design could be considered participatory (Bjercknes and Bratteteig, 1995, p. 79), it highlights that larger organisational questions are yet to be asked:

“Cooperative design certainly supports user participation. But the focus on process, action, and situatedness tends to disconnect the design process from the larger organisational context in which power is enacted”.

In a similar manner, Beck (2002) explains that the “P” in “PD” stands for “political”, rather than “participatory”. For Beck (2002), dominance patterns in relation to IT and society are political in nature. Beck makes the argument that, by the turn of the millennium, PD was more concerned with how to carry out PD and improving methods than an interest in power differences, which underlines the aforementioned research on the lack of a democratic perspective in Scandinavian IS.

Beck (2002) continues that participation is not enough to change power relations. PD was created in the 1960s as part of the tradition of trade-union involvement in the introduction of new technologies into the workplace. However, Beck (2002) asks whether participatory design may be outmoded. At least when considering the aim of PD from the 1980s, what is required is

for PD to take on the power dynamics that exist now more than ever. Today, technology is not just implemented locally in a workplace but nationally and, to some extent, on a global basis via the internet, thus participation is simply not enough to create space for societal change. This is in line with the argument I make here, which is that the Scandinavian tradition of both critical IS and participatory design is now a lost legacy. As Beck (2002, p. 89) highlights,

“‘P for political’ must be made a credible alternative. This job is on us, the researchers in Scandinavia, more than on researchers elsewhere”.

Furthermore, this claim that the Scandinavian tradition was lost by the turn of the millennium is emphasised by Gregory (2003) and Howcroft and Trauth (2004), who cite Kyng (1996). Kyng (1996) notes that there are no large-scale examples of PD, as was the case in Scandinavia in 1970–1980, noting that this democratisation and worker influence have almost disappeared. In a similar fashion, Bødker et al. (2000) note that trade unions were stronger than ever before in the 1980s and have since weakened. By the turn of the millennium, unions were more concerned with unemployment, and democracy at work was not a prioritised topic. Bødker et al. (2000, p. 7) propose as a potential remedy a return to the core of Scandinavian informatics:

“But then again, everything floats, how should we pass the river the next time? Maybe by returning to the questions that more than two decades ago made a difference: ‘How do we design systems to fit people’ versus ‘How do we make it possible for people to design their own systems themselves’”.

2.3. Public-sector digitalization and e-Government

The object of study in this thesis is digitalization, with public-sector as a case and context. Some of the papers have been published in electronic-government and digital-government outlets. The e-Government field was developed in 1990s as a way for practitioners to share their experience, but has since developed into a research field (Grönlund, 2004), primarily sharing roots in public administration and information systems (Heeks and Bailur, 2007). Or the combination of both as illustrated by Scholl (2005), in public administration information systems. The strong influence of information systems and public administration is further identified by Bannister and Connolly (2015) with regards to theories in e-Gov, however they also note

influences from psychology, sociology and management science. Furthermore, Lindgren et al. (2021) argue that there is a strong link between IS research and e-Government, with the field itself dominated by information-systems researchers, as also noted by Grönlund and Horan (2005).

Early e-Government was produced by a transition from paperwork to a digitalized process with some automation, and it is now developing to the use of data analytics and AI (Lindgren et al., 2021). e-Government (understood as the use of technology³ to improve or enhance government) has been studied since the 1960s (Ilshammar et al., 2005), though the term “e-Government” was not used in that early period. Lindgren et al. (2021, p. 504) distinguish e-Government between: “the practice of digitalizing public sector operations and the research field that studies this practice”. The above description is of course a simplification, and Yildiz (2007) highlights that the implementation and use of e-Government is a process within a complex political and institutional environment. The public sector is characterised by a range of values and different ways of managing government (Rose et al., 2015).

E-Government has been critiqued on multiple occasions, for example. Bannister and Connolly (2012) notes that e-Government practitioners move on to the latest technology in an attempt create a “transformative government”, while leaving poorly or half implemented solutions behind. But the most common one is that e-Government research field is under-theorized (i.e. Grönlund, 2005; Heeks and Bailur, 2007; Bannister and Connolly, 2015) but as explained by Heeks and Bailur (2007) this could be a consequence of the field being highly practitioner oriented. As a potential remedy this thesis is built on a strong theoretical foundation in modernity theories as a way contributing to larger theoretical diversity.

³ The underlying technology has changed throughout the years in Sweden, and it has been called “automatic data processing”, “information technology” (IT), and “digitalization” (Sundberg, 2019a).

3. Theoretical lenses

This chapter consists of two sections. In Section 3.1, digitalization, the object of study, is discussed in relation to literature on the philosophy of technology and previous studies devoted to understanding technology from a wider perspective. And 3.2, the notion of the modern and modernity theories is presented, in this thesis modernity is operationalised through first and second modernity with associated attributes.

3.1. The metaphysics of digitalization

To approach digitalization from a theoretical perspective, I need the aid of another term, namely “technology”. As pointed out by other scholars (e.g., Feenberg, 2003; Brey, 2003), there is a relationship between technology and society. In *Technology is society made durable*, Latour (1990) questions the divide between technology and society (which he later revisits with regards to the concept differentiation in Latour, 1993). Meanwhile, in *La Technique* (later translated into English as “The Technological Society”), Ellul (1964) states that:

“Technique is not an isolated fact in society (as the term technology would leave us to believe) but it is related to every factor in the life of the modern man; it affects social facts as well as all other. Thus, technique itself is a sociological phenomenon”. (p. xxvi)

What the above scholars are alluding to is that technology is entangled with society. This relationship is further emphasised by Edwards (2003), who argues that all “technologies” are sociotechnical – not just the artefacts but also organisations. Ellul (1964) describes technology as the most important societal phenomenon, replacing the previously dominant force of capital. As explained by Mitcham (1994), Ellul later contends that if Marx were alive in 1940, he would not study economy or capital but rather technology (Mitcham, 1994). Ellul (1964, p. xxv) defines technique as follows:

“The term *technique*, as I use it, does not mean machines, technology, or this or that procedure for attaining an end. In our technological society, *technique* is the totality of methods rationally arrived at and having absolute efficiency (for a given stage of development) in every field of human activity. Its characteristics are new; the technique of the present has no common measure with that of the past”.

Ellul (1964) argues that, if we want to get closer to an understanding of technique, we must separate the two terms “technical operation” and “technical phenomenon”. He explains that technique is simply means and the ensemble of means, thus a technical operation is an activity carried out using a certain method (mean) to reach an end. However, he (1964) argues, what makes the technical operation different from those before is the pursuit of efficiency. Thus, for Ellul technique is heavily tied to the notions of rationality (a key driver in first modernity, see Section 3.2) and efficiency (see also, Ilshammar et al., 2005). As Mitcham and Mackay (1971) argue, Ellul makes the case that, in the past, actions were judged based on their accordance with nature, whilst “the moderns” are not concerned with nature but with efficiency.

At the time of *The Technological Society*, the available technology was limited by its physical capabilities: computers were as large as a room, and the notion of software was decades away (albeit Charles Babbage had had the idea of the analytical engine in the 19th century, and his associate Lady Ada Lovelace is considered the first programmer). Later, in *The Technological Bluff* (*Le bluff technologique*, 1988), published in English in the 1990s, Ellul had seen the early developmental stages of information and communication technology. The idea of the book was initially to analyse computer technology, but its author struggled to keep up with the rapid development (Son, 2004). In *The Technological Society*, Ellul (1964) critiques some scholarly definitions of technique as limited to biological or physical processes (Mitcham and Mackay, 1971). It is the introduction of the digital that makes technology perhaps more elusive and, at the same time, very promising. This combination of a lack of properties and a lack of limitations (as highlighted by Löwgren and Stolterman, 2004) contributes to a high degree of freedom that might seem daunting and complex to some but which creates the possibility of creating just about anything.

