The Role of Enterprise Architecture in Local eGovernment Adoption

Andreas Ask

Department of Informatics, School of Business

ÖREBRO UNIVERSITY

2012

Enterprise Architecture Roll i Kommuners eFörvaltningsutveckling

Andreas Ask

Informatik, Handelshögskolan vid Örebro universitet

2012

Sammanfattning

eFörvaltning ses som ett medel för att göra kommunalt förvaltningsarbete mer effektivt och interoperabelt. Dock begränsas kommuner av oförmåga att uppnå det vilket försvårar genomförandet av deras uppdrag. En orsak till varför införandes av eFörvaltning inte ger de systematiska fördelar som efterfrågas beror på att införandet av informations och kommunikations teknologier (IKT) inte är tillräckligt. Förändringen som krävs kan inte ske över en natt utan är en gradvis förändring över tid som även kräver nya sätt att arbeta på. Kommuner behöver hantera sin eFörvaltningsutveckling på ett mer strukturerat sätt för att öka möjligheterna att förverkliga de fördelarna som sägs kunna erhållas. Enterprise Architecture (EA) har på senare tid kommit att ses som en möjlig lösning för att komma tillrätta med denna problematik. Genom att arbeta mot en EA skapas möjligheten att brygga IKT system med affärsprocesser och därigenom leda till effektivitet och interoperabilitet. Dock är EA inom offentlig sektor ifrågasatt. Forskare menar att EA saknar tydlig definierad omfattning och begreppsvärld, vilket gör användningen av EA inom förvaltningsarbete svår. De omfattande logiska EA ramverk som finns idag saknar innehåll som är specifikt relaterade till offentlig sektor. Vari det blir problematiskt att arbeta mot en EA inom offentlig sektor.

Denna licentiatavhandling lägger följande forskningsfråga: ”*Vilken roll har EA för införandet av eFörvaltning inom Svenska kommuner?*” Samt följande underfrågor ”*Vilka förutsättningar finns för att använda EA vid eFörvaltningsutveckling?*” ”*Vad har Örebro kommun uppnått genom att arbete mot en EA i deras eFörvaltningsutveckling?*” Och ”*Vilka problem har Örebro kommun upplevt av att arbeta mot en EA vid eFörvaltningsutvecklingen?*”. En longitudinell fallstudie av ett eFörvaltningsutvecklingsprojekt i Örebrokommun genomfördes mellan 2007 och 2009 med syfte att utröna dessa frågor och för att skapa insikt om EAs roll för eFörvaltningsutveckling. Förutsättningar, resultat och upplevda problem vid eFörvaltningsutvecklingen studerades. I anslutning till detta empiriska arbete genomfördes även en jämförandestudie av eFörvaltningsmål såsom de anges i officiella statliga dokument inom så väl Sverige som i EU gentemot förmodade fördelarna med EA som diskuteras i samtida EA-litteratur.

Studien visar att EA som fenomen ses som en förutsättning för att lyckas med eFörvaltning. 7 viktiga aspekter gällande förutsättningen för att lyckas med kommuners eFörvaltningsutveckling identifierades: *Skillnaden mellan administrativa och politiska ansvaret, Politiskt mandat, Politisk timing, Resursfördelning, Samordning under NPM, Leverantörsberoende, Val av standard och bäst praxis*. För att förbättra möjligheten att röna framgång i eFörvaltningsutveckling behöver

dessa aspekter aktualiseras och hanteras. New Public Management (NPM) som styrmodell utgör ett strukturellt hinder för eFörvaltningsutveckling som förhindrar en mer explicit användning av EA-ramverk, vilket påverkar möjligheten att uppnå uppsatta mål negativt. Trots den strukturella problematik som föreligger, kan stöd erhållas genom att arbeta utifrån ett ”EA-tänk”. Ett ”EA-tänk” kan här ses som ett medel för att påbörja förändringen mot en EA utan att för den delen explicit använda sig av ett EA-ramverk, eller -metod. Dock är det viktigt skapa en förståelse för att ”EA-tänk” som fenomen i sin tur ger upphov till strukturer och således kan leda till problem som även de måste hanteras för att eFörvaltningsutveckling skall lyckas. eFörvaltning, NPM och ett ”EA-tänk” skapar en strukturell triad där olika strukturella egenskaper i vissa fall sammanfaller med varandra vari de kan stödja kommuner i dess arbete och således bidra till positiv utveckling. Medan det i andra fall leder till negativ utveckling där administrationen upplever problem att ta till sig av de rekommendationer eFörvaltningsprojektet kan tänkas ge till organisationen som helhet. Paradoxalt nog skapar denna strukturella triad en situation där kommuner måste arbete runt sig själv för att komma framåt. Normer och befintliga strukturer i kommuner förhindrar effektiv samarbete både internt mellan olika förvaltningar och externt gentemot andra kommuner och landsting vilket leder till fragmentariska framsteg mot projektmålen och i slutänden även kommunens övergripande mål gällande eFörvaltningsutveckling. Givet de i många fall motstridiga strukturella egenskaper som finns mellan NPM och eFörvaltning innebär att det initiala arbetet mot EA i eFörvaltningsutveckling är ett ytterst komplext fenomen. För att öka möjligheten att eFörvaltningsutvecklingen blir lyckad krävs det att kommuner känner till och hantera den negativa inverkan NPM har på eFörvaltningsutveckling. Samtidigt behöver de känna till och hanterar problematiken som uppstår av att arbeta mot en EA genom ett ”EA-tänk”, Samt att som studien visat, EA ger inget stöd för mer politiseras mål, vari kommuner behöver annat sätt och andra strategier för sådant arbete. Detta är viktigt att beakta, speciellt med tanke på att mer politiserade mål i mångt och mycket är de mål som kommer premieras av politiker. Av just den enkla orsaken att politiker inte blir omvalda på grund av “effektiva IKT integrerade interna processer” utan blir omvalda utifrån förbättringar som är synliga och som gagnar medborgare positivt.

Avhandlingen bidrar till forsknings genom att öka förståelse för och behovet av att hantera både positiva och negativa faktorer som påverkar möjligheten att lyckas med eFörvaltningsutveckling inom kommunalt arbete. Vilket inkluderar de 7 identifierade kritiska faktorer måste aktualiseras och hanteras för att öka möjligheten att lyckas. Den negativa effekt NPM har på eFörvaltningsutveckling och hur ett ”EA-tänk” kan leda till positiv utveckling, även om det som denna studie visat inte kan bidra till mer politiserade mål. Vad gäller denna licentiatavhandlings bidrag till praktiken så bidrar den med att belysa den problematiska situation som föreligger av att institutionaliserade strukturer i många fall verkar som ett hinder mot förändring. Studien möjliggör även till att kommuner kan skapa en förståelse för sin egna eFörvaltningsutveckling och möjligtvis kan verka för att inte uppleva samma problematik som identifierats i Örebros eFörvaltningsutveckling samt visa på hur en kommun kan arbeta för att hantera den problematik som inte kan förhindras alternativ som uppstår trots denna kunskap.

The role of Enterprise Architecture in Local eGovernment Adoption

Andreas Ask

Department of Informatics, School of Business, ÖREBRO UNIVERSITY

2012

Summary

Governments struggle with inefficiencies and an inability to achieve interoperable information communication technology (ICT) systems. Apparent issues include a failure of local government to realize the benefits of electronic government (eGov) initiatives, high project failure rates, administrations hampered with inefficiencies, and a lack of interoperability between systems within the local government. Thus, local governments need to address their eGov initiatives in a structured way to improve their chances of providing the benefits that are sought after.

Sweden's eGov model is decentralized, following a strict new public management (NPM) model. Whilst eGov ought to bring benefits to local government, Sweden is still hampered by inefficiencies and an inability to achieve interoperable ICT systems. This has been the case for quite some time. One reason why systemic gains from adopting eGov have not reached the levels sought after could be that, in many cases, ICT implementations are not enough. The transformation needed for eGov is not instantaneous; it requires various new ways of working.

Enterprise Architecture (EA) has come to be seen as a possible solution to the apparent issues of developing, adopting and managing eGov successfully. By utilizing EA, it is argued that it is possible to bridge ICT systems and business processes, thus making the organization more efficient. However EA's usefulness for eGov development and adoption is the subject of debate. Some researchers argue that EA lacks clearly defined scopes and concepts, which makes the use of EA in government difficult. Whereas other argues that although EA frameworks are comprehensive logical frameworks, they lack content that is related specifically to government organizations.

The thesis posits the following research questions: *What is the role of EA in eGov adoption in Swedish local government?* together with three sub questions: *What are the prerequisites for using EA in Swedish local eGov adoption? What has the Swedish local government in Örebro achieved with its use of EA in eGov adoption?* And *What problems have the Swedish local government in Örebro experienced in its use of EA when adopting eGov?* To explore the role of EA in eGov adoption a longitudinal case study is carried out on the municipality of Örebro's eGov project MovIT, a project launched in 2007 that ended in 2009. I study the prerequisites, results and problems associated with using EA in Swedish local government as part of eGov adoption. A comparative study is conducted of the goals of eGov, as stated in official eGov documents at EU and Swedish governmental levels will attest as to the supposed benefits of EA in contemporary EA-literature.

From the study, it can be concluded that EA, as a phenomenon, is thought to be, if not a silver-bullet, then at least a prerequisite to eGov success. In term of prerequisites, EA use cannot assist Swedish local government where there are more politicized objectives; in this situation, local government is required to look elsewhere to find support for its work. The study identify several critical issues from the empirical study of the prerequisites: *distinction between administrative and political responsibilities; political mandate; political timing; resource allocation; coordination under NPM; dependence on providers; and choosing among standards and best practices*. These issues need to be acknowledged and handled appropriately by Swedish local government in order to improve the chances for success in eGov adoption.

The study also showed that NPM as governance model becomes a hindrance in eGov adoption, preventing the project from a more explicit use of an EA-framework and negatively affecting the projects possibility to adopt eGov. However, despite this structural problem, it is still possible – as observed – for a project that is based on EA-thinking to begin working.

EGov, NPM and EA-thinking form a triad**,** with structural properties that, in some instances, correlate. In such cases, this can lead to positive changes. However, in other situations, they are contradictory, resulting in Swedish local government having a difficult time in adhering to the suggestions endorsed by the eGov project. This lead to incoherent progressions towards requested results. The existing structures hindered effective cooperation, both internally between different departments and externally with other local governments.

This licentiate thesis has shown that the initial use of EA in local government eGov adoption is complex. Given the contradictory nature of NPM and eGov, local government has to acknowledge the negative impacts of NPM on eGov adoption. As well as acknowledging the issues that arise from EA use, a key area is a lack of support of local government in an area that is most likely to be endorsed by politicians. Politicians do not get re-elected based on efficient internal processes with a highly integrated ICT; rather, changes must be visible to citizens and businesses. This licentiate thesis has also shown that ‘EA-thinking’, as a means for local government, can move towards an EA without the explicit use of an EA framework or EA method. However, ‘EA-thinking’ may give rise to other issues that need to be acknowledged and dealt with. This licentiate thesis contributes to research by improving our understanding of the nature and importance of promoting and inhibiting different factors. Including critical issues for succeeding with eGov adoption, the negative effects of NPM and how EA-thinking can lead to positive changes, even though it cannot assist local government in all aspects deemed important to eGov adoption.

In terms of practice, this thesis contributes by highlighting the problematic nature of institutionalized structures and the effect that this has on eGov adoption. It also contributes by enabling local governments to acknowledge the problems identified. This allows them to better understand their own development and possibly avoid similar problems or at least have a better understanding of how to handle the issues that arise.

Acknowledgements

I do not think I can adequately express the gratitude I feel towards my supervisors Fredrik Karlsson and Karin Hedström for helping me get back on track, other than to express my utmost admiration and thanks for your invaluable support and belief in me. I also want to extend a big thanks to Jenny Lagsten for taking the time and effort to read and comment on my work for the pre-seminar.

I would also like to express my appreciation and acknowledgement to Anders Avdic for his support and for introducing me to the academic world when asking me if I was interested in working during the summer as a research assistant when I graduated with a master in Informatics in 2007. I would like to acknowledge and thank Professor Åke Grönlund for always being straightforward when it comes to the quality of my work and above all for believing in me and assisting me at the start of my PhD studies.

I would like to acknowledge and thank my loving wife Josefina Ask as well as my two wonderful children Edwin and Ewelina for always being there for me. I would like to thank my mother Monica Ask and father Björn Ask and their spouses for teaching me the value of being opened minded and for encouraging me to follow my dreams and for supporting me. A big thanks must go to my brother Mathias Ask and sister Caroline Ericsson for always encouraging me to do what I want, when I want. I would also like to thank my wife's entire family, especially her mother and father Monica and Tomas "Stressdoktorn" Danielsson for accepting me for who I am and, of course, for their unending support and interest in my work.

I would like to express my gratitude to Hannu Larsson for our continuous discussions on central concepts and the work we do. You've been a valuable sounding board for developing my thoughts. Thanks also to Johan Aderud for your support. I do not know what I would I have done in my spare time if it had not been for you, always providing me with new games to play on Facebook, iPhone and game consoles. Thanks to Mathias Hatakka for being a huge support at the beginning of my academic career and for being supportive throughout the process. I will never forget my first international conference in Regensburg, Germany and of course for you reading the first paper we wrote together ;) I would also like to extend my thanks to Kai Wistrand for your support and for introducing me to the idea of decorating ones office with tacky Christmas stuff – I won :D – As well as providing moral support whenever it felt cumbersome "*The only way you can possibly fail a dissertation is if your utterly stupid…and I presume you're not…*". My admiration and thanks to Annika Andersons for showing me that teaching others can be fun and interesting, as well as valuable to my research. And also for helping me take my first steps into teaching, providing me with all the 'structured' material to begin working from ;). I also want to extend and acknowledgement to you for being supportive in the work I do especially in term of EA. An acknowledgement goes out to Siraj Islam, Jens Axelsson, Johan Petersson, Ann-Sofie Hellberg, Kalle Räisinen and Andreas Persson for your support and assistance throughout

the years, and for always listening with interest to all my ramblings about the oddities I find online during our breaks.

I am immensely grateful to all my colleagues for making me feel welcome. Your support during rough times has meant the world to me, thus I believe I owe you all an apology. "*Sorry for 'only' baking normal cinnamon buns…*"

Last but not least a big thanks to all my friends who, despite my flaws, including arguing about everything, want me as their friend and for always showing interest in me and what I do – "Berzerkers of Flame forever!" and live long and prosper.

"You can approach the act of writing with nervousness, excitement, hopefulness, or even despair – the sense that you can never completely put on the page what's in your mind and heart. You can come to the act with your fists clenched and your eyes narrowed, ready to kick ass and take down names. You can come to it because you want a girl to marry you or because you want to change the world. Come to it any way but lightly. Let me say it again: you must not come lightly to the blank page." (Stephen King, 2000)

Andreas Ask

Örebro 2011-11-18

Table of Contents

1 Introduction

This chapter introduces and defines the scope of this licentiate thesis within electronic government and enterprise architecture. It presents an overview of the problem, research approach and disposition of the thesis.

On 18 November 2009, the ministers responsible for the electronic government (eGov) policy of the European Union (EU) Member States, candidate countries and the European Free Trade Area (EFTA) unanimously signed a declaration in Malmö, Sweden. It stated that their countries should work to consider how organizational processes could be improved. Member states should accommodate for citizen's needs by improving eGov services, improving service delivery, and by reusing public sector information to increase availability. Improving the administrative process should be prioritized to strengthen transparency. EGov services in member states ought to be based on social and economic needs, allowing cross-border cooperation both internally and externally. Internal cooperation refers to cooperation within and between agencies within the county. External cooperation refers to cooperation between government agencies within the EU. Closer administrative cooperation should be endorsed by creating and ensuring appropriate preconditions and key enablers.

Across the globe, it is possible to find many definitions of eGov. These include ideas that are similar to those found in the 2009 declaration, including: efficient administration, better services for citizens and organizations, and openness in the sense of "better democracy" (Gore, 1993; Grant & Chau, 2005; Grönlund, 2002, 2005; OECD, 2003; UN, 2004; UNDESA, 2003). In 2004, the EU defined eGov as the use of information communication technology (ICT) in public administrations, combined with organizational change and new skills in order to improve public services and democratic processes (EU, 2004). Grönlund (2002) argued that, with eGov, comes openness and better integrated organization; hence, better services are delivered more rapidly and are more transparent.

In a vision statement in the European eGov action plan for 2011 to 2015, administrations are sought to be:

"*recognized for being open, flexible and collaborative in their relations with citizens and businesses. They use eGovernment to increase their efficiency and effectiveness and to constantly improve public services in a way that caters for user's different needs and maximizes public value, thus supporting the transition of Europe to a leading knowledge based economy.*"(EU, 2010)

EGov serves to modernize government using ICT to increase administrative productivity, improve efficiency, and offer value to citizens. If one views governments in Europe as a single entity, it is by far Europe's biggest economic sector, with spending that amounted to about 49%

of the gross domestic product (GDP) in 2003 (eGovRTD2020, 2007). This unequivocally implies that whatever governments do in the context of eGov, it affects society as a whole. EGov is not solely an internal matter for improving administrative efficiencies and productivity for government. Since eGov affects or, in principle, is thought to have an impact on society as a whole, it is important to understand how local governments can improve organizational processes by using ICT. At the same time, governments struggle with inefficiencies and an inability to achieve interoperable ICT systems. In a survey, Heeks (2003) estimated that as much as 85% of all eGov initiatives are partial or complete failures. In recent years, it has been argued that governments still struggle with problems of rigid and ineffective internal and inter-institutional processes, together with a lack of understanding of citizens' needs and attitudes (eGovRTD2020, 2007). Apparent issues include a failure of local government to realize the benefits of eGov initiatives, high project failure rates, administrations hampered with inefficiencies, and a lack of interoperability between systems within the local government. Thus, local governments need to address their eGov initiatives in a structured way to improve their chances of providing the benefits that are sought after. Government administrations need to acquire an understanding of citizens' needs and attitudes, as well as have interoperable systems that ensure both internal and external effectiveness. This is not a clear-cut task that can be carried out in a short space of time. Ebrahim & Irani (2005) have argued that transformation towards eGov requires government information and services to be placed online using an integrative architecture framework approach. Without appropriate management, eGov initiatives will not be completed on time, at a reasonable cost, and overarching goals will not be attained. The inability to successfully complete individual eGov initiatives can eventually undermine efforts in eGov adoption in general for the whole of local government (Sarantis, Smithson, Charalabidis, & Askounis, 2009 & Askounis, 2009).

