CHALMERS
UNIVERSITY OF TECHNOLOGY

A Study of Digitalisation

The development of Swedish Government Agencies

Master's Thesis in the Master's Programme
Quality and Operations Management

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Gothenburg, Sweden 2017
Report No. E 2017:022

MASTER'S THESIS E 2017:022

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Chalmers Reproservice
Gothenburg, Sweden 2017

Acknowledgements

This master thesis is the final examination in the Quality and Operations Management programme at Chalmers University of Technology. The thesis was conducted during the spring of 2017 at the division of Service Management and Logistics at Chalmers.

First of all, the authors would like to thank the fourteen Swedish government agencies participating in the thesis for sharing their experiences and for providing valuable insights of their work around digitalisation. We would also like to thank Johan Magnusson, Erik Bohlin and the Swedish National Financial Management Authority for giving us valuable guidance in the area of digitalisation within Swedish government agencies in the initial phase of our thesis.

A special thanks to our supervisor Henrik Eriksson at Chalmers for giving helpful advice and guidance throughout the thesis. We would also like to thank our supervisors Hans-Owe Sjöö and Alan Schürer at Ekan Management for supporting our work and providing great inputs to our discussions.

Sofia Blomgren and Natalie Nybert
Gothenburg, June 2017

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Abstract

The Swedish government has set up a clear goal for Sweden to be the leading nation in utilising the opportunities offered by digitalisation. The ambition of becoming a leading nation does not only create a sense of urgency within government agencies but also communicates a vision of the future digital Sweden. The increased use of digitalisation affects all part of society, from citizens to the public administration. Swedish government agencies can not be excluded from this development and need to identify how to transform their organisation to the new digital era.

The purpose of the master thesis is to describe how Swedish government agencies can successfully digitalise their organisation. In order to provide such recommendations, both external as internal challenges and success factors of digitalisation in Swedish government agencies was identified and further analysed. By comparing the challenges with the success factors, the authors could draw valuable conclusions on important steps for government agencies to take in order to make use of the possibilities of digitalisation. Minor studies were also described of Estonia, Finland, and the UK which are seen to be further ahead in their work of digitalising the public administration. The master thesis also identifies and highlights best practices of digitalisation and provides practical examples from government agencies with a high level of digital maturity.

The empirical data identify the most prominent external challenges of digitalisation to be; information security, government law and regulations, the external change of digitalisation, and decentralised leadership. The internal challenges were; knowledge of digitalisation and digital maturity, benefit realisation, lack of leadership, system development and legacy system, culture and change management, lack of strategy, and fuzzy definition of digitalisation. Moving on to the success factors of digitalisation, the external success factors was seen to be; cooperation, and benchmark and best practices. The internal success factors were those present within government agencies, which were; clear and collective definition of digitalisation, digital strategy, culture for innovation and employee involvement, and customer focus.

Based on the results, recommendations and specific action points could be given to government agencies striving to increase the use of digitalisation within their organisations. Swedish government agencies are recommended to increase the use of cooperation with external actors and other agencies, benchmark and identify best practices both nationally and internationally, establish a clear definition of digitalisation which can be communicated internally, formulate a

digital strategy to guide the transformation of the agency, involve employees in the work around digitalisation and create opportunities for innovation, and finally to increase the customer focus by developing digital services to fit the needs of the general public.

Key words: Digitalisation, Digital Transformation, Digital Strategy, Digital Maturity, Swedish Government Agencies, E-government.

Key concepts

In this section, a description and definition of commonly used notions in the master thesis is provided as well as a list of abbreviations.

Swedish Government Agencies

In Sweden there are in the year of 2017, 241 government agencies responsible for the Swedish administration (Myndighetsregistret, 2017). Included in these are; courts of law, general administrative agencies, enterprises, colleges and universities, and authorities in government groups.

Digitalisation

Changes in processes, organisations and systems which the use of digital technology contributes to (Bylund, 2016).

Digitisation

The description of an analogue signal with a digital representation (Bylund, 2016).

Digital Transformation

Digital transformation concerns the deep and accelerating transformation of activities, processes, competencies, and models required to fully leverage the opportunities of digital technology and its impact on society in a strategical and prioritised manner (Demirkan et al., 2016).

Digital Maturity

Describes the organisational transformation which digitalisation demands in order for new technology to create profitability in organisations and business advantage in public organisations (Tillväxtanalys, 2016:18).

Digital Business Strategy/ Digital Strategy

An organisational strategy formulated and executed by leveraging digital resources to create differential value (Bharadwaj et al., 2013).

Legacy System

Obsolete computer system which may still be in use because its data cannot be changed to newer or standard formats, or its application programs cannot be upgraded (BusinessDictionary.com, 2016). In the empirical data, this concept is referred to as “digital legacy” by the interviewed government agencies.

Digital by Default

Digital by default means digital services which are so straightforward and convenient meaning all those who can use digital services will choose to do so, while those who can’t are not excluded (Cabinet Office, 2013).

E-government
Business development in public administration which benefits from information and communication technology combined with organisational changes and new skills (SOU 2013:75).

Open Data
Data which can be freely used, re-used, and redistributed by anyone in society (McLean, 2016).

Benefit Realisation
Benefit realisation can be defined as actively and systematically working towards ensuring and optimising the positive effects of a change initiative (E-delegationen, 2014).

IT-governance
IT-governance is the framework for standards and compliance to standards within the leadership, organisational structures, and business processes, which ensures the organisation's information system supports and enables the achievement of the organisational strategy and objectives (Calder and Watkins, 2015).

List of Acronyms
ICT: Information and Communication Technology
IT: Information Technology
CIO: Chief Information Officer

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1. Introduction

In this section, the background, problem analysis, purpose, research questions, delimitations, and the outline of the thesis will be presented.

1.1 Background

The digital transformation affects all parts of society from industry, governments, local governments, educational systems, interest groups, unions, down to individuals (SOU 2015:91). The use of digital tools can therefore not only be used to provide new and innovative services to individuals, but also to organise and manage services provided by public organisations, such as government agencies. Digitalisation will require an increased usage of data, as Swedish government agencies are highly data intensive (SOU 2016:89), there is a need to increase the understanding of the importance of digitalisation and digital solutions at the agencies.

The Swedish government has expressed an ambition of Sweden being the leading nation in utilising the opportunities offered by digitalisation (Regeringskansliet, 2017). At a current stage the Ministry of Finance and the Ministry of Enterprise and Innovation share the responsibility for digitalisation in Sweden. More specifically it is the Minister for Public Administration, Ardalan Shekarabi, and the Minister for Housing and Digital Development, Peter Eriksson, who answer for the digital agenda in Sweden. Waseda University (2015) has made rankings of countries and e-government development and preparedness. There were 63 nations included in the ranking based on their performance in Information and Communication Technology (ICT). Sweden is included but not one of the countries in the top ten ranking. The ranking contain nine indicators where Sweden is positioned in top ten in two indicators: national portal and e-government promotion. National portal is the foundation of e-government and the interface of stakeholders to access the government electronically, Sweden is ranked in 10th place. E-government promotion measures the activities the government's place towards distributing e-services as well as activities such as laws and legislations supporting the development of e-government, Sweden is ranked first alongside the USA (Waseda University, 2015).

In the ICT policy, the Swedish government address issues regarding regulations of IT and electronic communication, network and information security, and IT-infrastructure, as well as how government agencies make use of IT to simplify and enable a more efficient communication with citizens and public actors (Government offices in Sweden, 2017). Dunleavy et al. (2006) highlight the importance of an information technological change within management systems and how public agencies interact with citizens. Not only has the view of citizens changed to a customer perspective, but public services can currently also be more organised into business processes.

In order to reap all possibilities of digitalisation, it should be integrated with business development (SOU 2015:91). It is thereby of importance for organisational leaders to both be able to identify possibilities of digitalisation in the organization, and to understand how other organisation's digital transformation can come to affect the own organization (SOU 2015:91). Bharadwaj, (2000) empirically tested and proposed three types of IT-based resources contributing to superior performance within a firm. These are (1) IT infrastructure; (2) human IT resources; and (3) IT enabled intangible resources. Thus, to fully use IT-solutions, one must understand the connection between the integration of IT-based resources and the relationship of information technologies and organizational learning.

Through identifying the challenges and areas of improvement and focus in Swedish government agencies, it can be possible to better prepare for a digital transformation and improvement of the digital possibilities. Through identifying government agencies who has implemented digital solutions and possibilities successfully, agencies may have a possibility to in a more successful manner improve their organisations and move forward in the same direction as society.

1.2 Problem analysis

The development of digitalisation has been implemented and processed in manufacturing companies for decades (Vinnova, 2014). Companies have experience of working with digital solutions and networks between computers, machines, systems, production and people due to the third wave of industrialisation. In the manufacturing sector a sense of urgency was identified and acted upon, therefore the transformation of working towards a more digitalised process could be performed (Vinnova, 2014).

In the public sector the potential of e-government still remains unexplored (Statskontoret, 2014:12). In order to successfully implement any change the organisation need to be aware of what and why the current working process need to change (Kotter, 2009). Digitalisation and increased digital communication is becoming a natural part of today's society (SOU 2015:91), government agencies need to follow the development in order to provide their customers with the services they are expecting.

1.3 Purpose

The purpose of the master thesis is to describe how Swedish government agencies can successfully digitalise their agency. Through identifying challenges and success factors of digitalisation, agencies will gain insight how to develop the organisation. Gaining knowledge within this field is important due to the rapid digital development and adaptation to digitalisation in society.

1.4 Research questions

Of the above described background, problem analysis, and purpose, three research questions have been composed in order to investigate and analyse the challenges and success factors of digitalisation in Swedish government.

RQ1: What are the challenges of digitalisation in government agencies?

The first research question aim to identify challenges of digitalisation within government agencies. This question was answered by collecting empirical data through semi-structured interviews with selected government agencies. The data was sorted and analysed to identify the significant and most widespread challenges of digitalisation. The answer to the question form the foundation of the conclusion and suggestions on how to improve the digitalisation of government agencies.

RQ2: What are the success factors of digitalisation government agencies?

The second research question aim to identify success factors of digitalisation in government agencies. In order to answer the question, the researchers investigated how government agencies on both a national and international level with high digital maturity have digitalised their organisation. The authors were thereby able to provide valuable learnings to government agencies. This data was collected through interviews government agencies, a literature review and case studies.

RQ3: What factors are important for Swedish government agencies to consider when digitalising the organisation?

The third research question aim to answer how to best incorporate digitalisation in a government agency. This will be answered by analysing the identified challenges of research question one with the success factors of research question two, hence provide recommendations on how government agencies can further digitalise the agencies.

1.5 Delimitations

The public sector can be divided in many sub-sectors of interest for the master thesis. The focus for the master thesis has been government agencies, hence municipalities and counties was not taken into consideration. The study did not cover how government agencies operate in detail, instead the focus was towards finding challenges and success factors of digitalisation and provide recommendations of how to digitalise an organisation.

The government agencies used in the master thesis are situated and working in Sweden, no foreign government agencies was part of the empirical data gathering. Due to the vast amount of government agencies in Sweden, the thesis cover fourteen agencies generated from the Swedish National Financial Management Authority (hereafter referred to ESV) digital maturity survey. How the Swedish National Financial Management Authority developed the survey and divided their clusters of government agencies was not analysed or taken into consideration.

1.6 Outline of the report

The master thesis consist of seven chapters, below a short description introducing each chapter of the thesis to the reader.

Chapter 1. Introduction
The chapter shortly describes the background of the area, following a description of the problem analysis and introduction to the research questions for the thesis.

Chapter 2. Theoretical framework
The literature study performed in the theoretical framework contribute to the literature study in the thesis. The chapter include digitalisation, technological change, IT development, Case studies of digitalisation, Change management and knowledge management.

Chapter 3. Methodology
The chapter describe the method used during the thesis, it include what research strategy and design was used as well as how interviews were conducted, data analysed and what criteria for research and ethical considerations were covered in the thesis.

Chapter 4. Swedish Government Agencies
This chapter describe the findings from the data collection at the government agencies included in the thesis. It present the findings regarding challenges with digitalisation, success factors of digitalisation and best practices identified at some of the government agencies with high digital maturity.

Chapter 5. Analysis
The chapter will combine the literature study done in theoretical framework with the findings from the data collection at the Swedish government agencies. The analysis is divided in sections of challenges of digitalisation, success factors of digitalisation and best practices of digitalisation. The analysis will follow the structure used in chapter four, Swedish government agencies where the identified areas are divided in external and internal factors.

Chapter 6. Conclusion
The chapter summarises the findings from the thesis and connect to the research questions to ensure the purpose of the study is met.

Chapter 7. Discussion
The chapter includes a discussion of the trustworthiness and findings of the master thesis. Further two sections covering possible contribution to research and possible areas for future research is discussed.

2. Theoretical framework

The following section will cover the theoretical frameworks used in order to answer the research questions. The theoretical frameworks presented in this section include: digitalisation, technological change, IT development, case studies of digitalisation, change management, and knowledge management.

2.1 Digitalisation

In the following section the areas Digital Transformation, Digital Strategy, and Digital Maturity will be described.

2.1.1 Digital Transformation

The digital transformation is the transformation of processes, competencies, business activities and models to handle or control the opportunities and changes digital technologies bring (Demirkan et al., 2016). The use of digital technologies affects all part of an organisation, from product and service offerings to business processes. The digital transformation strategy involves a business perspective where the focus is on transforming products, processes and organisational aspects as a result of new technology. The digital transformation strategy thereby demand a broad scope and overlap all other organisational strategies such as corporate strategy, operations strategy, and functional strategy, see figure 1 (Matt et al., 2015).

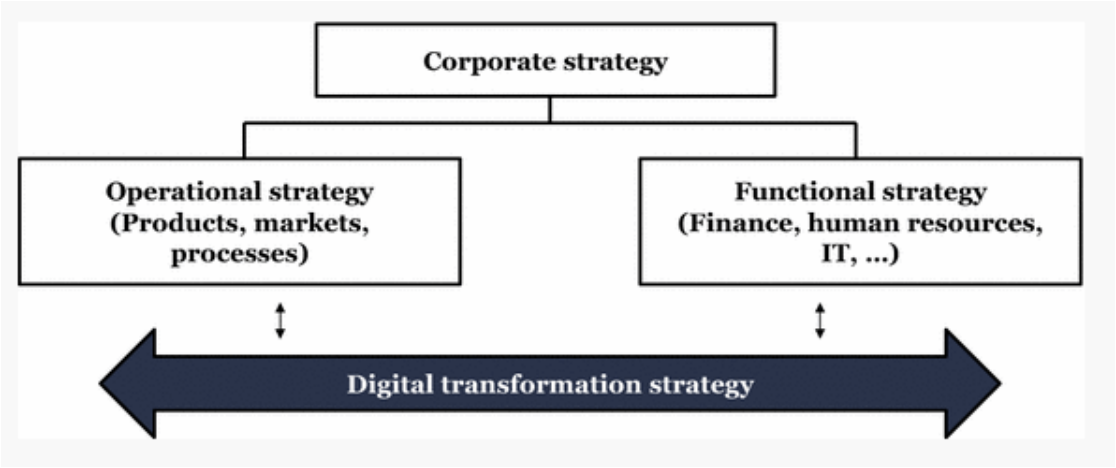

Figure 1. Digital Transformation Strategy (Matt et al., 2015).

When discussing digital transformation strategy, the connection to the IT strategy and the overall corporate strategy need to be clarified. While the IT-strategy often is separate created for the IT-function within the organisation, the digital business strategy should be viewed as an overall strategy for all departments within the organisation. As the use of digitalisation increase in society, the digital business strategy will over time gain more leverage and become the central strategy for organisations willing to digitalise the business (Bharadwaj et al., 2013). Therefore there will be no distinction between the business strategy and the digital business strategy. However, while the digital business strategy can visualise the future state for an organisation, it does not provide a step-by-step guide in how to reach it. According to Matt et al. (2015), the

digital transformation strategy provides a blueprint for organisations on how to transform the business by increasing the use of digital technologies. According to Deloitte, (2015) the importance of a strategy is unquestionable and organisations can benefit by a roadmap highlighting the important elements of a digital transformation, which are leadership, workforce, culture, and procurement. Moreover, in order to reach a successful digital transformation, Gartner (2014) identified six steps:

1. Mindset and shared understanding

The first step involve having the right mindset of the opportunities of digitalisation, meaning business leaders must change the perspective of digitalisation from being an enabler of doing business to instead become a source of innovation.

2. Right leaders in place

The report by Gartner points to a lack of digital leadership, especially in front offices and within top management. To enhance the digital leadership, three types of roles have emerged; the digital strategist, the digital marketing leader, and the digital business unit leader.

3. Digital business center of excellence

The digital business center will provide input and advice regarding the digital strategy. Gartner suggests to involve the entire organisation as well as external parties such as potential users. This will require the organisation to identify strengths, weaknesses and potential opportunities by engaging other perspectives and asking new questions e.g. by co-creation and crowdsourcing.

4. Digital Strategy

There are five areas to look into when formulating a digital strategy:

- *Digital enabled business model*

Creating a new business model, which enables a digital way of working and creates a competitive advantage is a necessity for a digital business strategy.

- *Portfolio of digital products and services*

The new product portfolio is leaning towards non-physical products and services to instead becoming virtual and intangible.

- *Information as an asset*

Successful digital businesses view information as a main source for competitive advantage and to know what information to exploit and how. This however need to be balanced with legal requirements of how to use personal information and other ethical concerns.

- *Technology*

Creating an effective strategy for technology is becoming more complex with digitalisation of businesses due to the increasing use of cloud-based services and the massive amount of data accessible.

- *Content, media and channels*

The digital business strategy emphasise the need of understanding customer needs regarding product and services, channel preferences, segmentation, and possibilities related to each of the areas.

5. Develop and acquire digital business skills and roles

Gartner (2014) explain how successful digital businesses not only use the expertise within IT to digitally transform the business, but combines expertise and skills from all departments. It is pointed out how even though digitalisation is rooted in digital technology, it is not an IT program but an enterprise mindset.

Moreover, decision making regarding digitalisation is influenced of the relationship between CIOs and business leaders. According to Gartner's CIO Agenda Survey in 2014, 42 percent of the participating CIOs claimed to not have the right capabilities and skills in IT to meet future digital business challenges. Business leaders need to rethink the search for competence by looking at new approaches to attract talented people within digitalisation.

6. Create new digital business capabilities

While the use of digitalisation spread across businesses and organisations, leaders need to find new opportunities to drive digital business initiatives. According to Gartner (2014), the workforce within the majority of organisations are unprepared and do not possess the competence necessary to drive digital initiatives. Business leaders are encouraged to set up informal networks, boot camps, and learning programs to spread knowledge regarding digitalisation within all departments. It is suggested to look at piloting new channels for finding, building and acquiring digital business capabilities (Gartner, 2014).

2.1.2 Digital Strategy

The first step towards a digital transformation is to implement a clear digital strategy leading the way of the change. Before a digital transformation it is important to identify what could hinder the transformation such as legislation, cultural elements and knowledge and skills gap. The digital strategy assist an agency to understand and draw a map of how to overcome and identify such barriers (Deloitte, 2015). Through digital technologies, there is a possibility to support and control the overall strategic direction of a company. Developing a digital strategy is an iterative process and the digital strategy can be described as combining activities and describe what to do. As the external environment changes, the need to alternate the strategic position of the organisation can occur. The strategic position can be based on customer needs, the services or products provided by the company, or the customer’s accessibility (Porter, 1996). Strategy is one of five cornerstones which leaders in an agency need to take into consideration to help accelerate the digital transformation. The remaining cornerstones are user focus, culture, workforce skills and procurement skills. Each of the remaining cornerstones need strategic decisions in order to fit with the direction of the agency towards a digital transformation. For example; the digital strategy need to have a plan covering what capabilities

the workforce need to possess and how they are going to reach these capabilities (Deloitte, 2015).