Later, in 1990, Ellul notes in *The Technological Bluff* a change in perceptions of science and technology: namely, a shift from being more sceptical and negative to the introduction of what he calls the “techno-logical bluff” (Son, 2004). Before discussing the bluff, it is worthwhile to note the distinction between “techno-logy” and “technique”: technique, for Ellul (1964, p. xxv), is – as highlighted above – a pursuit of absolute efficiency, whilst techno-logy (*technologie* in French) is the discourse on technique (Son, 2004). The notion of

a techno-logical bluff is not to say that technicians are bluffers or that techniques do not deliver what they promise (Son, 2004): rather, Ellul is referring to the bluff of the discourse of technique that is changing our attitudes towards techniques. Son (2004, p. 519) continues, “As the result of the techno-logical bluff, technique is seen as the only chance for progress and development in every society”. With this in mind, Ellul has been deemed a technological determinist (Mitcham, 1994) with a heavy emphasis on rationality and efficiency. However, this idea of Ellul as leaning towards technological determinism is up for debate⁴ and is, according to Mitcham and Mackay (1971), the most misunderstood idea in Ellul’s book. In fact, the author’s other writing also suggests that this might not be the case. As pointed out by Mitcham (1994), a technologically deterministic view contradicts the social constructivist view. Although I hold the latter view, my interpretation of Ellul is the same as that of Mitcham and Mackay (1971) and Son (2004) – namely, that Ellul did not view technology as deterministic but saw that technology was considered in wider society as the only solution.

In this thesis, technology is viewed as a societal phenomenon, as described by Ellul (1964), and there can be no separation between the spheres of society and technology. Bijker (2010, p. 67) uses the term “technological ensemble” to open up a discussion of society and technology:

⁴ Ellul (1962) argues that a technical milieu has replaced the old milieu (that of nature). He identifies seven characteristics of the new milieu (e.g., that it is autonomous and artificial; Ellul, 1962). This would indeed make him a determinist, using the Feenberg (1999) matrix for views on technology – the horizontal axis of which concerns the question of whether technology develops autonomously or can be humanly controlled. On this question, Ellul (1962) falls into the former camp. Mitcham and Mackay (1971) and Son (2004) all make the case for Ellul being misunderstood. The idea of the autonomous characteristic is not that technology develops independent of human actions. Rather, as expressed by Mitcham and Mackay (1971: 109), “It is simply that human action takes place without ever looking at any standard other than a technical one”. This standard could be defined as efficiency, as is the primary case in Ellul’s philosophy. Son (2004: 525) states, “In other words, technological development is not pursued to achieve more efficiency, but *in the name of more efficiency*” [italics in the original]. Son (2004) further explains how using efficiency as a justifying element without looking at any alternatives makes it impossible to determine the path of technology. Finally, in a response to a book review in 1965, Ellul makes the case that his book serves as a warning of what could happen if society does not attempt to understand how technology is changing our lives. Ellul (1965: 568) states as follows: “I never denied that technique has brought some elements of well-being and happiness. If I failed to discuss this, it is because it seemed to me so obvious and so well known as scarcely to bear repeating that, thanks to technique, man is better fed and enjoys many improvements in his lot”. Mitcham (1994) writes that Ellul views technological determinism as a societal bet as to whether this new milieu will be better (or is even possible).

“The word ensemble is conceptually less restrictive and allows for a broader, more open – some would say more messy range of conceptual approaches”.

This broad and messy conceptual approach aligns well with the second or reflexive modernity (more on that in Section 3.2) that considers society to be complex. Thus, in order to study and understand society, one must embrace this complexity, rather than attempting to simplify and quantify it as more modern science and technology approaches would suggest (as also expressed by Law, 2004). Or as Healy (2017, p. 119) states, “... so it is often easier to embrace complexity than to cut through it”. This view is shared, to some degree, by Benbya et al. (2020, p. 12), who state that the complexity of sociotechnical systems is “wicked” problems that cannot be solved but rather tamed. With this in mind, Bijker (2010) states that we can now begin asking questions about society and culture at large. Bijker (2010) makes the argument that technologies do not just exist to assist people in their lives; they also change human activities and their meanings. Bijker (2010) states that technology is socially built and society is technically built, which means that technological culture consists of sociotechnical ensembles.

With the help of the long-standing tradition of studying technology and its relationship to society, we can finally approach the object of study for this thesis: digitalization. In their study of 100 years of digitalization, Gidlund and Sundberg (2022) show that this concept is not new. The terminology began with “digitization” (the conversion of analogue to digital data) and had made a clear transition to “digitalization” by the turn of the millennium. This is the digitalization with which we are probably most familiar today, and this relates to concepts such as industry 4.0 and blockchain and various forms of e-services. As the authors (2022) state,

“The goal of this investigation is to explore and expose ‘digitalization’ as a concept in relation to a wider evolutionary system, in order to facilitate a historical understanding that counterbalances the hegemonic narratives of uniqueness, newness, and ‘historylessness’”.

They also note that, over the past decade, the terminology has shifted towards the related term “digital transformation” (Gidlund and Sundberg, 2022). The concept of digitalization as transformative is in line with previous research, such as Brennen and Kreiss (2016) and Reis et al. (2020). In a

literature review, Reis et al. (2020) note that the terms “digitalization” and “digitization” are sometimes used interchangeably. The definition of digitalization point towards two reoccurring arguments: digitalization is the use of digital technologies and digitalization as a transformative power.

3.2. What is Modernity?

I have mentioned modernity a number of times in the thesis, and in this subsection, I take a closer look at this and the related concept of “modern”. The notion of the “modern” is not unique to modernity theory; the concept has been used in art, architecture, and fashion. It is used as a demarcation of time (Latour, 1993) to claim that something is modern because it is of a different time. However, Latour (2003, p. 39) makes the case that the distinction between modern and non-modern has been retrospectively constructed:

“So, for me, historians of science have retrospectively constructed a non-modern history of Western science, but the same could be said of all the other symbols of the modern period from markets (Polanyi, 1945) to technologies, to what is called modern art (Clark, 1999)”.

Misa (2003) defines “modern” in its common speech form as a synonym for the latest and assumed best. In the United States in the early 20th century, the term “modernism” was associated with values such as order, regularity, system, and control and further seen as an agent of progressive social change (Misa, 2003). “Modernity” and “modernisation” are sometimes confused, and they have similar meanings. Shilliam (2010) defines modernity as a social existence that is significantly different from all past forms of human experience, whilst modernisation is about the transition from primitive communities to modern societies. This definition of modernity falls much in line with how digitalization is described – namely, as a transformation of society, as illustrated by Brennen and Kreiss (2016). Hence, in order to consider something modern, it must mark a significant change or difference. Latour (1993) acknowledges that the multiple definitions of modernity all share the concept of the passage of time. Latour (1993, p. 10) states,

“The adjective 'modern' designates a new regime, an acceleration, a rupture, a revolution in time. When the word 'modern', 'modernization', or

'modernity' appears, we are defining, by contrast, an archaic and stable past".

What Latour (2003) is trying to convey is that we have never been modern: there has never been a time when modernity's interpretation of itself has aligned with its deeds. Hence, only by believing that science and society do not mix can one mix them up in the way that we see today (2003). Latour (1993, p. 11) also states,

"We are truly modern – that is, we willingly subscribe to the critical project, even though that project is developed only through the proliferation of hybrids down below".

In a similar manner, Marshall (2003) states that modernity has never existed in pure form and is hence described as being in crisis. When modernity is discussed, it is usually in two phases or stages: first modernity, as Beck (1992) refers to it, or simple modernity, as Giddens (1999) calls it, and reflexive modernity (Beck, 1992; Giddens, 1999; Beck et al., 1994). In this thesis, I will refer to these as first and second modernity.