1.1 Situation in Sweden

Sweden is organized into three tiers: national, regional and local. Each of these tiers is politically governed. Local government is self-governed, following a strict new public management (NPM) model (Hood, 1995), which means governance is by budget and goals, rather than by detailed regulation. NPM was coined in academia in the early 1990s. Most governments in developed countries have followed NPM, at least in practice, or currently follow NPM. NPM is seen as a managerial strategy that is based on a theory of public choice that seeks to enhance the efficiency of the public sector and the government's control over it. Basically, greater market orientation in the public sector will lead to greater cost-efficiency for governments without negative side effects on other objectives and considerations that "old public management" – detailed regulation based on political goals – could achieve. The following seven elements, which have been summarized by Hood (1995), are characteristic for NPM: (**1**) *decentralized budget responsibility*, (**2**) *internal (quasi) markets*, (**3**) *"cost awareness", an ongoing rationalization of operations to increase productivity*, (**4**) *use of management methods and models from the private sector*, (**5**) *increased formal action space and clearer responsibilities for managers at different levels*, (**6**) *efficiency*

measured by explicit and measurable goals, and (**7**) *a focus on "customers" and results*. In order to be able to follow NPM and effectively apply the above measures, large bureaucracies are broken into business-like cost units. The NPM mode of governance is at work not only at the state and regional levels; it also applies within cities, where internally distinct bodies are treated as autonomous bodies. Coordination and standardization are, for the most part, not enforcement issues; rather, they are subject to negotiations between many actors with both political and economic agendas. Thus, Sweden's eGov model is decentralized, with individual government bodies deciding to what extent to adopt eGov, and in which areas. In local government, eGov initiatives are initiated and dealt with by local government itself, following the state guidelines. According to these guidelines, local government administration should strive to:

"*Make it as easy as possible for as many citizens as possible to safeguard their rights and to enable fulfillment citizens' obligations. In addition, Sweden should have a simple, accessible, efficient, and secure eGovernment*" (Finansdepartementet, 2009).

According to the Swedish government, the decentralized model allows, on one hand, a faster and more dynamic adoption of eGov. On the other hand, it requires a higher degree of ICT standardization (Finansdepartementet, 2009). The technology solutions now available on the market are believed to allow local governments to focus on service-based ICT architectures. Governments have begun to look into the development and adoption of eGov using Enterprise Architecture (EA) (Klischewski & Abubakr, 2010; Ville Seppänen, Jukka Heikkilä, & Katja Liimatainen, 2009 2009; Wu, 2007), given its positioning between ICT and business strategy (Tamm, Seddon, Shanks, & Reynolds, 2011b & Reynolds, 2011b). By utilizing EA, it is argued that it is possible to bridge ICT systems and business processes (Ross, Weill, & Robertson, 2006 2006), thus making the organization more efficient. However, whilst eGov ought to bring benefits to local government, administrations have been unable to adapt their ICT use sufficiently to make use of the network-oriented approach to ICT that the decentralization governance model requires (Finansdepartementet, 2009). Sweden is still hampered by inefficiencies and an inability to achieve interoperable ICT systems. This has been the case for quite some time. The Swedish guidelines for automated interaction (E-Delegation, 2011) are based on the European Interoperability Framework (EIF) (IDABC, 2004). Developed as an essential element in the realization of the Swedish Government's strategy for eGov, these guidelines emphasize the need for cooperation and an efficient exchange of information. The Swedish guidelines for automated interaction also argue for the importance of sharing and reusing information, and using ICT to lower costs and enable the public sector to focus on the needs of citizens and businesses (E-Delegation, 2011).

EA emerged as a management model in the private sector in the late 1980s, with the creation of the first EA framework by Zachman (1987). Today, it encompasses several different frameworks, such as the Extended Enterprise Architecture Framework (E2AF) (Schekkerman, 2004), and The Open Group Architecture Framework (TOGAF) (The Open Group, 2010). In the private sector,

EA has been used to effectively adopt and use ICT in enterprises to generate synergies between business strategies and IT architecture (Ross, 2003).

In order for eGov to succeed, there is a need for technological integrations coupled with organizational changes in a more integrative way (Kubiceck & Hagen, 2000). Hence, EA has come to be seen as a possible solution to the apparent issues of developing, adopting and managing eGov successfully. However EA's usefulness for eGov development and adoption is the subject of debate. Hjort-Madsen & Pries-Heje (2009) argued that EA lacks clearly defined scopes and concepts, which makes the use of EA in government difficult. Similarly, Grönlund (2010) argued that although EA frameworks are comprehensive logical frameworks, they lack content that is related specifically to government organizations. Weerakkody & Janssen (2007) argued that using a rigorous EA framework risks impairing organizational flexibility.

1.2 Problem

eGov as a mean for organizational reform (Heeks, 1999) should lead to better government by saving costs, creating more effective policies and programs, and improving the quality of services (Helbig, Gil-Garcia, & Ferro, 2009). However one reason why systemic gains from adopting eGov have not reached the levels sought after could be that, in many cases, ICT implementations are not enough. The transformation needed for eGov is not instantaneous; it requires various new ways of working (Klievink & Janssen, 2009; Orlikowski & Iacono, 2001). Often, local government lacks a generic architecture that enables communication between front and back office, as well as communication with external ICT systems (Hjort-Madsen, 2006). Flexibility becomes an essential aspect in the improvement of back office integration towards a seamless organization (Gottschalk, 2009). According to E-delegationen (2011), the development of ICT should be based on a long-term strategic approach in order to prevent services from becoming unusable or requiring significant changes due to future organizational changes. Need-driven eGov adoption requires the potential to modify public sector organization, both in terms of the organization and the ICT used. Public administration should strive to ensure that there is enough flexibility to enable the reuse of ICT in a simple way and at a reasonable cost. Bekkers (2007) argued that flexibility is achieved by addressing interoperability issues, and Klievink & Janssen (2009) argued that, when different parts of a local government body need to work together, complex collaboration can occur. Significant planning and coordinated changes in the organizational structure are required. Ebrahim & Irani (2005) stated that placing information and services online requires integrative architecture frameworks. ICT planning innovations can only drive administrative and political change as long as the institutional setting allows it (Hjort-Madsen, 2007).

The Swedish Association of Local Authorities and Regions (SALAR) is an association that represents 290 municipalities, 20 counties and 4 regions in Sweden (SALAR, 2011). It serves to

safeguard its members' interests and highlights a need for a more holistic view of architectural issues in local government. Since decisions in the EU affect local levels in Sweden, SALAR strives to play an active role in European politics, by "*mainstreaming the European and international perspective into the daily work of the municipalities, county councils and regions*" (SALAR, 2011). SALAR has advised Swedish local government to move towards using architecture principles in order to succeed with its eGov adoption. An architectural perspective is considered vital if government organizations want to pursue eGov and a seamless organization. However, there are no silver bullets for developing and adopting eGov, something that is accentuated by a high failure rate in eGov projects. The same can be said to be true regarding the use of EA. Even though a considerable amount of time and effort is spent on EA, the benefits of EA are, to some extent, still overlooked (Tamm, et al., 2011b).

In their goal view meta-model, Johnson & Ekstedt (2007) pointed out the importance of having a goal viewpoint when using EA. On the one hand they prescribed that the focus should be put on understanding problems that have the potential to hinder goal achievement. On the other hand, Johnson & Ekstedt (2007) prescribed that the focus should be on the initiatives, namely those actions taken in order to fulfill the set goals. This implies that the focus should not only be on the goals themselves. They also argued the importance of understanding the prerequisites of the initiatives as they delimit possible actions. Moreover, it is important to focus on goals as these are related to both business and ICT in organizations and reflect the motives behind an organization's actions (Johnson & Ekstedt, 2007).

There is a need to understand the impacts of organizational change aimed at eGov adoption in local government when local government develops eGov using an EA approach. As already mentioned, an inability to successfully complete individual eGov initiatives can eventually undermine efforts in eGov adoption for an entire local government body (Sarantis, et al., 2009). Moreover, there is a lack of empirical research on the actual use of EA in relation to eGov in local government. As Tamm, et al. (2011b) has argued: "*Possibly the most important shortcoming in existing research on EA benefits is the lack of rigorous empirical validation of the benefit claims*". Using EA in eGov adoption requires not just advice on the design of ICT systems, but also a comprehensive and coherent view across business to deliver business change supported and enabled by ICT (Hjort-Madsen & Pries-Heje, 2009).

1.3 Thesis Purpose

According to Johnson & Ekstedt (2007), a prerequisite is to delimit the initiatives that it is possible for local governments to pursue to become a more efficient, integrated and interoperate organization. There are two different aspects, albeit related, that need attention. One aspect relates to assumptions of the benefits of EA use in eGov adoption. The second aspect deals with how EA is used to assist local eGov adoption in practice. The purpose of this licentiate thesis is to explore the role of EA in eGov adoption through a study of the prerequisites, results and problems associated with using EA in Swedish local government as part of eGov adoption.

Through a document analysis, the central aspects will be explored. A comparative study of the goals of eGov, as stated in official eGov documents at EU and Swedish governmental levels will attest as to the supposed benefits of EA in contemporary EA-literature. Empirical insights into the benefit claims will also be stated by a longitudinal case study of the municipality of Örebro's eGov project.

This thesis takes its influence from the meta-model presented in **Figure 1**. I argue that it is important to study assumptions of EA benefits and compare them to the central goals put forward in governmental eGov documents. This enables the exploration of the prerequisites that delimit the initiatives taken by local government. As well as exploring the problems, and the goal achievement, it clarifies and defines the benefits that local government will attain, or rather ought to attain, by using EA in local eGov adoption. By looking at central aspects of eGov, such as efficient processes (although not exclusively), interoperable and flexible administration and efficient services provision, and how these goals relates to benefit claims put forward in contemporary EA literature, it is possible to gain an empirical grounding of the prerequisites for using EA in local eGov adoption. The longitudinal case study conducted makes it possible to explore the role of EA in Swedish eGov adoption through exploring prerequisites, the initiatives (i.e., actions taken), problems experienced and goals achieved. Thus, it addresses criticism (Tamm, et al., 2011b) that EA benefits are overlooked.

1.3.1 Research Questions

- What is the role of EA in eGov adoption in Swedish local government?
    - What are the prerequisites for using EA in Swedish local eGov adoption?
    - What has the Swedish local government in Örebro achieved with its use of EA in eGov adoption?
    - What problems have the Swedish local government in Örebro experienced in its use of EA when adopting eGov?

The first, overarching research question and the three sub questions that follow enable improvements in terms of understanding the impacts of organizational change aimed at eGov adoption in local government using an EA approach.

1.4 Thesis overview

This licentiate thesis is divided into eight chapters. The *Introduction* starts by presenting the problem, thesis purpose and research question, before going on to give a thesis overview. The second chapter presents the *Research Approach*. The third chapter discusses central eGov goals that are put forward in governmental eGov documents in Sweden and EU to acquire a comprehensive view of the goals steering eGov initiatives in local eGov adoption. The fourth chapter, *Enterprise Architecture*, addresses EA and claims for EA benefits made in contemporary EA literature. It also introduces EA-thinking as a valuable concept for understanding the use of EA in local eGov adoption. The fifth chapter presents *The Case of Örebro City*. For the purposes of this study, the case description has been consolidated from the three individual papers written

as part of this licentiate thesis. The sixth chapter presents the *Results and Analysis* of the study. Finally, the seventh chapter presents the *Conclusion* and the eighth chapter presents the *Contribution to research and practice* and suggestions for *Future Research* and *Limitations*. The *Appendix* includes the interview guide and the three articles included in the thesis. The latter consist of one journal paper and two conference papers.

The first paper was published in the International Journal of eGovernment Research (IJEGR). It describes an eGov endeavor and discusses prerequisites in term of success factors for local eGov development and adoption. **The second paper** was published in LNCS Springer conference proceedings for the Seventh International EGOV conference. It extends the first paper by addressing success factors for eGov in local government as well as contrasting eGov with the governance model of NPM. **The third paper** was published in LNCS Springer conference proceedings for the 2nd International Conference on Electronic Government and the Information Systems Perspective. It discusses eGov and goal achievement when developing EA as a strategy for local eGov development and adoption. All three papers address the initiatives taken, problems experienced and the process.

Paper 1: (Ask, Hatakka, & Grönlund, 2008) This exploratory study of Örebro is aimed at gaining an understanding of the current eGov adoption in the city. In particular, what are the prerequisites in terms of the challenges faced by local government when using EA during eGov adoption today? Through a qualitative study, I examine an eGov initiative that was launched by the municipality of Örebro with a goal of becoming more "citizen oriented". This would be brought about by refocusing services, including those offered electronically. Thus, the municipality's administration would be transformed, moving the organization towards an EA. The paper discusses practices, opportunities and challenges in local eGov project management when using EA. Based on empirical data collected through interviews, document studies and participant observations, the paper explores not only the prerequisites but also the process and problems experienced using EA in eGov adoption. The paper presents an analysis of eGov developments and "the 24/7 agency". In an analysis of the eGov adoption, seven "critical issues" were found: *political timing, resource allocation, political mandate, distinction between administrative and political responsibilities, coordination under NPM, Choosing among standards and best practices*, and *dependence on providers*. These issues are critical because of the implications for national eGov adoption, which is open to local politics, complicated ad-hoc city alliances, the influence of strong individuals and groups, and indeed chance.

Paper 2: (Ask & Grönlund, 2008) is an extension of the first paper. It further explores the use of EA in eGov initiatives by addressing the prerequisites, initiatives taken, problems and the process by contrasting eGov, and the critical issues to the governance model of NPM. By design, NPM does not deal with the critical issues raised; it leaves a void that has to be filled by negotiations between many actors, all of whom have different roles, goals and action space. As this paper shows, this makes national strategic eGov development volatile because it is dependent on a large

number of local political assemblies. Thus, NPM politicizes eGov, even though this is not its original intention.

Paper 3: (Ask & Hedström, 2011) explores the goals associated with moving towards an EA during eGov adoption to illustrate the problems that arise. It does so through a categorization and analysis of goal achievements using a reference model for Enterprise Architecture that was developed by the National Institute of Standards and Technology (NIST). The NIST EA-model captures the relationship between business, information and technology. Based on this analysis, we develop a better understanding of the challenges of using EA frameworks for local eGovernment-projects.

2 Research Approach

In this chapter, the research perspective is discussed, together with the analysis framework and data collection. It also addresses the approach taken by each individual paper and how each paper relates to the overarching research approach. The chapter ends with a discussion on validity and reliability.

2.1 Research Perspective

The way in which a researcher perceives the empirical world have an effect on how he or she views the phenomenon being studied, and how data can and/or should be collected. According to Orlikowski & Baroudi (1991), ontological beliefs deals with whether the empirical world can be assumed to exist objectively (i.e., independent of human actors), and if so, to what degree. It could, however, also be a social construct; in other words, an empirical world that is subjective in that it can only have existence "*through the action of humans in creating and recreating it*" (Orlikowski & Baroudi, 1991). I define the notion of human actor as being a knowledgeable agency capable of constructing and re-constructing his or her reality. This is in line with the argument put forward by Orlikowski & Baroudi (1991):"*Unlike the premises of the positivist perspective where researchers are presumed to discover an objective social reality, interpretive researchers believe that social reality can only be interpreted*".

Social reality can be understood through a process-oriented approach that relates the realm of agency (human actor) to the institutional realm by recognizing social reality as being made up of both subjective human agency and objective institutional properties (Abou, 2007). Structure is both the medium and outcome of action that is recursively organized (Giddens, 1984b). The linkage between action and social structure is referred to as the "process of structuration". This is a central concept of Giddens' structuration theory (ST), namely: the process by which the duality of structures evolves and is reproduced over time and space. Agency draws on modalities: interpretive scheme, facility and norms. Interpretive schemes, i.e. pre-knowledge, are used by actors to communicate and create structures of significance. Agencies use facilities (i.e., resources) to excerpt power in order to create structures of dominance. Finally, actors use norms to sanction certain actions to create structures of legitimacy. Orlikowski & Baraoudi (1991) argued that agency through action and interaction produce and reinforce social phenomena, and social reality must be interpreted to be understood. In this interpretive process, human agency is seen to be central.

According to Orlikowski (1992), an understanding of social reality can be acquired through the study of human actors. Humans possess a symbolic model of the world that is acquired by learning and she uses sensory data to determine the current state of the world and her position (metaphorically) in it. Humans use deductive processes to plan action, following the execution of this plan until the human reaches the intended goals and the planning cycle needs to be repeated. Or as Walsham (2002) argued, human beings reflexively monitor their own actions, those of

others, and the intended and unintended consequences thereof, creating a basis for social change (Walsham, 2002).