The European Centre for Government Transformation (2013) and Deloitte (2015) has identified the digital strategy of a government agency to be of high importance when transforming towards a more digitalised organisation. The strategy of a company is highly influenced by the digital maturity the company possess. If a government agency has a clear and coherent strategy, it is more digitally mature and also better prepared for threats and opportunities. The agency has a better preparedness and a culture which fosters collaboration and innovation (Deloitte, 2015).

2.1.3 Digital Maturity

There is a demand from citizens for how public services need to be more digital, and government agencies to provide services through digital channels (The European Centre for Government Transformation, 2013). The focus of governments are shifting from a one-way communication by the use of technology to a two-way communication between the citizen and government. This is further emphasised through the shifted focus of information system strategies from a government-centered perspective towards a user-centered perspective (Andersen et al., 2011). According to Demirkan et al. (2016) the development of digital technologies are rapid and becoming more powerful, resulting in organisations transforming in a faster phase than before.

The European Centre for Government Transformation (2013) has identified the success factors to digital maturity to be: the end of the silo, the citizen at the center, public trust restored, access and digital literacy for all and a clear strategic vision. The importance of strategy is emphasized and the need to have a clear vision to guide the strategy is seen as very important. Developing the digital transformation department by department in the government is not an optimal solution since it is expensive and will not bring citizen centered service delivery which is required in the transformed public services. To succeed with increasing the digital maturity government agencies need to focus on increasing the digital maturity of the citizens, meaning the citizens need to have access to digital tools and systems at home or through public service (Deloitte, 2015; The European Centre for Government Transformation, 2013). Connected to the digital maturity are characteristics and success factors affecting the digital transformation of an organisation. Deloitte (2015) has identified the characteristics to be strategy, leadership, workforce skills, digital culture and user focus, which has been connected to three levels of digital maturity in government agencies; early, developing and maturing, see table 1.

Table 1. Characteristics of digital maturity in government agencies (Deloitte, 2015).

	Early	Developing	Maturing
Strategy	Aimed at cost reduction	Aimed at improving customer experience and decision making	Aimed at fundamental transformation of processes
Leadership	Lacks awareness and skills	Digitally aware	Digitally sophisticated
Workforce development	Insufficient investment	Moderate investment	Adequate investment
User focus	Absent	Gaining traction	"Central" to digital transformation
Culture	Risk averse; disintegrated	Risk tolerant; accommodates innovation and collaboration	Risk receptive; fosters innovation and collaboration

Organisations which possess a higher digital maturity has a leadership which invest in bridging the skills gap of the organisation. The leaders understand trends in development of technologies and provide the support needed to invest in digital development, helping the employees to develop digital skills. The culture of organisations which possess high digital maturity is favourable for digital transformation, since they often foster collaborative work environments, nurture innovation and has a positive attitude towards taking risks (Deloitte, 2015).

Deloitte, (2015) identified the challenges and barriers to the digital transformation to be: workforce skills, culture, leadership and procurement. The report rank workforce skills as the most challenging barrier followed by culture, leadership and procurement. The digital skills of employees and leaders need to increase in order for the digital maturity to do the same. Government agencies seem to focus more on how to secure the internal buy-in than on the customer needs in agencies with lower digital maturity. The European Centre for Government Transformation (2013) identifies governance, citizen engagement, privacy and security and cross-sector partnerships as challenges for increasing the digital maturity. The report describe the challenge of changing the mindset from a technology of service delivery towards an increased focused on collaboration between government and citizen. There need to be a level of freedom to work with digitalisation, possibly through forums where ideas and experiences can be shared (The European Centre for Government Transformation, 2013). Citizens can increase their engagement through more cloud based solutions which can be reached through new channels of communication such as mobile services.

2.2 Technological Change

Technological change can be defined in terms of content, process, and context, which will be further elaborated upon below.

2.2.1 The content of technological change

Technology can be classified in three components; Product, Production Process, and People. When a technological change occurs it affects all three components, leading to a new combination. Whipp et al (1989) highlight the importance of not only consider the technical elements but paying equal attention to organisational and managerial element to achieve great business performance. The three components are not the main source of competitive advantage, it is the capabilities of an organisation (material resources, human skills and knowledge) which form the foundation for an organisation's competitive position. These assets need to be used

correctly for the organisation to develop product features which appeal to the customer. Building on these components and linking the technical and managerial aspects of change the three dimensions of Content, Context, and Process can be added to the analysis, see figure 2.

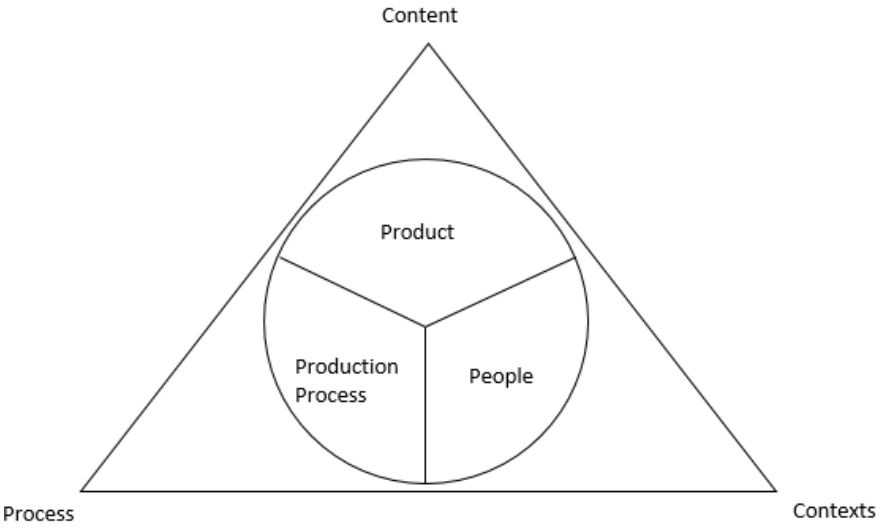

Figure 2. Framework for technological change (Whipp et al., 1989).

2.2.2 The process of technological change

Organisations vary in their capacity to handle technological innovation due to the ability to link strategic and operational levels of the organisation (Whipp et al., 1989).

The process of technological change requires two levels of understanding:

1. How competitive forces are combined inside and outside the organisation for the development and operationalisation of technology.
2. The behavioural aspects of assumptions, beliefs, and interactions of people within an organisation attempting to promote, create, and apply new technology.

How the process of technological change is managed depend on first, who the champion of the change is and how he/she can legislate the change needed. Secondly, what the environment for experimentation is, how it is created, and how it is sustained. Third, how the structures between and within different projects look like in an organisation (Whipp et al., 1989).

2.2.3 The contexts of technological change

The context of technological change are the linkages between the internal and external. The linkages are best described by the network of relations, the operations of an organisation and a market. Whipp et al. (1989) separate between primary and secondary networks. Primary networks are the relationships between an organisation and other actors which are directly connected to the technological change. It is the primary networks which requires a close web of information ties and the components necessary to generate new technology. Secondary network on the other hand, are the relationships, which affects the process of technological

change indirectly. There are four aspects to consider in the secondary network; the sector, available technological configurations, institutions, and time.

An organisation and other parts of the primary network can be drawn from more than one sector when the organisation goes through a technological change. The network can range across national boundaries and create a competitive advantage through coordination of activities and technological innovation. Moreover, the development of new technology within a firm must be seen in comparison to the overall course of the industry. Each type of technology requires different sets of assets and capabilities which control the innovators application of the technology. To fully benefit from an innovation, tacit knowledge and know-how is seen to be of high importance for competitive barriers (Whipp et al. 1989).

When discussing institutions, there are two government actions within technological change: direct product intervention and market stimulation. Direct product intervention are actions for product and technological standards in order to create new possibilities in the area. Market stimulation are ways for the government to control and direct the market in a certain technological way, for example through government purchasing policies and consumer legislations. Regarding the time aspect, when intense transformations take place in the market, it often becomes a challenge for organisations to manage a strategic and technology change. The process in which the strategic and technological change are jointed should be seen as continuous and not in isolated period of time (Whipp et al. 1989).

2.3 IT Development

In this section, the use of open data as a means for digitalisation and the legacy of IT systems will be addressed.

2.3.1 Open data in Sweden

Digitalisation involve an increased use of data in society (SOU 2016:89). Swedish government agencies are highly data-intensive due to the vast amount of data they produce and analyse on a daily basis. An increased use of open data can expand the transparency of public agencies and enable citizens to be more involved in decisions and processes (SOU 2016:89). The development both require public agencies to increase the use of data in their organisational development and make the data available and searchable to individuals and organisations. By doing so, public agencies can allow other organisations and companies to find new ways to use the data and create innovative services**.**

Moreover, creating open data and making it searchable is not enough. To fully use open data and create flexible solutions, different systems need to be able to communicate and share information (SOU 2016:89). This is accomplished by creating national standards for digital innovations in Sweden. Utilising standards will decrease the complexity of cooperation between government agencies and minimise the cost for system maintenance and development. Although this development come with many benefits, the increased access of open data contains risk regarding citizen integrity and information security. When using digital services, citizens

should be well aware of how the personal data is used. Swedish government agencies have the responsibility to protect the open data from other nations and organised crime (SOU 2016:89).

2.3.2 Legacy IT systems

Corydon et al. (2016) identify the legacy system as a challenge for many governments. Having outdated IT systems can both be costly and complicated to maintain while simultaneously developing new and innovative digital services. When faced with the need to change, organisations can either choose to replace entire IT systems or modify them over time. Some governments and companies have deployed a two-speed IT model which consists of a stable and low-risk foundation and an additional digital layer of flexible and rapid creation of services (Corydon et al., 2016). When having the two sided model, it can be recommended to have an overarching blueprint defining the stable back-end systems and the innovative front-end systems along with the functional objectives for each component. Further, in order to avoid developing systems not compatible it is recommended to set up rules for development of new digital solutions. Then, software developers in different projects will develop solutions compatible with the overall IT-architecture and together create a cohesive structure.

Moreover, by looking at and learning from digital forerunners such as Estonia, the possibilities of sharing information between governments is seen to be a promising area (Corydon et al., 2016). Being able to share information enable governments to utilise each other's technology systems, thereby minimising the need to build up systems of their own.

2.4 Case studies of Digitalisation

The following section describe three case studies regarding digitalisation of government agencies from the UK, Estonia, and Finland. While digitalisation is seen from a government perspective in this section, the learnings can provide valuable input in how the Swedish government can impact the external environment of Swedish government agencies.

2.4.1 Digital by Default in the UK

The UK government introduced a strategy for digital development in the year of 2013 called digital by default. Digital by default means; (1) having digital services which are easy and convenient for the user rather than the provider to use, (2) easy access to information and services, and (3) developing low-cost services (Cabinet office, 2013). The strategy require government agencies to provide all services which can be digital online while at the same time not excluding non-digital customers. Moreover, by improving the quality of online services and making them preferable, the UK government hope to persuade non-digital users to become digital.

To support government agencies in the development of digital services, the UK government have created a Digital Service Standard of 18 criteria to take into consideration in order to develop and maintain good digital services. The standard highlight the need to understand the user, using agile methods in system development, having a plan for being offline, and making

the user experience consistent with the rest of the UK government websites (GOV.UK, 2017), see table 2 below.

Table 2. The Digital Service Standard of UK (GOV.UK, 2017)

1. Understand user needs	2. Doing regular user research
3. Having a multidisciplinary team	4. Using agile methods
5. Iterating and improving frequently	6. Evaluate tools and system
7. Understanding security and privacy issues	8. Making all new source code open
9. Using open standards and common platforms	10. Test the end-to-end service
11. Having a plan for being offline	12. Ensuring user success on the first trial
13. Having consistent user experience with GOV.UK	14. Encouraging the usage of digital services
15. Collect performance data	16. Identify performance indicators
17. Report performance data to the performance platform	18. Testing the service with the responsible minister

2.4.2 E-government in Estonia

The development of the digital government in Estonia is in the forefront and to digitalise various functions in the public sector has become a trend across the globe (Björklund, 2016; Vassil, 2015). E-government cover communication within and between government agencies, the citizens and the public (Björklund, 2016). Estonia's work with E-government and digital development has resulted in the country being ranked high regarding digital development and digitalisation of government. The usage of E-government can be seen as a means to improve processes, make processes more efficient, and provide a support for public policies (Kalvet, 2012). The government officials see the presence online as a part of the daily operations and not as a choice, which contribute to the work toward a more digitalised government (Vassil, 2015).

One factor essential in the Estonia case was how information should be kept within one digital structure, making it possible to extract and add information from different systems to the same database. In order to make this possible the Estonian government created a data exchange layer called X-road, which is used to efficiently transfer information between systems. The organisations and companies who want to benefit from the X-road need to share the information it possesses through the system. The result is a register where all information is linked. Not only the public sector systems can be connected to the X-road, private sectors can connect which further ensures ease of use and more efficient connections between citizens, the public-, and the private sector (Björklund, 2016; Kalvet, 2012; Vassil, 2015; European commission, 2015). State agencies are allowed to design services individually, however it would not be as efficient and convenient as designing systems to fit the X-road. Therefore X-road function as an incentive for each agency to transform towards a more digitalised way of working. With every interaction in the X-road an agency has the potential to save both time and money since it minimises the need to collect the same data multiple times from citizens, government agencies, and private sector organisations (Vassil, 2015; European commission, 2015).

Kalvet (2012) describe potential barriers to E-government as: leadership failures, financial inhibitors and lack of trust. One risk the Estonian government identified was the security of the citizen’s personal information. To protect the personal data the E-government system is regulated by legal instruments which work as a framework for security, ensuring the protection

of the data. With this framework it is not possible for institutions to ask for the personal information which already exists in the X-road database (Vassil, 2015).

2.4.3 Digitalising Public Services in Finland

According to SOU (2016:89), Finland is the best nation in the Nordic countries within E-government. The Finnish Civil Service have many similarities with Sweden by having central government agencies independent of ministers (Statskontoret, 2000:20A). Due to this, success factors of Finland can be of great interest for the development of digitalisation in Sweden. The Finnish Government has made an effort in digitalising public services. By using new operating models, public services will become user oriented and digital to the extent possible in order to increase productivity. The key measures taken to realise this objective are:

1. Establishing principles for digitalisation of all public services.
2. Administrative branches and municipalities will be committed to reforming internal administrative processes (digitalisation of processes).
3. Public administration will only collect the same information once regarding individuals and organisations, ensuring easy transfer of data between authorities and enabling individuals to monitor and control the distribution of their personal data (Ministry of Finance, 2017a).

In 2016, nine principles for digitalisation of public administrations which all public services are obliged to follow were published, see figure 3. To assist public organisation in realising the principles, a developer forum was created where organisations are able to share experiences and discuss best practices (Ministry of Finance, 2017c). Regarding digitalisation of processes, the Finnish government launched a number of projects in the year of 2015 and 2016 such as a digital self-care plan, a digital registry of real-estate, and a one-stop-shop service model. In the one-stop-shop service model, necessary data is only requested once by authorities where the focus is on sharing data environment and having a joint information management system between authorities (Ministry of Finance, 2017b).

Figure 3. Finland's nine principles of digitalisation (Ministry of Finance, 2017c).

One example of success is the integration of different public services for enterprises to one service platform called *Enterprise Finland* (Voutilainen, 2016). When digitalising the public services, Finland focused on a user-based approach where services are offered mainly through digital channels and information is shared between public service agencies. Enterprise Finland was initiated through the Action Programme on eServices and eDemocracy (SADe programme) including sub-projects within electronic service development. The goal of these sub-projects was economical gains through increased efficiency and savings while generating benefits to citizens, organisations and businesses (Ministry of Finance, 2016). Enterprise Finland enables business entrepreneurs with all information necessary by just visiting the service network through a channel of their choice (online, telephone, or local service point) without having to know what specific service organisation to contact. The service is available for both entrepreneurs looking to start a business and for those already running existing businesses (Voutilainen, 2016).

2.5 Change Management

In the following section, the areas of resistance to change, organisational relationship, and benefit realisation are described. Change management is connected to any change an organisation has or will have, it is transforming from the known to the unknown. The transformation in agencies due to digitalisation is thereby highly connected to the areas of change management.

2.5.1 Resistance to change

There can be different kind of responses to change, some are connected to resistance to change. The way in which a person reacts or respond to a change is impacted of the statement of the change, the degree of control one has over the change, level of trust for the people in charge, and the intensity of the behavior of those in charge of the change initiative. The reaction to

change is in turn affected by factors which can be the amount of information communicated, individual reflection or acceptance of the change, organisational culture, participation and previous experience of change. There are many reasons why resistance to change or uncertainties regarding change arouses in a workplace or within a person. The different types of response to change can be: embrace, support, accept, tolerate, resist and oppose. Identifying factors and reactions individuals may have towards a change is crucial if one strives for successfully implementing change and thus helping each individual to cope with the transformation from known to the unknown (Coghlan, 1993; Nadler and Tushman, 1997).

To control the level of anxiety during a change it is important to communicate what will change, and what will not change in the future organisation. Managers need to show the way and reward performance connected to the change and the new organisation in order to motivate employees to actively work towards the future state. By formulating a vision of the future state it is easier to motivate the organisation to move forward, since people can have difficulties working towards the unknown (Kotter, 2009; Nadler and Tushman, 1997). Kotter (2009) has identified eight errors to why change transformations fail, these are:

1. Not establishing a great sense of urgency
2. Not creating a powerful enough guiding coalition
3. Lacking a vision
4. Under communicating the vision by a factor of ten
5. Not removing obstacles to the new vision
6. Not systematically planning for and creating short-term wins
7. Declaring victory too soon
8. Not announcing changes in the corporation culture

The errors can be seen as equally important, and a conclusion drawn by the authors is skipping steps will create a false reality of speed and progress. Skipping steps can lead a change initiative to slower progress, less satisfying results or failure. The author emphasise the need for time, in order to follow through the steps of the change initiative leading to avoidance of the eight errors (Kotter, 2009).

2.5.2 Organisational relationship

Strebel (2009) state one major issue regarding change and change transformations: employees and managers view change differently. Managers often view change as exciting and as an opportunity to link the operations to new strategies through connecting the right resources to tasks. Employees on the other hand, can see change as something not welcomed or sought after. In order to successfully implement a change transformation, one must try to close the gap between employees and managers and find a common ground where managers can view change from the employee's point of view. It is important to understand the significance of compacts, which are the personal contracts the employee has to the organisation. There are three types of personal compacts between the employee and the employer: formal, psychological, and social. Managers need to define the changes of the compacts in order to create an environment where

the employees can accept and buy in the change and participate in the transformation (Strebel, 2009).

Formal compacts include the tasks to be done and the required performance of the employee (Strebel, 2009). The formal compact include the written job descriptions and the agreements on performance of the employee. The compact assist the employee in understanding the task to perform, how their work will be evaluated, and the expectations on the employee from the organisation and managers. The psychological compact is the most implicit one. The compact is covering the expectations and commitment between the organisation and the employee. This is built from trust and is reflected in how the employee behave in the organisation and towards the work tasks. The compact assist the employee to know how committed he/she is, it determines how hard they are willing to work, how much they have to work, and what rewards they receive. The social dimension is connected to the culture of the organisation. With the social compact the employee try to figure out if their personal values are similar to the organisations and what rules determines the actions performed at the organisation. It is not uncommon managers only actively change the formal compact when implementing a change (Strebel, 2009).