The first modernity is defined by Giddens (1999, p. 6) as an "old-type unilinear modernization", similar to Shilliams' (2010) definition of modernisation above – the transition from traditional communities to societies. The first is represented by the transformation of agrarian society into industrial society, whilst the second emerged during the second half of the 20th century and is centred around reflexivity, with modern society confronting itself with the breakthroughs of the first modernity (Brey, 2003). Second modernity "implies coming to terms with the limits and contradictions of the modern order" (Giddens, 1999, p. 6). Beck et al. (1994, p. 8) argue,

"In the self-concept of risk society, society becomes reflexive (in the narrower sense of the word), which is to say it becomes a theme and a problem for itself".

Latour (2003) distinguishes between "reflexivity" and "reflexive" and states that reflexive is the unintended consequences that affect the entire society. It does not mean mastery and consciousness in terms of full control; simply that, in the second modernity, we become conscious that we do not

have full control. Beck describes reflexive modernisation as the possibility of the self-destruction of an entire epoch by the victory of Western modernisation (Beck et al., 1994, p. 2). Changes in modern society – such as gender roles, business sectors, and techno-economic progress – undercut one kind of modernisation, which then becomes reflexive modernisation (Beck et al., 1994). Beck states, in *Risk Society* (1998), that modern society not only creates wealth, it also systematically creates risks in parallel to this wealth. He questions how the risks produced as part of modernisation can be prevented or at least minimised.

Lee (2008) contends that the change from the first to the second modernity affected culture, economics, and politics and states that the first modernity had clear boundaries whilst the second blurred these boundaries. The second modernity questions the basic premises of the first; hence, the meta-change of modern society, as it is termed by Lee (2008), replaces linear approaches with non-linear ones. Beck (1998) suggests that the risks that occur in the second modernity are a product of the solutions proposed in the first.

In this thesis, the theory of modernity is operationalised through the two theoretical constructs of first and second modernity. These two stages are conflicting, as the first modernity is constructed with attributes from industrialisation, whilst the second is reflexive in nature and thus questions the innovations and values of the first (see Beck, 1998). The findings from the papers are analysed in relation to the representative attributes of each modernity described in Table 1.

Table 1: Attributes of modernity in the different stages

Modernity	Attributes	Description
First	Rationality, efficiency, speed, newness, change and progress	The first modernity relies on the rationalisation (Avgerou, 2000: Feenberg, 2003) of societal improvement. This dates back to the Enlightenment and proposes that, by introducing calculations and greater control into society, one can increase efficiency (Feenberg, 2003). As Latour (1993) explains, references to “modernity” are concerned with something new, and this new state is presumably better than the current or past state.

Second	Reflexiveness and complexity	The second modernity – or “reflexive modernity”, as termed by Beck (1998) – is defined by attributes such as reflexiveness and complexity. It turns the first modernity on its head and starts to question the advances, costs, risks, and unintended consequences. Latour (2003) refers to “reflexiveness” as being conscious that one is not in full control. Whilst Lee (2008) notes the complexity and entanglements of the second modernity, he talks about this in terms of blurring the boundaries that were clearly defined in the first. This entanglement or complexity is also acknowledged by Beck (1998), Latour (1993), and Fuchs (2019).
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When discussing modernity, one cannot leave out the role and contributions of science and rationality. The first modernity had a belief in rationality and mastery over nature (Feenberg, 2003). For modernity theory, the key notion is rationalisation, which is used to explain the “uniqueness of modern societies” (Feenberg, 2003, p. 73). The rationalisation of social processes is a product of calculation and control, which subsequently increase efficiency (Feenberg, 2003), but it also contributes to a reduction in normative and qualitative richness in the traditional social world. This can be problematic for “the theorists”, as Feenberg (2003) calls them, who justify this reduction by claiming that technical rationality gives power over nature. In most modernity theories, rationalisation is a spontaneous consequence of the pursuit of efficiency (Feenberg, 2003). Rationalisation, according to Feenberg (2003) depends on what is called “differentiation”, something also discussed by Latour (1993). “Differentiation” refers to the separation of entities such as political power, religion, and the state, to name a few. Feenberg (2003) argues that modernity theory goes wrong by assuming that science and technology are differentiated from other spheres. Here, he argues for the social complexity related to technological development. As the title of the chapter by Feenberg (2003), “Reflections on Bridging the Gap”, suggests, he seeks a middle ground between modernity theory and technology; and whilst differentiation is a part of modernity theory, he claims that we must revisit the notion of rationality and that differentiation imposes a purely rational form of social process.

Habermas (1990) views modernity as an unfinished project (Habermas, 1990, see Fuchs, 2019), and Fuchs (2019, p. 48) argues that it will remain so because it is open, contradictory, and dynamic to formations in society:

“Digital solutionism is based on the logic to save everything, click here. It assumes that digital technologies make society completely controllable, steerable and governable, and therefore provide a fix for global problems, economic and political crises, terrorism, crime and so forth”.

Fuchs (2019) suggests that, despite the problems caused by digital technology, we should not abolish such technologies in an attempt to return to the pre-modern, nor should we develop new postmodern technologies. In other words, digital subjects and digital objects should not be separated. Fuchs (2019) concludes by presenting an alternative to post- and pre-modern dialectic or digital modernity: society should abolish the destructive technologies and preserve the good ones, such as cooperation.

3.2.1. Demarcations of modernity theories

Lastly, modernity is a widely studied subject and there have been numerous avenues of research. This thesis addresses modernity using what Brey (2003) calls “institutional theories of modernity”, which focus on the social and institutional structures of modern societies characterised by industrialism, capitalism, rationalisation, and reflexivity (Brey, 2003). Hence, discussions about the pre-modern and postmodern theories categorised by Brey (2003) as “cultural and epistemological theories of modernity” are not objects of this thesis.

In summary, modernity theories offer one potential avenue to study the wider ramifications of digitalization, in the next chapter I describe how the attributes of each stage of modernity are operationalised and the relationship between the research papers and this thesis.

4. Methodology

This chapter consists of four sections: first, the philosophical points of departure are outlined in 4.1. In 4.2, the overall research design is presented, with a description of the three papers. Section 4.3 discusses the overall analysis, the methodological considerations of this thesis, and the relationships between the analytical frames. Finally, 4.4 presents the ethical considerations.

4.1. Philosophy of science: Constructed facts and lousy theories

In this section, I outline my ontological and epistemological convictions. With regards to ontology, I position myself within social constructivism, subscribing to the idea of reality as socially constructed, based on our interpretations of and interactions with the world. My focus primarily lies in the social construction of technology (SCOT) domain, viewing technology and society as co-constructed (Gidlund, 2011) – or as Löwgren and Stolterman (2004) put it, we shape technology and technology shapes us. As Bijker (1993, p. 125) writes,

“The technical is socially constructed, and the social is technically constructed - all stable ensembles are bound together as much by the technical as by the social”.

Bijker (1993) explains that SCOT was developed to strike a balance between opening the black box of technology – or “getting down to the nuts-and-bolts level”, as he expresses it – and maintaining a sufficient level of abstraction to compare and theorise around technological development. Musik and Bogner (2019) describe three ways of conceptualising digitalization: social constructivism (technology is created by different social forces), co-production, and post-humanism. The authors (2019, p. 5) state as follows:

“To sum up, social constructivist approaches conceptualize technology as a product of society. In sharp contrast to technological determinism, here society changes technology and not the other way round. In this view, digitalization is considered a process in which society, and thus relevant social groups, transforms existing technologies to a digital form. The impact

of digitalization on society is of minor importance as digitalization is explained as a process emerging out of social practices”.

Whilst I agree with Musik and Bogner (2019) that society and certain social groups change and make digitalization based on certain values, I do not agree that the impact of digitalization on society is of minor importance; quite the opposite, in fact. Digitalization can be seen as one kind of social practice, as identified by Gidlund and Sundberg (2021) but also by Bijker et al. (2012), with regards to relevant social groups; thus, it does not only emerge out of social practices, as stated by Musik and Bogner (2019).