From the outset, viewing ICT as 'only' a facility may come rather easily. From a sociological perspective, it is understandable that ICTs can be viewed as 'mere' artifacts that are incapable of conscious action. This is especially the case given that ICTs are not conscious organisms like human beings. Giddens did not discuss ICT per se when discussing ST; hence, in principle, ICT was viewed as a facility. It is possible to go further: my perspective of ICT can be prescribed in viewing social reality as suggested by ST (i.e., as a dual interrelation between structure and agency), where ICT is primarily a facility (i.e., a resource used by human actors). Thus in this thesis I primarily view ICT as a resource. I have done so because it provides a starting point, clarifying the position of ICT within the structurational model, both conceptually (coherent with ST) and analytically – by allowing for technology to be treated as a facility. In addition, I have prescribed that ICT can and does act, although this action is a consequence of being programmed to carry out certain tasks depending on specific inputs from human agencies or other ICT.

2.2 Research Framework

There are various ways in which social and technological aspects can be viewed and studied in an organization. According to Giddens, ST should "…*be regarded as sensitizing devices, nothing more*" (Giddens, 1984a). Orlikowski (1992) argued that researchers cannot examine assumptions, knowledge and techniques by aggregating task, technique, knowledge and tools into a single construct-technology-interaction. Pozzebon & Pinsonneault (2005) argued for the importance of understanding how human actors' interaction with ICT evolves, and the implications of these interactions (Giddens, 1979).

According to (EAdirections, 2007), "*An enterprise is a constantly changing organism where multiple forces influence the allocation of an equally volatile collection of assets and resources*". ICT as a resource is drawn on to provide meaning, exercise power, and legitimize actions within a constantly changing organization (Walsham, 2002). However, whilst it is important to be able to understand ICT development, implementation and management, the benefits to local government cannot only come from adding ICT per se. The benefits are also achieved with administrative rationalization, in particular government reorganization and integration within and across government agencies. (Grönlund, 2002).

An interpretive longitudinal case study (Klein & Myers, 1999; Walsham, 1995) was chosen in line with the ontological perspective of social reality, where "*understanding social reality requires understanding how practices and meanings are formed and informed by the language and tacit norms shared by humans working towards some shared goal"* (Orlikowski & Baroudi, 1991). Conducting a longitudinal case study enabled me to study EA from an ST perspective, focusing as seen in **Figure 1** on initiatives taken, prerequisites for these initiatives, the problems experienced, and goal achievement, and the process of eGov adoption as such in a real life setting

to acquire the understanding Pozzebon & Pinsonneault (2005) argue for. Patton (1990) argued that applied research serves to develop knowledge to understand the nature of certain phenomena. Conducting qualitative inquiry in form of a longitudinal case study allows the exploration of EA in eGov development as a whole complex phenomenon, including the complex processes that change overtime. It brings about an in-depth understanding of the role of EA in Swedish local eGov adoption by exploring the prerequisite, initiatives, goal achievement, problems and the process of adopting eGov using EA in its real-life setting. Patton (1990) argued that qualitative inquiry can be seen as being built on several interrelated themes: (1) *Naturalistic inquiry* – studying real-world situations as they unfold naturally; (2) *Inductive analysis* – immersion in the details and specifics of the data to develop knowledge; (3) *Holistic perspective* – the whole phenomenon under study is understood as a complex system that is more than the sums of its parts; (4) *Qualitative data* – detailed, thick description; inquiry in depth; (5) *Personal contact and insight* – the researcher has direct contact with, and gets close to, the people; (6) *Dynamic systems* – attention to process; assumes change is constant; (7) *Unique case orientation* – assumes each case is special and unique; (8) *Context sensitivity* – places findings in social, historical and temporal context; (9) *Empathic neutrality* – researchers comes into a study with personal experience and empathic insight, while taking a neutral nonjudgmental stance; and (10) *Design flexibility* – open to adaptation as understanding deepens and/or situation changes. These themes should be viewed alongside different strategies for conducting scientific inquiry rather than as different paradigms. The themes had a strong impact on my research, as can be seen from the discussion of the individual papers in section 2.3.

One of the key elements of EA frameworks is the need to provide a set of viewpoints (Johnson & Ekstedt, 2007); here, a viewpoint is seen as a perspective from which to view a phenomenon in the real world. Whether it is from an economic viewpoint, where work is seen in terms of total cost of ownership, or a business viewpoint, perspective relates to whatever is deemed of interest to the stakeholders at a particular point in time. Such viewpoints can be captured by modeling their central aspects. In terms of EA, "*we are interested, not in roads or electrons, but in things like business processes, organizational roles, information systems, communication networks, how they behave, as well as how they relate to each other.*" (Johnson & Ekstedt, 2007). An important aspect of models is to "*support decision making on IT-related issues. It is thus important to first understand what decisions are possible, what goals are desired, and what the link is between the goals and the decisions*" (Johnson & Ekstedt, 2007). Although the meta-model seen in **Figure 1** describes a viewpoint in terms of certain concepts and its relation to other concepts in the model, "*there are several concepts that are closely related to goals and problems: for instance objectives, missions, visions, plans, strategies, principles, performance indicators*" (Johnson & Ekstedt, 2007). The meta-model enables us to focus on certain aspects of a phenomenon, but at the same time does not hinder in addressing related aspects.

As was mentioned in the thesis overview, Johnson & Ekstedt (2007) argued that having a goal viewpoint when using EA implies focusing not only on the goals itself. "*Goals can be related to both the business and the IT organization and reflect the motives for its acting*" (Johnson & Ekstedt, 2007). On the one hand, the meta-model suggested by Johnson & Ekstedt (2007), described below, prescribes that efforts should be put into understanding the problems that have the potential to hinder goal achievement: "*Apart from the goals, the viewpoint also includes problems that hinder the achievement of the goals as well as initiatives that are undertaken to fulfill the goals*" (Johnson & Ekstedt, 2007). Furthermore, "*Goals can be related to both the business and the IT organization and reflect the motives for its acting*" (Johnson & Ekstedt, 2007). Thus, it is important to understand the problems that could hinder goal achievement as well as the initiatives. Johnson & Ekstedt (2007) also stressed the usefulness of understanding prerequisites for certain initiatives, since prerequisites "*delimit the conditions under which the initiatives can be taken*" (Johnson & Ekstedt, 2007). This thesis analysis framework is influenced by the meta-model put forward by Johnson & Ekstedt (2007) and presented here in **Figure 1** and **Figure 2**.

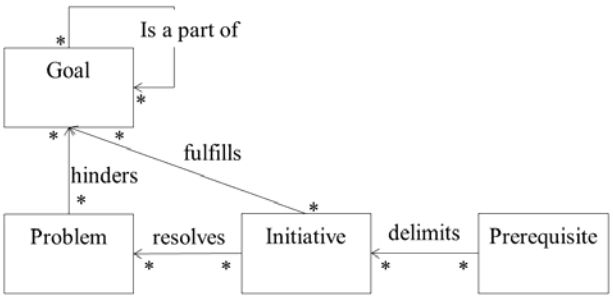


Figure 1: EA meta-model (Johnson & Ekstedt, 2007)

In this meta-model, the concept of prerequisites is viewed as aspects or phenomenon that delimit initiatives (i.e., they hinder actions from taking place). Johnson & Ekstedt, (2007) noted the '*Financial means allocated for incentives*', where financial means are seen as a prerequisite because they delimit an initiative that relates to '*providing incentives for citizens to direct other citizens to a municipality website*'. 'Problems' relates not only to the problems that an initiative is argued to resolve but also those problems that may hinder a project in achieving certain goals. 'Goals' refers to desirable states in the world for an organization. Goals in themselves can be sub- or parent goals for other goals depending on perspective. Organizational goals in themselves and prerequisites to achieve set goals can be viewed as a foundation for norms and resource allocation from which an organization can work. As Johnson & Ekstedt (2007) argued, organizational goals relate to ICTs, organization and business and reflect the motives for an organization's actions. They also put forward the idea that ICT systems, organizational roles, interaction (i.e., communication networks), the behavior of employees and how they relate to one another are of interest for understanding EA use. I argue that studying the assumptions of EA benefits and comparing them to central aspects noted as being important in governmental eGov documents are

important. Because, it is possible to explore the prerequisites that delimit local government initiatives, i.e., set the norm by which local government should work. Together with an exploration of the initiatives, problems, goals and the eGov process, the EA meta-model clarifies facility and interpretive schemes and helps to define the role of EA in Swedish local eGov adoption. This approach enables direct contact with people, facilitating a detailed, in-depth inquiry through immersion in the details and specifics of the data collected. This approach also makes it possible to empirically validate the prerequisites explored in governmental eGov documents and EA literature. Using this meta-model falls well within my research perspective. By following the meta-model and studying the initiatives taken, and what delimits them, it is possible to identify problems hindering the organization from reaching the goals set. In addition, by looking at the actions taken, it is possible to explore the problems the organization experience. In this way, insights into the norms sanctioning these actions can be made, including, how resources (facility) are distributed, how employees view themselves, and the work carried out by employees. The interpretive schemes affect the initiatives taken, and how problems and goals are perceived, thus allowing me to gain an understanding of the social reality that exists in local government.

2.3 Individual papers

Since the study is a longitudinal case study, the process is reported in all three papers and the cover paper. **Figure 2** presents the relationship between the three individual papers and the cover paper, and how they fit into the meta-model. The first and second papers explore prerequisites, initiatives and problems. Goals are explored in the third paper. The cover paper encompasses a study of literature relating to prerequisites.

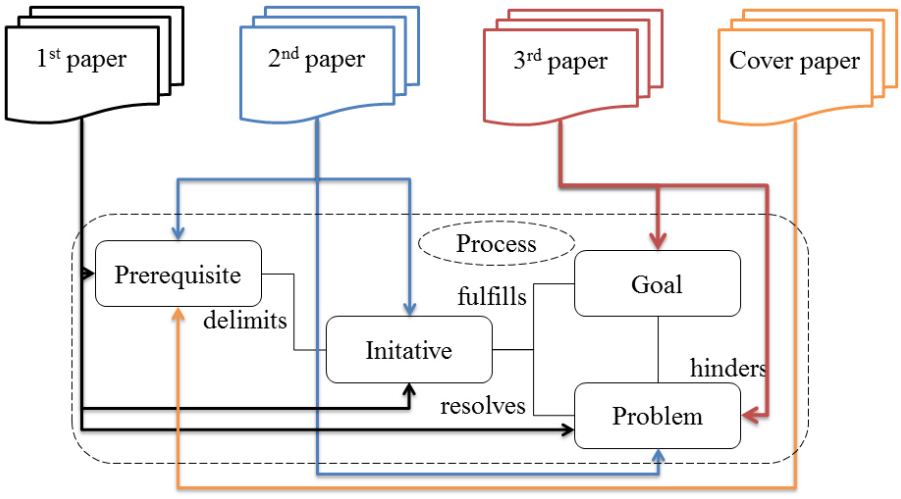


Figure 2: Research Framework

2.3.1 First paper

The first paper (Ask, et al., 2008) follows Patton's (1990) definition of having an *holistic perspective* with *personal contact and insight*. It took the form of an explorative study that allowed me to get close to the organization. I wanted to get to know the organization, the process; to see what was going on, what they were doing and why. Emphasis was put on gathering *qualitative data* on multiple aspects to acquire a comprehensive picture of the prerequisites, initiatives and problems experienced in the organization, thus capturing the *dynamic system* of an eGov project. I conducted participatory observations and semi structured interviews with key actors with whom I came into contact. I wanted to have an *holistic perspective* but still frame the study to ensure its relevance and to adhere to the *context* and *uniqueness* themes argued by Patton (1990) to be present in qualitative inquiry.

In order to capture the socio-technical aspects of the prerequisites, initiatives and the problems experienced in implementing ICT, the first paper takes influences from the well-known 5W2H (*What, When, Where, Why, Who, How, How Much*). This method is used frequently in Total Quality Management (TQM) and is a useful technique for helping to define problems (Changqing, Kezhen, & Fei, 2005; Tague, 2005). In particular, I found it useful for understanding social reality within local government, as suggested by (Orlikowski & Baroudi, 1991). It enabled me to acquire an understanding of how practices and meanings are formed, and how the language and tactical norms shared by the actors involved are formed by them working towards their shared goals. Moreover, as suggested by Walsham (2002), human beings reflexively monitor their own actions and that of others, as well as the intended and unintended consequences thereof, creating a basis for social change. In order to do so, human beings use interpretive schemes to reflect on their actions, and the actions taken by others. By following 5W2H, it was possible to record the interpretive schemes of employees, resource allocation, and power distribution and norms. It allowed me to focus my attention on what is done within the project, when and where it is done, by whom, as well as why and how it is done. Alongside this, it was possible to measure how much it cost in term of resources. Such an approach also corresponds well with the Zachman enterprise architecture framework scheme (Wahyu A. Arifiyanto & Surendro, 2009), with its *DATA* (What), *FUNCTION* (How), *NETWORK* (Where), *PEOPLE* (who), and *MOTIVATION* (When). The 5W2H used in TQM and the dimensions suggested in the Zachman Framework follow the same rationale. Following 5W2H as used in TQM inevitably enabled data acquisition. Knowledge of data, function, network, people, and motivation made it possible to gain an insight into eGov adoption within an organization and the resources this requires. At the same time, it was possible to relate the study to EA rationale, as it enable focusing attention and alleviating discovery of certain phenomena relevant in term of EA use. It enabled me to study how local government organizes its work, how employees work with eGov and how this affects the outcome of their eGov initiative, which aims to transform its processes to become interoperable, convergent and efficient.

Patton (1990) argued the importance of being *flexible in the design* of qualitative inquiry. He argued that openness to adaption depended on being able to understand the phenomena being studied. In the first paper, it became evident that the governance model chosen greatly impacts on the success of eGov development. It affects the norms and resource allocation, and affects how development is carried out, which in turn forms the prerequisites, which delimit possible initiatives. The impact of governance gave me the grounds to adapt and extend the initial study, focusing more on the NPM governance model, especially as this model is prevalent in western countries in general and in Sweden in particular.

2.3.2 Second paper

The second paper (Ask & Grönlund, 2008) became an adaptation and extension of the first, as it shares the same approach. Given the exploratory nature and inductive nature of the first study, which focused on acquiring a comprehensive picture of the organization, in the second paper I immersed myself in the details and specifics of the data in relation to NPM. From the first paper it was evident that NPM affects local government not simply because it dictates prerequisites, but also because it affects initiatives and problems. As mentioned in the introduction, the Swedish public sector model is based on decentralization, with different bodies within local government being governed by different budgets and goals, whilst all following the central concepts of NPM. The governance model has an intrinsic effect on any eGov endeavor within local government. For this reason, it was important to discuss the critical issues and contrast eGov with the current and prevailing governance model of NPM. In this way, it was possible to see how it affects the actual work being carried out to understand the prerequisites and processes in which decisions that are crucial to future development are made.

2.3.3 Third paper

The third paper (Ask & Hedström, 2011) deals with the same case, albeit within a framework that focuses on goal achievement. The study focused on goals and goal achievement in relation to EA and eGov. The National Institute of Standards and Technology (NIST) model was used. This widely accepted model is used for illustrating an organization in terms of enterprise architecture. This model consists of five layers, which are separate but related: *business architecture*, *information architecture*, *information system architecture*, *data architecture*, and *delivery system architecture* (see paper three for additional information). The NIST model was used because of its generic properties for data analysis. Organizational goals relate to both ICT organization and business; they reflect the motives for an organization's actions. As such, organizational goals in themselves are the foundation for norms and resource allocation by which an organization works. Using the NIST EA-model following (Abou, 2007) argument that: social reality can be understood through a process-oriented approach that relates the realms of human agency (human actor) and institutions. Social reality is recognized as being made up of both subjective human agency and objective institutional properties. This enabled me to record the goals by relating the institutional properties of the organization to the interactions between involved actors through the

interpretation of their interpretive schemes, understanding organizational norms, resources allocation and power distribution. It enabled a comprehensive and holistic approach for capturing goals. The categorized goals were analyzed using a goal graph technique (Yu, 2002; Yu & Mylopoulos, 1998), where goals were structured into clusters and the relationships between main goals and sub-goals were identified.

2.4 Data Collection and analysis

Patton (1990) argued the importance of being sensitive to the context of the phenomenon under study. He suggested that researchers needed to be emphatically neutral to enable the triangulation of data. Data was acquired from different sources, ranging from historic project documentation and current project documentation, to interviews and participatory observations. **Table 1** presents an overview of data sources. This enabled me to acquire knowledge of the process up to the present and allowed me to take a nonjudgmental stance of what has been done. It made it possible to put the subsequent findings in a social, historical and temporal context. Interviews and participatory observations were carried out on the premise that they allowed me to get close to the involved employees (Orlikowski & Baroudi, 1991; Patton, 1990). Matching what was being said and done by the participants to project documentation and the observations were effective in creating a triangulation of data. It was also possible to explore the prerequisites, initiatives, problems experienced, goals and the process. Enabling an interpretation of the social reality and understanding of ICT and eGov initiative can only be understood through human action.