To adjust the personal compacts managers' first need to recognise there is a need for change, second step is provided for the employees to give them the opportunity to accept and buy in to the change, third step is to write and decide the new formal and informal rules in the compacts. To succeed with adjusting the compacts commitment from top managers are crucial (Strebel, 2009). Management need to be strong and show leadership in order to succeed with the transformation from the known to the unknown (Kotter, 2009; Nadler and Tushman, 1997; Strebel 2009). Nadler and Tushman (1997) further describe the difficulty of remaining in control during a change due to shifted structures, employees are moved to new departments, and new goals are set, this may result in difficulties of monitoring results and performances within an organisation.

2.5.3 Benefit realisation of change

Government agencies have the responsibility to ensure Swedish taxpayers get return on their investment by increasing the service level or by lowering the costs for utilising public services (E-delegationen, 2014). Having a clear direction of what to improve and how to improve is thereby essential. To ensure the benefits of an improvement project are achieved, government agencies need to actively develop a process for decision making and organisational change. Benefit realisation is when the organisation is working actively and systematically towards optimising the positive effects of a change. Change management should thereby mainly focus on the activities required to gain the benefits of enablers rather than developing the enablers themselves. Organisations often evaluate and monitor benefits directly in relation to a specific enabler or project, but often the benefit is fully utilised as a collective effect of several enablers. Benefit realisation and measurement should thereby be performed at an aggregate level in the organisation to fully see the effects of a change initiative (E-delegationen, 2014).

2.6 Knowledge Management

The following section will discuss the importance of knowledge management, how to implement it, and present the knowledge management value chain. Knowledge management can be seen as crucial in organisational development and improvement due to the need of increasing the knowledge of employees. Knowledge regarding digitalisation is of utter importance when discussing the need to develop government agencies to improve their digital systems and IT systems.

2.6.1 Knowledge management

There are many different definitions of knowledge management, Tyron (2012) define knowledge management *"as applying formally defined, repeatable processes that facilitate knowledge discovery, capture, organization, use, transfer, and retention to a specific domain of intellectual assets"* (pp. 2). It is the employees who are the engine behind the process of organisational learning and creation of knowledge management. Organisational learning comes from individual learning, and when the employees' knowledge increase the organisations knowledge increases (Tryon, 2012). Bogdan and Bucur-Matei (2011) state the learning capacity of an organisation is determined by the already existing knowledge, the more knowledge there is the more can be created. The benefits of knowledge are many but if not shared it becomes limited. Knowledge sharing include the people making the knowledge available in the organisation and those who are open to receive it.

Nonaka and von Krogh (2009) define knowledge as the capacity to act upon the explicit and tacit elements one possess, which can be influenced by culture, experience, and incentive systems. Shin et al. (2001) identify the task for knowledge management to identify and utilise the tacit knowledge, which can be useful to transfer to explicit knowledge. Individual learning is regarded as collective knowledge and the organisation can be viewed as a knowledge system for the individual learning. The major difficulty of knowledge management lie in the definition of knowledge and the interpretation of knowledge. The receiver and the sender of knowledge can interpret knowledge differently. In order to avoid this scenario one should implement a methodology for sharing knowledge to make sure the right knowledge is received and the right knowledge is sent. Knowledge management can assist in realising this and should be viewed as a core asset in an organisation. Nonaka (1994) describe knowledge creation as an infinite circular process, which creates a strategic ability to acquire and share knowledge.

2.6.2 Implementing Knowledge Management

In order to have a successful process of knowledge management, the elements of leadership, commitment, and value creation are of importance. Leaders need to establish a commitment towards organisational and individual learning and implement processes for capturing knowledge within the organisation (Tryon, 2012). Senior management commitment is crucial to the creation of knowledge management and there need to be an established culture where knowledge sharing and re-usage of knowledge is accepted, needed and required (Nonaka and von Krogh, 2009; Tryon, 2012).

It is important to state a vision and goal for the knowledge management processes which all employees understand. When setting the goal and vision it is important to know what type of improvements the organisation is striving for post implementing the process. A vision or goal can aim a company towards different improvements such as increased speed, increased revenue or increased savings, creating more results with decreased efforts or higher quality of product or processes (Tryon, 2012). By writing a vision for knowledge management it is easier to understand the practical side and the need for individual development. A plan including the incentives and consequences of knowledge management can be used as an illustration of what can occur if knowledge is not shared (Nonaka and von Krogh, 2009; Tryon, 2012).

Shin et al. (2001) describe the importance of implementing knowledge management in the business strategy to realise the objectives of knowledge management. The issue is to develop the strategies needed to understand the importance of knowledge management and to create awareness of the subject. One potential barrier of knowledge management could be the negative attitude towards sharing knowledge and how employees might not see the positive aspect of sharing due to lack of incentives or motivation. Employees can view working with knowledge management processes as intimidating to their position. By sharing information an employee can believe their value to be decreased in the organisation. It should be emphasised how the value of an employee will increase when sharing knowledge and employees should be rewarded for sharing knowledge (Shin et al., 2001).

To acquire and capture knowledge can cost both resources and time. However recreating knowledge can be expensive and could be avoided through implementation of knowledge management. To lose knowledge is to lose capabilities and competence. When an employee leave the organisation, the knowledge the person possess could be lost and it will require time and resources to rebuild. Thereby organisations must understand the importance of capturing and keeping knowledge gained (Shin et al., 2001; Tryon, 2012).

2.6.3 Knowledge management value chain

The knowledge management procedure can be described as a value chain linking the individual knowledge to the organisational knowledge value bank. The chain has four actions: creation, storage, distribution and application, see figure 4. The knowledge creation is used to extend the sources of knowledge already existing and creating new sources. The storage exist so organisations can store knowledge in a standardised manner and to provide a source where employees can extract the knowledge needed. The distribution procedure is created to provide channels to communicate the knowledge and to enhance the possibility to extract knowledge. The application procedure assist with methods of how to integrate knowledge in order to solve issues. The value chain will assist to create a more effective knowledge management and provide employees with tools and methods of using and sharing the knowledge through the organisation (Shin et al., 2001).

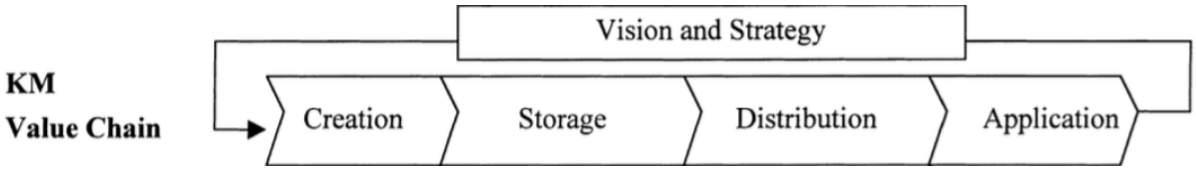

Figure 4. Knowledge management value chain (Shin et al., 2001).

3. Methodology

The section below will present the research strategy, research design, method for interview, data analysis, criteria for research, and ethical considerations used in the master thesis.

3.1 Research strategy

The thesis is built on a qualitative research strategy to be able to identify the challenges and success factors Swedish government agencies experience when digitalising the organisation. The thesis will further give suggestions on how government agencies can digitalise the organisation. The qualitative research strategy started in an open way by formulating research questions which were gradually narrowed down to a set of specific research questions and a problem description connected to digitalisation within government agencies (Bryman, 2012).

The research strategy followed an inductive approach where the concepts and theories presented in the thesis are based on the empirical data collected from the government agencies (Bryman, 2012). In order to establish an overview of the area and deepen the knowledge, the authors performed a literature review of relevant articles and books. In addition to the literature review, the authors performed initial interviews with selected experts within the area of digitalisation and Swedish government agencies.

3.2 Research design

The master thesis follows a cross-sectional research design where a benchmark study among government agencies in Sweden was performed in order to identify challenges and success factors of digitalisation. The thesis was carried out according to five phases where different activities were performed in each phase. The research design can be divided into five phases which is demonstrated below in figure 5.

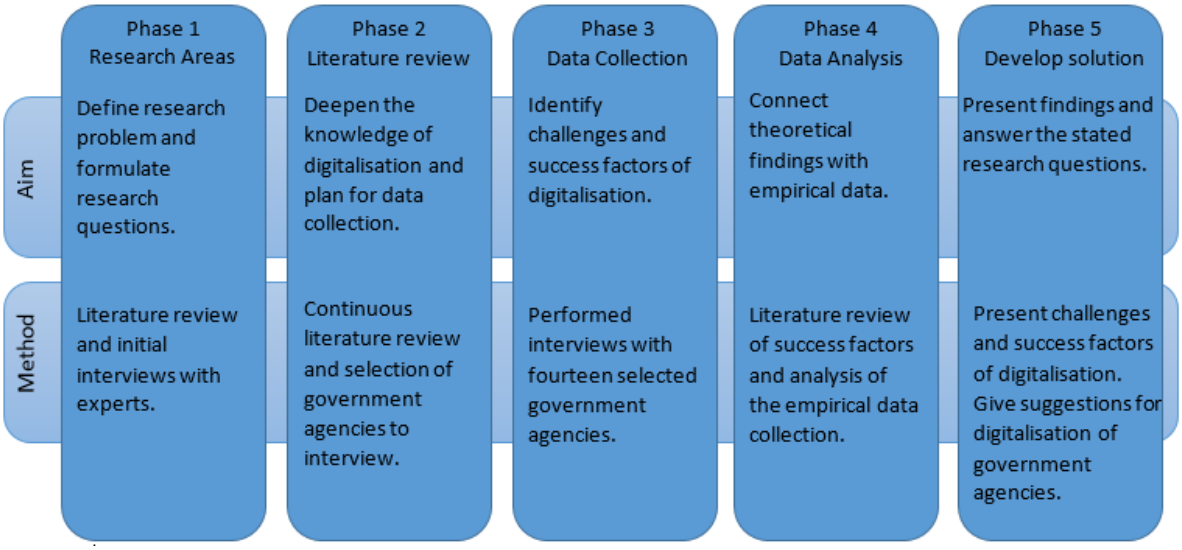

Figure 5. Presentation of the different phases of the research design

3.2.1 Phase 1: Research areas

In the first phase, the thesis problem was defined which formed the basis of the thesis and which the three research questions was grounded upon. An initial literature review was performed in order to establish an overview of the area of digitalisation. The theoretical articles and books used in the thesis was found through Chalmers library database and Google Scholar by using keywords such as: “Digitalisation”, “Digitalisation in the public sector”, “Digital strategy”, “Digitalisation in government agencies”, “Digital Transformation”, “E-governance”, “E-government”, and “Digitisation”. The authors performed interviews with selected experts in the area of digitalisation and within government agencies to be able to deepen the knowledge of digitalisation and to build upon established theory (Chadwick et al., 2008). When selecting experts to interview, the authors identified research areas of interests based on the formulated research questions and selected experts with publications from the years 2016-2017. The selected research areas of interest was identified to be; “IT-governance”, “Digital society”, “IT innovation”. Further information on how these initial interviews with experts were conducted can be found in the subchapter Interviews.

3.2.2 Phase 2: Literature review

In the second phase, the authors deepened the knowledge within digitalisation through continuous literature review within the area of digitalisation and selected Swedish government agencies to interview for the empirical data collection. The government agencies selected for interviews were based upon a digital maturity survey from the Swedish National Financial Management Authority (see appendix 1 for a draft of the full excel file) (Ekonomistyrningsverket, 2016a).

The survey is connected to the government mission of ESV to follow up Swedish government agencies usage of IT and the extent in which the agencies make use of the possibilities of digitalisation (Ekonomistyrningsverket, 2016b). The survey is based upon a number of success factors identified by ESV in order for an organisation to make use of digitalisation to develop the organisation. These are;

1. The ability to make use of IT as a facilitator
2. Determined strategy for IT supply
3. IT skills supply plan
4. IT management model
5. Project management model
6. Portfolio management
7. Established routine for cost comparison based on key performance indicators
8. Information security (risk assessment is relevant)
9. Framework for benefit realisation

In the survey, the participating government agencies did a self-assessment on the extent to which they work within each area. The different areas are given the value 0-6 depending on the extent to which each government agency considers they fulfil different statements. From the

survey the mean and forecasts was calculated, and the agencies were ranked based on their mean value in the survey. By using the digital maturity survey as a stepping stone, the authors could select a good spread of government agencies to interview which facilitated the identification of challenges and success factors of digitalisation. The survey was also a facilitator to identify and connect with government agencies interested in the area of digitalisation.

When choosing the agencies to interview, the authors looked at which sector they belonged to in the digital maturity survey. By choosing from each sector the authors gained a spread of agencies operating in different geographical areas with varying government missions. The agencies chosen were those identified with the highest digital maturity mean and lowest digital maturity mean in order to get a spread between cases and identify significant differences. The government agencies chosen to participate in the thesis were; Umeå University, Linnaeus University, Örebro University, Mid Sweden University, the Swedish Social Insurance Agency, the Swedish Tax agency, the Public Employment Service, Legal Financial and Administrative Services Agency, Swedish Civil Contingencies Agency, Financial Supervisory Authority, National Agency of Education, Swedish mapping, cadastral and land registration authority, Swedish Arts Council and the National Board of Housing, Building and Planning.

3.2.3 Phase 3: Data collection

In the third phase of the research design, interviews were performed with the fourteen selected government agencies. The interviewees were selected based on their connection of work tasks to IT, digitalisation, and business development. The researcher did not search for a specific position since it was discovered to be varying within the government agencies who is responsible for digitalisation. The employees interviewed in the thesis had the position of IT manager, Operations manager, Development manager, Administrative manager, CIO, General Director or were members of development projects connected to digital development. A more detailed description of the interview method can be found in section 3.3.

During this phase, additional data and reports were collected from different government agencies such as ESV, the Tax agency, the Swedish mapping, cadastral and land registration authority, and the Public Employment Service. The reports collected from the government agencies were formal documents available to the public, describing digital and customer strategies. The documents were collected from the agencies due to their clear strategy description. The strategies assisted in answering the third research question of the thesis.

Continuously during the empirical data collection, the authors were able to identify the challenges and success factors most widespread among government agencies and were able to draw conclusions on differences and similarities between the agencies.

3.2.4 Phase 4: Data analysis

In the fourth phase, the empirical data collected from the interviews and internal documents were sorted and analysed. The authors collected literature in the area of digitalisation from

international case studies and identifying success factors of how an organisation can become digitalised. The case studies were selected based on the digital maturity of the nation to be able to learn from countries further ahead in their digitalisation. The nations selected for these case studies were Estonia, Finland and the UK and was presented in section 2.4.

Information regarding success factors was also collected from the Internet using areas of interest and sources given by the interviewees, for example Gartner and the digitalisation development of Finland. This in order to form an established foundation for the identification of best practise opportunities and identification of possibilities to overcome barriers for digitalisation.

In this phase, the analysed empirical data could be compared to the theoretical findings to close the gap between the identified challenges and success factors with the theoretical findings and the case studies. This to be able to give suggestions to how government agencies can develop and digitalise the organisation.

3.2.5 Phase 5: Develop solution

In the fifth and final phase of the research design, the identified challenges and success factors of digitalisation are presented, hence answering the first two research questions of the thesis. Finally, recommendations and further suggestions could be drawn in order to assist the government agencies on how to digitalise their organisation by using the theoretical findings, thereby answering the third research question.

3.3 Interviews

This section will present the method used when performing expert interviews and interviews performed to collect empirical data from Swedish government agencies.

3.3.1 Expert interviews

Three expert interviews were carried out; one with a professor at the Department of Technology Management and Economics at Chalmers University of Technology; one with an associate professor at the department of Applied Information Technology at Chalmers; and one with an employee at ESV who were responsible for the digital maturity survey (Ekonomistyrningsverket, 2016b). The professor and the associate professor were chosen due to their published reports within the area of digitalisation and IT governance and whom were actively involved in projects related to Swedish government agencies and digitalisation. The knowledge of ESV and the digital maturity survey was presented to the authors during the expert interview with the associate professor which resulted in a third expert interview with the employee at ESV.

The two first expert interviews followed an unstructured interview format (Chadwick et al., 2008). The aim of the interviews was to find inspiration for research areas within digitalisation, find relevant literature, and gain insight in the meaning and definition of digitalisation in the

public sector and within government agencies. The interviewees were allowed to freely respond to the topic of digitalisation, government agencies, digital maturity, and different initiatives of digitalisation in the public sector such as The Digitalisation Commission and the Digital Way. The authors responded to points in the interview which they believed important to follow up and took written notes, the interviews were not recorded. The interviews lasted for 15 and 60 minutes, the knowledge gained from the interviews were used to define the scope and direction of the thesis.

The third expert interview lasted 1 hour and 30 minutes and followed a semi-structured interview format. The interview was recorded in order for the authors to re-listen to the interview. During the interview the authors asked questions regarding the survey on digital maturity in order to further expand the knowledge of digital maturity and digital development of government agencies.

3.3.2 Interviews with Swedish government agencies

When collecting data from the government agencies, the authors chose to perform semi-structured interviews in order to give the interviewees the opportunity to expand the answers beyond the scope of the interview questions (Chadwick et al., 2008). The authors had prior to the interviews formulated an interview guide with the questions they aimed to get answers to (Bryman, 2012; Chadwick et al., 2008). The guide was used for each of the interviews with the government agencies. The questions were divided in four sections: general, digital maturity, challenges of digitalisation and best practice digitalisation. The sections were generated from the three research questions and the study regarding digital maturity within government agencies. The general question section covered questions such as the interviewee's position at the agency, history of digitalisation within the agency, definition of digitalisation, who is responsible for digitalisation development, and digital strategy. The full interview guide can be seen in appendix 2.

The authors chose to hold interviews in person with six of the agencies, located in Stockholm, in order to create a connection of trust and understanding in person. During the visits, the authors got the opportunity to see how the agencies were operating with digitalisation in their offices in form of project rooms, activity lists, and visual roadmaps. The authors did not specifically choose to interview the six agencies in person, the opportunity presented itself in form of availability from the agencies and a mutual interest from the authors and agencies to visit and see how the government agency operates. Out of the remaining interviews, two were held through Skype and six were held over the phone. The phone and Skype were used since many of the agencies were located in different geographical regions in Sweden. The quality of the responses through the interviews were seen to hold the same level of understanding as those performed in person. All interviews were carried out with both authors present, this in order to decrease the risk of biased analysis and interpretation of the answers.

Before each interview, the authors asked for consent to record the interview and the interviewee had the choice to be anonymous and keep the identity of the government agency anonymous.

It was important to record the interviews in order to be able to fully be present as an interviewer. By recording the interviews it was possible for both authors to be fully present and not be distracted by taking notes. It was thus easier to pay attention to small details and follow up on interesting topics. In qualitative research strategies it is almost mandatory to record interviews since not only the information is important, but the tone, way of answering questions and attitude of the interviewee is important. The authors has the opportunity to re-listen to the interviews to preserve the original response and answers post the meeting session in order for clarification of data, or during the analysis phase of the study (Al-Yateem, 2012; Berazneva, 2014; Bryman, 2012).

During the interviews one of the authors were responsible for asking the questions whilst the other took notes and asked follow-up questions. By using the semi-structured interview method it was possible for the authors to ask follow-up questions, change order of the questions in the guide, and add new questions if necessary. The interviewees also had the opportunity to add information at the end of the interview session (Bryman, 2012; Chadwick et al., 2008). The Skype and phone interviews lasted between 30-60 minutes and the interviews held in person lasted between 40 minutes and 1 hour and 30 minutes.

3.4 Data analysis

The following sections will describe how the analysis of the interviews and the internal documents was performed.

3.4.1 Method for transcribing interview

The interviews were recorded through one of the author's computers by a recording program. The recorded file was then shared between the authors for mutual access to the files through Google Drive.