Bijker (2001) declares that the standard view of science and technology makes a clear distinction between politics and the scientific or technical domain, whilst the constructivist view holds that the two domains are intertwined. Pinch and Bijker (1984) write that philosophers make an idealised distinction when it comes to science and technology, where science is the discovery of truth and technology is the application of truth. The standard view of science, as Bijker (2001) calls it, revolves around the idea that scientific knowledge is objective, value-free, and discovered by specialists, whilst technology is an autonomous force. Here, Bijker (2001) suggests, scientific knowledge becomes a candidate for the solution to all kinds of problems (as observed by Ellul, 1990), where technology is an end within itself and values such as efficiency, power, and rationality are sought after, independent of context.

For social constructivists, the things that matter are meanings, discourses, and representations, rather than notions of an objective reality (Mitev, 2005). Bijker (2001) describes the constructivist view of science by explaining that scientific facts are not stumbled upon by scientists and readings from instruments do not speak for themselves. Rather, there is a process of taking the readings and constructing them into scientific facts. Researchers in the sociology of scientific knowledge (SSK) show that the process of going from readings to scientific facts contains interpretive flexibility, which means that other readings are possible (Bijker, 2001). Furthermore, Law (2004) emphasises that scientists and researchers have their own biases, thus nature does not directly impress its reality on those whom study it. Feenberg (2003) writes that the illusion of continuity in science appears when one disregards the complexities and ambiguities of scientific change and instead assumes this change to be an upward linear progression. However, a closer look at the

argument and experiment reveals that the continuity is less clear. Latour describes this process of science as a Janus, meaning that it looks back on its past in an entirely different manner to the one with which it looks towards the future (Feenberg, 2003, p. 78).

“Science, Latour suggests, is a sum of results that ‘hold’ under certain conditions, such as repeated experimental tests”.

Thus, modern science is a vital part of modernity that holds up under certain conditions in one world. However, there are several worlds (Pickering, 2017; Law, 2004; Law and Urry, 2004), and when another world is allowed into the spotlight, the conditions change – or, as Latour (1993, p. 11) states, “our past begins to change”. My stance in this thesis is that the theories, rather than the scientific facts, should be valued above all. The facts illustrated above could be considered constructed (Bijker, 2001) – or, as Law (2004) puts it, methods and research practices contribute to creating multiple worlds or not only describe the world but also enact it (Law and Urry, 2004). Pickering (2017) notes that the idea of different worlds has existed for a long time and defines this as social groups understanding the world differently to one another. The concept has also been referred to as “multiple ontologies”. Latour (1997, pp. xii-xiii) refers back to the idea of a construction:

“Thus a construction is not a representation from the mind or from the society about a thing, an object, a matter of fact, but the engagement of a certain type of world in a certain kind of collective”.

What the above scholars are suggesting is that methods do not simply discover reality or stumble upon scientific facts: they contribute to shaping and enacting them.

“The argument is no longer that methods discover and depict realities. Instead, it is that they participate in the enactment of those realities” (Law, 2004, p. 45)

This idea of facts being enacted or constructed is also touched upon by Feyerabend (1975). A worldview one hundred years ago was a religious worldview, and children were taught religious facts. Today, scientific facts are being taught. Whilst facts contribute to an understanding today, they are sooner or later, in most cases, disproven:

“No theory ever agrees with all the facts in its domain, yet it is not always the theory that is to blame. Facts are constituted by older ideologies, and a clash between facts and theories may be proof of progress. It is also a first step in our attempt to find the principles implicit in familiar observations”
(Feyerabend, 2010, p. 33)

As Feenberg (2003) highlights, “data do not speak unambiguously”, they have to be interpreted; and in order to interpret the data, we need theories. Whilst no theory can perfectly describe a phenomenon, even if it could, it would only be valid for a certain period of time. As argued by Latour (1987, p. 12), “when things are true they hold”, versus “when things hold they start becoming true”. This notion is that, subjected to repeated experiments, certain facts will “hold” and thus be considered truth. However, theories can provide an understanding for the time being, but some facts will be disproven. As Feyerabend (2010) states, this is a sign of progress, as all rules are broken sooner or later – regardless of how well-grounded in epistemology they are: “It is both reasonable and *absolutely necessary* for the growth of knowledge” (Feyerabend, 2010, p. 7):

“As a matter of fact, the theory we have chosen may be pretty lousy. It may contain contradictions, it may conflict with well-known facts, it may be cumbersome, unclear, ad hoc in decisive places and so on. But it may still be better than any other theory that is available at the time. It may in fact be the best lousy theory there is” (Feyerabend, 2010, p. 264).

I use theories in the manner that Simon Lindgren (2020) calls “brutalising theory”: not by viewing theories as sacred text that the data need to fit within or a “read-only logic”, as Lindgren (2020) calls it. To understand society as it is changing, we must make additions to the theories to create abstraction, but asking for more nuance whilst theorising might block this process, as highlighted by Healy (2017). Healy (2017) states that the most important thing about a theory is whether it is any good and that it is not determined by nuance. This notion is also touched upon by Law (2004), who states he does not have an answer to the question of how to study a more complex and messier society. His book is intended as an opening to explore new ways of conducting research within the social sciences.

4.2. Research design

The three papers included have different methodological approaches: Paper I is an interview study, Paper II is a policy analysis, and Paper III is based on material from a workshop. Each of the papers concerns public-sector digitalization at a different level of government (i.e., regional, municipal) and from a different viewpoint. These papers are described in more detail below.

Paper I: This study targeted regional digitalization coordinators, a group of 21 individuals who each represent one of the Swedish regional councils. This group of actors is tasked with coordinating the development of digitalization within the region and is expected to contribute to its enactment. Thus, this group was selected due to their role as key actors, as an understanding of their work could provide insights into the making of digitalization. An interview method was selected to obtain a better picture of how digitalization is made and enacted. We were also interested in the different translations of digitalization as a phenomenon and how they travelled in the different contexts. In total, 15 of the 21 coordinators participated in interviews, each lasting approximately an hour, and the audio recordings were then transcribed. The questions concerned the nature of digitalization, digitalization as a strategy, and digitalization as an everyday doing, as the operationalisation of the technological frames proposed by Orlikowski and Gash (1994). These dimensions were combined with the coordinator's views of technology, inspired by Feenberg (1999).

Paper II: In this study, the ambition was to understand the values associated with digitalization. We collected all the municipal digitalization strategies available at the time (summer 2021) in Sweden from the respective municipal website. The strategies needed to be focused on the digitalization of the entire municipality (and not that of a specific department, such as education). They needed to be official documents (not PowerPoint documents or similar) and available through the relevant website. This resulted in 85 strategies. These strategies are a good indicator of what is deemed important in a future (digital) society, and we were also interested in the evaluation practices associated with digitalization. The policies were analysed using the public value framework provided by Rose et al. (2015) and a methodology based on content analysis proposed by Toll et al. (2020) and by counting the number of value positions expressed. This process yielded statements related to each value position and the evaluation of digitalization.

Paper III: In this paper, we sought to narrow the gap between policy and practice. We did so by inviting local municipal strategists to a workshop and asking them to analyse their own digitalization policies using the Bacchi (2012) WPR framework. A total of six municipal employees attended the workshop, and they were split into pairs and asked to perform the analysis. We asked them to take notes on their discussion whilst performing the analyses; and these notes were later collected as part of the empirical material. In the second half of the workshop, the participants were asked to share their findings to promote discussion. During this stage, we took notes that are also part of the empirical material.