Table 1: Data collection sources[1]

Data collection method	Time Period	Number	Hours
Observations – SC meetings	07-05-01 – 09-10-31	40	148
Semi-structured Interviews	07-11-27 – 07-11-30	6	3
Group Interview	07-10-31	1	1
Observations - Project workshops	08-09-01 – 08-12-31	10	72

Data collection	Type	Data collection	Type
May 11th, 2007	SC-meeting	September 2nd, 2008	SC-meeting
May 24th, 2007	SC-meeting	October 8th, 2008	SC-meeting
June 1st, 2007	SC-meeting	October 16th, 2008	Workshop
June 14th, 2007	SC-meeting	October 22nd, 2008	Workshop
June 19th, 2007	SC-meeting	October 23nd, 2008	Workshop
August 15th, 2007	SC-meeting	November 5th, 2008	SC-meeting
September 6th, 2007	SC-meeting	November 13th, 2008	Workshop
September 20th, 2007	SC-meeting	November 19th, 2008	Workshop
October 4th, 2007	SC-meeting	November 26th, 2008	Workshop
October 26th, 2007	SC-meeting	November 27th, 2008	Workshop
October 31st, 2007	Group interview	November 27th, 2008	SC-meeting
November 8th, 2007	SC-meeting	December 4th, 2008	Workshop

[1] Project and other local government documentation excluded

November 22nd, 2007	SC-meeting	December 11th, 2008	Workshop
November 26th, 2007	Semi-structured interview	December 12th, 2008	SC-meeting
November 27th, 2007	Semi-structured interview	December 18th, 2008	Workshop
November 27th, 2007	Semi-structured interview	January 19th, 2009	SC-meeting
November 28th, 2007	Semi-structured interview	January 29th, 2009	SC-meeting
November 29th, 2007	Semi-structured interview	March 5th, 2009	SC-meeting
November 29th, 2007	SC-meeting	March 26th, 2009	SC-meeting
December 6th, 2007	SC-meeting	April 2nd, 2009	SC-meeting
February 7th, 2008	SC-meeting	May 28th, 2009	SC-meeting
February 21st, 2008	SC-meeting	June 11th, 2009	SC-meeting
March 6th, 2008	SC-meeting	June 11th, 2009	SC-meeting
March 27th, 2008	SC-meeting	August 18th, 2009	SC-meeting
April 3rd, 2008	SC-meeting	September 17th, 2009	SC-meeting
May 15th, 2008	SC-meeting	October 21st, 2009	SC-meeting
May 28th, 2008	SC-meeting	November 19th, 2009	SC-meeting
June 18th, 2008	SC-meeting	December 17th, 2009	SC-meeting

2.4.1 Validity, Reliability and Generalizability

According to (Patton, 1990), "*qualitative data depends to a great extent on the methodological skill, sensitivity and integrity of the researcher*" to ensure the validity and reliability of the research conducted. Hence, the instrument used in qualitative research is the researcher herself. He went on to argue that one way to improve the validity of qualitative research is to carefully construct the instrument used by the researcher to collect and analyze the phenomenon studied.

Semi-structured interviews and participatory observations were chosen. It has been suggested (Bryman, 2001; Orlikowski & Baroudi, 1991; Patton, 1990; Sharan., 1994; Walsham, 1995) that these are appropriate for gaining an understanding of a phenomenon. The three different ways of collecting data during the project allowed for cross-referencing to explore whether the actions taken corresponded to what was described within the project documents. According to Patton (1990), there are four kinds of triangulation to enhance the quality and credibility of qualitative research. (1) **Methods triangulation** – Checking out the consistency of findings generated by different data collection methods. (2) **Triangulation of source** – Checking out the consistency of different data sources within the same method. (3) **Analyst triangulation** – Using multiple analysts to review findings. (4) **Theory/perspective triangulatio**n – using multiple perspectives or theories to interpret the data. The first kind, methods triangulation, was adhered to by choosing several different methods for collecting data, including group interviews, semi-structured interviews, participatory observations, and documental analysis. The second kind, triangulation by source, was followed by carrying out a similar analysis on data collected from different sources. Analyst triangulation was followed by enabling co-authors not involved in the project to evaluate my interpretations of who participated in the project. The fourth kind, theory/perspective triangulation, was adhered to by initially following 5W2H, and later using the NIST-EA model to categorize and analyze data.

The triangulation of data collected also improved the validity and credibility of the interpretations made, ensuring factual correctness. It also made it possible to assess the merits of my own interpretations by cross-referencing the data collected. The chosen methodology enabled the actions observed to be matched with the key actors' words recorded during the semi-structured interviews. Respondents were asked to check the accuracy of details and to provide feedback on the interpretations made. This enabled further inquiry into the observations made. The approaches used to gather data also enabled a triangulation of the data, which enhanced the quality and credibility of the qualitative research carried out.

Since this is a longitudinal case study of a single case in Swedish local government it would be erroneous to generalize based on these findings alone. Patton (1990) argued that a theme in qualitative studies is the assumption that each case is special and unique. A researcher should place findings in its social, historical and temporal context (Patton, 1990). This raises the question that, if the case is special and unique, what is its relevance beyond the social, historical and temporal context within which the project is found? First, even though the case is unique, the adoption of eGov is not; neither is the use of EA. This case serves to provide insights into the prerequisites, initiatives, problems experienced and the process of using EA in Swedish local eGov adoption. Secondly the governance model and documents analyzed are the same for other Swedish local governments and to some extent to other countries as well, even though details may differ depending on the exact adoption of eGov and the specific use of EA in a given situation. The findings are relevant beyond the contextual restraints. According to Patton (1990), "*unlike the usual meaning of the term [generalization], an [extrapolation clearly] connotes that one has gone beyond the narrow confines of the data to think about other applications of the findings [italic in the original].*" This implies that even though, in a general sense, findings from a single case cannot statistically or probabilistically be generalized, the findings are logical, thoughtful and problem- oriented as they are based on "*the likely applicability of findings to other situation under similar but not identical, conditions*" (Patton, 1990).

2.4.2 Interviews

Human actors possess a symbolic model of the world acquired by learning. They use sensory data to determine the current state of the world and its position (metaphorically) within it. Semi-structured interviews were chosen to enable exploration of respondents' perceptions of their work. Interviews were conducted with all the sub-project managers (see Appendix I – Interview guide). Sub-project managers were chosen as, through them, it was possible to acquire a comprehensive view of the project. Semi-structured interviews allowed the respondents to elaborate more freely on their experience of the prerequisites that delimit what they could do, the initiatives taken, problems experienced and the goals set, as well as the process itself. This interview method also enabled the respondents to discuss more openly, giving me a more in-depth understanding of the organization. I was also able to acquire insights into the respondents' interpretive schemes. This enlightened me as to the existing structures in the organization and

how they are constructed and re-constructed, as well as giving an understanding of how the structures affect the respondents. It also enabled me to cross-reference what is addressed by respondents in project documentation and the actions taken during participant observations that effectively triangulate my interpretations of the documents with the interviews and the observations made. In term of interview material, the respondents were asked questions regarding what they were doing, why it was done, when it was done. These included: who carried out the actions, why it was deemed important to do so and the kind of resources required, as well as the respondents' perception of the quality of the outcome and the progress of the project. Open-ended interviews were chosen following the assertion by (1990) that: "*Open-ended responses permit one to understand the world as seen by the respondents*". This enabled the exploration of the prerequisites as I acquired an understanding of the norms that sanction certain actions. It also enabled me to acquire an understanding of how facilities are handled and how power is distributed within the organization following the idea of duality of structure. Seven interviews were conducted, consisting of six semi-structured interviews with sub-project managers and one group interview with the Steering Committee (SC) in late 2007. Additional interviews were conducted but, because of my involvement in the project, these were more informal in nature and are thus not listed in **Table 1**.

2.4.3 Participant Observations

It is argued that an enterprise is constantly changing (EAdirections, 2007). Alongside this is another line of thought (Orlikowski & Baroudi, 1991) that it is through human action that society can be understood. Thus, I wanted a data collection methodology that allowed me to follow the employees in their work in a real life setting to be able to identify the prerequisites that delimit or enable initiatives, problems experienced, goals set and the process itself. Patton (1990) suggested that it is important to observe how people organize, how decision-making is done, and how people communicate because social environments vary overtime and this affects how people behave towards each other, enabling a closer, more in-depth interpretation. I was invited to be part of the SC for the eGov adoption project as an eGov PhD student and, as such, I was able to participate and observe all SC meetings. I was also invited to participate during project workshops. Attendance at ten workshops allowed me to observe how sub-project managers communicate with project members, giving me insight into the existing structure in the organization.

An important reason for participatory observation was that, even though written documentation and interviews provides valuable insights, it has its limitations (Patton, 1990). Documentation and verbal communication can only go so far. Patton (1990) argued that, "*direct participation in and observation of the phenomenon of interest may be the best research method*". A major part of the approach naturally became participative observation, which according to (Walsham, 1995), allows a more 'inside view' of the organization. It enabled me to explore not only the process but

also the prerequisites, initiatives and problems experienced, as well as its live setting. This enabled a more comprehensive interpretation of the role of EA in local eGov adoption.

2.4.4 Data Analysis

The data analysis was carried out using transcribed interviews, field notes, and governmental eGov documents on the EU and Swedish level. Following Patton's (1990) theme of inductive analysis of qualitative data, and maintaining flexibility in the design as understanding increases, the analysis was carried out as an iterative process seen in **Figure 3:**

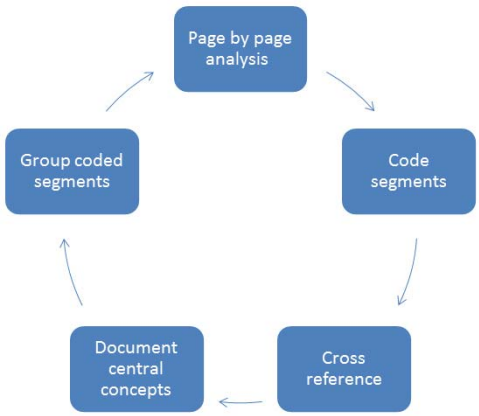


Figure 3: Iterative document analysis

The analysis was carried out on: Bill 2004/05:175; 24-authority Guidelines; NPEG, SOU 2009:86; eEurope eGov documents; EU document report entitled The Role of eGov for Europe's Future; i2010 eGov documents; and The European eGov Action Plan 2011-2015. Chronologically, these followed Patton's (1990) theme of context sensitivity in order to conduct an analysis in the correct historical and temporal context. The analysis was conducted by an iterative page-by-page analysis where an interpretation was made of the arguments posed and the context within which they are presented. Text segments were coded based on their contextual properties and aims. The segments were then cross-referenced with previous coded segments to find relationships and causalities. Based on the coded segments, central aspects emerged. The coded segments could then be grouped as the analysis progressed. The analysis was carried out on project documentation throughout the project span as well on transcribed interviews and field notes. I had access to historical and current project documentation pertaining to the project and eGov development in the city throughout the project lifespan, which covered a nine-year period from 2000 to 2009. The cross-referencing of progress reports and other project documents enabled me to consider continuous changes in the project.

According to Orlikowski & Baroudi (1991): *"following on the ontological belief that reality is socially constructed, the interpretive researcher avoids imposing externally defined categories on a phenomenon"*. Patton (1990) argued for 'paradigm of choice'. He suggested that the

importance of choosing an approach is "*whether one has made sensible methods decisions given the purpose of the inquiry, the question being investigated, and the resources available*". Certainly, the idea put forward by Orlikowski & Baroudi (1991), which avoids imposing externally defined categories, does serve a purpose. It can also be argued that it is both possible, and useful, to impose externally defined categories on a phenomenon in certain situations, if this can be done without diminishing the interpretation process. Imposing externally defined categories on a phenomenon can serve a purpose as it elevates certain phenomena and infers others that for various reasons are deemed to be unimportant. Moreover, since the thesis focuses on eGov adoption using EA, it is suitable as well as useful to use categories from EA and eGov literature, as well as from governmental documents and practical observations for exploring the role of EA in Swedish local eGov adoption. For Patton (1990), it is important to remain open to adapting inquiry as understanding deepens, and to study real-world situations as they unfold. This naturally implies the benefit of allowing the perspective used to capture prerequisites, initiatives, problems and goals to be determined by the object of study dynamically. Consequently, I did not follow a pre-determined abstraction level or hierarchy. Instead, aspects tended to be strategic in nature, such as more openness to particular operational aspects; for example, the use of specific technological standards within a department in the organization. Although as seen in {Ask & Hedström, 2011) I used the NIST-model in order to categorize the goals when they had been identified in the analysis. This assisted me to elevate data important to my research focus (i.e. eGov adoption and EA use) and it also assisted in inferring the data i.e. allowed me to delimit my study as to ensure relevant data.

3 EGovernment Goals in EU & Sweden

In this chapter, official governmental eGov documents, such as actions plans and guidelines from both an EU and Swedish level, are analyzed. The chapter is divided into three parts. The chapter begins with a presentation of the documents reviewed, and is followed by an exploration of the central aspects found in the Swedish eGov documents and guidelines. Thereafter, the EU documents are explored.

3.1 EGov Action Plans and Guidelines

Figure 4 below depicts the documents reviewed and their relation to each other. Each action plan consists of one to several related documents, although they are discussed as clusters of documents. Alongside the action plans and guidelines, each document is also influenced by other documentation, such as directives and legal statutes. However these documents fall outside the scope of this licentiate thesis and, as such, they are not addressed here. This is because the action plans and guidelines are operationalizations of the directives and legal statutes are captured by the analysis of the governmental eGov documents themselves.

It is worth noting that, the documental analysis was carried out by a page-to-page analysis following the iterative process discussed in **Figure 3**; thus, the central aspect evolved throughout the study. This means that aspects span different abstraction levels. I have not presupposed an abstraction level, therefore, but allowed the data to steer attention towards certain aspects deemed important by the data itself. Moreover, even though certain aspects are not always stated as specific goals they are 'central aspects'. Thus, in the extension also argued in the documents form the premise that they should be operationalized as goals to strive for. Or rather my interpretation is based on the arguments given in the governmental eGov documents that the aim is for local government to operationalize the central aspects thus striving towards similar or same result.

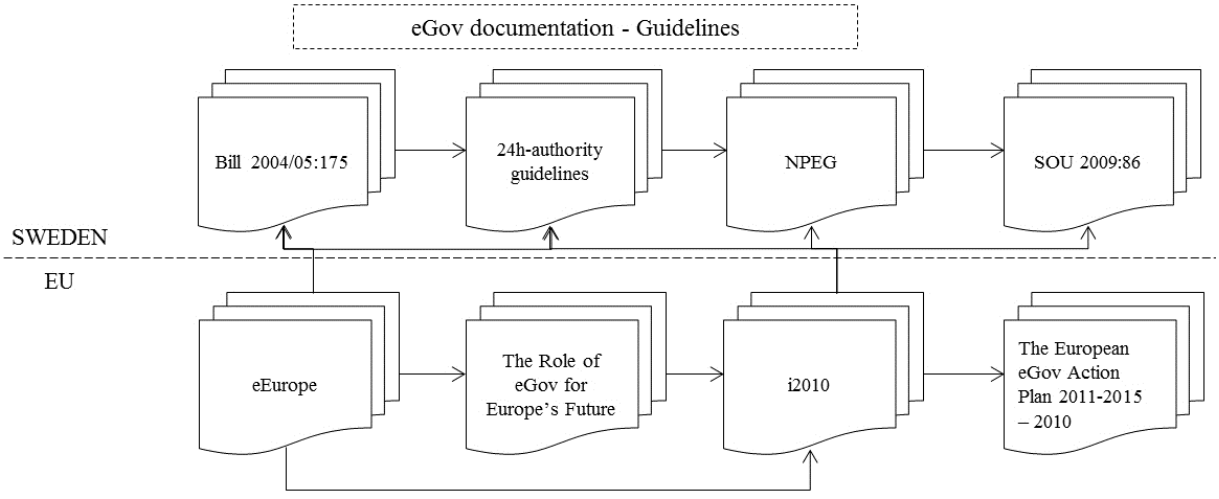


Figure 4: EU and Swedish eGov Documents and their relation

The first recommendation in EIF states "*Public administration should align their interoperability frameworks with the European Interoperability Framework to take into account the European dimension of public service delivery*" (IDABC, 2004). This is not the only recommendation from the EU to its member states to build their national frameworks on an EU premise. But this quote does pinpoint the interrelation between the EU eGov documents and guidelines and the Swedish eGov documents. Central aspects argued for in the EU are both relevant and applicable in the Swedish context, and in many cases should be applied in Swedish conditions. Similarly, conditions found in Swedish municipalities are relevant for public administration in the EU and elsewhere. Consequently, it is important to analyze not only national documents pertaining to eGov, but also to define the overarching goals stated both in EU and in Sweden if we are to assess whether any inconsistencies exist and whether this could have an actual impact on eGov locally.

3.1.1 Swedish eGov Documentation and Guidelines

Sweden has a long tradition of local self-government (indeed, self-government is enshrined in the Swedish constitution), which means that local government decides about services closest to the citizens. Local government has control over its administrative rationalization and service quality because national government is prohibited by law from any detailed regulation (Grönlund, 2009). Grönlund (2009) argued that there are systematic flaws in Swedish eGov strategic management and that a cooperation model based on "*voluntarily cooperating agencies*" is a weak governance model. Regardless of whether or not it is a weak governance mode, the most current eGov document, the SOU 2009:86 (SOU 2009:86, 2009), the action plan National Plan for eGovernment (NPEG) (Finansdepartementet, 2009). Together with older documents, such as the 24h-Authority Guidelines (VERVA, 2006), in essence serve as a guiding principle for local eGov adoption. The analysis is summarized in **Table 2**.

Unlike the 24h-Authority Guidelines that target public sector development of eGov specifically or rather provide more practical guidelines, the most current action plan on the state level NPEG addresses eGov adoption on a strategic level. So too does Bill 2004:05:175 (Regeringen, 2004) and the SOU 2009:86 (SOU 2009:86, 2009). Whilst they all focus primarily on a national level, nonetheless these state documents are also of interest for local government.