To fully be able to analyse the interviews each interview was recorded, transcribed and summarised in a standardised method. This was done in order to provide a solid foundation for demonstrating where information was found and whom provided the information to the authors (Al-Yateem, 2012; Berazneva, 2014; Bryman, 2012).

The interviews with the government agencies were transcribed in separate documents. The authors did not transcribe the interviews word by word, the recordings were re-listened to and the questions were written down word by word. The answers to the questions were written down in a summarised manner, not word by word. The information in the separate interview documents were further summarised to keywords and phrases in a common word file where the questions from the interview guide were displayed (see appendix 2). This was done in order to simplify the analysing process and identification of similarities and differences in answers from the agencies.

The author who was not responsible for asking questions during the interview was in charge of transcribing the interview afterwards. The author responsible for the questions would read

through the transcription briefly. This minimised the risk of biased analysis and ensured a shared perception of the key topics of interest discussed during the interview. Transcribing the interviews assisted in enhancing the reliability, validity and quality of the thesis, since a part of the information which builds the analysis can be traced (Al-Yateem, 2012).

3.4.2 Method for analysing empirical data

The findings in the empirical section was divided in internal and external factors due to ease of analysis and clustering of data. During the analysis of the data clear differences of challenges and success factors were identified as internal and external areas. The external factors were those present outside of the organisational boundaries involving the Swedish government, the evolvement of digitalisation in society, and external actors involved in the work around digitalisation. The internal factors were those present within the government agencies covering aspects such as digitalisation, organisational development, leadership, digital maturity, strategy, work processes and innovation. The partition between external and internal factors was made continuously from the presentation of the empirical data to the analysis. In the conclusion, recommendations were made from both an external perspective on how government agencies can cooperate in their work around digitalisation, and an internal perspective of what the agencies need to work on internally.

In order to answer the third research question, the agencies ranked high in the digital maturity survey conducted by ESV were used as best practices. The ambition was how government agencies striving to improve within the area in digitalisation could gain valuable insights and learnings on how to think regarding digital development in the own agency. The section on best practices is striving to improve the cooperation and knowledge sharing regarding digital development between government agencies, hence create a collective mindset to improve digitalisation in Sweden overall.

3.4.3 Method for analysing internal documents

The internal documents collected in the thesis entails formal documents of strategies related to the area of digitalisation and customer strategies within three government agencies. The authors performed a qualitative content analysis of the documents where both the social context of the documents and the authors intended meanings of the document were taken into consideration (May, 2011). The authors took this under consideration when reading the documents provided by the agencies and remained a critical eye to the content of the thesis. Hence minimising personal opinions regarding an agency interfere with the analysis. When reading the internal documents, the authors took into consideration the potential bias of the documents, hence what the author choose to include and describe in the document. This was seen as important to be aware of when reading the documents in order not to portray one of the government agencies as superior.

In a qualitative approach, the analysis follow the process of deconstruction, interpretation, and reconstruction, where important areas of analysis are identified to create patterns and trends (May, 2011). The collected documents were first thoroughly read by the authors to create a

general perception of the content. Then the information below each headline was summarised in a separate document. The authors interpreted the meaning of each step described in the strategy documents in order to understand why and how each step had or should be performed. The reconstruction took place by providing a summary of the strategies and the success factors at the agencies. The description of the strategic documents assisted the authors in drawing conclusions on success factors and suggestions on how to digitalise an agency, which could provide answers to research question two and three.

3.5 Criteria for research

According to Bryman (2012) an alternative criterion for reliability and validity in qualitative research is trustworthiness. Trustworthiness can be divided in four categories: credibility, transferability, dependability and confirmability. Credibility will be gained by submitting the findings to the participants involved to ensure the findings are correctly interpreted from the information gained by the participants, which functions as a confirmation of the work carried out by the authors. This will be ensured by the authors through sending the findings to the government agencies of the study before publishing the thesis, ensuring no false statements or data is presented as empirical findings. By producing thick descriptions of procedures and methods used during the data gathering and analysis ensures the possibility to transfer data or methods to other projects or settings, this ensures transferability. To reach transferability the authors of the study has described the steps taken, the method behind the procedures and the reason why procedures and actions has taken place in the method chapter of the thesis. To reach dependability the authors kept records and scripts of the information gathered, to be able to prove where information and statements originate from. To ensure confirmability the authors need to show they have acted in good faith, not allowing personal values interfere with the results. To overcome the issue both authors were present during interviews, data collection and when analysing the results (Bryman, 2012).

To further ensure credibility triangulation will be used through collecting data by different methods such as data collection and interviews. Triangulation will assist the authors by cross-checking findings from the different methods ensuring the right analysis can be drawn. (Bryman, 2012).

3.6 Ethical considerations

There are a number of ethical considerations to keep in mind when conducting a thesis. The major considerations are taken in regard to the participants of the study and the information they are giving. According to Bryman (2012) there are four ethical principles; *harm to participants*, *lack of informed consent*, *invasion of privacy*, and *deception*. Invasion of privacy was not taken in consideration in the thesis due to the transparency of government agencies to the public and how the interviewee was speaking for the government agency and not expressing any personal information or opinions.

Harm to participants can cover many different aspects such as enhanced stress and loss of self-esteem (Bryman, 2012). In the aspect of harm to participant confidentiality and maintaining confidentiality of records are utterly important (Bryman, 2012,). Participants in the thesis who would require their identity to be kept anonymous, would remain anonymous in the thesis. The participants also had the right not to answer questions asked. This was taken into consideration during the presentation of the findings where the authors made the decision to not reveal which agency stated what challenges. The authors saw a potential damage to the government agency's reputation and their mission of trust in the eyes of other government agencies and citizens.

The lack of informed consent is important to keep in mind when using the gathered data. The participants need to be given as much information as possible prior to their participation in order to make a grounded decision of whether they want to participate or not (Bryman, 2012). This consideration cover how the information gained will be used and why it is important. This was assured by the authors by presenting the scope and aim of the thesis in the introductory e-mail sent out when contacting the government agencies to participate. The authors re-introduced the purpose of the thesis and how the data was going to be used and further analysed before starting the interviews. When conducting a qualitative research it can be more difficult to make sure the participant have all the information, since the direction and outcome can not be fully predictable from the beginning of the research (Bryman, 2012).

Deception involves presenting the rightful authors of the information and sources used in a study (Bryman, 2012). The authors fulfill this criteria by presenting the sources of information used and by using Harvard referencing for continuity and facilitate finding references in text and reference list.

4. Empirical data of Swedish government agencies

This section present the empirical data collected from fourteen Swedish government agencies. First, the challenges of digitalisation are presented, which can be divided in an external and internal perspective in relation to the agencies. Secondly, the identified success factors of digitalisation will be addressed identified from all participating government agencies. Last in this chapter, are the best practices of digitalisation presented, based on empirical data from the government agencies ranked in the top of the digital maturity survey from ESV. Appendix 2 display the interview guide used during the interviews.

4.1 Challenges of Digitalisation

From the interviews, several challenges present outside the organisational boundaries of the government agencies were found, hereafter referred to as external challenges of digitalisation. The internal challenges are present within the government agencies. In table 3 below are the challenges presented amongst the fourteen agencies along with the number of agencies reporting the challenge.

Table 3. Challenges of digitalisation

Challenges of Digitalisation			
External Challenges	**Number of Government Agencies**	**Internal Challenges**	**Number of Government Agencies**
Information Security	3 (14)	Knowledge of Digitalisation and Digital Maturity	7 (14)
Government Law and Regulations	5 (14)	Benefit Realisation	2 (14)
The External Change of Digitalisation	4 (14)	Lack of Leadership	3 (14)
Decentralised Leadership	3 (14)	System Development and Legacy System	7 (14)
		Culture and Change Management	7 (14)
		Lack of Strategy	2 (14)
		Fuzzy Definition of Digitalisation	4 (14)

4.1.1 External

The most common identified external challenges of digitalisation are; information security, government law and regulations, the external change of digitalisation, and decentralised leadership, which will be addressed in this section.

4.1.1.1 Information security

Out of the participating government agencies, three found it challenging to develop secure information systems. Information security in this sense mean assuring citizens, organisations, and companies using services online how their information will not be accessible or distributed to unauthorised parties. It includes protecting the data collected by government agencies from computer hackers and foreign parties having an interest in the data. Many of the agencies communicated having prior experience of incidents where their IT system were hacked or there had been a problem with their system, resulting in data leakage. These incidents often attract a lot of attention and criticism from the media and the general public due to the agencies great responsibility and commission of trust. These events and external pressure has created a fear of

trying new IT solutions too quickly, thereby contributing to a non-innovative culture and slow moving development regarding digitalisation overall.

The reason behind the challenge of information security is by some agencies pointed out to be a lack of knowledge and competence within IT. When making IT investments, it is rare for government agencies to feel confident in their decision-making and knowledge regarding digital tools and systems. There is a competition for skilled IT-professionals and agencies thereby need to be an attractive employer. When increasing their offering regarding digital services, government agencies often feel the need to spend more time and resources on data protection and preventing cybercrime in order to ensure safe transactions and information handling for their customers. In this way, secure IT systems has become a cost-issue due to having old systems which are not as updated as one would like, to protect the data from hackers and external parties. The "digital legacy" as this phenomena is referred to by government agencies, which many agencies suffers from is often costly to maintain and take significant time to replace and transfer to a new, more secure IT platform. Digital legacy will be further described in section 4.1.2.4.

4.1.1.2 Government law and regulations

When discussing challenges of being innovative and develop digital services, government agencies feel inhibited by Swedish laws and regulations. Many laws and regulations are developed in a time when pen and paper was the standardised way of working. To enable government agencies to offer more digital services, Swedish laws and regulations should change perspective from an analogue to a digital perspective. When discussing the issue with government agencies, the main problem is seen to be the rigid political system of Sweden involving a high level of bureaucracy. Many agencies are required by law to store and file information about citizens, organisations, and companies. This either inhibits the information to be searchable or requires the government agency to store the information both analogously and digitally, thereby increasing the complexity of their system. Although this is getting an increasing awareness from the Swedish government, it take time to update laws and it requires knowledge of how citizens, organisations, and companies will use digitalisation in the future.

The Swedish government have launched the service "My messages" which is a digital mailbox from agencies towards citizens where identification is made through electronic identification such as BankID. While some participating agencies are connected to the service, not all agencies who feel the urgency to do so. It was seen to be more beneficial for those agencies with a high level of citizen contact on a regular basis to connect to the service. The agencies without these type of communication flows could not see the use in making the effort to connect to the service.

4.1.1.3 The external change of digitalisation

While government agencies are doing their best to keep up with the digital development and transform the organisation, the development of technology is rapid. The challenges is knowing what lies ahead and how digitalisation could be used in the future, and thereby be able to

develop services online which are useful over time. Developing digital tools and systems in agencies often take time, and especially in the implementation phase when educating employees to a new way of working. Some agencies thereby express a fear of spending time and resources in developing services which could quickly be outdated. At the same time, agencies participating in the thesis are driven by the needs of their customers where innovation becomes a central part of the agencies way of working. This has proven to be successful in many cases, and the fear of being outdated is less prominent as the alternative action would be not to develop the organisation and its operations.

4.1.1.4 Decentralised leadership

Ministers in Sweden are not allowed to control and make decisions regarding activities within the agencies. Therefore Swedish government agencies have a high level of independency of what activities to perform and how. Due to this, the application and use of digitalisation is very different from agency to agency, creating gaps and sub-optimisations in the digital maturity of the public sector. This limits cooperation between agencies to share information digitally and develop digital solutions creating value for the general public. The focus is on spending time and resources in order to fulfill the mission and activities of the agency.

Even though there is an increasing awareness of digitalisation within the Swedish government, the transformation is still slow. There have been efforts from the government to push digitalisation within government agencies. Examples of this is the temporary commission assigned to increase the awareness of digitalisation, *The Digitalisation Commission*, and the group of experts with the mission to develop the e-government in Sweden, *the E-government delegation*. Despite the efforts, agencies express a need for centralised leadership on how to transform Sweden by using digitalisation. Many agencies are positive to having a clear leadership of digitalisation, enabling coherent digital solutions and fully utilising its possibilities. When discussing the issue with participating government agencies, the technology for sharing information between agencies exists, but the problem is finding someone willing or having the drive to make it reality.

4.1.2 Internal

The most common identified internal challenges of digitalisation are; knowledge of digitalisation and digital maturity, benefit realisation, lack of leadership, system development and legacy system, culture and change management, lack of strategy, and fuzzy definition of digitalisation, which will be further addressed in this section.

4.1.2.1 Knowledge of digitalisation and digital maturity

The digital maturity and knowledge regarding digital tools were varying amongst the agencies. The lack of knowledge was described in different aspects such as; lack of knowledge regarding digitalisation, lack of knowledge regarding systems and low competence regarding IT. It was difficult to identify who in the agencies were the owner of the knowledge, and the level of digital maturity of both individual employees and the agency. This was in several interviews connected to the difficulty of sharing information and the lack of education of digitalisation and

digital tools. With a lack of knowledge came the need for increasing the competence among employees, and creating the knowledge needed to complete projects connected to digitalisation successfully. It was clearly stated through the interviews how it is difficult to find the right competence of digitalisation for various development projects. There were also concerns on how to know what competence would be needed in the future and how to use the existing knowledge in the best way.

4.1.2.2 Benefit realisation

The challenge of benefit realisation was visible in many government agencies, only three agencies had an implemented model for capturing and using the benefits of IT and digitalisation. The difficulty of measuring the efficiency of digitalisation and the usage of digital tools was discussed during the interviews. The difficulty of seeing the positive aspect of digitalisation without being able to measure its efficiency was stated. The gain of using a benefit realisation model was unclear in some agencies and the agency could not clearly see how the use of a benefit realisation model has or would contribute to the development of the organisation. This was seen both due to the difficulty of measuring efficiency and the lack of visualising the gain such a model would bring. There were also examples of agencies with an implemented benefit realisation model who did not see the difficulty in calculating the benefits of digital improvement, for example in monetary terms or with a decrease in service calls to the agency. The lack of measurables of digital improvements and the development of digitalisation in society were discussed as issues for implementing a benefit realisation model.

4.1.2.3 Lack of leadership

A need for top management to understand and prioritise the issue of digitalisation, and the importance of acknowledging the need for digitalisation and IT development to be a part of the strategy was identified. Opinions were raised how management did not prioritise development projects regarding digitalisation due to the focus on the mission of the agency. The agencies identified the issue of lack of knowledge and competence among top management. It was perceived the leaders did not have the knowledge needed to understand digitalisation and IT, and the topic was not a part of the strategy at some of the agencies. The lack of digital leadership caused confusion with the employees and a non-urgency to create initiatives connected to digitalisation. As the management did not understand or pay attention to digitalisation, why would the employees.

4.1.2.4 System development and legacy system

Many of the government agencies who were early adopters of IT systems today face the challenge of updating and replacing systems to gain better performance and capacity, referred to as *digital legacy*. When handling old systems it is difficult to implement new platforms since the systems often can not handle or communicate with the new platforms agencies prefer to implement. Despite the identified need to exchange systems and platforms, it was stated there is no time, budget, or priority to perform the change. The challenge lies in the issue of having systems on different platforms and the connectivity is low, causing the transformation of information between the systems not functioning as desired. The issue of time was discussed

and several interviewees aired concerns regarding the timeframe of implementing new systems and how the information would be handled in the process. The opinions and statements covered the discussion of time to implement new systems as well as the lack of time to transport data between systems. The legacy was seen as a major blockage for the development of the organisations. However it is a must for government agencies if they are going to be able to perform the services expected in the future. One challenge connected to IT systems and digital legacy was the issue of capacity. The need for increased capacity was directly connected to the systems and usage of old systems. The only way to overcome the issue would be to exchange the IT systems. Budget was discussed in each of the interviews and was connected to the issue of IT systems and development. The cost of upgrading the old systems were identified to be expensive and not as efficient as to exchange and implement a new IT system.

4.1.2.5 Culture and change management

One of the major challenges connected to digitalisation within the agencies is culture and change. The attitude towards digital development at the agencies were shifting from highly accepting to a "not for us" attitude. The lack of resources aimed towards digitalisation and IT development is maiming the development work and the will to prioritise digitalisation. One challenge is how to involve the employees and create an understanding of why the agency need to change and develop digital working procedures. Changing the culture is an ongoing process which some agencies have started to actively work with. One of the major challenges with change was the resistance to change, it was connected to the culture at the agencies and discussed with care and caution. A fear of change and a fear of the future was identified by the interviewees. It took different forms depending on the agency but included what future work tasks would be for the employees and the fear of not belonging in the new organisation. Even though the agencies could identify the concern from employees how their position would over time be eliminated, this has not yet become an issue. The challenge has instead been to involve the entire organisation in the culture change, to get everybody on board and understand why the change is needed.

Government agencies are not focused on profit, instead the aim is to use resources in the most efficient way possible. This view has created a fear of creating mistakes, hence wasting resources originally gained from taxpayers. By making a mistake the public could question the usage of the recourses, this has caused the attitude "better safe than sorry", meaning not using resources on projects with possible uncertain outcome. The resources are focused towards projects which will possibly be successful, not creating an innovative culture. The culture is seen as a blockade for change – slowing down the progress and opportunities of digitalisation. The old way of thinking need to be replaced by a new mindset and activities, but the fear for change and the culture is slowing down the process.

4.1.2.6 Lack of strategy

Government agencies had different statements and opinions regarding the strategy of digitalisation. In the government agencies with no digital strategy, it was pointed out they had a clear focus on digital development and an increased usage of digital tools for communication.

Ten of the interviewed government agencies stated they do not have a specific strategy for digitalisation but there exist a comprehensive view to work more towards a digitalised agency and work processes. The focus on digitalisation in these agencies is embedded in the business strategy, communication strategy, IT strategy and through the focus on customer needs. Agencies had strategies regarding digitalisation in specific areas such as digital learning, web seminars and e-services. It was reported some agencies had an overall business strategy, an organisational development strategy, and a digital strategy. The digital strategy had the purpose of bridging the gap between the business strategy and the organisational development strategy.

4.1.2.7 Fuzzy definition of digitalisation

During the interviews, one of the most difficult questions to answer for the agencies was what their definition of digitalisation was. Nine agency representatives did not know if they had a stated definition or how digitalisation was discussed and described within the agency. Digitalisation was described as a fuzzy, a broad subject and it was difficult to define the word since agencies were describing digitalisation as digitisation. When talking about digitalisation the interviewees described it as the usage of IT support in work processes, which is connected to the possibility to make every workday easier. The word digitalisation was described as a buzzword, which is important for the organisation, as important as not limiting the word to a stated definition. How one defines digitalisation within the agencies were different due to the level of knowledge and competence of the employees. The definition depended on the experience of working with digital tools, IT systems, and digital processes.

According to one agency, digitalisation is a culture, hence an overall definition for digitalisation does not exist. However, a discussion regarding digitalisation, digital tools, and organisational development is visible in some of the participating agencies. What is also highlighted in some interviews is the importance of communicating internally and externally what is meant by digitalisation.

4.2 Success factors of digitalisation

This section is describing the external and internal success factors identified within Swedish government agencies. In table 4 below are the success factors presented amongst the fourteen government agencies together with the number of agencies reporting the success factor.

Table 4. Success factors of Digitalisation

Success Factors for Digitalisation			
External Success Factors	**Number of Government Agencies**	**Internal Success Factors**	**Number of Government Agencies**
Cooperation	9(14)	Clear and Collective Definition of Digitalisation	3(14)
Benchmark and Best Practices	12(14)	Digital Strategy	3(14)
		Culture for Innovation and Employee Involvement	7(14)
		Customer Focus	14(14)

4.2.1 External

In the section below are the identified external success factors of digitalisation presented, which are; cooperation and benchmark and best practices.