Taken together, the papers reflect different approaches to the study of digitalization. Worthwhile to note here is the overlap in the empirical material: the digitalization coordinators operated primarily on a regional level (although cooperating with the municipalities) and thus they were guided and, in some instances, responsible for the regional digitalization policy. For Paper II, where we analysed municipal strategies, our sample of 85 strategies included the strategy used in Paper III, thus creating an overlap in the material. The participants of the workshop in Paper III were not informed of the results from Paper II until after the workshop had been concluded in order to avoid creating “bias” in the minds of the participants regarding ideas related to public values when the workshop was devoted to problems through WPR. Table 2 displays the three papers’ empirical data and analytical frameworks and my individual contributions to each paper (as they were co-authored).

Table 2: Research papers, empirical material, analytical frameworks, and individual contributions

Paper	Empirical data	Analytical framework	Individual contribution
I: The Making of Digitalization	15 interviews with regional digitalization coordinators	Technological frames + views on technology	In this paper, I performed the 15 interviews and the first part of the analysis. I presented and discussed the paper at a workshop (SWEG 2021). I then wrote the research paper, together with my co-author.

II: What is the Value of Digitalization?	85 municipal digitalization strategies	Public values	In this study, I gathered half of the documents and conducted the analyses of these. I then wrote the research paper, together with my co-author.
III: Digital Solutions to What?	Workshop data with 6 municipal employees	What is the problem represented to be	For this study, I helped to design and conduct the workshop. I also contributed to the preliminary analysis of the material and wrote part of the finished manuscript.

4.3. How can digitalization be studied from a wider perspective?

The purpose of this thesis is to unveil the phenomenon of digitalization’s wider ramifications using theories of modernity. The study of digitalization as societal development would require macro-level analysis, but this could yield too much abstraction. In contrast, a focus on the micro-level could make it difficult to see the whole picture. Büchner et al. (2022) outline that both macro- and micro-level analyses are common, but there is little meso-level research to tie the two together. To outline my unit of analysis and unit of reference, I apply the analytical levels proposed by Bijker (2010), who introduced four units of analyses for the study of technology (see Table 3). These range from a “singular artefact” to “technological culture”. This focus on the technological culture unit of analysis enables us to ask questions about society at large, which is in line with the purpose of this thesis. However, for this, I need aid from another unit of analysis – primarily the third one, *sociotechnical ensembles*, but also to some degree *technological systems*. These two levels serve as a representation of a meso level and, as recommended by Bijker (2010), they will be used here in parallel. Thus, the empirical material and findings represent a meso level of analysis; and to start asking questions about society at large (as Bijker phrases it), the papers are aggregated to a higher level of abstraction: *technological culture*. Bijkers (2010) *technological culture* is related to a macro perspective, while *sociotechnical ensembles* and *technological systems* are meso level and lastly, *singular artefact* makes up the micro level.

Table 3: Unit of analysis (see, Bijker, 2010)

Unit of analysis	Research question
Singular artefact (technical system)	How can we describe and understand the development of technology in non-internalist terms?
Technological system	How can we understand the development of large technological systems? How can we understand the impact of technology on society?
Sociotechnical ensemble	How can we understand social order? How can we understand the relationship between the social shaping of technology and the technical building of society?
Technological culture	How can we understand normative and political issues in technological societies?

4.3.1. The case: Public sector in Sweden

To study digitalization from a wider perspective, I use the Swedish public sector as a case. As highlighted by Gerring (2004) a country could serve as a unit, population or a case in a study, however in this thesis I choose the latter in the form of a case. The public sector plays a vital role in Scandinavia. As detailed by Andersen et al. (2005), in Scandinavia, the government takes up a large part of societal resources and employs a third of the workforce. Furthermore, 60–70% of GDP at the time was being reallocated through the government via the welfare system that supports citizens throughout their lives and is tasked with providing health care, education, and elder care. The study of the public sector and digitalization naturally brings to mind e-Government research, and as clarified previously (see Section 2.3), this constitutes part of the literature on which this thesis is built.

4.3.2. Relationship between papers and the overall aim of the thesis

While none of the included papers uses modernity as a theoretical framework, all serve as attempts to study digitalization on the meso level or on the level of Bijker’s technological systems and sociotechnical ensemble. Thus, we selected the frameworks that would aid us in this process. Modernity was then used to conduct an analysis of the papers, lifting the findings from the meso level to the macro and thereby heightened the level of abstraction. A note here for transparency is that, in order to strengthen the analysis and

support the claims, certain quotes have been included from the empirical material that were not included in the published papers.

In Paper I, we use the technological frames presented by Orlikowski and Gash (1994) and Feenberg (1999) to study technology. Here, the two frameworks are used to create an understanding of the role of a group of key actors called “regional digitalization coordinators”.

In Paper II, public values by Rose et al. (2015) are used as a tool for policy analysis. Whilst public values are not strictly tied to technology, the empirical material (the digitalization strategies) is, and in this paper, we identify the values and ideals that are important and motivated by the use of technology (digitalization). Rose et al. (2015) base their assumptions of information technology on the technological frames of Orlikowski and Gash (1994).

In Paper III, we use the “What is the problem represented to be?” (WPR) framework proposed by Bacchi (2012). This framework proved rewarding, as we asked the municipal employees to analyse their own policy. It also constitutes a suitable compliment to Paper II, which studies policy; and here, we study more concrete policy enactment.

4.3.3. Analytical approach using theories of modernity

So far, I have described how I attempt to study digitalization and society by moving from a meso level (the three research papers) to a macro level (the topic of this thesis). In this section, I describe how modernity theory was operationalised and analysed. First, as Table 1 illustrates (see, Section 3.2), I identified certain attributes that describe the key characteristics of first and second modernity to facilitate a deductive analysis. The chosen method for the overall analysis is thematic analysis (TA), which is a systematic way of identifying and organising structure across a dataset (Braun and Clarke, 2012). TA allows for a high degree of both flexibility and accessibility, making the analysis process transparent, thus eradicating a widely criticised aspect of qualitative analysis.

Thematic analysis is concerned with themes (the broader picture, intended to answer the research question) and codes. These codes construct the themes — the bricks and tiles in the housebuilding process — whilst the themes are the walls and roof (example provided by Braun and Clarke, 2012). In the analysis, the attributes of modernity (Table 1) serve as the codes that explain

the two stages of modernity, whilst first and second modernity are the themes. By using attributes in this way, I was able to identify codes from both stages of modernity within the same paper. This is important, as the expected result is not that digitalization will be tied to one stage of modernity, but rather that there will be a push and pull between the two stages, as highlighted by Gidlund (2011).

Braun and Clarke (2012) note the importance of producing the report. Whilst one might assume that this is to be done after the analysis, the authors (2012, p. 69) emphasise that “writing and analysis are thoroughly interwoven in qualitative research”. There are informal and formal writing processes: the first is about notes and memos, and the second involves using these notes and memos to create the formal analysis. Writing involves using the data to tell a coherent story and, in doing so, making a clear argument that answers the research question. Thus, during the analysis process, notes and passages were saved to develop an overview of all the codes and themes from the papers, and this overview was later used to formulate the discussion chapter.

Finally, a note on the relationship to my philosophical stance: I advocate for theories over facts, and in this analysis, I have “brutalised theory” (using Lindgren’s term) for the operationalisation of modernity. This was done because modernity is a meta-theory that helps us to describe and understand society; but when Beck (1998) wrote *Risk Society* in the 1990s, he could not have foreseen the development of computers and digital technologies, thus the theory had to be modified (or “brutalised”, if you will).

This then raised questions of reliability and validity. With regards to reliability, I have been transparent in my selection of the attributes of the two stages of modernity. However, it is possible to derive other characteristics or attributes from these two stages of modernity. A striking example of this can be found in Gidlund (2011). Since the studied material exists in published research papers, the approaches to each paper can be found in the methods section in each paper, and the motivation for the overall thesis can be found above. Regarding validity, Braun and Clarke (2006) discuss this in terms of, first, individual themes and their relationship to the dataset, and second, the end product (e.g., the research paper or thesis). As the themes were not inductively created, the first point can be overlooked. However, validity in regards to the end product is important. To strengthen the results of the analysis, quotes from empirical material that were not included in the papers

have been included here in support of the claims made. This is done to convince the reader and to provide clarity around the arguments.