There is a form of dualism in the national documents that is not evident in the 24h-Authority Guidelines. Self-governance is a rudimentary structural aspect. Together with the NPM governance model, this means that national documents cannot explicitly force local government to adhere to suggested changes. They must address issues that are applicable to local eGov adoption on the premise that they 'ought to do' them or 'it would be most beneficial to do' them. Or they must address eGov adoption on such a general level so as to avoid the possibility of interpretations that endorse changes as a 'must do'. It is important to acknowledge this difference when analyzing the documents in order to avoid missing important aspects. The same can of course also be said for the 24-Agency Guidelines, since it is a state-produced document, although

it does discuss changes more on the premise of 'should be done'. As with all the governmental eGov documents presented, local government can choose to ignore the suggestions, which are also addressed in the guidelines. As mentioned in the 24-Authority Guideline, the actions suggested are not mandatory for local government to adopt. However, by abiding the suggestions in the documents, it is argued that "*local government would be able to fulfill both Swedish and EU requirements for public sector websites*" (VERVA, 2006). As mentioned, the national documents cannot be expressed in terms of 'this should be done' or 'this must be done'. Rather they must argue for what local government ought to do without specifying how it should be done. Because of this semantic difference it becomes an issue to be solved by individual local governments striving towards the goals addressed.

There are two distinct types of objectives argued for in the documents. There is the explicit focus on eGov development with regard to national efforts; this has no direct implication on local eGov endeavor per se, other than being a means for the national or regional levels to facilitate eGov in the whole of government. Secondly, there are discussions (and sometimes ambiguous discussions) that have more of a bearing on local eGov development. These force local government to work towards the objectives that are important for their work. These objectives are based on general discussion about what the national level believes local government ought to do. However, local government attempts to reach national eGov objectives can lead to problems. This is the case if the documents in some way fail to provide any clarity on how certain objectives should be realized other than arguing that they are important for local government's wanting to succeed with eGov development. I therefore concur with Grönlund's (2009) assessment that the strategic and cooperation model is weak. Regardless of this weakness, however, the documents still serve to assist local eGov adoption.

3.1.1.1 Bill 2004/05:175

The Bill 2004/05:175 was presented in 2004; it is a Swedish eGov document related to eEurope and i2010 on the European level. In the Bill, it states that: "*The overall ICT-policy objective for Sweden is to be a sustainable information society for all*" (Regeringen, 2004).

The bill emphasizes three primary areas: quality, growth and security. '*Quality'* refers to the potential contribution that ICT can make to simplifying and improving quality of life for people and businesses by reducing the administrative burden for G2C and G2B. '*Growth'* refers to using ICT to promote sustainable growth. '*Security'* refers to the need for a secure ICT infrastructure with high connectivity and bandwidth in all parts of the country, ensuring that public services are trustworthy and available to people and businesses.

EGov adoption should ensure that ICT contributes to efficient information exchange to improve effectiveness, both in terms of sociopolitical and administrative work. On a state, regional and local level, it should improve information quality in terms of accuracy and keeping it up-to-date. The state should work to adapt the legal framework to ensure that ICT is efficiently based on

user-oriented development. In addition, the focus should be changed "*from infrastructure issues to collaborative development and use of services and organizational development*" (Regeringen, 2004). The bill also emphasizes the need for strategic planning: "*Politicians need to look into the future to map out the path to ensure that Sweden truly becomes an information society for all. The development of ICT is becoming more complex and the possibilities of ICT usage are plenty. There are great opportunities for citizens, companies and organizations to embrace new technology and use it in everyday life and activities. This creates a need for long-term technology assessment for future service environments*" (Regeringen, 2004).

Based on the reasoning behind this bill, the following are deemed vital. First, there is a need for long-term strategic planning that refers to the potential for eGov adoptions to assist local government in planning its ICT implementation for longer time periods. Second, user-oriented development refers to local government focus on eGov adoption, which should take user needs as its starting point, rather than departmental needs. Third, more collaboration refers to the potential for eGov to bring about horizontal and vertical collaboration within the organization and with external stakeholders, based on the service provided. Fourth, the bill highlights the need to improve availability; in other words, improve opportunities for citizens and businesses to come in contact with the government and be able to access services. Fifth, the bill addresses the need to improve information security; in other words, preventing unauthorized access to information to improve citizen confidence and trust in service delivery, information quality and information exchange. Furthermore, there is the potential for more efficient information sharing between departments and with external stakeholders. Finally, reducing the administrative burden in G2B and G2C refers to reducing the time it takes from the initial moment of contact to the completion of service delivery.

3.1.1.2 24h-Authority Guidelines

The 24h-Authority Guidelines (VERVA, 2006) publication was released in 2006. Similarly to the Bill 2004/05:175, it influenced ICT work in Swedish local government. Unlike Bill 2004/05:175, however, the guidelines are more technical in their advice for how local government could be developed towards a 24h-authority. Nevertheless, it is possible to infer several overarching eGov objectives from it. The guidelines are based on the World Wide Web Consortium (WCAG), Bill 2004/05:175, eEurope and i2010 at an EU level.

The central aspect of the 24h-Authority Guidelines is to deliver: "*Efficient and better services on websites in the public sector*" (VERVA, 2006), with a particular aim to improve transparency. The guidelines state that, from a security, trust and availability perspective, it is essential to ensure that public sector is transparent. It should be easy for citizens and business to use services provided by the public sector. The guidelines address the need for collaboration: "*To ensure a coherent and efficient service delivery to both citizens and business local government needs to collaborate and define clear responsibility from initiation to delivery of the service asked for*" (VERVA, 2006). They also focus on the need to reduce the administrative burden for G2C and

G2B. Moreover, local government should focus on user-oriented development, implying that it is necessary to develop service delivery over more channels to utilize the full potential of ICT (VERVA, 2006). The need to achieve a high trust in ICT use is also addressed. This includes building good security, and ensuring high quality of information if greater efficiency is to be achieved.

When it comes to information management in general, the guidelines emphasize the need for improvements. It is believed that improving information management can help reduce the administrative burden and make local government more interoperate. Automation is a prerequisite because it enables an effective information exchange (VERVA, 2006). "*For public sector website to be as consistent, usable*" (VERVA, 2006), efforts to make local government more available should focus on the importance of using standards. Whilst technical standards are the foremost subject of the guidelines, there is also a need for organizational standards to be addressed to ensure an interoperate administration.

As is the case for Bill 2004/05:175, several central aspects have emerged from the guidelines. There is a need for user-oriented development, collaborations and a clearer definition of responsibility between the involved actors to ensure high information quality and a transparent interoperate public sector. Availability is seen as an important issue. To achieve availability, local government needs to ensure good security and information quality when it comes to information exchange and information management. This will assist in reducing the administrative burden for G2C and G2B. Unlike Bill 2004/05:175, the guidelines do not address the need for long-term strategic planning; instead, they focus on more technical aspects, such as the use of standards, improved information management and automation. According to the guidelines, these aspects provide the basis for increased trust in the use of ICT in public sector service delivery.

3.1.1.3 National Plan for eGovernment (NPEG)

At the beginning of 2007, the Swedish Government decided that the Prime Minister's Office would appoint a state secretary group to strengthen the Cabinet Office coordination of issues of strategic importance to the development of eGov. In 2009, the group presented the NPEG, a national plan for eGov that is related to the eEurope and i2010. The aim of the NPEG is to improve the strategic coordination of eGov development, and to make it as easy as possible for as many citizens as possible in their everyday life. The aim should be to position Sweden at the frontier of eGov adoption in the world. A prerequisite to achieving this objective is an active engagement from local and regional governments (Finansdepartementet, 2009). This implicitly means that if, for some reason, local and regional government decided not to follow the suggestions purposed in the NPEG, it would be of little or no value.

NPEG consists of four focal areas, which are presented in **Figure 5**.

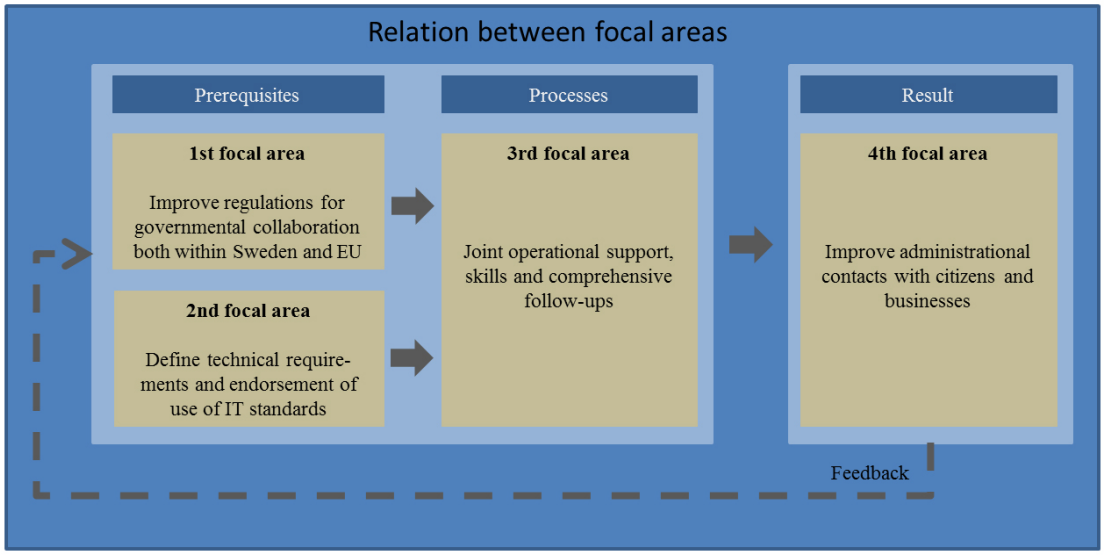


Figure 5: Focal areas in the Swedish National Plan for eGovernment (Finansdepartementet, 2009) (*Author's translation*)

The principal ideas are to: (1) adapt the regulatory framework to ensure compliance with the government's use of ICT; (2) define the technical requirements and to endorse local governments use of IT standards; (3) adapt the regulatory framework alongside defining these technical requirements; (4) endorse the use of IT standards to enable autonomous local government to begin collaborate work, with a view to achieving interoperability; and (5) supporting and endorsing joint operational work to enable agencies to improve their administrational efficiency and improve citizen and business contacts with government agencies.

3.1.1.3.1 Improve regulations for governmental collaboration

The first focal area deals with the notion that ICT-based development in general creates a new basis for the systemization and coordination of information management in governmental work. It should be carried out in accordance with privacy and security regulations, and by joint collaboration. The possibilities for interagency interoperability are endless, and therefore it is important that "*the administration act in unison when it comes to information management*" (Finansdepartementet, 2009). Collaborations are seen as a prerequisite, not just between different agencies within local government, but between local governments as well. Improving information exchange "*enables administration to ensure security, quality and availability*", suggesting a need not only to enable exchange but also improve information security, and information quality and availability in service delivery (Finansdepartementet, 2009).

The national government supports local eGov development by addressing current regulations and working towards changing them so as to ensure compliance with governmental work that uses ICT. Local government should focus on long-term strategic planning, working towards collaborative processes that follow process thinking. Information should be seen as a common

resource, with automated collaboration ensuring effective information exchange within and between agencies in different local governments.

Local governments that endeavor to develop collaborative processes within and between internal and external entities are, according to the NPEG, faced with a number of legislative, organizational and financial challenges. Indeed, "*promising collaborations are slowed down due to unclear and none-standardized development projects*" (Finansdepartementet, 2009). It is argued that there is a need for clearer responsibilities, as well as a need to increase the use of standards. Moreover, it is not just a matter of a collaborative effort for local government to facilitate citizens and business contacts. It also implies a need for a holistic approach of the entire administration: "*The purpose should be to improve the legislation, and basis allowing for an long-term organizational collaboration between agencies*" (Finansdepartementet, 2009). The need for a holistic approach in the development process is accentuated by the argument that "*with better knowledge of the administration's activities and operations increases the possibility of comparisons, quality assurance, and thus to increased productivity and efficiency*" (Finansdepartementet, 2009). This indicates a wish that local government should have a comprehensive and all-out focus on organizational change, skill, management, improved information management and information exchange. Regulations should support investments in ICT and current regulation should support cooperation.

3.1.1.3.2 Define technical requirements and endorsement of the use of IT standards

The second focal area of the NPEG addresses the need for an increased holistic approach. In other words, there should be: "*A comprehensive and united perspective on ICT-security given the increase in collaboration and integration between local government agencies*" (Finansdepartementet, 2009), as well as technical infrastructure and access to common standards and interfaces. According to NPEG, access to common standards, requirements and interfaces "*opens up for improving interoperability between agencies and other actors. It is also important to enable collaboration within EU and international in general*" (Finansdepartementet, 2009). It is also argued that a comprehensive eGov within local government requires interoperability, and a firm and efficient infrastructure that is not susceptible to future changes. Rather, it should be robust but flexible so as to ensure adaptability to possible future changes. This suggests a need for long-term strategic planning.

Access to high bandwidth and the Internet, together with an open and accessible market, are prerequisites for eGov adoption, allowing fast two-way communication in a cost effective and competitive market (Finansdepartementet, 2009). Given the nature of the kinds of services that local government provides citizens and/or businesses, personal, integrity and secure identification issues are pivotal in the development of the necessary infrastructure. The NPM governance model presupposes that infrastructure is built in such a way that it enables local government to determine their own processes. This suggests individual departmental process thinking as well as

architecture, but collaboration still taking place between the autonomous agencies. To achieve this, NPEG has discussed the importance of standardization, especially a standardized messaging-based solution to provide the necessary boundaries of responsibility: "*By agreeing on how ICT should exchange information it is possible to automate it without having to consider underlying processes or technology*" (Finansdepartementet, 2009). Thus, individual departments should be able to focus on their own processes, whilst also working to develop a common interface for information exchange that entails standardization of open software use to assist local government in achieving legal, organizational, semantic, and technical interoperability (IDABC, 2004).

ICT-based communication should be carried out on the basis of agency and sectorial needs, and in compliance with international norms. To achieve this, NPEG suggested that there should be clearly defined and standardized environments for e-services. To facilitate this work, national government, together with local and regional government, should focus on user-oriented development to develop and adopt common specifications for secure communications, electronic identification and signing, and the storage and retrieval of electronic messages and documents (Finansdepartementet, 2009).

3.1.1.3.3 Joint operational support, skills and comprehensive follow-ups

In the third focal area it is argued that implementing ICT in government requires long-term strategic planning: "*To achieve potential savings effect, it is important that a long-term strategic plan adopted on how to jointly use both completed and future ICT investments in the development of processes and services*" (Finansdepartementet, 2009). In 2007, ICT investments amounted to the third largest cost for government (Finansdepartementet, 2009). Long-term strategic planning is a prerequisite to achieve the soughtafter cost benefits. According to the NPEG, local government can avoid unnecessary costs and increase overall efficiency by striving for automation to a much greater extent than is the case today. Moreover, "*the key to a better administration lies with improved knowledge and information regarding administrational processes and functions, it requires increase a comprehensive view over cases, services and what kind of work specific agencies do towards what citizens and business to what quality and effectiveness*" (Finansdepartementet, 2009). This implies a holistic approach, process thinking, and need-driven development. In order for joint operational support (i.e., collaborations to yield the most benefits), it is argued that local government should strive for comprehensive follow-ups on its development work to ensure that eGov goals are being achieved. According to NPEG, local government needs to acquire better knowledge and information of the organizational processes and services provided within local government to improve information quality and information management in general. In other words, "*It is important that the introduction of ICT-solutions are combined with comprehensive process analysis that clarifies how the processes itself can be re-designed to maximize efficiency and productivity*" (Finansdepartementet, 2009). Through a more holistic view of the organization it should be possible to pinpoint where integration efforts would

be most beneficial, which implies that it is important to "*analyze processes based on the organizational context*" (Finansdepartementet, 2009).

3.1.1.3.4 Improve administrational contacts with citizens and business

The fourth focal area looks at providing visible results citizens and businesses following ICT implementation. Here, it is argued that user-oriented development is needed in B2C and B2G: "*Users' needs should always be an important starting point in administrational work to improve its services*" (Finansdepartementet, 2009). Citizens and businesses should be supported in their contact with local government and local government should strive to provide one single entry point (i.e., as a 24/7 authority). Furthermore, these kinds of services require more or less collaboration between local agencies as well as between external actors; hence, G2C and G2B should be simplified.

Citizens and businesses come into contact with local government for numerous reasons and should be entitled to acquire comprehensive, accurate, secure and up-to-date individual and company-related information on ongoing cases, such as taxes, grants and student loans (Finansdepartementet, 2009). This requires efficient information management, information security and quality, not only presupposing that local government has the means for efficient information exchange, but also the availability. It should be easy and convenient for citizens and businesses to provide local government with information to reduce the administrative burden for businesses and simplify the everyday life of citizens. The key aspects discussed in the first three focal areas serve to accommodate better communication. With an increased focus on standardization it should be possible for "*easier information exchange, more efficient services and the a possibility to be perceived by citizens and business as a coherent administration*" (Finansdepartementet, 2009). To achieve this, local government should strive for integration and interoperability.

3.1.1.4 SOU 2009:86 – "Swedish Government Official Reports"

In 2009, the eGovernment delegation (eDelegation) was appointed and, in October that same year, SOU 2009:86 was also presented. An SOU is an official Swedish government report. It often offers an analysis of issues in anticipation of proposed legislation. In SOU 2009:86, it is noted that "*In the eDelegation's view, the action plan's stated aim – 'as simple as possible for as many as possible' – should be broadened to include an objective which refers to 'society's overall development capacity and innovative potential'* (SOU 2009:86, 2009)." The strategy addresses several aspects that are seen as being of importance: "*By creating clear and standardized conditions for e-services can citizens and business be invited, and in collaboration with government agencies develop e-services that create additional benefits for the surrounding society*" (SOU 2009:86, 2009). According to (SOU 2009:86): "*By focusing on need-driven development it enables goals to reduce administrative burdens for business to be achieved, and it can assist in simplifying every-day life for citizens*".