4.2.1.1 Cooperation

The majority of the agencies revealed to use cooperation to increase their knowledge and usage of digital tools. Seven agencies reported to collaborate with other government agencies and nearly all agencies reported to share their knowledge with other agencies by showing their digital transformation. The collaborations in government agencies varied in duration from long, continuous projects to shorter, study visits. The short visits were focused on learning how to use digital tools in order to develop the agency in a specific area. Examples of areas to look at during the visits were innovation centers, web seminars, benefit realisation models, and project management models. The continuous collaborations were focused on finding joint solutions and develop digitalisation in the public sector overall. One continuous collaboration is the E-collaboration programme, which is a joint-venture between government agencies, local governments, and county councils in Sweden. The programme is a complement to the Swedish government initiatives and is completely driven by the members of the programme. The programme is focused towards finding digital solutions across organisational borders in order to improve services for individuals, companies, and public administration through forums, knowledge sharing, and development projects. Today, four out of the participating government agencies are members of the programme.

4.2.1.2 Benchmark and best practices

In order to compare, the college and university sector performs benchmarks on a yearly basis, both national and international. This is done in order to check their position compared to other actors in the same sector. Through benchmarking it is possible to find information of improvements and identify improvements needed at each school. Many of the universities work together through the network Bench IT, which is an international cooperation and benchmark group. With Bench IT, it is possible to compare the progress of system development in Swedish and European schools. The benchmark is produced by universities for universities and provide the possibility to define issues and create common understanding of IT solutions. The costs of IT are compared in order to see differences in how to analyse costs and administration.

In the empirical data collection, it was found many government agencies look to other nations such as Denmark, Norway, Finland, Estonia, Holland, and the UK for valuable learnings and success factors. When looking at these nations, agencies focused the learnings to agencies within the same sector, having the same challenges and possibilities. There are examples of collaborations with external organisations such as Spotify, Gartner, and Radar Ecosystem. With the purpose of extending the knowledge regarding digitalisation and be able to find new, innovative solutions through joint events.

4.2.2 Internal

In the section below are the internal success factors of digitalisation presented; a clear and cohesive definition of digitalisation and having a digital strategy.

4.2.2.1 Clear and collective definition of digitalisation

From the agencies, digitalisation was connected to organisational development and the view of digitalisation therefore varied between agencies depending on their specific context and digital maturity. While the majority of the agencies did not have a stated definition of digitalisation, it was seen as a valuable guidance within the agencies with an established definition. Moreover, the importance with a clear definition lies in the importance of the overall understanding of what digitalisation is and what it means for how the agency does business.

The Swedish mapping, cadastral and land registration authority follows the definition stated by "Changes in processes, organisations and systems which the use of digital technology contributes to" (Bylund, 2016, pp.51) which was the only agency with a clear statement of what digitalisation is.

The Swedish Public Employment Service defines digitalisation in three levels: digitalisation, digital transformation, and digital services. Digitalisation is referring to the development of the environment and society, which the individual cannot change, slow down, speed up or stop. The digital transformation is referring to the government agency and the top management's ability to impact the development when working towards a more digitalised agency. The digital transformation will take time and include cultural change and leadership abilities. The last layer of digitalisation is digital services, which has its foundation in strategic documents including action plans. The focus of the digital services is towards the customer and supporting the customer's communication with the agency. The digital tools and implementation of digital tools is affected by the customer's needs, the focus is shifted from internal gain to external satisfaction.

The Swedish Social Insurance Agency divides digitalisation in three sections; self-service, automation and cooperation. The first section is covering the usage of digital tools when the customers are interacting with the government agency. The customer should have minimum human-to-human interaction with the agency to standardise, improve and make services more efficient. The section of automation aim towards providing the customer with the service when required. Defining the digital cooperation provides the agency with incentives to improve work processes and procedures. The definition of self-service, automation and cooperation assist the agency to take the right decisions and move in the right direction in the development of the organisation. The definition is seen to create a common understanding in the organisation, which the employees can follow and understand. When backed up by internal documents and strategies such as the customer and channelling strategy, digitalisation can be better understood by employees.

4.2.2.2 Digital strategy

One identified success factor within agencies was to have an established strategy for digitalisation. The digital strategy in the agencies reporting the success factor provided valuable guidance and a vision of the future state of the agency when working with digital development. The Swedish Tax Agency described the goal and aim of digitalisation through their strategic plan – the Digital Agenda. The mission with the strategic plan is to be an agency with total digital possibilities. The agenda work as a guide for future direction of development and digitalisation. The targets for the agency regarding digital development will be set by the separate departments in the agency through projects to ensure each department is working towards a more digitalised agency.

The digital agenda, is a control document developed by one agency to help guide the way of becoming a digital leading agency in the future. The digital agenda is one of three control documents within the agency. The goal with moving towards a more digitalised agency is to change the mindset of the employees, work on improving the safety of the internal systems to minimise the time and resources needed to adjust minor errors and non-value adding activities. The digital agenda of the Swedish Tax Agency describe how to move forward in the agency through digitalisation and usage of digital tools.

4.2.2.3 Culture for innovation and employee involvement

One prevailing success factor was the organisational culture, advocating innovation for digitalisation and employee involvement. This can be connected to digitalisation having a strong bond to organisational development, thereby the need to involve all departments and not just IT as often is the case when discussing digitalisation. What is significant for the agencies, which from an external perspective are seen to be forward in their work around digitalisation, is a change of mindset to the possibilities of digitalisation. Instead of focusing on potential hindrances such as time, resources, or competence an agency can focus on facilitating processes for the customer and the employee, and through this free resources. This was also highlighted in the discussion of digital legacy. Some agencies felt it was a major challenge and slowing down in their processes of digitalisation while other agencies were able to work around it to increase the level of digitalisation in the agency, thereby reaching other gains and benefits.

Giving examples of employee involvement, the Swedish Social Insurance Agency has made an effort ensuring all employees understand the definition of digitalisation. The agency implemented a channel where employees are able to contribute with suggestions on how to further digitalise the agency. One improvement made was to remove the address from paper sent out to citizens with protected identity, which was identified by one of the employees to be a security risk if not removed. At the Swedish mapping, cadastral and land registration authority, an innovation day has been set up where employees are able to register a team and realise ideas connected to innovation. Originally, the day was mainly for IT and technical departments, but in the past years teams from all departments of the agency signed up to participate.

4.2.2.4 Customer focus

All participating government agencies stated to have a clear customer focus and a willingness to satisfy the needs of the general public. However, the customer focus was expressed or worked with in the agencies and who the customers of the agency was varied. Through the focus of the customers some agencies had initiated their work on improving digital channels. By improving and simplifying their communication the citizens or customers can have a better experience with the processes and encounter with the agencies. Many agencies have daily operations and encounters with customers, therefore they have seen the need to improve the operations to better suit the customers. By improving the customer experience and becoming a part of the process it is possible for agencies to focus on improvement work and the digital transformation. The customer focus has pushed the agencies in the direction of digitalisation and digital development, hence the area has become a success factor of digitalisation within some agencies. There are still agencies who believe customer focus is of importance but has not yet grasped the connection between customer focus and satisfaction with the development of digitalisation within the agencies.

4.3 Best practice

The purpose of the section is to highlight examples and best practises from agencies ranked in the top on the digital maturity survey where key learnings and possible actions for implementing digitalisation can be drawn.

4.3.1 Cooperation

In the area of cooperation, it was the universities and colleges participating in the thesis who stood out from the government agencies. Umeå University reported to take part in a network where information can be shared between universities, separating them from other sectors in Sweden. Due to their ability to cooperate and share information within their sector, Umeå University has been asked by organisations such as Gartner and Radar Ecosystem Specialists to lecture on how to cooperate. Besides the university and college sector, the Public Employment Service in Sweden reported to be a part of the E-collaboration programme and the eGovernment Delegation in Sweden.

4.3.2 Benchmark and best practice

Swedish universities and colleges are actively using opportunities to learn from each other and exchange knowledge regarding digitalisation. All IT managers and CIOs are connected through a network within the sector where they can share knowledge and experience of how to work with digitalisation. The purpose of the cooperation is to find more efficient ways to operate and identify common digital solutions on different levels. When starting the position as IT manager or CIO one is invited to join the network in order to continue the cooperation.

The network is divided between colleges and universities and through clustering so the possibility to meet frequently is easier. The cooperation covers common systems which they work with to make the work processes easier and more efficient for the sector, such systems

can be Ladok and antagning.se, where the student's information and admission is visible. The meetings are frequent, up to two times per semester and communication between IT managers and CIOs are continuous. When working with improvements the universities and colleges check if there is a possibility to cooperate and improve the processes together with other agents in the sector which creates a good dialogue between the agencies. The improvements are adjusted to each university and college but the solution is overall the same which improves the sector as a whole and each school. By cooperating it becomes easier for the suppliers of the IT systems to operate and improve the systems on a wider scale.

4.3.3 Definition of digitalisation

The Swedish mapping, cadastral and land registration authority follows the definition of digitalisation stated by the Digitalisation Commission "Changes in processes, organisations and systems which the use of digital technology contributes to" (Bylund, 2016, pp.51). The interviewee from the agency stated how the discussion around digitalisation always involve organisational development. Before the interview was started, the agency also wanted to clarify the definition of digitalisation used in the thesis, in order to have a cohesive understanding of the subject before conducting the interview. Although the agency admits to not having anchored this definition with all 2000 employees, they are aware of how some employees still view digitalisation as automation and technology and working to reach a cohesive definition within their agency.

The Swedish Public Employment Service and the Swedish Social Insurance Agency also defines digitalisation, however mentioned in bullet points which were not further clarified. Moreover, all of the three above mentioned agencies make an effort in spreading their respective definition of digitalisation in the organisation.

4.3.4 Digital Strategy

The section is describing digital strategies derived from the Swedish Tax Agency and the Swedish mapping, cadastral and land registration authority. The information used in the chapter were collected by the interviewees in form of formal documents and PowerPoint presentations.

4.3.4.1 The Swedish Tax Agency

The following two sections will describe two strategic plans at the Swedish Tax Agency in order to show examples of a digital strategy and the importance of having one in the agency. The strategies are in chronological order, meaning the Digital Way was written and implemented prior to the Digital Agenda 2020. The Digital Agenda was implemented during 2017.

The Digital Way

The work and focus of the digital development started through an analysis of the external environment. It was clear through the analysis digitalisation was developing fast and top management wanted to know where the government agency was positioned. An evaluation of the digital maturity was made which displayed a stagnation of the digital development and

intensity. It was identified how the social development of digitalisation was steadily increasing and the agency needed to change in order to keep up with this development.

The culture was identified as a major hindrance for the development, to overcome the issue clear and common goals regarding assignments were created where the importance of working together was emphasised. Four areas were identified which were an important explanation to the slow progress of digital development: unclear vision, internal silos, slow processes and fear. The areas and underlying reasons can be seen in table 5.

Table 5. Areas for digital development

Areas for Digital Development	
Area	**Reason**
Unclear Vision	Lack of strongly engaged vision Different goals and targets Ambiguity of responsibility for long-term goals Lack of sense of urgency
Internal Silos	Lacking coordination and cooperation Complex control documents Complex implementation of control documents Responsibility for customers Locked in resources
Slow Processes	Lack of customer focus Slow processes and lack of frameworks Investigating many processes, but lack knowledge
Fear	Fear of making mistakes Blame game between departments Lack of digital competence and leadership

To proceed in the development the agency identified six steps to take:

1. Focus on customers and design of services
2. Let customer needs control the prioritisation at the agency
3. Stop working with slow processes
4. Start working towards innovation and efficiency
5. Start working with trust and cooperation
6. Focus on innovation – leave the traditional process behind

The group working with the Digital way had members representing different departments within the agency. The team's mission was to contribute to the digital transformation and increase the possibility of having a customer focused development. The mission had five targets:

1. The top management is confident the digital development is handled in a cost efficient manner
2. The culture at the main office is characterised by trust and cooperation, aiding the agency to work toward a customer focused development.
3. The strategic perspective and prioritisation of the digital development is secured.

4. The agency shall increase the opportunity to work with innovation parallel to organisational development in a balanced manner.
5. Develop concept and tools for customer driven development.

To reach the goals an activity list was created covering five areas of interest; overall perspective of the Digital way, focus on businesses, campaign for transparency, curiosity and internal response, improve innovation, and focus on customer driven development. The goal was to increase the awareness of the digital development as well as the organisational development and change. Each of the areas was directly connected to the targets set by the agency. The group made a roadmap in order to visualise the projects and the goal of each project.

The digital agenda 2020

The purpose with the digital agenda was to describe how the agency need to change, which direction the agency should take, and what they need to do in order to reach the goals. Building on the Digital Way, new goals were set with the new project team. Three goals were chosen which focused on setting a direction and level of ambition within the agency since it was identified how the employees did not believe in or wanted a too strict steering of the agency. The goals were: together with others we digitalise Sweden, businesses and private persons should experience simple and intuitive services, and use digital possibilities to prevent errors and evasion. The goal "together with others we digitalise Sweden" was set since the agency is an important part of the Swedish society. In order to contribute to the development of digitalisation they are dependent on others and others are dependent on them, hence the importance of cooperation. The goal "businesses and private persons should experience simple and intuitive services" were set in order to understand the users' needs and actions. By focusing on this it would be easier to predict future trends and needs which make it easier to develop services. "Using digital possibilities to prevent errors and evasions" would make it possible to prevent errors through data analysis and insight on how and why errors occur. Digitalisation and digital tools provide the possibility to identify evasions which is central to the agency's mission and an important part of the digital development.

In order to achieve the goals the agency identified five areas of importance, which the team in charge of the digital agenda has competence within. The areas are competence control and leadership, cooperation and work processes, development of services and benefit realisation, control automation and usage of data and technology, legislation and safety. Competence control and leadership was chosen since the agency lacked a clear plan for where the development was headed. The responsibility of the customer experience was also lacking. Competence was chosen since it is a central issue and in order to change work processes there would also be a demand for new competences. Cooperation and work processes was chosen as an area of importance due to the previous work process in the departments had been isolated. To identify new ways of working and cooperating will contribute to new possibilities and better services. Development of services and benefit realisation was chosen since it was believed it is when the agency work in a structured way to follow up on the customer's experiences it is possible to develop services successfully and not only transform analogue to digital services. Control automation and usage of data is one of the core business

of the agency. The need to quickly react to new phenomena is crucial in the digital development and to use data to follow patterns and control the systems. Usage of technology, legislation and safety, there is a need for technical possibilities to create new services. Legislation is important since it was identified to be crucial to the development of digital tools and digitalisation. The importance of legislation which fit with the development was identified as important.

4.3.4.2 The Swedish mapping, cadastral and land registration authority

The digital agenda at the Swedish mapping, cadastral and land registration authority is a program for digitalisation which is developed by the departments and aim towards realising the strategic plan. The program shall tactically provide direction to the agency to fulfill the plans for development by using support from technical solutions. The purpose of the digital agendas is to help the agency take action and move forward. The agency does not hold one department responsible for digitalisation since it is relevant to work with digitalisation through the whole agency. There exist different dimensions in the work towards digitalisation which can be seen as different areas of competence, interest, and activities.

The goal for the agency is to be total digital and all departments shall be run in a digital manner if possible. The statement means processes and services will be performed by support from IT, since IT is a crucial component in all departments. The statement “digital first” is a principle which place the customer in focus and the solutions implemented will assist in making the Swedish society more open. The digital solutions will be the first hand choice and through smart digital solutions unnecessary administration will be removed which will free resources and time.

The strategy has different focus areas: no paperwork, open geodata, and preparatory actions. No paper documents is used as a focus to enhance the information flow and enable a smooth process flow, hence digitising the agency as much as possible. The open geodata mean working actively to increase the accessibility and quality of the geographical data the agency provides. The geodata need to be open, up to date, standardised, with the right quality, and available for the users. The preparatory actions is a support to the processes and flows in order to decrease lead times in administration and making the processes more efficient. It shall be easy for the customers to be a part of the process and contribute to the process to have a positive outcome of the service.

According to the agency digitalisation has different dimensions, which are identified as IT-systems, Internet of Things, Digital Ecosystems, Customer Experience and Intelligence. Through each dimensions, the agency work to improve the processes in order to aim the focus towards the customer experience and delivering the service as efficiently as possible while adjusting to the digital development. The dimensions include improving the cooperation with other organisations and agencies in order to improve the customer experience and the development of digital solutions. The goal and aim of the agency is sharp, the future is digitalisation and customer satisfaction. By implementing a digital agenda and incorporating it in the overall strategy of the agency it is possible to work on digital development in each department and core process of the agency.

4.3.5 Culture for Innovation and Employee Involvement

One best practice found was the ability to include all employees in the agency and make all departments take part in the digitalisation of the organisation. Linnaeus University demonstrate this by including both IT and the organisation as part of all system management.

The Swedish Social Insurance Agency have created an innovation forum as a central part of their organisational development, where all employees in the agency can post suggestions for improvements. The incentives for employees to post suggestions is to facilitate their own work and avoid mistakes in the work of the agency, e.g. one suggestion made was to remove the address from the paper sent out to persons with protected identity. The organisation has a strategy around digitalisation which focus on having a collective organisational focus on a drive for digital improvements, both from the IT department and the rest of the organisation. This will ensure all departments are part of the agency's digital journey and ensure the agency to utilise the opportunities of digitalisation. The key step to realise this is changing the cultural standpoint toward digitalisation through communication, showing success projects, and involving people in the innovation forum. This has shown good results as more ideas regarding the digital drive have appeared.

Another example of employee involvement and innovation can be found at the Swedish mapping, cadastral and land registration authority. The agency has started the competition "Innovation Day" where employees can register a team and have 24 hours to come up with an idea which can benefit the agency. The main focus have earlier been on IT-development but have recently widen the scope to include employees from all departments of the agency. Another example on how to include all employees is to have communication regarding the change towards digitalisation and being open for new discussions, as pointed out by the Swedish mapping, cadastral and land registration authority. From the interview, it was discussed how the organisation has a rather high turnover on their internal positions. Employees from the organisational side of the agency transitions to the technical one and vice versa. This is believed to increase the understanding of the different perspectives, creating a bridge between IT and the organisation.

At the Swedish Tax agency, a need for communication regarding change was identified to be of importance. Communicating what will happen, where employees will belong in the organisation, and what the future need of the employees would be, are questions central to discuss in order to reduce the fear of change. Moreover, the agency has created a digital room and introduced digital conventions and lectures for employees in order to discuss what digitalisation is and why it is needed with the employees. During an investigation of the administrator's competence and understanding of e-services it was discovered this was lacking, hence an effort had to be made in order to turn this around in the organisation. The key issue is said to make all employees understand how they are a part of the digitalisation and not to be afraid of the change. However, the lack of understanding digitalisation is present in the entire agency. A new focus is to increase the understanding of digitalisation within top management. At every top management meeting, 15 minutes are assigned to work with questions around

digitalisation through digital quiz, workshops, or the framing of a question regarding digitalisation.

4.3.6 Customer focus

Customer focus could be found at the Swedish Public Employment Service. The agency has created a customer and channelling strategy with the intention to develop their processes to ensure high quality services and to improve the contact with all citizens using their services. The channel is referring to the manner of contact the agency is providing for each service, it could be personal meetings, digital or phone services. The goal for the employer or citizen using the service is to be able to move freely between the different channels during one mission.