4.4. Ethical considerations

When writing a thesis in this manner ethical reflections is done continuously throughout the text. For example, I take the stance that public-sector digitalization needs to be scrutinized, partly for the vast amount of fiscal funds are spent that might not promote equality. Moreover, by critiquing the current state looking into what ideals are reproduced and unquestioned. The idea here, which is in line with previous critical IS research, is to avoid telling people what to do (Howcroft and Trauth, 2004) and to acknowledge that the belief that CISR could change the world reflects an over-inflated view of CISR's importance (Richardson and Robison, 2007). Furthermore, this thesis considers the 12 ethical principles of Resnik (2005), primarily the three described below.

- Social responsibility: As alluded to above, this thesis and the three papers make an argument for why public-sector digitalization should be scrutinised in order for society to benefit equally from the spending of fiscal funds. Thus, they contribute to what Resnik (2005, p. 57) calls "socially valuable research".
- Respect for subjects: Papers I and III included "Human subjects" (or "participants", if I may), and with that comes certain considerations. Applicable to this research was *informed consent*, and the participants participated in both the interviews and workshop voluntarily, with the option to stop participating at any time (*termination*). In addition, *privacy* was a factor: no personal details were ever published or shared, and the participants were informed about how the material would be used. In both papers, the participants' professional titles are given in order to strengthen the validity of the respective papers.

5. Key findings from the included papers

This chapter presents the results and key findings for each of the papers, as previously discussed each paper study digitalization in a different context and/ or level of government. Section 5.4 presents a summary of the analytical results, seen through the attributes derived from modernity theory.

5.1. Paper I: The making of digitalization – Like nailing jelly to a wall

In this paper, we sought to explore the doing of digitalization in the public sector. The purpose of the paper was to uncover the enactment by focusing on a specific set of actors and their production and reproduction practices, in an attempt to study what Bijker (2010) calls “the making of technology”. The coordinators associated digitalization with change, and it was thus enacted as change, development, and transformation (used interchangeably). However, there was no clear description of what the change or transformation was from or to. The interviews also revealed that the coordinator’s role descriptions were rather vague, and the individuals had been given the task of promoting digitalization in a regional development context. Hence, our findings show that digitalization is assigned weight before meaning, indicating that it must be done and done quickly. The paper concludes that “digitalization as an abstract representation surfaces as transformation, and the contextualisation of digitalization as a local practice in the specific contexts as a change agent”. This was highlighted by one of the coordinators:

“So, I think the role of digitalization coordinator is very much about change. It is also about the view that digitization, as an enabler, is about being able to spread knowledge about what opportunities there are – and it can be anything from sharing documents and working together to actually looking at data and what you can do with the data”.

Hence, one important contribution of this paper among many is that, for digitalization to travel from a policy object to a practical transformation, we need to know more about how digitalization is reproduced as a policy imperative.

5.2. Paper II: What is the value of digitalization? – Strategic narratives in local government

In this paper, we study the distribution of public values in Swedish municipal digitalization strategies. The purpose of the paper was to enhance understanding of the narratives of the digitalization strategies articulated by the Swedish local government. The results show that the strategies anticipate primarily beneficial outcomes of digitalization and articulate few risks, being dominated by an optimistic agenda. Our results also show that the strategies share a repository of identical statements, which could be explained by local governments borrowing statements from higher-level documents such as national policies. We refer to this as “parrot syndrome”.

With regards to the distribution of values, the strategies have a service-dominated logic, usually in congruence with efficiency benefits, which contradicts the e-Government paradox (good service costs money, and costs can be cut by limiting service). The strategies also indicate a low occurrence of the engagement ideal, which suggests that digitalization in local government is not intended to promote e-democracy. The paper also reveals that, whilst there is an expressed need to evaluate the outcomes of digitalization, no methods or tools for doing so are presented. The strategies also point towards the need to evaluate service and efficiency values, but they lack specificity about how this could be done. Hence, our paper clarifies the need to link digitalization initiatives and outcome assessments in relation to values, as well as highlighting that future policy documents should promote specificity over generality.

5.3. Paper III: Digital Solutions to What? – WPR as a model for public servants seeking a better grip on their local digitalization policy

This paper makes an empirical contribution to knowledge of the enactment of policies in practice, which has previously been studied primarily through theoretical and conceptual contributions. The purpose of this paper was to investigate what surfaced when policymakers and public servants used WPR to dissect their digitalization policy. The study revealed that, when the participants questioned their own policy, they reflected on usability and concluded that the policy were rather naïve, not translated into the local contexts, and lacking descriptions of the resources required to tackle

hindrances. The paper concludes that the WPR method is a promising tool for public servants seeking insights into policy construction and that the next generation of digitalization policies could move away from this narrative that assumes digitalization to be the only solution.

5.4. Overview of results

Table 4 shows how the different attributes of first and second modernity can be identified in the papers.

Table 4: Representative attributes of different stages of modernity and findings from the papers

Stage of modernity	Attributes	Paper	Findings
First	Rationality	I	The role and purpose of the coordinators is to coordinate digitalization, with a regional growth perspective in mind. Further, when asked whether the historical impact of technology can be controlled by humanity or if it operates according to its own autonomous logic, many respondents said that it could be controlled short-term but probably not in the long run.
		II	Digitalization in the public sector is believed to reduce costs while increasing service, contrary to the so-called “e-Government paradox”. Many strategies say that evaluation should be performed as a part of budgetary work or monetary evaluation.
First	Change	I	Digitalization was often coupled with the term “change”; but in many cases, there was no indication of from or to the change should happen.
First	Progress	I, II, III	Progress was, in all the papers, a reoccurring code. Digitalization was usually discussed in vague terms, but the underlying idea was that it would promote

			progress in some way (e.g., regional growth (Paper I), increase service (Paper II), or reap the benefits of digitalization (Paper III)).
First	Efficiency	II	This paper identifies a high distribution of efficiency values in the digitalization strategies of Swedish local government.
First	Newness	I & II	The phenomenon of digitalization is discussed as something new and thus assumed to be superior.
First	Speed	I	This study found that the concept of digitalization has been granted a high level of importance before a context, this indicates that digitalizing is urgent and must happen quickly in order not to fall behind.
		III	In this paper, we found an emphasis on the benefits of digitalization and an undertone of a competitive race embedded within it.
Second	Complexity	I	In this study, complexity was touched upon by the coordinators in several ways. This included the questions of how to describe digitalization (often using different actors, digital technologies, and concepts) and the number of competencies required to work with digitalization.
		II	This paper identifies a discrepancy with regards to the municipalities' evaluation procedures. Specifically, there is a desire to measure rather complex values – such as democratic engagement and the efficiency of digitalization – but current practice involves narrow measures that do not reflect the true complexity.

Second	Reflexiveness	I	The coordinators have issues defining their roles and thus question how digitalization is to be enacted in practice.
		II	In this paper, we find the opposite – namely, that there is a lack of reflexiveness due to the low occurrence of statements classified as risks.
		III	In this paper, we see that the participants beginning to ask why digitalization should happen in the ways outlined by their policy. They also question if they have the resources and underlying infrastructure to perform in the required manner.

6. Analysis

In this chapter, I present the analysis in the form of attributes related to first and second modernity. These are explained through to ideas Section 6.1, “The Efficient Juggernaut”, and 6.2, “We have never been modern”. The results show that attributes from each stage of modernity can be identified, where the attributes of first modernity related to industrialisation are embedded in the public sector. However, as concerns about participation and democracy are raised the results show that first modernity is not equipped with handling such issues. Quotes, figures, and tables from the papers and their respective empirical material are included in this chapter.