Also mentioned is the fact that the eDelegation itself will carry out a citizen analysis from a holistic perspective. Based on their initiative, they will endorse eGov adoption in local government that is more holistic and user-oriented. Given Sweden's decentralized governance model, local government "*agencies should be able to decide on their own processes. Suggested standardizations, and message-based solutions provide clear responsibility in term of information exchange, which also would improve information security*" (SOU 2009:86, 2009).

ICT development today allows "*for more efficient processes by enabling several agencies with similar needs utilize the services of the same business support*" (SOU 2009:86, 2009). Thus, the eDelegation strives to recommend automation and endorses effective information exchange. SOU 2009:86 also states the importance of clearly defined and standardized environments for the development and delivery of e-services, enabling collaborations between different actors. By focusing on the needs of society, it is possible to reduce the administrative burden on business and also simplify everyday lives for citizens, thus increasing availability.

According to SOU 2009:86, all government agency work ought to continuously focus on improving productivity and effectiveness using ICT as a catalyst. A broadening of the 'as simple as possible for as many as possible' approach to a more 'whole-of society' approach would better describe an administration that is flexible to future changes. A more holistic perspective ensures improved information management and improved information. ICT ensures good information quality and availability. Government bodies would efficiently reduce the administrative burden, with its more efficient, integrated and interoperate processes. A 'whole-of society' approach in itself would require more long-term strategic planning since it is no longer a matter of just internal efficiency work.

Summary of central aspects in Swedish eGov documents

Table 2 below gives a summary of the central aspects in Swedish eGov documents. 'X' marks the central aspects that emerged from the documental analysis.

Table 2: Central aspects in Swedish eGov action plans and guidelines

Aspect	Bill 2004:05:175	24h-Authority Guidelines	NPE G-1	NPE G-2	NPE G-3	NPEG -4	SOU 2009:86
Reduce Administrative Burden	X	X				X	X
Automation		X		X	X		X
Availability	X	X	X			X	X
Collaboration	X	X	X	X	X	X	X
Define clear responsibility		X	X				X
Holistic view			X	X	X		X

Use of Standards		X	X	X		X	X
Information Exchange	X	X	X	X		X	X
Information Management	X	X	X		X	X	X
Information Quality	X	X	X		X	X	X
Information Security	X	X	X	X		X	X
Integration				X	X	X	X
Interoperability		X		X		X	X
Long-term strategic planning	X	X	X	X	X		X
Need-driven development					X		X
Process thinking			X	X	X		X
Transparency		X					
Trust	X	X					
User-oriented development	X	X		X		X	X

3.2 EU eGov Documentation and Guidelines

Several EU reports are of interest when discussing the EU's views on eGov and its objective. The eEurope documents entitled 'eEurope – An Information Society For All' documents, 2000, 2002, and 2005 (EU - eEurope 2002; EU - eEurope 2003; EU - eEurope 2005) were analyzed as one cluster. 'The Role of eGovernment for Europe's Future (EU - COM(2003) 567 final) is a single document that discusses eGov. The i2010 document cluster consists of 'i2010 – A European Information Society for growth and employment' (EU - COM(2005) 229 final), 'i2010 eGovernment Action Plan: Accelerating eGovernment in Europe for the Benefit of All' (EU - COM(2006) 173 final), and 'i2010 eGovernment Action Plan Progress Study – Summary Report' (EU, 2009a). Lastly, the most recent action plan is 'The European eGovernment Action Plan 2011-2015 – Harnessing ICT to promote smart, sustainable & innovative Government' (EU, 2010).

eEurope – An Information Society For All

In 2000, the EU launched eEurope as a political initiative to ensure that the EU makes the most of the benefits promised by ICT usage. The initiative was launched in response to the world in general moving towards a 'new economy' - an information society where transforming digital information to economic and social value is the basis for growth. In the eEurope documents, it is argued that Europe is "*not fully exploiting this potential as it is not moving fast enough into the digital age*" (EU - eEurope, 2000). According to eEurope, in order to develop an information society, the EU needs to focus on the following objectives:

- "*Bringing every citizen, home and school, every business and administration into the digital age and online.*"
- "*Creating a digitally literate Europe, supported by an entrepreneurial culture ready to finance and develop new ideas.*"
- "*Ensuring that the whole process is socially inclusive, builds consumer trust and strengthens social cohesion.*" (EU - eEurope, 2000)

Initially, eEurope focused on 10 different actions deemed important for reaching the above objectives:

a) Bringing European youth into the digital age: "*Education is a crucial factor determining economic and social progress and equality of opportunity in our societies*" (EU - eEurope, 2000)
b) Cheaper Internet access: Internet access was seen as a prerequisite to achieving an information society because "*generally expensive, insecure and slow access to the internet*" (EU - eEurope, 2000) holds back rapid uptake of ICT.
c) Accelerating e-commerce: Despite the fact that Europe is similar in economic size to the USA, e-commerce revenues in the USA are three times higher.
d) Fast Internet for researchers and students: Differences in connectivity between member states' pan-European mean that collaborative activities are limited. Activities that could assist the EU to reach its full potential in terms of soughtafter ICT benefits sought were limited.
e) Smart cards for secure electronic access: Trust is seen as an important aspect in ICT adoption. Thus, it is essential to examine security issues in order to build customer confidence.
f) Risk capita for high-tech Small and Medium Size Enterprises (SMEs) – Europe is behind because of barriers that discourage risk-taking, which affects growth.
g) eParticipation for the disabled: "*Developments in ICT offer extensive opportunities to overcome barriers (socio-economic, geographical, cultural, time etc.) for people with disabilities.*" (EU - eEurope, 2000)
h) Healthcare online: "*The efficient provision of quality health services to all citizens in the future is one of the most difficult challenges facing all European governments.*" (EU - eEurope, 2000)
i) Intelligent transport: Focusing on improvements in transport issues can reduce pollution, making transport safer for both goods and citizens.
j) Government online: All Europeans, whether citizens or business representatives, have an interest in more efficient and effective access to public sector information and services.

By focusing on the actions (a) through (j), it is argued that value-added will not only come to benefit individual member states, but the EU in general.

Following the launch of the initiative, an action plan was created – eEurope 2002 Action Plan (EU - eEurope 2002, 2000). The action plan would assist member states and implicitly provide assistance to regional and local government within these member states during their adoption of ICT. The eEurope action plan was clustered around three main objectives based on the actions noted above: (EU - eEurope 2002, 2000) '*A cheaper, faster and secure Internet*' addresses actions b, d and e. '*Investing in people and skills*' addresses actions a, and g, which means working in a knowledge-based economy. '*Stimulate the use of Internet*' addresses actions c h, i, and j. (f) Risk capita for high-tech SMEs was not discussed in the later action plan although in the initial document it was argued that work was being carried out with other initiatives.

The eEurope initiative encompasses many areas, ranging from infrastructural issues to educational efforts towards citizens. All in all it focuses on the benefits that ICT ought to offer member states, resulting in a positive effect on growth. Much of the discussion in the documents does not have a direct impact on local eGov adoption. However, it still sets the tone on what local government ought to focus on and, because of this, it is possible to draw conclusions on key aspects based on eEurope's arguments for promoting growth.

In line with Swedish eGov documents, a prerequisite for being able to achieve the objectives is the commitment from other member states: "*The eEurope targets can only be achieved if Member States, the European Parliament and the European Commission are ready to commit themselves to this Action Plan and to reassessment of priorities which it will imply*" (EU - eEurope 2002, 2000). One important reassessment of priorities that EU member states should acknowledge is the need for long-term strategic planning because, "*measures taken in eEurope 2002 will have an impact well beyond*" (EU - eEurope 2002, 2000).

In addition to the long-term perspective, the action plan highlights the need to improve equity. Equity can be achieved by improving availability, providing secure access to good quality information, improving ICT skills and more efficient provision of services. According to eEurope, ICT adoption provides the means to transform "*old public sector organization and provide faster, more responsive services*" (EU - eEurope 2002, 2000). It can reduce the administrative burden and "*it can increase efficiency, cut costs, increase transparency and speed up standard administrative processes for citizens and business*" (EU - eEurope 2002, 2000). By focusing on standardizing processes through process-thinking, it enables closer collaboration and more user-oriented development. User-oriented development provides a foundation for improving consumer confidence and participation through trust. It also enables governmental organizations to increase transparency.

In 2002, the first eEurope action plan was succeeded by "eEurope 2005" (EU - eEurope 2005, 2002). This new plan puts even more emphasis on placing citizens at the centre, as "*having anytime, anywhere access to information will contribute to greater effectiveness* (EU - eEurope 2005, 2002). In general, information management is thought to be important because it ensures not only access per se but also access to accurate information when needed.

Similarly to the initial eEurope action plan, the second version highlights the need for available and secure access to information and efficient services delivery. This can only be realized by the "*restructuring of economic behavior to exploit the new technologies: adapting business process, bringing public services online*" (EU - eEurope 2005, 2002). Integration, interoperability in public sector organizations, standardization and collaboration are crucial to achieving the soughtafter information society because information exchange in G2C and G2B needs to be efficient.

In essence, eEurope endorses long-term strategic planning for improving equality, because it is seen as essential in an information society. Thus, it is pivotal for EU member states to focus on improving equality by improving skills, whilst also focusing on increasing availability and fast and efficient access to secure good quality information in service provision. In turn, this necessitates proper information management, standardization, integration of ICT and a process-thinking approach to interoperability. Interoperability enables efficient collaborations because it brings about efficient information exchange between public sector organizations and with the private sphere. To a larger extent, using ICT can assist in acquiring the soughtafter cost benefits and it will reduce the administrative burden for both citizens and businesses. Furthermore, the action taken will have an impact beyond tomorrow. The idea of developing a user-oriented information society should be endorsed to ensure transparency and participation. In turn, this builds consumer confidence in the services provided.

3.2.1 The Role of eGovernment for Europe's Future

The EU Commission's publication of 'The role of eGovernment for Europe's Future" in 2003 was a signal of the importance of eGov "*as a means to establish world-class public administrations at all levels in Europe that fully contribute to the Lisbon strategy through new and better public service for citizens and business*" (EU - COM(2003) 567 final, 2003). The document emphasizes the importance of not concentrating solely on ICT. Instead, the focus should be on a combination of ICT implementation and organizational change alongside enabling new skills. In order for Europe to become more dynamic, "*the public sector is challenged to play a key role in modernizing Europe's economy and society*" (EU - COM(2003) 567 final, 2003). Furthermore, eGov is seen as a means to "*deliver better quality public services reduce waiting times and improve cost-effectiveness, raise productivity, and improve transparency and accountability*" (EU - COM(2003) 567 final, 2003). In the document, eGov is defined as:

"*The use of information and communication technologies in public administrations combined with organizational change and new skills in order to improve public services and democratic processes and strengthen support to public policies.*" (EU - COM(2003) 567 final, 2003)

According to the document: "*Obscure procedures, long queues, having to re-enter information that is already held by the administration, and 'one size fits all' approaches are all practices that are increasingly criticized*" (EU - COM(2003) 567 final, 2003). In general, citizens anticipate higher quality and faster response times, with governments (particularly local government) challenged to provide it for them. In order to amend these issues, it is deemed necessary to provide user-oriented development. This requires available and secure information. Implicitly, this also requires organizational changes because the document argues for the "*willingness to rethink established new ways of working*" (EU - COM(2003) 567 final, 2003) in order to build trust and confidence in online interaction with local government.

3.2.2 i2010 – Accelerating eGovernment in Europe for the Benefit of All

In 2005, the EU Commission proposed a new strategic framework: i2010 aimed to "*promote an open and competitive digital economy and emphasizes ICT as a driver of inclusion and quality of life*" (EU - COM(2005) 229 final, 2005). This framework has three priorities:

- Single Europeans Information Space – Europe needs an open and competitive internal market.
- Innovation and Investment – Strengthening ICT research will result in growth and more and better jobs.
- Inclusive European Information Society – To endorse growth and jobs that are consistent with sustainable development, leading to a better quality of life. (EU - COM(2005) 229 final, 2005)

These prioritized areas do not differ much from the focus given in eEurope; it is more or less a paraphrasing of the same areas and the theme is much the same. The main difference is that i2010 takes into account five years of progress towards an information society. It focuses primarily on service provision and how it can be enhanced by ICT. Citizens and businesses are still in the forefront but the focus is more techno centric. For example: "*The Commission will thoroughly examine its principles and mode of implementation, especially where bottlenecks are delaying the provision of faster, more innovative and competitive broadband services*" (EU - COM(2005) 229 final, 2005) and "*Trustworthy, secure and reliable ICT are crucial for a wide take up of converging digital services*" (EU - COM(2005) 229 final, 2005). In principle, i2010 argues that it is important to embed ICT in organizations to integrate it as thoroughly as possible to achieve interoperate organizations. On the one hand, in many cases this requires organizational changes to ensure an efficient and flexible organization. On the other hand, it also requires a focus on

becoming more cost-effective to be able to use ICT to a larger extent by among other thing standardization.

In order to achieve the set objectives, which include "*making sure ICT benefits all citizens; making public service better, more cost-effective, and more accessible; and improving quality of life"* (EU - COM(2005) 229 final, 2005), ICT is still deemed to be an essential aspect. It is acknowledged that since ICT becomes more widely used "*making ICT products and services more accessible, including in regions lagging behind, is an economic, social, ethical and political imperative*" (EU - COM(2005) 229 final, 2005).

Following i2010, an action plan was created that focuses on five major objectives for eGov:

- No citizen should be left behind – This involves fighting the digital divide when government services are provided online.
- Making efficiency and effectiveness a reality – Efficient services save time, money and are valuable for citizens and businesses by reducing the administrative burden.
- Implementing high-impact key services – Through the modernization of services such as electronic public procurement.
- Putting key enablers in place – Ensuring secure communication and infrastructure, enabling interoperability.
- Strengthening participation and democratic decision-making – Better decision-making and participation in all areas is critical for social cohesion.

(EU - COM(2006) 173 final, 2006)

The premise of the action plan is that by 2010 "*all citizens including socially disadvantaged groups, become major beneficiaries of eGovernment, and European public administrations deliver public information and services that are more easily accessible and increasingly trusted by the public, through innovative use of ICT, increasing awareness of the benefits of eGovernment and improved skills and support for all users*" (EU - COM(2006) 173 final, 2006). Thus, the aim is to provide an efficient, integrated and interoperate public administration that reduces the administrative burden for all citizens and businesses. This objective ought to be achieved by providing available, secure, up-to-date and accurate information when needed through efficient collaborations. It is argued that eGov is "*essential to a globally competitive Europe. eGovernment is the key to unlocking potential in the public sector*" (EU - COM(2006) 173 final, 2006).

3.2.3 The European eGovernment Action Plan 2011-2015 – Harnessing ICT to promote smart, sustainable and innovative government

With the greater availability of social media and other innovative technologies, the expectations of citizens and businesses in terms of the delivery of services are thought to increase. The European Commission proposed a new action plan for 2011 to 2015 that focuses on the potential

for collaborative work between local administration, citizens and businesses to meet the increased expectations of citizens and businesses.

The action plan is based on the priorities suggested in the Malmö Declaration (EU, 2009b): "*Efficiency and effectiveness is enabled by a constant effort to use eGov to reduce the administrative burden, improve organizational processes and promote a sustainable low-carbon economy*" (EU, 2010). As was the case with i2010, this does not differ much from the eEurope initiative. One difference is that it introduces the idea of 'green government', which refers to the potential for ICT to allow member states to decrease their negative impact on the environment. EGov is seen as means to empower citizens and businesses and to allow mobility in the single market through the delivery of seamless eGov services. In this case, seamless refers to the integration of ICTs to ensure interoperability. Above all, eGov enables local government administrations to transform administration into more cost-effective, efficient organization that is interoperate, allowing seamless collaboration and ensuring efficient B2C and B2B communication and transactions.

One particular aspect that is included in the latest action plan is the need to transform administration to become more cost-efficient. It is seen as essential for local government and administrations in general to "*provide better service with fewer resources*" (EU, 2010). The emergence of architectural principles and 'clouds' alongside open specifications should bring about improvements in terms of securing, sharing and re-using information. This implies a need for efficient information management from a more holistic perspective, ensuring high information quality and a reduction in unnecessary redundancies in handling data.

The action plan also addresses other aspects that are deemed important, including user-oriented development: "*increasing effective eGovernment means that services are designed around user's needs and provide flexible and personalized ways of interacting and performing transactions with public administrations"* (EU, 2010). Inclusive e-services and collaboration not only in terms of service delivery, together with service production and processes, are also addressed in the plan. "*EGovernment serves as an instrument of change to improve organizational processes in administration and limiting cost*" where interoperability "*is an essential pre-condition for open, flexible delivery and will enable collaboration between administrations in Europe*", thus reducing administrative burdens. It also enables easy access, improved transparency and allows for greater participation. Such benefits are deemed vital because, without trust, consumers will not utilize ICT to the extent required.

3.2.4 Summary of central aspects in EU eGov documents

Since Swedish eGov documents are partially based on EU documents, it is clear that there will be similarities between the two clusters of documents. **Table 3** below is a summary of the central aspects of EU eGov documents. 'X' denotes the central aspects that emerged from the documental analysis.