The feedback from the customers towards the agency is clear, the agency lack the ability to deliver services with enough support and service. The agency work from their customer's point of view when developing their services and therefore need to be able to identify those needs. The customer in this case is both the employer and the job-seeking citizen using the services. The employer's need is to find the right manpower, and the citizens need is to find an employer. The goal is for both employees and customers to move freely between different channels in order to understand the bigger picture of the services offered, which is why the connection between the channels need to work flawlessly. Through contact with the customers, the use of surveys, and analysis of usage in the different channels, it is possible to find the right areas for improvement.

The agency has made the conclusion within a couple of years the majority of their services will be provided through digital channels. This require resources in order to develop and administer the digital channels. To reach the goal, the agency need to work towards finding practical IT solutions in cooperation with other agencies. When digital channels are the foremost asset for the work processes the work can be directed to increased customer support and more qualified consulting for the customers who need it. The demand on the employees at the agency increase and their competence and knowledge regarding different areas need to be increased. By working with digital tools there is a possibility for the education they need.

The Public Employment Service has identified eight criteria which are of importance to bridge the gap between the current services and the expectations of the customers. The identified areas are:

1. To meet the customers' needs by delivering services through open and seamless flows and processes.
2. The majority of the agency's services will be delivered through digital channels.
3. An important part of the e-governance is to develop digital services in cooperation with other organisations.
4. More of the employee's time will be spent on employer work and qualified guidance.
5. Customers will not be dependent on one employee's availability and competence.
6. The physical offices for guidance and services will be controlled by customer flows.
7. The focus of the performance monitoring will be towards customer satisfaction and measuring the efficiency of the processes connected to the customer.
8. The agency's' resource allocation will be adjusted to how the customers are deciding to use our services.

5. Analysis

This section presents the analysis made when comparing the empirical findings from Swedish government agencies in Chapter 4 to the theoretical framework in Chapter 2. The section will first present the analysis of the challenges of digitalisation, divided into an external and internal perspective. Following this, the success factors of digitalisation are analysed following the same external and internal perspective. At the end of the section, an analysis of the best practices found from the government agencies ranked high in the digital maturity survey is presented. To facilitate the analysis and present it to the reader, each subsection is correlating to the headings used in section 4, Swedish Government Agencies.

5.1 Challenges of Digitalisation

In the section below, the external and internal challenges of digitalisation are analysed in comparison to the theoretical framework.

5.1.1 External Challenges

The external challenges analysed in this section are: information security, government law and regulation, the external change of digitalisation, and decentralised leadership.

5.1.1.1 Information security

As stated by (SOU 2016:89), agencies are handling an increasing amount of data regarding citizens, companies, and organisations within Sweden. While the agencies participating in the thesis express an ambition for being transparent and making it easier for their users to register personal information, the challenge of information security is prevalent. It was pointed out how agencies lack sufficient knowledge within both digitalisation and IT, especially within top management in order to make strategic decision of IT investments to protect themselves from data leakage. The result of this lack of knowledge was either (1) not enough focus regarding digitalisation efforts in the organisation, causing the organisation to lag behind in the digital development, or (2) making small incremental changes in the way the agency operates with the use of digital tools, hence only investments considered to be safe from failure or criticism.

Government agencies can in this area learn from each other regarding digital solutions and how to develop their systems in a coherent manner to facilitate information sharing. In line with the recommendation by SOU (2016:89) discussed in section 2.3.1 of creating national standards for digital innovation, the participating agencies are positive towards the creation of a central leadership agency regarding digitalisation of the public administration. Corydon et al. (2016) further point to the benefits of cooperation and being able to use other agencies technology systems, thus creating cost advantages. In the case of Estonia described in section 2.4.2, agencies can be connected to a central digital structure for information sharing between systems. The challenge of information security was identified by the Estonian government and dealt with in a collective manner. The government of Estonia set up legal instruments to protect personal information regarding citizens from non-authorised personnel and actors (Vassil, 2015).

5.1.1.2 Government law and regulations

The participating agencies express a concern for how to store information as many agencies are under the obligation to file data about citizens, organisations, and companies. In contrast, the Swedish laws and regulations are not updated to the new digital era, creating less flexibility in how government agencies can develop digital solution to better fit the needs of the user. The slow transformation which the process of updating these laws and regulations involves, also create a challenge of knowing how digitalisation will be used in the future in order to create a sustainable legal system.

The high level of independency among agencies can also be a reason to why the change is slow. While the Swedish government can not control in detail how the agencies are to operate, it is recommended for the government to provide guidelines or take minor actions to push the agencies in a digital direction. The UK government have created 18 guiding principles for how their agencies can develop and maintain a good digital service stated in section 2.4.1 (GOV.UK, 2017). The standard provides some guidance but not a step-by-step solution. Since the Swedish government are inhibited by law to control agencies, this model might be a first step for the Swedish government to follow. However, while the agencies should not be limited in their work around digitalisation, it is up to the agencies themselves to transform the organisation and set up a digital transformation strategy. This involves reaching out to other agencies where cooperation is of value for the involved agencies as well as the general public.

To push agencies towards sharing digital information, the Estonian government set up a digital information structure, X-road, to facilitate information sharing between government agencies (Björklund, 2016; Kalvet, 2012; Vassil, 2015; European commission, 2015). The Finnish government, which is similar to the Swedish political system by being independent of ministers (Statskontoret, 2000:20A), has also taken critical measures to direct their government agencies towards digitalisation. The first measure was to establish guiding principles which all public services will follow, see section 2.4.3. The second action is to reform all administrative processes to digital ones (Ministry of Finance, 2017a). However, while the Swedish government has made an effort in trying to reform all government agencies in a similar pattern by being a part of the digital service “My messages”, there are agencies which are not connected to this system and does not feel the necessity to be so either. Implementing a central system in Sweden, similar to those in Finland and Estonia, would save time and resources for agencies and ensure the correct information is available when needed. Enabling this type of cooperation and information sharing could improve the overall public administration of Sweden and transform the way agencies communicate with citizens. Instead of the citizen having a private communication with each agency, they could register information once which will be distributed automatically to those agencies authorised to take part of the information.

5.1.1.3 The external change of digitalisation

The external change of digitalisation is rapid and requires government agencies to transform (Demirkan et al., 2016). This transformation requires government agencies to increase their knowledge of digitalisation and the application of digital tools in order to be well prepared for

the future needs of citizens. Whipp et al. (1989) states how the context of technological change is important to consider during times of technological change, see section 2.2. Linking the internal and external environment is here seen as a necessary mean. The primary network described were those directly connected to the generation of new technology. In this sense is the cooperation with external actors such as Gartner, Spotify, and taking part in different networks a vital part which nine of the fourteen participating government agencies report to do.

Andersen et al. (2011) state how the information system strategies have shifted their focus from a government-centered perspective to a user-centered perspective. The case studies of the UK, Finland, and Estonia demonstrates how the government have paid close attention to the increased digitalisation in society and felt an urgency to change. The European Centre for Government Transformation (2013) concur how citizens have an increasing demand for public services to become more digitalised. This is closely connected to the increased digital maturity of society among citizens, companies and organisations. One of the success factors for digital maturity according to The European Centre for Government Transformation (2013) are the citizen at center. Since the agencies are obliged to ensure the taxpayers a satisfactory service level of public services (E-delegationen, 2014), it is of high importance for the agencies to stay updated with the new needs of citizens following the digital era.

5.1.1.4 Decentralised leadership

When discussing the Swedish government actions within digitalisation, nearly all of the participating agencies feel there have been different attempts and projects by different actors, however there has not been a single actor responsible for the digital leadership. Instead, the focus have been on spreading the leadership of different areas within digitalisation of the public administration on different agencies.

Gartner (2014) identifies leadership to be one of the six steps for a successful digital transformation and further discuss the lack of a digital perspective. A comparison can be made to the Swedish government, needing to establish a clear digital leadership in the top management and develop new business roles focusing on digitalisation of Sweden. One effort in this direction having new minister positions concerning digitalisation such as the role “Minister for Housing and Digital Development”.

The digital maturity survey sent out to the agencies was a mandate from the government, hence not voluntary. Even though this survey was required, the level of effort to respond to the survey was varying among the government agencies participating in the thesis. The lack of effort in some agencies, demonstrates how the Swedish government have failed to demonstrate a strong and confident leadership toward digitalisation. Similar to the commission of trust citizens, organisations, and companies must have for the government agencies they are in contact with, the same level of trust must exist between agencies and the Swedish government. The level of trust for people in charge of a change and the intensity of the behaviour and actions taken during a change initiative are factors impacting on the reaction to change (Coghlan, 1993; Nadler and Tushman, 1997).

Leadership and a firm commitment to digitalisation can be connected to knowledge management regarding digitalisation. Tryon (2012) states how the leaders must establish a commitment for organisational learning down to an individual level by implementing processes for knowledge management. In order for the agencies to cooperate and develop joint digital solutions, it is necessary to educate all agencies within digitalisation since the level of digital maturity are varying.

5.1.2 Internal Challenges

The internal challenges analysed in this section are; knowledge of digitalisation and digital maturity, benefit realisation, lack of leadership, system development and legacy system, culture and change management, lack of strategy, and fuzzy definition of digitalisation.

5.1.2.1 Knowledge of digitalisation and digital maturity

As stated by Gartner (2014) information is an important asset when building a digital strategy. When government agencies have varying knowledge and digital competence the challenge of building and finding the information which provide a competitive advantage becomes more difficult. If it is not known who the owner of the knowledge is, it is difficult to share and create knowledge. Digital knowledge can be increased through learning programs implemented through a digital strategy (Gartner, 2014). Lack of knowledge skills can become a hindrance to the digital transformation, therefore it is of importance to identify where there is a gap of knowledge (Deloitte, 2015). Due to the fast development of digital technologies, organisations also develop in a faster phase (Demirkan et al., 2016), this can impose a challenge for knowledge creation regarding digitalisation and digital maturity.

Workforce skills is ranked as one of the highest challenges for digital maturity, and lack of knowledge was identified in seven of the government agencies. The agencies cannot increase their digital maturity without increasing the digital competence of their employees. Agencies with a higher digital maturity has a leadership who invest in the workforce and believe in innovation and the importance of digital development. This can be connected to the need to improve knowledge and importance of identifying where the knowledge is present and where to decrease the knowledge gap. Knowledge management can assist the government agencies to build a platform of how to manage, capture knowledge and increase the digital maturity.

As Tyron (2012) state, organisational knowledge comes from the individual, therefore the importance of increasing individual knowledge of digitalisation is of importance. Knowledge management can be used as a means to reach goals, therefore the increase of digital competence is connected to organisational development. Shin et al. (2001) and Tryon (2001) state, knowledge should be seen as an asset to the organisation, thus making the employee who shares knowledge valuable.

5.1.2.2 Benefit realisation

Agencies sometimes have difficulty of seeing the positive effect of change or projects regarding digital development. Some agencies had difficulty of measuring efficiency of digitalisation and

digital tools. Benefit realisation is usually connected to specific projects (E-delegationen, 2014), however the benefits can be used and utilised in several project within the agencies. The use of digital technologies affect each part of the organisation and the digital strategy overlap the overall strategy of an organisation (Matt et al., 2015). In order to capture the benefit and measure the efficiency of digital tools and methods the method of doing so need to be included in a digital strategy.

An important element to consider is how the benefit of each project is captured. By including a process for reflection and analysis of the projects and processes the agencies could more easily see the efficiency improvements. To capture the information a knowledge management value chain could be implemented. By sharing the learnings and information from projects it become more clear why processes need to be digitalised and the benefit of digitalisation can more easily be spread. Shin et al. (2001) describe how the knowledge value chain assist in creating more knowledge and the information existing in the chain will also be of assistance in understanding the procedures made during and after projects.

5.1.2.3 Lack of leadership

From the empirical data collection, is was found how top management were more focused on succeeding in their mission from the government than improving the digital transformation. A digital strategy could aid in improving leadership awareness of digitalisation and the need for digital development. The development of digital technology is rapid (Demirkan et al., 2016) therefore there is a need for leaders to have knowledge of and understand the importance of digitalisation and development of digital technology. The digital strategy can visualise the future state of the organisation (Matt et al., 2015) and thus make it easier for the top management to understand why there is a need for digitalisation. In an agency with early digital maturity leadership has lack of awareness and digital skills, which were identified at several of the agencies included in the thesis.

To understand the need for a digital strategy the leader's knowledge and competence first has to increase. It is possible to learn from the agencies who has better digital maturity what is needed from top management in order to succeed in developing towards a more digitalised state. Leadership is a cornerstone for digital transformation (Deloitte, 2015; The European Centre for Government Transformation, 2013), which highlight having top management with a digital knowledge and insight of the importance of technology development. It is the leadership's responsibility to lead the way forward, the leadership in Estonia view their presence online not as a choice but as a part of daily operations. They understand the need to follow the social development and have proven they understand the importance of digitalisation and development in combination.

Change is going from the known to the unknown and each person react to change differently (Coghlan, 1993; Nadler and Tushman, 1997). Moving towards a digitalised organisation can be viewed as a change due to the adjustments to digital tools, systems and new ways of thinking. Management need to show the way forward and therefore also need to know what to move forward to and what to leave behind. Kotter’s (2009) eight steps described in section 2.4.1 to

why a change effort fail has its foundation in leadership and management. It is important they know why it is important to change and understand the process towards digitalisation. Employees and employers view change differently (Strebel, 2009), when leadership does not have the competence or knowledge the change could seem as equally intimidating for them. Therefore they need to seek knowledge and understanding of digitalisation and the importance of a digital development.

5.1.2.4 System development and legacy system

The products or services an agency produces need to be able to fulfil the citizen or customers' requirements. The products or services are built up by material resources as well as skills and knowledge (Whipp et al., 1989). Therefore the systems need to be up to date with the social development. The systems, the agencies are operating with need to be able to hold the desired level of capacity and performance in order to handle possible changes in demand. As stated by Whipp et al. (1989), the development of technology within a firm need to be seen in comparison to the course of the industry. Hence there is a need to improve the systems in the agencies in accordance to the social development.

SOU (2016:89) describe digitalisation to involve increased usage of data in society, agencies probably will have increased usage of data in their operations due to the data-intensive operations already in progress. It was stated during interviews, agencies are not fully satisfied with the systems currently in usage. Improving or changing systems requires time and budget, something the agencies state they do not have. Corydon et al. (2016) has made the conclusion old systems is a challenge for organisations. The authors further state there exist two options if one has an outdated IT system, modify them over time or replace them. If an agency decides to implement new solutions it is important rules are set up for the development of the solutions. For example if agencies wish to cooperate with other agencies in their development to increase the efficiency of information sharing and cooperation there could be a need to implement the same solution at several agencies. Such as the X-road data system in Estonia or the shared digital systems colleges and universities share.

The UK can be an inspiration when developing IT solutions, standards for digital service or removing the digital legacy. By analysing the standard, agencies could identify opportunities for improvements in their IT systems and digital solutions. The uncertainty of exchanging systems is challenging, however there will be a need to update or upgrade systems in order to provide the customer with the services they require.

5.1.2.5 Culture and change management

In each organisation employees respond to change differently, by identifying which responses are represented an agency can better understand the employees and strive for a more successful implementation of a change initiative (Coghlan, 1993; Nadler and Tushman, 1997). The strong culture identified in some agencies can slow down the process of moving towards a more digital agency. Due to misunderstanding why the change is needed and what the result will be. It is of importance the agencies identify more precise what factors their employees connect to digital

transformation and digital change effort. It will be needed in the future in order to prepare the organisation and increase the possibilities of a successful implementation. As Nadler and Tushman (1997) describe in section 2.5.1, informing and communicating the change is of importance to gain support. As discussed above, the knowledge of top management need to be increased. This is of utter importance during a change implementation when it is the management who are responsible of communicating what the change will bring, and not bring to the organisation.

Nadler and Tushman (1997) and Kotter (2009) point out the importance of having a vision for the change. The vision can be connected to the strategy and goal, hence the importance for creating a strategy is strengthened through the change initiative. When undergoing a change, big or small, the eight steps described by Kotter (2009) are important to keep in mind to create a sense of urgency. The leaders need to provide a guiding coalition and communicate the change through the organisation. As mentioned by the agencies, change and culture is progressing too slow. But skipping steps in the implementation process the phase of the change can decrease further (Kotter, 2009). The digital transformation is directly connected to change and culture. By combining the six steps described by Gartner (2014) in section 2.1.1 for a successful digital transformation with the eight errors described by Kotter (2009) in section 2.5.1, government agencies can create the right path for a digital transformation.

The mindset of the leaders must change before they can motivate the employees at the agencies to move towards a digital transformation, the two areas are of most importance if one want to succeed and not fall into one of the possible errors or challenges Kotter (2009) is describing. By combining the two lists it can be possible to change the view of change and digitalisation, which could decrease resistance in the agencies. As described by the interviewees, the mindset of the agency need to change by focusing on the three personal compacts described by Strebel (2009) in section 2.5.2. By adjusting the personal compacts (formal, psychological, and social), the employees work tasks and thoughts of the organisation can shift. Also when adjusting the rewards towards increased usage of digital tools and methods, an agency can guide their employees in the direction of the digital development.

5.1.2.6 Lack of strategy

Many government agencies state they did not have a digital strategy, they were focusing on digital solutions, methods and tools. Deloitte (2015) highlight the importance of digital strategy when moving towards a digital transformation. A strategy lead the way forward and work as a roadmap, therefore it is of importance to implement a digital strategy for the digital transformation. As stated by Porter (1996) a strategy is combining the activities, and to choose what to do and not to do. As the development continues there is a need to implement a digital strategy in line with the overall strategy in order to align the processes and improvements with the operations in the agencies. The European Centre for Government Transformation (2013) and Deloitte (2015) describe the importance of a digital strategy much due to leaders failing to see or understand which strategic choices one need to be made. By implementing a digital strategy in the agencies it could be easier to communicate the direction to the employees in forms of visions, goals and procedures.

The maturity of the agency is connected to the digital strategy, the higher maturity the larger possibility there is a digital strategy implemented. Thus the agency is better prepared to handle the changes, challenges and opportunities digitalisation may bring. By implementing the strategy the agencies can foster collaboration and innovation, which were seen as success factors in the previous chapter. To succeed with the digital transformation all agencies will go through, strategy is one of the cornerstones. The strategy will include what capabilities and skills which will be needed in the future. Which can be connected to the challenge of culture and change and the uncertainty employees may feel.

Due to the demand from citizens, public organisations need to become more digitalised (The European Centre for Government Transformation, 2013), thus there is a need for a digital strategy. In the UK a digital strategy was created for the development of public services (Cabinet office, 2013). The agencies should follow the same example and implement a digital strategy focusing on the need of the citizen and improving the quality of products and services provided. Finland established collective principles for digitalisation (Ministry of Finance, 2017c), which can be anchored in the digital strategy of the Finnish government. Thereby committing the agencies to work toward the desired future state. Due to the fast changing environment and the digital usage of citizens, the agencies should implement a digital strategy in order to provide the citizens with what they need.

5.1.2.7 Fuzzy definition of digitalisation

If the employees does not have a common understanding of digitalisation and digital solutions. It will be difficult to have a common understanding of how to improve the agency and implement digital systems and solutions. The need to have a definition per se might not be the most important aspect in this scenario. However having an agreement of the need for digital transformation and the goal of digital development is of most importance during an organisational development (Kotter, 2009). One of the cornerstones in a digital transformation is the workforce skills (Deloitte, 2015), skills can be connected to how one understand the subjects, issues and areas one is operation around. According to Deloitte (2015) organisations who have a high level of digital maturity invest in the development of the workforce to a greater extent than the organisations with low digital maturity. A parallel can be drawn to the digital rooms, innovation forums, and learning centers at several of the government agencies who may have employees with a better understanding of digitalisation. Through the previous activities the employees build a common vision and understanding, creating coherence of the meaning of digitalisation.