6.1. The Efficient Juggernaut

As the first modernity emphasises progress, there is a clear connection between the narratives of digitalization in the studied papers and the notion of progress. Progress is at the core of modernity theory, tied to the idea of creating and becoming better and faster. As highlighted by Son (2004) in Ellul’s *The Techno-logical Bluff*, technique contributes to a narrative of technique as the only option for the pursuit of progress and development in society. The progress narrative emphasises efficiency, which, in some cases, can be considered synonymous with progress itself. This is highlighted by Ellul (1964), who contends that the sole purpose of technique is the relentless pursuit of efficiency, which is also what distinguishes it from earlier techniques. Increasing efficiency means doing something faster or at a lower cost (Rose et al., 2015). In Paper II, we identify a high distribution of efficiency – and service – values in Swedish local digitalization strategies, as seen in Figure 1.

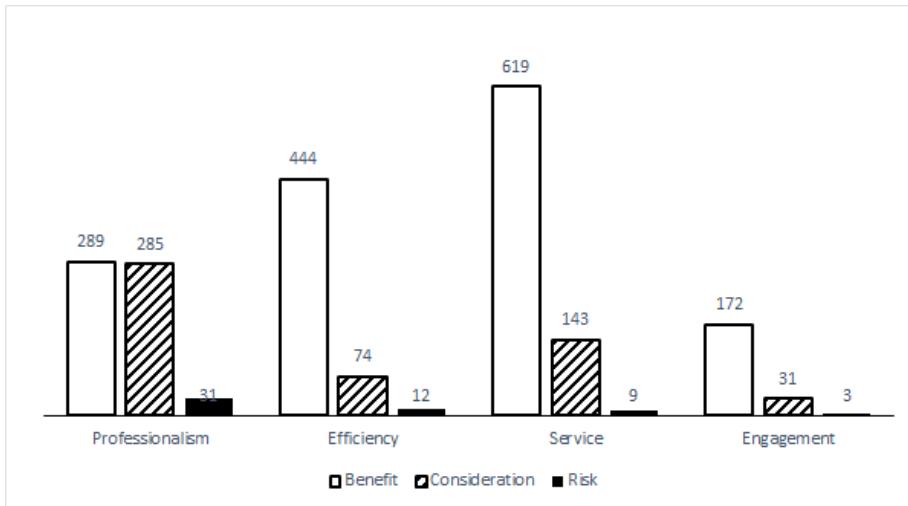


Figure 1: Distribution of values in municipal digitalization strategies

The statements from the policies in Paper II include the following:

“Tasks shall be automated to the greatest extent in order to free up time”.

“In order to have a more efficient organization, automation and robotics must be seen as opportunities an opportunity”.

The efficiency value was often combined with the notion of improving or increasing service whilst decreasing cost, saving resources, or increasing productivity. However, this is problematic, as summarised by the so-called “e-Government paradox”: good service costs money (Bertot and Jaeger, 2008). The e-Government paradox is a striking example of the Ellul’s technological bluff, where the discourse of digitalization (technique) demands better (digital) services and, at the same time, greater efficiency.

Coupled with the fact that digitalization is supposed to promote progress, there is a sense of urgency related to the attribute of speed. We are supposed to complete tasks more quickly with digitalization (as materialised by higher internet speeds, faster computational devices, and larger amounts of data). Perhaps more importantly, digitalization is supposed to happen quickly to ensure that we do not fall behind or miss out. We see this very clearly in Paper I, where the regional digitalization coordinator’s initiative has been granted

importance *before context*, leaving the coordinator to develop their role based on what digitalization means to them and their region. Here, we see that, as a government-sanctioned initiative, digitalization is deemed important, but what digitalization *is* or what it is supposed to *do* remains undefined. As one coordinator states,

“... and it has shaped how I interpret regional development when it comes to digitization. The concept itself is difficult to define and also characterises the function itself because it is interpreted differently in the region”.

This urgency in the use of digitalization is also found in Paper III, where the policy emphasises the benefits of better and more efficient services but also has an undertone of a competitive race embedded within it:

“At [municipality name], we work towards the goal of becoming the best in Sweden in taking advantage of the possibilities of digitization”.

This narrative digitalization promises economic growth and needs to happen quickly has been identified in recent research on policies at different levels (i.e., Nyhlén and Gidlund, 2022). This techno-optimistic narrative of the pursuit of progress can be compared to what Giddens calls a “juggernaut”. He describes it as follows (2010, p. 39):

“For these images I suggest we should substitute that of the juggernaut – a runaway engine of enormous power which, collectively as human begins, we can drive to some extent but which also threatens to rush out of our control and which could render itself asunder”.

Giddens (2010) states that the juggernaut crushes those who resist it, and as long as the “institutions of modernity” endure, we will never be able to completely control the path or the pace. The papers suggest that the attributes of first modernity are fuelling this runaway engine. A striking example of this comes from reflections by two of the workshop participants from paper III that their policy was not centred on problems:

“It doesn't actually address problems, but rather a challenge. The challenge being addressed is to dare to take the digital leap”.

Furthermore, whilst there was once a view that this juggernaut would take us to our desired future (digitalized) society, this may no longer be the case. This is re-iterated by Ellul (Son, 2004, p. 525): “Furthermore, in pursuing ultimate efficiency one does not know whether one is on the right track”. Sundberg’s (2019b) study where digitalization is viewed as the solution to all (further identified by Nyhlén and Gidlund, 2022). Digitalization, according to Gidlund (2011; referring to it as “e-”), is asked to be both early and late modern at the same time.

6.2. We Have Never Been Modern

The analysis and previous research indicate that digitalization is stuck reproducing the 19th-century values associated with industrialisation. This is natural at first, as the public sector is a product of industrialisation; thus, these attributes are institutionalised into the organisations themselves. However, problems arise when digitalization is promoted to “solve” problems related to the second modernity, such as participation (as illustrated in Paper II and also by Gidlund, 2011). This is further discussed in Paper III, where a workshop participant asked, “What does the citizen want?” The first modernity is not equipped to handle such a question as it is built on rationality, the idea of organisation, and that society can be calculated to the best possible outcomes, but the question of “for whom?” was not considered at the time.

This lack of participation and democracy that is found in the papers, could be explained by Ellul (1990; see, Son, 2004) who states that democracy has been taken for granted. The findings in Paper II reveal that engagement values (democracy) have the fewest statements (Figure 1), indicating that local municipalities are not pursuing e-Government to promote democracy. Furthermore, in Paper III, the workshop participants began to ask the question of what the citizen demands, as if that had not been considered. This is strikingly problematic, as both Scandinavian critical IS research and participatory research was known for their deep commitment to democracy and the labour force (Bansler, 1989; Gregory, 2003). However, this decrease and almost complete disappearance of democracy and worker influence were noted at the turn of the millennium (i.e., Gregory, 2003; Howcroft and Trauth, 2004). Furthermore, as Beck (2002) points out, whilst the field of participatory design has grown, people are less concerned about power relations. These issues of insufficient participation and the disappearance of democracy at the

turn of the millennium were due to information systems shifting from being centred in organisations to being connected to the web and thus connected nationally (and worldwide). To take on these larger systems, we must ask questions similar to those of Stolterman (1995) – namely, what are the implications of large-scale information systems? How do they change people’s everyday lives and society?

This is where the second modernity comes in: turning the first modernity and the techno-economic rationality associated with it on their heads and raises questions about the rationale behind the pursuit of progress and efficiency. It draws into question not only the pace of the aforementioned juggernaut but also its path and desired destination. We see in Paper III, for example, that the workshop participants at the municipality asked questions about whether the objectives of their digitalization policy were actually in line with what citizens wanted. Furthermore, one of the coordinators touched on the importance of interplay between actors in the public sector and how discussion on digitalization can get stuck:

“It will be like a deadlock because no one is pushing forward in any direction, so to speak. If the politics don't ask for it [digitalization], you can't get there, and if the management team doesn't want to [discuss or pursue ideas of digitalization], you can't get to politics, and then it's done”.