Table 3: Central aspects in EU eGov documents

Aspect	eEurope	The Role of eGov	i2010	eGov 2011-2015
Collaboration	X		X	X
Information Management	X	X	X	X
Information Security	X	X	X	X
Availability	X	X	X	X
Information Quality	X		X	X
User-oriented development	X	X	X	X
Reduce Administrative Burden	X	X	X	X
Information Exchange	X			X
Increased Use of Standards	X		X	
Integration	X		X	X
Interoperability	X		X	X
Process thinking	X			X
Holistic view				X
Long-term strategic planning	X			
Trust	X	X	X	X
Transparency	X	X		X
Access	X	X	X	X
Cost-efficient	X	X	X	X
Efficiency	X	X	X	X
Service provision	X		X	X
Skills	X	X	X	
Flexible		X		X
Participation	X			X
Accountability		X		
Equality	X			
Green Government				X

4 Enterprise Architecture

The field of Enterprise Architecture emerged in the late 1980s and early 1990s with the publication of J.A. Zachman's study, 'A Framework for Information System Architecture' (J. Zachman, 1987). The framework was later renamed as the 'Enterprise Architecture Framework'. This framework presents a multiperspective approach to architecting systems (Sessions, 2007). Zachman argued that "*issues of quality, timeliness and change are conditions that are forcing us to face up to the issues of Enterprise Architecture*" (J Zachman, 1996b) and that "*architecture is the cornerstone for containing Enterprise frustration and leveraging technology innovations to fulfill expectations of a viable and dynamic Information Age Enterprise*" (J Zachman, 1996b). Architecture is seen as a means to bridge the gap between business strategy and the implementation of ICT to establish an environment that is conducive to change (J Zachman, 1996b).

However, as Zachman (1996b) argued, "*there is not simply a single architectural representation for a complex product. There is a set of representations. There are representations from different perspectives, or roles, being played in the process of producing the product*". Initially, the field of EA addresses two problems: 'system complexity' and 'poor business alignment'. Organizations spend large amounts of money incorporating ICT in organizations. Coupled with this are the difficulties that organizations find in aligning ICT investments with their business needs (Sessions, 2007). Today, several frameworks and/or methodologies exist within the EA domain. Many of these frameworks are very different, something that Sessions (2007) noted in his comparative study of different EA frameworks. The Zachman Framework is seen more as a taxonomy than a framework. TOGAF is more like a process than a taxonomy. FEA is argued to be implemented as an enterprise architecture or a proscriptive methodology. Lastly, Sessions (2007) argued that Gartner is more of an enterprise architecture practice. Sessions (2007) concluded that, among other things, "*none of these approaches is really complete. Each has its strengths in some areas and weaknesses in others*". However he emphasized that "*enterprise architecture is a path, not a destination. An enterprise architecture has no value unless it delivers real business value*" (Sessions, 2007). He went on to argue that "*one of the most important goals of any enterprise architecture is to bring the business side and the technology side together, so that both are working effectively toward the same goals*" (Sessions, 2007).

4.1 Enterprise Architecture – More than a Framework

From the outset, it seems plausible to base EA on the benefits that are claimed; EA is a framework or methodology to acquire a set of benefits. These benefits are discussed in later section in this chapter. However, it is difficult to describe how EA is viewed in organizational development and local eGov adoption solely in terms of EA benefit claims. Following Session's argument, EA can be seen as either a taxonomy or a framework; it can be a process or a practice that assists organizations to acquire a set of benefits by focusing on certain tasks in certain

situations (Sessions, 2007). This implies that EA, as a phenomenon, can be viewed entirely differently in two different organizations.

It can be argued that an efficient way of describing EA as phenomena is to refer to Zachman's description of an EA as a 36-cell grid consisting of different foci (**data**, **function**, **network**, **people**, **time** and **motivation**) alongside 6 different actors' perspectives (planner, owner, designer, builder, subcontractor, and users). Each actor is interesting in acquiring knowledge about *what* kind of **data** an organization needs. *How* he or she could or ought to do the work (i.e., how the different **functions** in the organization being constructed). *Where* in the organizational **network** refers to work that should be done as efficiently as possible. With *what* **people** within the organization he or she should or need to collaborate with. *When* in **time** the task should be done, and when he or she needs **motivation** regarding *why* it should be done.

Figure 6: Enterprise Architecture: A Framework (J Zachman, 2011)

The **What**, **How**, **Where**, **Who**, **When** and **Why** provides what Zachman calls 'abstractions'. He argued that "*when describing an object, it is convenient to isolate a single characteristic at a time. Attempting to deal with all the characteristics at one time would result in such a complex*

depiction it would be incomprehensible, useless." (J Zachman, 1996a). According to Zachman, "*architecture is the set of design artifacts, or descriptive representations, that are relevant for describing an object such that it can be produced to requirements (quality) as well as maintained over the period of its useful life (change).*" (J Zachman, 1996a).

By this, he means that an EA is a tool for describing an organization in such a way that human actors, such as organizational staff, can acquire a holistic view over the organization. In other words: "*Architecture is the total set of intersections between the abstractions and the perspectives that constitute the set of relevant descriptive representations for any object to be created*" (J Zachman, 2007). This knowledge can then be used to transform the organization to one that works towards change to a future state (i.e., enabling the organization to develop towards the overarching strategic objectives that exist within the organization by aligning ICT with the business processes). Whether or not EA frameworks or methodologies differ in term of terminology and focal areas, they still share the same core idea. Furthermore, they all conform in terms of the benefits an organization can acquire with the adoption of an EA.

Enterprise Architecture – Benefits claims

According to (Sessions, 2007), some of the predicted benefits of a successfully implemented enterprise architecture include:

- Improvements in using IT to drive business adaptability.
- Closer partnerships between business and IT groups.
- Improved focus on organizational goals.
- Improved morale, as more individuals see a direct correlation between their work and the organization's success.
- Reduced numbers of failed IT systems.
- Reduced complexity of existing IT systems.
- Improved agility of new IT systems
- Closer alignment between IT deliverables and business requirements.

(Sessions, 2007)

Tamm, Seddon, Shanks, and Reynolds (2011a) addressed the same issues when they conducted a systematic literature review and studied "*key publications on EA, using Google Scholar, and Scopus databases. The search yielded 4392 unique results, which were then ranked based on average annual citation count to identify the most influential publications. The top fifty EA-focused publications were analyzed in-depth*" (Tamm, et al., 2011a). The literature review also included a recent EA benefit survey carried out by Salmans & Kappelman (2010) and a comparative study of some influential practitioner-oriented sources.

Table 4: Tamm, et al. (2011a) summary of Organizational benefits from EA Reported in Literature

Academic Studies	
Systematic Literature Review (50 studies)	(1) increased responsiveness and guidance to change; (2) improved decision-making; (3) improved communication and collaboration; (4) reduced (IT) costs; (5) business-IT alignment; (6) improved business processes; (7) improved IT systems; (8) re-use of resources; (9) improve integration; (10) reduced risk; (11) regulatory compliance; (12) provides stability
SIM EA Survey 2007 (Salman and Kappelman 2010)	(1) improves interoperability between information systems; (2) improves utilization of IT; (3) aligns business objectives with IT investments; (4) more effective use of IT resources; (5) better situational awareness; (6) more responsive to change; (7) improves organizational communications and information sharing; (8) assists with organizational governance; (9) improved ROI from IT spending; (10) less wasted time/money on projects which do not support business goals/objective; (11) more effective at meeting business goals; (12) improves IS security across the business; (13) better collaboration within organization; (14) improves communications between the organization and IT department; (15) reduced IT complexity; (16) reduced organizational stovepipes; (17) faster development and implementation of new IS; (18) standardizes organizational performance measures; (19) improves communications within organization
Professional Sources	
Infosus EA Survey 2007 (Aziz and Obitz 2007)	(1) reduced IT cost; (2) higher business and process flexibility; (3) improved customer satisfaction; (4) enabling of business and process change; (5) better business-IT alignment
Infosys EA Survey 2009 (Obitz and Babu K 2009)	(1) improved customer satisfaction; (2) reduced IT cost; (3) business process improvement/ standardization; (4) better business-IT alignment; (5) higher business and process flexibility
TOGAF 9 (The Open Group 2009)	more efficient IT operations; lower IT costs; maximum ROI from existing IT; reduced risk for future IT investments; reduced IT complexity; faster, simpler, and cheaper procurement
Zachman International (Zachman 2001)	(1) alignment enabler; (2) integration enabler; (3) change enabler; (4) reduced time-to-market

From the literature review (Tamm, et al., 2011a), it was possible to aggregate the benefit claims and present an EA benefit model:

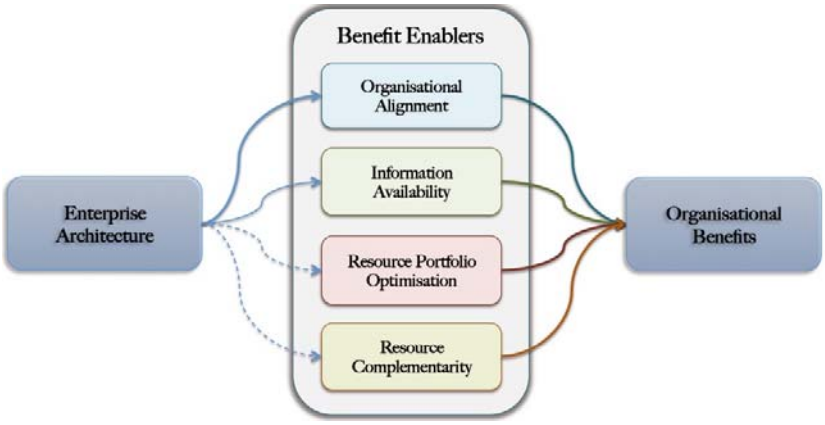


Figure 7: EA Benefit Model (EABM)

This model posits that "*it is through improvements in organizational alignment, Information availability, Resources Complementary, and Resource Portfolio Optimization that EA leads to organizational benefits*" (Tamm, et al., 2011a).

In their discussion on the merits of EA, Tamm, et al. (2011a) concluded "*that some organizations under some circumstances' may be better positioned to benefit from EA investments than others*". What affects an organization's potential to acquire the benefits of adopting EA is, according to Tamm, et al. (2011a), dependent on issues such as operating model of the organization, susceptibility to organizational change, and environmental factors. Moreover Tamm, et al. (2011a) went on to argue that, "*EA benefits discussed in literature depend on the enactment of the EA plans*". In itself, this is not surprising given that the purpose of EA is to assist the organization in building an improved operating platform. However, the operating platform can and does exist and evolve regardless of EA, since all organizations have processes and ICT systems; however, not all organizations fully engage in EA planning. Guijarro (2007) also emphasized this, stating that EA use within governments is largely dependent on the executive officers' familiarity with EA management tools and practices. Without such knowledge, adoption has to be made on other premises.

However, the four benefits suggested in the EA benefit model lack the granularity that would allow an accurate comparison of the central aspects of an eGov documents analysis of EA benefit claims to be made in this thesis. Based on studies of EA benefit claims carried out by Tamm, et al. (2011a) and Sessions (2007), however, it is possible to derive the main aspects of EA.

Much of the existing EA literature has highlighted the need to reducing the administrative burden in order to improve customer satisfaction. Such studies have suggested that EA assists in long-term strategic planning by helping organizations to achieve closer alignment between ICT deliverables and business requirements, thus reducing insecurities for future ICT investments and offering a degree of stability. EA provides a foundation for efficient collaboration in general and within organizations in particular. It defines clearer responsibility by reducing complexity of

existing ICT systems. EA also assists in making organizations more cost-effective by, among other things, providing the means to reduce ICT costs, improving ROI for investment and enabling less wasted time and money on projects that do not support an organization's overarching objectives, making the procurement process more efficient. EA can also bring about greater efficiency through improved agility of new ICT systems, better decision-making, thus enabling the organization to work more efficiently towards organizational objectives. The benefits also address flexibility in terms of enabling organizations to improve situational awareness, thereby increasing their responsiveness to change. EA also helps to make processes more flexible through process thinking, which accelerates the development and implementation of new ICT. The claim that EA enables employees to see the correlation between their work and organizational success and that this both improves focus on organizational goals and ensures regulatory compliance suggests that EA provides employees with the means for a more holistic view over the organization. To a larger extent, EA benefits could also address the use of standards in terms of improving business processes and standardizing performance measures. According to existing literature, EA could also improve information exchange, making communication more efficient as well as improving information management and information quality. The latter could be brought about by the re-use of resources allowed by EA, which leads to a more effective use of ICT resources. Given that EA provides a more holistic view, it has also been argued that EA enables improvements in information security to be made across businesses. Integration and interoperability are major benefits to be gained from EA, because it improves utilization of ICT, provides more efficient ICT systems and thus reduces organizational stovepipes.

In summary, it has been argued that EA, as a phenomenon, has the following central aspects:

Table 5: Core concepts in EA according to literature

Core aspects of EA	
Administrative Burden	Information Exchange
Collaboration	Information Management
Cost-efficient	Information Quality
Define clear responsibility	Information Security
Efficiency	Integration
Flexibility	Interoperability
Holistic View	Long-term strategic planning
Increased Use of Standards	Process-thinking

4.2 EA Thinking

It has been argued that there are no silver bullets for eGov adoption; implicitly, this means that EA should not be seen as one either. Hjort-Madsen (2009) accentuated this argument, stating that "*it is wrong to disclaim the entire theoretical IS heritage and to believe that we have found a new*

'silver bullet that will fix our integration and interoperability problems in government tomorrow". According to Hjort-Madsen (2009), "*there seem to be a cleavage between the EA rhetoric and the reality of the shop floor*". Thus, EA can only put forward good practices; these then require extensive adaptation to fit them within current organization. In his discussion on 'EA rhetoric', Hjort-Madsen (2009) took as his starting point the way in which EA frameworks and methods are rationalized discussing 'EA-rhetoric' and argues. That here are six different objectives that can be found in contemporary EA frameworks and methods: *Strategy and business orientation*; *planning*; *synergies*; *adaptability*; and *transparency and communication between the business and ICT community.* According to Hjort-Madsen, the use of EA frameworks serves as leverage between ICT and business, allowing targeted planning to provide synergies that, in turn, make local government more transparent and adaptable in terms of market, business, and ICT - creating a heterogeneous environment.

Grönlund (2009) addressed Guijarro's (2007) study on interoperability frameworks and concluded that, in many cases, the use of EA in a decentralized system prescribes that local government focus on at least three key aspects: *budget, condition* and *organizational barriers.* Grönlund argued that, if local government organizations do not conform to the EA models endorsed, their projects will not receive the necessary funds to succeed. Following this argument Grönlund compared NPEG to the EA model, concluding that NPEG does not provide a clear steer for local government to deal with the organizational and services issues on their own. According to Grönlund (2009), this "*is in agreement with the Swedish tradition, but in disagreement with EA thinking*". Grönlund (2009) drew on work by Weill (2007) and defined EA in general as being "*the organizing logic for business processes and IT infrastructure reflecting the integration and standardization requirements of the firm's operating model*". He went on to argue that it encompasses a business-based framework for cross-agency, government-wide improvement.

A study by Cook et al. (2004), which examined the New York State-Local Internet Gateway Prototype project, addressed 'enterprise-thinking' as a theme that "*forms the basic structure of effective state-local business relations*" (Cook, et al., 2004). They argued that 'enterprise-thinking "*focuses on the broad purposes of government and relies on a complete understanding of the business processes that accomplish those purposes*" (Cook, et al., 2004).

The discussion on 'enterprise-thinking' by Cook et al. (2004) is similar to Grönlund's (SOU 2009:86) discussion on 'EA thinking'. So too is Hjort-Madsen's (2009) discussion on 'EA-rhetoric'. Henceforth, the term 'EA-thinking' will be used. Moreover Weerakkody, et al. (Weerakkody, et al., 2007) has pointed out a lack of research into the results of EA adoption and use in practice. This may be because few local governments adopt a specific EA framework or method; instead, they work in accordance with EA-thinking. According to Ebrahim & Irani (2005), an "*organization must have a clear understanding of architecture frameworks from both a technical and information management level*". When local government organizations plan to

adopt eGov, they need to assess their business models as well as select technological solutions that best suit their organization in order to be able to acquire the benefits of ICT implementation. ICT is seen as a key to rationalization and modernization changes (Dunleavy, Margetts, Bastow, & Tinkler, 2006 & Tinkler, 2006). Thus, failing to take advantage of what ICT usage could offer local government could lead to an inability to share data because of incompatible ICT systems, high maintenance costs and so on (Hjort-Madsen, 2009). According to Ebrahim & Irani (Ebrahim & Irani, 2005), there are significant differences in how local governments are structured. There are also numerous technologies at their disposal (Grönlund, 2009). Local government needs to acquire an understanding of architecture frameworks. Given the diverse structural nature in local government and an abundance of possible ICT solutions, the basic foundations required by local governments in term of understanding architectural frameworks are ambiguous. In particular, Sessions (2007) argued the diverse nature of EA as a phenomenon that can be seen in various ways depending on the perspective taken (as discussed at the beginning of chapter 4 of this thesis).

It is possible to explain EA-thinking by taking contemporary EA literature as a starting point (Gottschalk, 2009; Grönlund, 2009; Guijarro, 2007; Hjort-Madsen, 2009; Weerakkody, et al., 2007}. These studies have put forward various definitions and discussions on what interoperability and EA ought to offer organizations. From these researchers' points of view, the concept of 'EA-thinking/EA-rhetoric' can be seen as an aggregated term from the objectives found in using EA frameworks and methods. Although EA-thinking does not prescribe a pre-knowledge of EA per se, it does infer prior knowledge of the aspects that make up its central core.

Hjort-Madsen (2009) discussed contemporary EA frameworks and methods on the premise that a core objective is strategy planning. Grönlund (2009) argued similarly as did Weerakkody et al. (2007) and Gottschalk (2009) in their discussions of EA, in which EA was seen as being used for planning and management. Integration and interoperability have been addressed by many authors, including Guijarro's (2007) discussion on application integration and Weerakkody, et al. (2007) on enterprise-wide integration. Hjort-Madsen (2009) discussed the synergies that organizations can acquire from interoperability. Guijarro (2007), Grönlund (2009) and Gottschalk (2009) also discussed interoperability as a core aspect of EA use. Whilst not all have discussed EA from an economic perspective, they have argued for the need to maximize benefits from ICT usage, including lowering costs as a result of collaboration, automation, and standardization and improving flexibility and adaptability. EA also provides a firm foundation for information management; for example, Guijarro (2007) and Weerakkody, et al. (2007) addressed the benefits and need for information exchange in particular and the sharing of resources in general. Gottschalk (2009) argued for interoperability in terms of creating an agile organization, suggesting a focus on adaptation. Grönlund (2009) and Weerakkody, et al. (2007) argued along

similar lines. Hjort-Madsen (2009) discussed EA and its potential for pinpointing organizational capabilities.