As the individual knowledge of digitalisation increase, so does the organisational knowledge. As Bogdan and Bucur-matei (2011) state, the learning capacity is determined by the already existing knowledge and so the knowledge created has its foundation in the existing knowledge. There needs to be a commitment to organisational learning, and a commitment to create an understanding of what digitalisation is. Through the creation of knowledge management it can be possible for employees to share and have access to information of the definition or description the organisation has (Tryon, 2012).

5.2 Success factors of digitalisation

In the section below, the external and internal success factors of digitalisation in Swedish government agencies are analysed in comparison to the theoretical framework.

5.2.1 External success factors

The external success factors analysed in this section are; cooperation, and benchmark and best practices.

5.2.1.1 Cooperation

The majority of the agencies reported to use collaboration to some extent. While the authors have not made any detailed study of the reported collaborations, these collaborations may vary in both duration and the level of involvement from the agency. The collaborations reported concern digital innovation, IT, and organisational development due to digitalisation. In consideration to this, the willingness to collaborate across government agencies is seen to be high and there is an increasing effort from government agencies to reach out to other agencies and increase their knowledge in the area.

Deloitte (2015) state how organisations with a high level of digital maturity have a culture focusing on creating collaborative work environments and encourage innovation. The reported collaborations with external partners such as Gartner and Spotify are focused toward innovation and IT, however the knowledge and experiences during these collaborations need to be communicated and shared within the agency for the organisational development to take place. Bogdan and Bucur-Matei (2011) explains the importance for knowledge sharing within an organisation to take advantage of the benefits of knowledge, and how if it is not shared the knowledge can become limited. At the moment, none of the agencies reported to have a clear procedure for knowledge sharing post these events and collaborations.

Through collaborating and sharing information with other agencies, such as the case studies from Finland and Estonia, government agencies can free up resources and focus on the core activities of the agency, hence less resources within administration and information gathering (Vassil, 2015; European commission, 2015). However, while government agencies do cooperate with external actors, it is limited between government agencies and far from all agencies are connected to each other on a regular basis. SOU (2016:89) explain how the increased use of open data in public agencies can allow other actors to find ways to use the data, hence creating innovative services. Thereby, connecting the data gathered by government agencies in one overarching system would enable new innovative solutions to be developed to meet future expectations of citizens. The first step to enable an increased cooperation between government agencies is to create national standards for digitalisation, so each system is compatible and can share information in a smooth and efficient way (SOU 2016:89).

5.2.1.2 Benchmark and best practice

Performing regular benchmark studies and study best practices from other actors was discovered to be one success factor of digitalisation in the thesis. Regularly keeping track of new digital solutions and learn how other actors have implemented digital solutions was seen

as valuable by all participating agencies. Many of the participating agencies also look at other nations to learn how to implement digitalisation in the public administration. The nations mentioned were Estonia, Holland, Finland, the UK, Denmark and Norway. It was discovered how the participating government agencies were most likely within those countries look at agencies within the same sector, hence facing similar challenges and digitalisation. Some agencies explained this by pointing out the government mission for the agency which is different from other agencies. While this may be true and a good starting point is to look within the same sector, it can also be of great value to look outside the sector to be innovative within digitalisation. Gartner (2014) propose organisations to create informal networks where digital innovations can be created and look for piloting channels where digital business capabilities can be created and acquired.

The participating universities and colleges stood out during the interviews due to their ability to network within their sector and learn best practices of each other. The benchmark was performed within the IT network called Bench IT, with the objective to discuss different issues and enhance the knowledge and understanding regarding these areas. When the Finnish government launched their nine principles for digitalisation discussed in section 2.4.3, a forum was launched in which all public organisations could share their experiences and best practices on how to realise these principles within their organisation (Ministry of Finance, 2017c). Corydon et al. (2016) views information sharing between governments as a promising area, especially when learning from other forerunner nations.

5.2.2 Internal

The following section will include an analysis of the internal success factors in Swedish governments in comparison to the theoretical framework.

5.2.2.1 Clear and collective definition of digitalisation

Having a clear definition of digitalisation was seen as a success factor prominent in only three of the agencies. The agencies were; the Swedish mapping, cadastral and land registration authority, the Swedish Public Employment Service, and the Swedish Social Insurance Agency. The definition of digitalisation by the Digitalisation Commission (Bylund, 2016, pp.51) stated in section 4.3.3, is identical with the definition of the Swedish mapping, cadastral and land registration authority, having a clear connection to organisational development. Matt et al. (2015) discuss the importance of connecting the digital transformation to the corporate strategy, thus being able to define digitalisation one is required to understand how to achieve great business performance. Moreover, Gartner's (2014) first step for digital transformation is mindset and shared understanding. By using the definition it is possible to create a shared understanding of the opportunities digitalisation can bring.

Both the Swedish Public Employment Service and the Swedish Social Insurance Agency have divided the definition of digitalisation in three layers, each suiting the specific context and direction of the agency. Both agencies state to work externally with digitalisation to their customers through digital services and self-services respectively. As can be seen in table 1

Characteristics of digital maturity in government agencies (Deloitte, 2015). The user focus is central to the digital transformation in a digitally mature organisation, which can be used as evidence of the digital development in the both agencies. Deloitte (2015) further state, how the digital skills of employees need to increase for the digital maturity to do the same. Hence developing a clear definition is a first step in educating the employees within digitalisation and the possibilities of it.

5.2.2.2 Digital strategy

The importance of a digital strategy is crucial when moving toward a digital transformation. The fourth step described by Gartner (2014) is the process of implementing a digital strategy. The control document digital agendas goal is to improve processes, change the mindset of employees and improve the safety. Three areas which are of importance in the government agency where the document was described. The digital strategy should have a portfolio focusing on non-physical services, which can be directly connected to digital services and the plan of becoming totally digital in the agency's plan. The plan function as a roadmap for the agency, leading the way through the change transformation and towards the goals of the agency. As digital technology is a driver for change a plan for how to work toward digitalisation is very important. The digital technologies support the strategic objective of an organisation and therefore the digital agenda as a control document is of importance to the development of the agency. As stated by Porter (1996) a strategy is a combination of activities and decisions on what to do and what not to do, the same can be said regarding the control document since it functions as a support for development of processes, employee involvement and change of mindset. An agency with a maturing digital maturity the strategy is focused at transforming processes. An organisation with maturing digital maturity has leadership who invest in the development of the organisation toward digitalisation, by using the control document the agency in question show their leadership has the right mindset toward digitalisation.

Improving the skills of the workforce digital literacy is defined by the European Centre for Government Transformation (2013) to be one of the success factors of digital maturity. With the control document the agency is actively aiming at improving the digital understanding of their employees. Meaning they are actively focusing on the improvement and digital maturity of the agency. Security and mindset of organisation are identified challenges of increasing digital maturity (The European Centre for Government Transformation, 2013). The control document aim towards improving the safety of information and system and changing the mindset of the agency. Thus the control document is focusing on overcoming major challenges connected to digital development and digital transformation. A digitalisation involves increased usage of data (SOU 2016:89), it is of importance to include safety of information in the strategy, as agencies are highly data intensive and use open data, public agencies need to focus on how to improve the safety of the systems.

Technology can be defined in three components (Whipp et al., 1989), the control document focuses on each of the parts. Product through improved products toward total digitalisation, processes through continuous improvement and people through changing mindset and digitalisation to be part of the organisational development. The framework of technological

change need to be included in the overall strategy and through the control document this becomes a possibility.

5.2.2.3 Culture for innovation and employee involvement

During a technological change the components product, production process and people are all affected. There is an importance to understand the need of equality between the components (Whipp et al., 1989). This means the development of employees is of most importance during a technological and digital change process. As human skills and knowledge are part of forming the foundation of an organisations position, it is important not to neglect the development of employees. If the organisation want to move towards innovation and change, the employees need to move in the same direction. The Swedish mapping, cadastral and land registration authority created innovation days, allowing employees to think outside the box and come up with improvement suggestions connected to innovation. By doing so, the movement towards a technological change could take place while at the same time allowing the employees to be involved and a part of the change.

This can be connected to the personal compacts described by Strebel (2009). Strebel highlights the relationship the employee has to the employer, describing what they are expected to do, and how to behave in the organisation during the change. As a change is undergoing, the compacts are alternated. By changing the compacts in the direction towards innovation an agency can form the culture for innovative thinking and openness. This can be seen through innovation days or forums at agencies. It is understood how employees are encouraged to participate in the innovation days and at the forums, thus creating an implicit expectation and desire from management to change behaviour of the employees. As this becomes a standard way of working, the employees can include the process in their work schedule thereby aiding the technological change. By including the employees in the process to digital change, it is possible to find qualified ideas from each level of the agency. Through involvement and having a culture where suggestions are welcomed, agencies can get solutions directly from the employees affected by the issues. The psychological compact make it possible to improve the commitment of the employees (Strebel, 2009), which further improves their contribution to the organisation. When adjusting the compacts, it is important how top management supports, identifies the need for change, and provide the possibility for employees to accept the change. The last step is to rewrite the compacts in favour of the digital transformation to focus on innovation and an open culture. The agencies who has implemented innovation rooms, innovation days, and forums, are on the way towards an open culture focusing on innovation.

Through knowledge management it is possible to capture the knowledge gained through the innovation processes and reuse it in projects to solve new issues. Through individual learning it is possible for employees to learn more and increase their knowledge. It is of importance to spread the knowledge within the agencies in order to spread the ideas and knowledge of innovation. Knowledge build knowledge and an organisation can be seen as a knowledge system (Shin et al., 2001), hence when the government agencies increase the knowledge through innovative solutions the digital development improvement pace escalates.

5.2.2.4 Customer Focus

Porter (1996) states how the strategic position of a business can be based on the customer's requirements on product and services and how accessible they are. While all government agencies state to focus on their customer's need and provide a high quality of their services to the general public, some have incorporated the customer focus in their business strategy more than others. Understanding the needs of the customer concerning products and services, distribution channels, and segmentation, are important parts of the digital strategy (Gartner, 2014). The European Centre for Government Transformation (2013) could identify citizen engagement as a challenge for increasing the digital maturity within agencies. This points to how agencies can collaborate with citizens to identify their demands, both current and in the future of the digital era. The data from government agencies participating in the thesis demonstrates a good start for increasing the digital maturity within agencies. This can be supported by Deloitte (2015) stating how agencies with a high level of digital maturity have customer focus as a central to digital transformation, see table 1; *Characteristics of digital maturity in government agencies.*

Many government agencies focus on developing digital services, some agencies also express a desire for a complete digital public administration in Sweden. In the UK, the government has expressed a strategy focusing on digital by default while simultaneously not excluding citizens choosing non-digital options as a first choice (Cabinet office, 2013). The same can be said about Sweden. According to some of the agencies participating in the thesis, many citizens still want to use non-digital options when contacting the agency. What is important is to include this group of citizens but also to increase the level of digital maturity with the group and enable them to access digital tools and systems (Deloitte, 2015; The European Centre for Government Transformation, 2013).

5.3 Best practice

In the section below, the best practices from the Swedish government agencies are analysed in comparison to the theoretical framework. The best practices include: cooperation, benchmark and best practice, definition of digitalisation, digital strategy, and culture for innovation and employee involvement.

5.3.1 Cooperation

The cooperation among universities and colleges was seen as best practice due to the ability of sharing information around digitalisation and how to best implement digital solutions. Umeå University's participation in a network was seen to be successful, especially when asked by external organisations to lecture on how to cooperate. Another example of cooperation can be seen at The Public Employment Service which was a part of the E-collaboration programme and the eGovernment Delegation in Sweden. A central issue in these cooperation's was the lack of ability to share information gained through the collaborations within the own agency. According to Shin et al. (2001) collective knowledge in the organisation can be viewed as made of the knowledge from each employee. The difficulty with sharing knowledge within the organisation is the interpretation of the knowledge. When spreading knowledge, one must

consider the receiver may not interpret the knowledge as intended by the sender. In accordance to the recommendation by Shin et al. (2001), agencies should implement a method for knowledge sharing to capture knowledge gained during these collaborations and external projects. The method would ensure the right knowledge is spread and received, thus increasing the digital maturity in the agency.

5.3.2 Benchmark and best practice

The use of best practice from other actors within the same sector is a prominent action at the universities and colleges through the network Bench IT. Gartner (2014) identify having a digital business center of excellence as a key step towards a digital transformation. The center engages the organisation to include other perspectives and discuss relevant questions, similar to the network of the universities and colleges. Over time, this network could include other actors and agencies to widen the perspectives further and come up with joint solutions which could benefit the general public. Gartner (2014) also highlight how digitalisation, while rooted in IT, is a mindset of the entire organisation. Enabling other departments than only IT to take part in the learnings around digitalisation within the network would perhaps be of greater value. Looking at the legacy system discussed by Corydon et al. (2016), universities and colleges are able to share knowledge on how to update their IT systems to be easier for students and employees to use while also being more efficient. The network could be used to build up joint solutions and minimise the need for each university and college to build their own technology systems.

5.3.3 Definition of digitalisation

According to Kotter (2009) and Nadler and Tushman (1997), the level of anxiety can be reduced by communicating a clear future state and define what will change in the organisation. Having a clear definition of what the agency mean when discussing digitalisation is therefore seen to be an important first step to prepare and motivate the organisation. The best practice from the Swedish mapping, cadastral and land registration authority following the definition by the digitalisation commission not only facilitates the transition for the agency, but also the overall cooperation between agencies. If the Swedish government have a plan for enabling cooperation and information sharing between all government agencies, an important first step is to ensure agencies to unite around what digitalisation is. Moreover, Gartner (2014) state having a mindset and shared understanding of opportunities of digitalisation are central for a successful digital transformation.

5.3.4. Digital strategy

In the following section, the best practice of having a digital strategy are presented by highlighting the practices from the Swedish Tax agency and the Swedish mapping, cadastral and land registration authority.

5.3.4.1 The Swedish Tax Agency

The following two sections will analyse the two strategic plans at the Swedish Tax Agency, the Digital Way and the Digital Agenda 2020.

The Digital Way

The Swedish Tax agency identified with their strategy *the Digital Way,* four areas causing the slow progress of digitalisation: unclear vision, internal silos, slow process, and fear. Lacking a clear vision is one of the eight errors stated by Kotter (2009) to why change transformations fail. Matt et al. (2015) state the importance of involving all parts of the organisation when using digital technologies, thus breaking down internal silos and make all departments take part in the transformation. The fear was among others factors due to a lack of digital competence and leadership. Deloitte (2015) state how the digital maturity of an organisation is affected by leadership, workforce development, and culture. The culture in this perspective advocate being risk receptive and to foster innovation and collaboration (Deloitte, 2015).

The Digital Agenda 2020

The following strategy, *The Digital Agenda 2020,* followed the same pattern by setting up clear goals and areas to work with in order to reach the desired results. The improvement areas for the Digital Agenda 2020 are: competence control and leadership, cooperation and work processes, development of services and benefit realisation, control automation and usage of data and technology, legislation and safety. Which are the areas identified as challenges for the majority of the agencies participating in the thesis. What is seen as positive with both the Digital Way and the Digital Agenda, is how the Swedish Tax Agency continuously do internal assessments of the organisation to discover new areas of improvement and setting up clear targets with a coherent roadmap. According to Deloitte (2015) is implementing a digital strategy the first step in transforming an organisation digitally. What is highlighted is prior to implementing the strategy, is to understand the hinders of a digital transformation, thus following the example by the Swedish Tax Agency.

5.3.4.3 The Swedish mapping, cadastral and land registration authority

The Swedish mapping, cadastral and land registration authority follow the same example by establishing a digital agenda aimed to realise the strategic plan for digitalisation. It is worth highlighting how the agency involve all departments in the digitalisation efforts, as proposed by Gartner (2014) to be a key success factor when transforming the business digitally. Combining the skills and expertise of digitalisation is a key driver for digital transformation and requires business leaders to change the view of digitalisation from an enabler to a source for innovation. The agency has the ambition of becoming totally digital called “Digital first”, meaning all departments should be using digital solutions to the extent possible. A comparison can be made to the initiative proposed by the UK government “Digital by default” (Cabinet office, 2013). While the agency should not exclude all paperwork, digital solutions should be the primary choice for citizens to communicate with the agency.

The agency has defined digitalisation in different dimensions; IT-systems, Internet of Things, Digital Ecosystems, Customer Experience and Intelligence. The agency works with all dimensions to make the processes efficient and focus on the customer experience while adjusting to digitalisation. Whipp et al. (1989) discuss technological change and the three components affecting it; product, production process, and people. The three components are equally important during a technology change.

5.3.5. Culture for innovation and employee involvement

The focus on organisational culture and employee involvement of digitalisation could be found in the Swedish Social Insurance Agency, the Swedish mapping, cadastral and land registration authority, and the Swedish Tax agency. The three agencies had communication as prime focus during their digital transformation, thus ensuring employees understand what will change, why the change is needed, and how the change will proceed. Kotter (2009) address the importance of communication to reduce the level of anxiety during change and two of the major errors performed during a change are not announcing the change in the corporate culture and under communicating the vision by a factor of ten, see section 2.5.1. During an organisational change, it is important to provide sufficient amount of information, allow individual reflection and acceptance for the change, and having an organisational culture which embrace change (Coghlan, 1993; Nadler and Tushman, 1997).

The discussed agencies strive to include all departments in the work with digitalisation and to take part in the innovation projects of digitalisation. This approach reflects what Gartner (2014) points out, how digitalisation should not only be viewed as a means for doing business but a main source of innovation. Including all employees in the digital transformation enables them to take ownership of the change and increase the drive for developing the organisation. Further, leaders need to find opportunities to drive initiatives for digitalisation in the organisation. The Swedish Social Insurance Agency have created an innovation forum for digital improvement suggestions, the Swedish mapping, cadastral and land registration authority has the innovation day, and a number of initiatives can be found at the Swedish Tax agency such as digital rooms and conventions. Another point central to the culture when working with digitalisation is to increase the understanding of digital technology and the need of it. The Swedish mapping, cadastral and land registration authority strive towards this by overlapping the gap between IT and the rest of the organisation. Gartner (2014) recommend organisations to use all skills when transforming the business, thus not only the IT department.

5.3.6 Customer focus

Porter (1996) define how the strategic position of an organisation can be based on the customer needs and the services provided by the organisation. The Swedish Public Employment Service have created a customer and channelling strategy to develop services in line with the requirements of the citizens and ensuring a high quality. The agency has received some criticism from customers of lacking in delivering services at the right level of support, which forced the agency to view their service from the customer's perspective and identify those needs. According to Gartner (2014) is identifying the needs of the customers of critical importance in the digital business strategy. What is of utter importance is to identify the needs of products and services, what channels customers prefer to use, the segmentation of customers, and how to reach the segments. Through different methods such as surveys and analysis of current services, the agency identified eight criteria to overlap the gap between the current service offerings and the desired service offerings, see section 4.3.6.

6. Conclusion and recommendation

This chapter include a summary of the main findings of the master thesis, the findings will be connected to the three research questions to ensure the purpose of the thesis is met.

The purpose with the thesis is to describe how government agencies can successfully digitalise the organisation. This was accomplished by identifying the challenges and success factors of digitalisation, each from an external and internal perspective.

RQ1: What are the challenges of digitalisation in government agencies?

The first step in implementing digitalisation within an agency is to identify and understand the potential challenges as these are seen to inhibit government agencies in moving forward. The external challenges of digitalisation were found outside the boundaries of the agency and connecting to the overall context of digitalisation in Sweden, these were; information security, government law and regulations, the external change of digitalisation, and decentralised leadership. Below is table 6, presenting each external challenge and the connection to the theoretical framework.