Furthermore, the digitalization coordinators (Paper I) also reflect over this but in terms of how the policy objectives are to be enacted in a way that contributes to the vague regional growth term (progress). The analysis points towards resistance and a path of hardship where this narrative is starting to be questioned. Whilst the second modernity does not provide answers to all the problems identified in the first, it acknowledges that the pursuit of progress and efficiency entails certain consequences. Therefore, the second modernity is not just reflexive, taking these consequences into account, it also recognises the complexity of society and technology. In paper I, this complexity is touched upon by the coordinators, who are starting to realise that digitalization is not inherently technical but that all these organisational aspects point to digitalization being sociotechnical, as one coordinator reflects:

“... it is more than just technology. It is a change in behaviour in humans or in society, if we are looking at the big picture; but it is much, much more than just technology”.

Complexity appears in another form in Paper II, where the evaluation procedures of municipalities do not match the overall ambitions of the policies. Of the 120 evaluation statements, 52 could be connected to value positions (primarily *efficiency* and *service*). The remaining evaluation statements are grouped in Table 5. As previously stated, the strategies express ideas of transforming society with digitalization, creating automation, and providing better service. But the evaluation procedures are often narrow, focusing on monetary evaluation or digital maturity, which do not reflect or capture the transformative essence.

Table 5: Evaluation-related statements without reference to any value

What?	How?
Unspecified (55)	General statements on the importance of evaluating digitalization.
Other indicators (9)	Broadband access for citizens. Satisfied employees. Environmental data. Number of published open data sets. Number of computers per student. Number of IT solutions shared with other organisations.
Digital maturity/comparison with other organisations (7)	National maturity assessments. Digital maturity matrices. Self-assessment methods.

7. Conclusion

The purpose of this thesis is to unveil the phenomenon of digitalization's wider ramifications using theories of modernity. The following research question was posed:

RQ: How can the phenomenon of digitalization's wider ramifications be unveiled using theories of modernity?

In the analysis, I have identified what I term "the efficient juggernaut," a concept inspired by Giddens' (2010) "Juggernaut of modernity". This is where the attributes associated with the first modernity can be found as the fuel of this runaway engine. Digitalization is viewed and believed to bring greater efficiency (i.e. Paper II) and it is supposed to promote regional growth (i.e. Paper I) or reap benefits that digitalization will bring (i.e. Paper III) all in the name of progress. The above must also happen fast or with greater speed in order to not fall behind. The identification of first modernity attributes in public sector is not surprising as previously discussed public sector is a product of the first modernity.

However, this results in certain ramifications, as the idea of a digitalized society built on attributes of the first modernity results in an un-reflexive perspective promoting the positive aspects of efficiency and progress while neglecting to reflect on the potential risks. A striking example of this can be found in figure 1, where the strategies rarely even mention the ideas of risks associated with their digitalization endeavours. This results in an ideology reproduction emphasising attributes that was deemed important during the industrialisation by certain groups. However, this narrative of progress and efficiency has remained unquestioned leaving it in a state of sleep walking or as in Paper II a case of "parrot syndrome" (repetitive restatement without critical examination). When the idea of digitalization is built on the first modernity we run into problems that the first modernity is incapable of addressing such as participation and democracy. These problems cannot be solved by service or efficiency as they require something else.

To answer the research question, the phenomenon of digitalization's wider ramifications can be unveiled using theories of modernity by highlighting how both stages of modernity can be found in public sector digitalization, naturally. But problems start to arise when first modernity is asked to solve

problems related to the second modernity such as participation, democracy and complexity. The first modernity is not equipped to take on such questions quite the opposite in fact, as highlighted by Feenberg (2003) the first modernity contributes to a reduction in normative and qualitative richness which then simplify the complexity of public sector and society rather than embracing it and considering. This thesis does not offer any solution to the problem of the clash between the two stages of modernity. Rather it similarly to Stolterman (1995) starts to ask questions about the nature of information systems and their large-scale ramifications on society and people's everyday life. Serving as a potential opening of how in the future we can do things differently, my suggestions for this can be found in Section 7.2 Future research.

7.1. Contributions

Based on these conclusions this thesis offering the following contributions; i) both theoretical, using modernity as a theoretical lens to better understand digitalization and society; ii) and methodological, by studying the discursive landscape of digitalization using different levels of analysis to aggregate the findings to a higher abstraction level.

This thesis shows that modernity theories can be used to understand digitalization and society. By applying first and second modernity as a theoretical lens, we can see how the attributes of the first modernity related to industrialisation are embedded in the public sector and the discourse on digitalization, whilst the attributes of the second modernity reveal the problems and hardships of the first modernity.

The methodological contribution concerns the combination of modernity theory with the different research papers.

The methodological contribution by providing insights into the concrete making of digitalization in the different contexts (e.g., regional and municipal) and by different actors (coordinators and municipal employees), enhancing understanding of technological systems and sociotechnical ensembles related to a meso level. These findings were aggregated to a higher level of the technological culture related to a macro level to understand digitalization on a societal level. Furthermore, revealing the wider ramifications of digitalization, the Swedish public sector – and the Scandinavian welfare state, by extension – served as representations of “society” in Sweden and other

Scandinavian countries. This type of study design has, in this thesis, proved a viable approach to the study of digitalization and society.

7.2. Future research

Future research, ironically enough, could be titled “past research”, as it alludes to the lost legacy of the Scandinavian tradition and this manner of conducting research, which offers a potential remedy to problems associated with democracy and participation. The results in this thesis indicate that these two values have either been forgotten or taken for granted. The Scandinavian school was primarily concerned with the workforce and unions in relation to technology at the time, but this legacy has been forgotten. Thus, future research concerns what they would potentially have studied today. Ellul claims that, if Marx had been alive in the mid-20th century, he would have studied technology and not capital (Mitcham, 1994); in the same way, if the Scandinavian school of IS were still operating today, they would be concerned with digitalization on the societal level, rather than trade unions. One potential reason for this, is the object of study, as technology has transitioned from being bound to an organisation to a worldwide phenomenon, via the internet. Thus, my argument is that future research should take notice of and draw inspiration from the early days of informatics and information systems in Scandinavia, but combine this with relevant research practices and with the help of new methods better suited to handling the complexity of digital technology, as discussed by both Law (2004) and Lindgren (2020)

The second stream of research involves investigating the “problematic traditions of industrial modernity”, as Musik and Bogner (2019, p. 4) call them. In this thesis, these are efficiency and the pursuit of progress (usually economic growth). This type of research has already been conducted by e.g. Feenberg for long with the notion of a democratic path of development but as the motivation for this thesis include it has not been done to the same extent in IS. To further cite Feenberg (Schmidt-Gleim et al., 2019), being part of the “Technosystem” is a condition, not an obstacle. By pursuing this type of research, we can contribute to creating means thoughtfully connected to the ends, promoting specificity over abstraction, and opening up and actively seeking out closures and potential openings that clash with the dominant story of a techno-optimistic rationality. And finally, as Ellul (1964, p. xxxiii) writes,

“It is a call for the sleeper to awake”.

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Appendix A: Related works

Heidlund, M., & Sundberg, L. (2021). How is Digitalization Legitimised in Government Welfare Policies? An Objectives-Oriented Approach. In EGOV-CeDEM-ePart-* (pp. 199-207).

Heidlund, M., & Sundberg, L. (2022). Evaluating e-Government: Themes, trends, and directions for future research. *First Monday*.

Rizk, A., Toll, D., Sundberg, L., & Heidlund, M. (2023, August). The Evolution of Government Strategies from IT to Digitalization: A Comparative Study of Two Time Periods in Swedish Local Governments. In *International Conference on Electronic Government* (pp. 431-445). Cham: Springer Nature Switzerland.

Heidlund, M. (Forthcoming). Best of the best: an investigation of policy enactment for key drivers of digitalization. *Transforming Government People, Process and Policy*.