Table 6. External challenges of digitalisation and the connection to theory.

External Challenges of Digitalisation
External Challenge
Information Security
Government Law and Regulations
The External Change of Digitalisation
Decentralised Leadership

The internal challenges of digitalisation were present within the agency itself and were: knowledge of digitalisation and digital maturity, benefit realisation, lack of leadership, system development and legacy IT systems, and culture and change management. See table 7 below for description of the internal challenges.

Table 7. Internal challenges of digitalisation and the connection to theory.

Internal Challenges of Digitalisation		
Internal Challenge	**Number of Government Agencies**	**Theoretical Framework**
Knowledge of Digitalisation and Digital Maturity	7 (14)	• Varying digital competence of employees • Identifying knowledge gaps • Implementation of knowledge management
Benefit Realisation	2 (14)	• Model for benefit realisation of digital initiatives • Difficulties of measuring benefits of digitalisation • Aggregated level for benefit realisation
Lack of Leadership	3 (14)	• Leadership for digital transformation • Increase knowledge and digital competence of top management • Digitalisation a part of the agency, not a choice
System Development and Legacy System	7 (14)	• Update systems to meet the requirements of the general public • Develop system which enables cooperation
Culture and Change Management	7 (14)	• Culture slowing down the progress of change • Vision for digitalisation in the agency • Communication regarding the change • Change champions for digitalisation
Lack of Strategy	2 (14)	• Implementing a digital strategy • Digital strategy enabler of a higher digital maturity
Fuzzy Definition of Digitalisation	4 (14)	• Common understanding of digitalisation • Confusion between digitalisation and digitisation • Clear definition first step in creating a common vision for the agency

RQ2: What are the success factors of digitalisation in government agencies?

The success factors of digitalisation was identified in a number of the participating government agencies in the thesis. The success factors was identified through the perspective of the agencies and how they found it to be contributing factors to the digital transformation in the agency. By identifying success factors, valuable learnings can be shared between agencies aiming to increase the level of digitalisation in the agency. The external success factors were those present in the external environment of the agency, and were; cooperation and benchmark and best practices, see table 8 below.

Table 8. External Success Factors of Digitalisation and the connection to theory

External Success Factors of Digitalisation		
External Success Factor	**Number of Government Agencies**	**Theoretical Framework**
Cooperation	9 (14)	• Collaborations within IT, digital innovation, and organisational development. • Willingness to cooperate
Benchmark and Best Practice	12 (14)	• Knowledge and information sharing between actors • Benchmark against other actors within the same sector • Best practice from other nations

The internal success factors of digitalisation are the ones prominent within the government agencies participating in the thesis. The internal success factors identified were; clear and collective definition of digitalisation, digital strategy, culture for innovation and employee involvement, and customer focus.

Table 9. Internal success factors of digitalisation and the connection to theory

Internal Success Factors of Digitalisation		
Internal Success Factor	**Number of Government Agencies**	**Theoretical Framework**
Clear and Collective Definition of Digitalisation	3 (14)	• Shared understanding and mindset • Definition of digitalisation communicated in the agency • Digitalisation connected to development of processes, organisations and systems • In relation to the organisational context
Digital Strategy	3 (14)	• A steering document for digitalisation • Increased focus on the development of digital services • Development of the organisation towards digitalisation
Culture for Innovation and Employee Involvement	7 (14)	• Connection between product, production process and people • Involving and educating employees in the change • Drive for digital initiatives among employees
Customer Focus	14 (14)	• Digital development focus on the needs of the general public • Awareness and evaluation of current product and service offerings • Identify gap between current and desired state

RQ3: What factors are important for Swedish government agencies to consider when digitalising the organisation?

In order to understand how a government agency can increase its use of digitalisation, best practices have been identified within the six success factors of digitalisation mentioned previously. The best practices were minor case studies of selected agencies ranked high in the digital maturity survey performed by ESV. By sharing the experiences and practices, the authors hope to bring inspiration to other agencies wanting to excel by the use of digitalisation. Below are recommendations on how government agencies can digitalise the organisation presented, see table 10. It should be taken into consideration how the recommendations are based on the collective findings from government agencies, hence adjustments need to be made to fit the organisational context of the agency.

Table 10. Recommendations for digitalisation

Recommendations for digitalisation in Swedish government agencies		
Reccomendation/ Success factor	**Connection to challenges**	**Action points**
Cooperation	Information security Knowledge of digitalisation and digital maturity System development and legacy system	o Increase cooperation around digitalisation with external actors and agencies
Benchmark and Best Practice	Information security Government laws and regulations The external change of digitalisation Decentralised Leadership Benefit realisation System development and legacy system	o Benchmark against other agencies nationally and internationally to find areas for improvement o Take part of best practices of other actors and share best practices from the own agency
Definition of Digitalisation	Decentralised leadership Fuzzy definition of digitalisation	o Establish a definition of digitalisation which fit the context of the agency o Communicate and create an understanding of what digitalisation is
Digital Strategy	Government laws and regulations Decentralised leadership Benefit realisation Lack of leadership Lack of strategy	o State clear goals with digitalisation o Identify areas causing slow progress of digitalisation o Create an action plan to overcome challenges
Culture for Innovation and Employee Involvement	Knowledge of digitalisation and digital maturity Culture and change management Lack of leadership	o Communicate the importance of being a part of the digital transformation o Create digital capabilities through innovation forums, digital rooms, digital learning programs etc. o Knowledge management of digitalisation

Customer Focus	The external change of digitalisation Lack of strategy	o Develop services in line with customer requirements o Pay attention to new patterns in the way customers use digital services o Two-way communication with citizens

By analysing the challenges of digitalisation and connecting them to the identified success factors, a number of action points was seen to be of importance for Swedish government agencies to digitalise their organisation. As can be seen from the tables, the success factors cooperation, benchmark and best practice, and having a digital strategy are contributing to several different challenges. The authors thereby recommend government agencies to start with the action points connected to these success factors in order to mend several challenges at a time. These are also seen to be of importance when having a low digital maturity and considered to be appropriate first step when starting to increase the use of digitalisation.

7. Discussion

This chapter include a discussion of the findings of the thesis. The chapter cover similarities and differences expected from the results, what the thesis could add to existing research, the trustworthiness and limitations of the research, last a section for future research areas is described.

7.1 Theoretical framework and empirical findings

The inductive approach of the thesis made it possible to choose the theoretical framework post the empirical data collection. The effects was a more appropriate fit between the identified challenges and success factors of digitalisation. If the authors would have chosen a deductive approach, the theoretical framework could have been shaped differently. The analysis and conclusion could therefore have been different which could have resulted in alternative answers to the research questions.

The area of change management is relevant in any organisation during a change initiative or transformation. Knowledge can be relevant in all agencies and organisations, due to the finding of lack of knowledge the theoretical framework match the findings and contribute to the analysis and conclusion of the thesis. Digitalisation is a very broad area where the focus in the thesis was chosen to be strategy, maturity, and transformation. The theoretical framework on technological change was chosen due to the identified transformation needed within many of the agencies. The authors therefore believed it to be of importance to cover the process of transformation in order to connect and find possible answers for the first research question. IT development was identified to be a central topic during the interviews, hence the need for a theoretical framework in the area was chosen as well as within IT legacy. The case studies were chosen due to their best practice, which was identified to contribute to successful development of digitalisation.

7.2 Addition to research

The thesis add to present research by creating a sense of urgency and alertness of digitalisation for Swedish government agencies. By identifying challenges and success factors of digitalisation and further providing recommendations on how to digitalise the agencies, the thesis follows the development of digitalisation and why it is important in the public sector. Adding a presentation of international best practices, light is shed on what areas the Swedish public administration could to aim their focus towards. The findings can not only be relevant in government agencies but within the public sector as a whole including agencies, municipalities and counties, since digitalisation affects all parts of society. Moreover, the findings can add to the research of digitalisation by the Swedish government and the strive for Sweden to be a leading nation in the digital era.

ESV has started an analysis of the digital maturity of Swedish government agencies and conducted a survey on digital maturity which the thesis is based upon. The master thesis aim to focus toward areas which are not brought up through the success factors of the ESV survey such as creating a digital strategy, to overcome communication barriers and increase customer

focus. The ambition of the thesis is therefore to add to the research on digital maturity and the development of digitalisation in government agencies.

7.3 Trustworthiness of the thesis

The possibility of achieving similar results by replication of the thesis is dependent on the participating government agencies. The results are formed by the current state of digital maturity in the government agencies, hence if the study was to be performed in the future, the results could differ due to advancement of digital development. What was found during the thesis is the continuous presence of change and willingness to improve, causing the agencies to follow the social development. However, with the continuous change in consideration, thick descriptions of the study was provided which enables the study to be replicated. By following the ethical considerations stated in section 3.6, the authors were able to find answers to the research questions while maintaining good relations with the agencies. Due to the transparency of the government agencies, the issue of anonymity and loss of harm to participants were avoided.

From the empirical data collection, the issue of trustworthiness of the respondent's answers can be discussed. Since the agencies have a great responsibility and can be questioned by citizens and media if not acting correctly, a fear of revealing weaknesses and challenges of digitalisation can exist in some agencies. Especially within those ranked low in the digital maturity survey. An effect might be skewed results on the extent of challenges around digitalisation. The same can be stated for the agencies ranked high in digital maturity. Agencies with a high level of digital maturity showed pride in being "top", as to why potential challenges was not focused upon to the same extent as success factors of digitalisation. It should be clarified how the result of the digital maturity survey conducted by ESV has not been evaluated by the authors since this was a self-assessment performed by each participating agency. The survey was therefore only used as a baseline to identify agencies of interest for the thesis, thus any rating of "good" or "bad" agencies was not made.

7.4 Delimitations of the thesis

The thesis was delimited from including Swedish municipalities and counties within the public sector. By delimiting the thesis in this manner it was possible to deepen the focus on government agencies and find solutions adjusted to these actors within the public sector. Due to the choice of not covering the specific operations of government agencies in detail, the conclusion and recommendations was given in broader terms excluding specific recommendations for each agency. Moreover, how digitalisation is incorporated in the overall strategy is affected by the government mission, the level of digital maturity, and the organisation structures. Making it difficult for the authors to provide individual recommendations to agencies. Not providing detailed step-by-step solution might hinder agencies in adapting to the digital era, however the authors are convinced the agencies willing to improve will make use of the recommendations provided. Therefore, the answer to research question number three has been made broad in order for the agencies to adjust the

recommendations to their organisation, government mission, and already existing work processes implemented for the development of digital solutions and systems.

The agencies chosen for the thesis were based on their digital maturity from ESV digital maturity survey. Not all Swedish government agencies were included in the survey, hence the authors did not provide the limitation of agencies prior to their decision of which agencies to be included.

The ambition of the authors was to include the two of the highest and the two of the lowest from the three areas of the survey conducted by ESV. All agencies located in these positions were not able to take part of the thesis, therefore agencies located further down or up the list were chosen. Due to this, perhaps valuable learnings from agencies with a high or low digital maturity have been missed. For the agencies with a low digital maturity, the publication of the thesis can provide value and learnings, even though they were not able to participate. As agencies declined participation or were not responding to the request agencies from other sectors were chosen due to minimising the usage of agencies situated closer to the centre of the list. This resulted in a somewhat skewed list of agencies included where two extra agencies were chosen from the eGovernment delegation.

If other agencies were chosen to be part of the thesis it could be possible the result would differ. Having more agencies included in the thesis would enable new information regarding challenges and success factors. If this would affect the result of the thesis is not clear, therefore a possible area for future research is to analyse another set of agencies, and compare the findings from both studies.

7.5 Future research areas

The master thesis is contributing to future research by highlighting possible areas for improvement for government agencies regarding the development of digitalisation and digital transformation. The findings from the thesis can be used in any government agency in need to develop the organisation. The theoretical framework on change management and knowledge management are of importance in the thesis due the continuous development and change of organisations. Through the master thesis, the authors hope to increase the awareness of digitalisation at the agencies included and hopefully the knowledge can be shared with other government agencies through networks and cooperation's.

An area for future research would be how to implement a digital strategy, connecting the strategy to the overall corporate strategy, and the development of digitalisation in overall society. Another future area for research could be how to develop a system for exchanging the IT-systems and tools marked as digital legacy. Connected to the future area for research is the possibility of implementing a system for knowledge and information sharing between agencies, organisations, and the Swedish government.

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Appendix

Appendix 1. Digital Maturity Survey

University/College	*Mean 2015*	*Forecast 2018*
Umeå University	**6,4**	**6,8**
Linnaeus University	**5,7**	**6,9**
Lunds universitet	5,6	6,1
Luleå Tekniska Universitet	5,2	6,2
Linköpings universitet	5	5,7
Göteborgs universitet	4,8	5,8
Stockholms universitet	4,7	6,2
Kungliga tekniska högskolan	4,6	6,3
Karlstads universitet	4,3	6,4
Malmö högskola	4,1	5,8
Sveriges Lantbruksuniversitet	4,1	0
Karolinska Institutet	3,8	5,8
Uppsala universitet	3,7	5,8
Örebro University	**3,3**	**4,9**
Mid Sweden University	**3,1**	**6,1**

eGovernment Delegation	*Mean 2015*	*Forecast 2018*
Swedish Social Insurance Agency	**6,8**	**7**
Swedish Tax agency	**6,6**	**7**
Swedish mapping, Cadastral and Land Registration Authority	**6,4**	**7**
Pensionsmyndigheten	6	6,9
Bolagsverket	5,7	6,6
Polismyndigheten	5,7	6,9
Statens Jordbruksverk	5,7	6,2
Transportstyrelsen	5,7	7
Tillväxtverket	5,3	6,3
Tullverket	4,9	5,9
CSN	4,6	6,1
Migrationsverket	4,4	5,3
Public Employment Service	**4**	**5,8**
Legal Financial and Administrative Services Agency	**3,8**	**6,2**
Swedish Civil Contingencies Agency	**3,7**	**4,8**

Others	**Mean 2015**	**Forecast 2018**
Kronofogdemyndigheten	6,2	7
National Board of Housing, Building and Planning	**5,7**	**6,7**
Statens tjänstepensionsverk	5,7	5,9
Trafikverket	5,4	6,1
Luftfartsverket	5,3	6,7

Havs- och vattenmyndigheten	5	5,7
Åklagarmyndigheten	5	5,4
Statistiska centralbyrån	4,9	6,2
Energimyndigheten	4,8	6,1
Fortifikationsverket	4,8	5,6
Svenska kraftnät	4,7	6,7
Domstolsverket	4,6	6,9
Skogsstyrelsen	4,6	6,4
Riksgäldskontoret	4,4	0
Rådet för Europeiska socialfonden i Sverige	4,4	5,4
eHälsomyndigheten	4,3	5,1
Länsstyrelsen i Västra Götalands län	4,3	6,3
Sida	4,3	5,4
Sjöfartsverket	4,3	5,9
Naturvårdsverket	3,9	5,7
Kriminalvården	3,8	6,2
Myndigheten för yrkeshögskolan	3,8	5,4
Specialpedagogiska skolmyndigheten	3,7	6,2
Statens institutionsstyrelse	3,7	5,7
Inspektionen för vård och omsorg	3,6	5,9
Läkemedelsverket	3,6	5,3
Statens servicecenter	3,4	5,7
Sveriges geologiska undersökning - SGU	3,3	5,9
Universitets- och högskolerådet	3,2	5,1
Socialstyrelsen	3,1	6,3
Swedish Arts Council	**3**	**0**
Financial Supervisory Authority	**2,9**	**4,4**
Statens fastighetsverk	2,9	5,2
National Agency of Education	**0**	**0**

Appendix 2. Interview guide

Common Questions	**Answers**
What is your role?	Coordinator, IT manager, Operations manager, development manager, CIO, administrative manager, General director,
How do you define digitalisation	3 levels (digitalisation, digital transformation, digital services), E-services, no clear definition, eGovernment delegation definition, 3 points (Self-service, automation and cooperation)
How long have government xx worked with digitalisation?	Long time, varying in the agencies from 1976-2011. Increased in recent years.
Who is responsible for the questions regarding digitalisation?	Director of digital services, IT managers, communication department, development director, one department, all departments, all employees
How have you implemented digitalisation tools and systems in your organisation?	Product driven model, customer focus, management strategy, sourcing model, administrative systems, PM3 management model, autonomous team,
What incentive do you have for working with digitalisation?	Cost, trust, society, customer benefits, simplification, efficiency, availability, good relations, presence in social media, application development, quality, replacing old systems, Innovation, improve safety and access
What is your goal with working more actively with digitalisation?	Increased customer satisfaction, efficiency, phase out old systems, decrease manual work, Increase quality of services, business development, leader within digitalisation, recognise the value of digitalisation
Do you have a digitalisation strategy?	Digitalisation involved in strategic goals, digital learning, strategic plan, digital agenda
If yes what does it look like?	5 areas for improvement, focus areas
Project Digital Maturity	**Answers**
You were a part of Ekonomistyrningsverket survey regarding digital maturity, why did you choose to be a part of the project?	Government requirement,
How do you interpret the result of the survey?	IT and digitalisation important part of development, focus on development projects, find areas of improvement, different mind-set
In what ways does the survey contribute to your work on digitalisation?	Input to their work, increased focus on digital maturity, motivation, models and methods, increase level of awareness,
How will you continue to work to increase the digital maturity within your organisation?	Work with management control model, identify areas of improvement, KPI, definition, develop benefit realisation model, digital legacy, innovation, initiate projects,
Which of the areas (from the digital maturity survey) will you work on to improve? Do you have any priorities?	Control model, benefit realisation, IT KPI's, Information security, innovation

Have you felt any pressure from outside actors to prioritise certain areas?	From government, society
Challenges of Digitalisation	**Answers**
How did you initiate the work with digitalisation?	Web seminars, digital manuals, digital handling process, centralised IT department, platforms, create project group, technical solutions
Which steps/activities did you take to start working with digitalisation?	Build e-services platforms, develop applications, activity-based processes, developed service planning tool, management model, internal discussions on digitalisation, internal maturity measurements, prioritize development projects
How did the organisation respond to the activities/steps?	Cultural issues, resistance, mixed opinions, easier for younger generations, challenging
Which units within the organisation is involved in the work on digitalisation?	All units, each department responsible, IT in charge of tools departments in charge of processes,
What challenges have you met when working with digitalisation within your organisation?	Cultural issues, involving employees', varying digital maturity, benefit realisation, communication, resistance, knowledge, IT competence, focus resources, budget, time, information security, responsibility, laws and legislations, communication, fear, leadership, lack of prioritisation, technical legacy, spreading knowledge,
How do you handle these challenges?	Change management, educating employees, activity days, innovation centres, be clear of consequences, participation, listening to employees, project groups discussing digitalisation, benchmark and cooperation, create bridge to IT, open communication, employees teach employees, knowledge management,
How do you work on strengthening the competence regarding digitalisation with your employees?	Education on digitalisation and systems, pilot projects, certifications for new systems, external competence, external education, Innovation days, rotation between departments, digital room, discussions,
Best Practise	**Answers**
Do you use best practise from other organisations in your work on digitalisation?	Yes, communication, improvement projects, visits, international collaborations, benchmark, IT managers cooperate
Do you cooperate with other organisations to increase your knowledge of digitalisation?	Yes, welcomes increased cooperation, cooperation with same sector agencies, network for IT managers, Bench-IT, Hyper island, Radar, Gartner, county councils
Has other organisations contacted you asking for help with their digitalisation work?	Yes, innovation centres, system development
If so, which organisation was it and what help were they looking for?	International agencies, Swedish government agencies, private sector companies, Radar, Gartner