To sum up, it is possible to develop a metaphorical vision of a puzzle as seen in **Figure 8**, where 'EA-thinking' serves to assist in completing a conceptual puzzle. The conceptual puzzle consists of several different, albeit related, aspects. These have been interpreted as the core aspects needed to succeed in ICT adoption in an organization, whether the pre-knowledge of these central aspects come from EA -literature or elsewhere.

Figure 8: 'EA-thinking – The conceptual puzzle

Given that a concept presupposes an abstraction level, it is difficult to connect a more tangible IT architecture with strategic planning or economic issues; thus, there is a need to bring order to this chaos. In general, EA is often conceptualized as having different layers or dimensions. Zachman (1987) presented a description of an organization, using a framework that consists of dimensions on the X-axis: Data (*what*), Function (*how*), Network (*where*), People (*who*), Time (*when*), and Motivation (*why*). On the Y-axis, there were different perspectives: Scope (*contextual*), Business model (*conceptual*), System model (*logical*), Technology model (*physical*), and Detailed representations (*out-of-context*). On the other hand, the Extended Enterprise Architecture Framework (E2AF) (IFEAD) depicts an organization that is similar, although it does extend the matrix. It can be argued that, in E2AF, additional abstraction levels or "viewpoints" exist, which need to be acknowledged and accounted for, depending on the organization. Such viewpoints could relate to, for example, security or economy; as such they should be identified and handled appropriately.

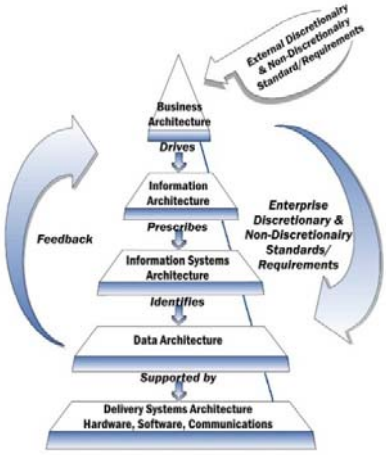


Figure 9: NIST EA-model (Fong & Goldfine, 1989) illustrated in (CIO Council, 1999)

The NIST EA-model focuses on the architecture and describes an organization (see **Figure 9)**, in which intangible aspects are implicitly part of the model.

Regardless of which model chosen, the rationale behind all of them is the same: by dividing the organization into smaller parts, employees and decision-makers can acquire a more holistic perspective. 'Bringing order to chaos' and acquiring a holistic view over the organization is the overarching objective of both EA in general and EA-thinking.

I do not disagree entirely with Cook, et al. (2004), Grönlund (2009) or Hjort-Madsen, (2009), nor indeed with any of the other researchers who discuss interoperability and EA use in eGov adoption. However, it is important to elaborate further on 'EA-thinking'. Taking Hjort-Madsen's (2009) reasoning on IS heritage even further, it is possible to argue that it is precisely this IS heritage that is often acted on in local eGov adoption rather than an explicit action to use a specific EA framework or EA method. In their efforts to emulate core aspects found in EA, eGov projects begin organizing local government eGov adoption in accordance with what an EA framework or method ought to provide an organization if an explicit framework had been used. In essence, eGov adoption projects begin to work in line with EA-thinking, although without the tools an explicit framework would provide to support the work in the direction of successful eGov adoption.

5 The Case of Örebro City

Örebro city has some 11,000 employees and a population of over 130,000 (Örebro municipality executive board, 2006). The development towards e-services has been going on for many years, although it is impossible to establish a fixed starting point because the target has moved. Starting from setting up a website in the mid-1990s, steps forward have been taken on several occasions. In 2001, the idea of the '24 hour agency' arose as a result of a national government initiative. In 2004, the first project aimed at integrating the city's IT, known as the "e-Platform", was launched. In 2005, a budget of 0,8 MSEK was set aside for the coordination of e-services and, in 2007, the responsibility for implementing ICT and eGov adoption was transferred from the IT Advisory Board to the MovIT project (described below). The purpose was to achieve more powerful coordination, with control transferred from IT personnel to the direct control of the CEO (the job title of Chief Executive Officer is increasingly being used for the highest administrative official in Swedish cities).

After the 2006 election a new political majority expressed a need for Örebro city to become more citizen oriented, as shown in **Figure 11**. In the budget for 2007, it was stated that the focus and primary goal for the city's activities must be its citizens and their choices in life. Whether the citizen is a student, tenant, user, client or customer, she should always be the centre of municipal efforts. Thus, the city's departments do not exist as an end in themselves; instead, the citizens are always the most important stakeholders. The aim must be to improve their quality of life by allowing them to engage in the decision-making processes at an early stage, which will create better-informed citizens and a stable democracy. (Örebro municipality executive board, 2006).

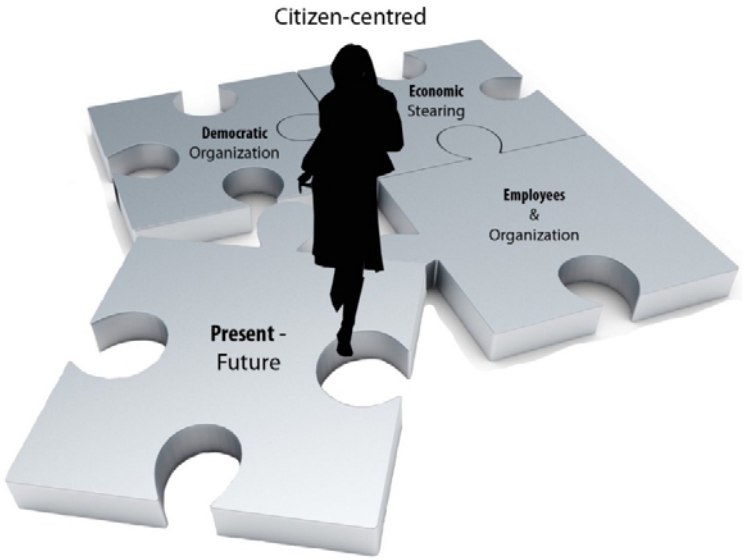


Figure 10: Citizen-centred (Örebro municipality executive board, 2006) (author re-make)

To implement this political desire, it was necessary for the city to improve services for businesses and citizens by improving their efficiency and accessibility. The motivation was for citizens to see the city as a service provider and bring clarity as to the kind of services provided. Thus, the city launched MovIT, a project that would focus on processes, directly affecting its citizens, and reorganize the internal supporting structures accordingly - to move the organization to towards a whole out enterprise. Streamlining internal processes within the city included implementing automation and self-service where possible, and relocating staff to enable the city to respond to citizen's needs in a more direct and effective way.

Launched in 2007, the MovIT project began by developing a new website design and structure through which it was planned to adopt several e-services. During the eGovernment project, there had been plans to develop and adopt internal documents to support a new citizen-centered way of working. This necessitated the coordination of departmental processes in order to enable the development of more simplified processes and activities. Documentation of the process analysis could be used to increase administrative transparency, as the city could inform citizens as to what, how and why officials acted as they did. Plans for automation and/or rationalization were suggested and, if possible, Focus was transferred from administrative work to core work. It was also important to build citizen trust. This was to be achieved by creating a unified platform for citizen contact. When a citizen accesses a particular service, it should be apparent that this service is being provided by the city. Ideally, all e-services should look and feel the same so that, once a citizen has learned to use one service, they can easily use them all. MovIT was managed by a steering committee (SC) that had the operational responsibility to plan and set goals for the project.

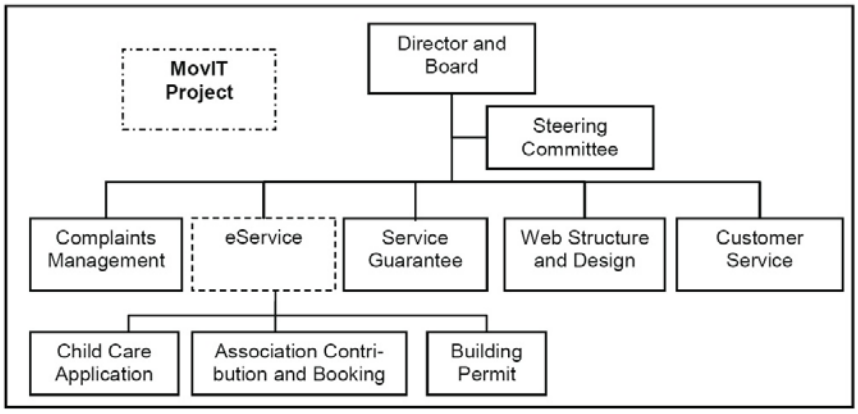


Figure 11: Project structure

I was invited to be part of the SC foremost as an observer and secondly as a knowledgeable eGov PhD student. My role was clearly defined beforehand to diminish the risk bias in terms of my research. By being part of the SC, however, it would be erroneous of me to suggest that I did not have an impact or more accurately diminish my chance of affecting the actions taken and impact

on how actors in the project acted or talked about the project when I was observing them. As Sharan (1994) argued, it is not a matter of 'if' observation affects actions taken; rather, one should acknowledge the effect that observation has and determine how best to handle it to ensure research quality. I am not part of the administration; thus, I did not have any decision-making powers. This provided me with a foundation to work from so as to minimize risk of bias. I was, however, endorsed to make suggestions and bring up concerns regarding action plans and the actions eventually taken. My suggestions could lead to action plans and thus, implicitly, I could have impacted on the project. The question then is one of how and in what way this would affect the study. I decided to use co-authors for the published papers to diminish the risk of bias since co-authors have no effect on the project. This gives me an action space in which to elaborate on interpretations made and discuss my involvement and interpretations where they could be colored by my own involvement. Moreover, I was quickly seen as "one of the members". Thus the SC members and project members in general became very open in their discussions of the positive and negative aspects of the project. This helped in ensuring reliable outcomes.

The eGovernment project was initially made up of several sub-projects. Dealing with citizen empowerment was managed under two collaborating sub-projects: complaints management and service guarantees. One sub-project would have the objective of implementing the new website design and structure. E-service development was divided into one sub-project for each e-service; later, it was transformed into a sub-project for eService implementation in general (as indicated by the dotted box in **Figure 11)**. One project would focus on the development and implementation of customer service for the entire administration.

The SC followed EA-thinking where it focused on acquiring an holistic approach: "*we could not implement an eService without doing a thorough analysis of our processes and organization because the added value to citizens could not only come from just providing the service online, we also needed to make our processes and our* organization *more efficient* (Steering committee member" November 28, 2007). A focus on strategy planning was set to ensure future adaption at a low cost. It was also to endorse improvements in terms of integration and interoperability. In particular, enterprise-wide integration was deemed essential for succeeding with the objectives of the project. The focus also had a clear economic perspective, with the SC arguing that an important issue for eGov adoption was the fact that the city of Örebro is a member of Municipalities for Joint Development of e-Services (SAMBRUK) – a joint cooperation between 86 municipalities in Sweden for the development and procurement of e-Services (SAMBRUK, 2011). It was deemed vital to draw on this cooperation as it would enable the project and the city administration to procure ICT at lower costs. The SC strived to make the administration more effective, enabling cost savings through automation, efficient collaboration and standardization of both ICT and processes. The SC also wanted to focus on improving information management, information security and information quality in order to remove redundancies and allow different departments to efficiently share information when needed.

6 Result and Analysis

The results of the longitudinal case study are presented in this chapter. These results were drawn from the empirical work conducted for the three papers and the additional work carried out as part of the cover paper to explore the role of EA in eGov adoption in general and in Swedish local eGov adoption in particular. First, an examination of the prerequisites for using EA in Swedish local eGov adoption is carried out by comparing the document analysis of eGov documents and guidelines in EU and Sweden with the analysis of EA benefit claims put forward in existing literature. These prerequisites are then addressed in terms of discussing critical issues for eGov adoption, as first discussed by Ask et al. (2008), and the competing structures that arise when NPM meets eGov (first presented in (Ask & Grönlund, 2008). The second section looks at goal achievement to explore what the Swedish local government in Örebro achieved with EA use (Ask & Hedström, 2011). The third and last section addresses the problems experienced and which are addressed in all three papers (Ask & Grönlund, 2008; Ask, et al., 2008; Ask & Hedström, 2011)

6.1 Prerequisites for using EA in Swedish local eGov adoption

For the purpose of this thesis, two different, albeit related, aspects of prerequisites need to be examined. One relates to the assumptions made as to the benefits of EA use in eGov adoption. The second relates to how EA in local eGov adoption assists in practice. Assumptions of EA benefits in eGov are addressed by exploring the document analysis carried out as part of the cover paper; whereas the second aspect is addressed by exploring the findings from the first two papers published.

6.1.1 Assumptions of the benefits of EA use in eGov adoption

Grönlund (2001) argued that eGov consists of three main areas: *formal politics*, *administration* and *civil society* (**Figure 12)**, and the association between them.

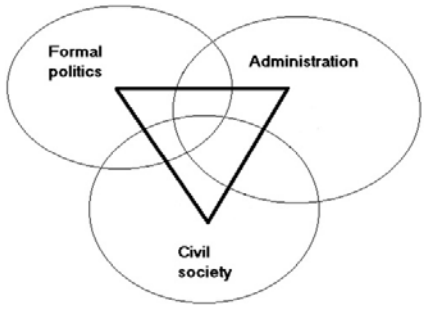


Figure 12: eGovernment (Grönlund, 2001)

However, the documents presented in **Figure 4** do not really make an explicit distinction between formal politics and civil society. Either the documents address sociopolitical aspects or they address departmental efficiencies. It is useful, then, to follow the same reasoning found in the

documentation and discuss eGov from these two areas. It is possible to discuss the documents from the two distinct focal areas without the risk of missing important aspects. The reason for consolidating formal politics and civil society is because there is a difference in focus between EU and Swedish documents that suggests this division. EU documents focus on eGov and its enabling properties for the improvement of sociopolitical aspects and then improvements in civil society as a whole. Swedish eGov documents focus more on the potential of eGov to enable improvements in administrational effectiveness. Sociopolitical aspects are of course discussed in Swedish documents as well, but it is done more on the premise of ensuring that citizens use the services, allowing local government to acquire the soughtafter administrational benefits. Similarly, EU documents address administrative efficiency, although it is the sociopolitical agenda that takes precedence. Differences between EU and Swedish eGov documents most likely exist because the EU has to address eGov at a European level, encompassing all countries within the EU, whereas Swedish eGov documents serve only Sweden.

Despite the difference in focus between Swedish and EU eGov document clusters, a majority of aspects can be found in both, including the importance of working to integrate ICT in agencies within administration, and focusing on the provision of available and interoperate services for B2C and B2B through ICT integration. There is a need to achieve convergence between different agencies, internally and externally, which requires improved information management, both in terms of quality and exchange. Both EU (e.g. eEurope, i2010) and Swedish eGov (e.g. Bill 2004:05:175, NPEG) document clusters have argued that, for eGov adoption, there is a consequential need to increase ICT usage within the administrations, both in terms of improving administrative interoperability for administrations but also to provide benefits for citizens and businesses in term of reduce the administrative burden to enable service delivery to citizens or business when needed.

The clusters also differ slightly in term of actual planning. EU documents stress the need for efficiencies, flexibilities and service provision in general. Swedish documents tend to highlight the need for long-term planning, and the need for a holistic view over the processes in the administration. They also address the need to: define clearer responsibility internally, enable automation to a larger extent, and actually transform the local government so it becomes sufficiently efficient, and flexible to deliver services effectively.

By taking as a starting point the central aspects put forward in the Swedish and EU eGov documents, it is possible to carry out a comparative analysis that brings into question the EA benefit claims made in contemporary literature. Those put forward by Tamm, et al. (2011a) and Sessions (2007) put forward a ‘blueprint’ of aspects or goals that local governments ought to acquire by embracing EA in their eGov adoption. The matrix below (**Table 6)** presents a consolidation of **Table 2** and **Table 3** on the *X-axis* and, on the *Y-axis,* presents EA benefit claims from **Table 5.**

Table 6: Central aspects of eGov in relation to EA benefits claims[2]

EA / eGov	Red. Admin. Bur.	Collaboration	Cost-efficient	Responsibility	Efficiency	Flexibility	Holistic View	Standardization	Inf.. Exchange	Inf. Management	Inf.. Quality	Inf.. Security	Integration	Interoperability	Strategic planning	Process thinking
Access																
Accountability																
Reduce Administrative Burden	X															
Automation																
Availability																
Collaboration		X														
Cost-efficient			X													
Define clear responsibility				X												
Efficiency					X											
Equality																
Flexible						X										
Green Government																
Holistic view							X									
Increased Use of Standards								X								
Information Exchange									X							
Information Management										X						
Information Quality											X					
Information Security												X				
Integration													X			
Interoperability														X		

[2] The greyed lines indicate eGov goals that is not discussed when it comes to EA benefit claims. X indicates that the concept is discussed in both eGov documents and as an EA-benefit claim in contemporary literature

Long-term strategic planning															X	
Need-driven development																
Participation																
Process thinking																X
Service provision																
Skills																
Transparency																
Trust																
User-oriented development																

From the matrix, it is possible to pinpoint a mismatch between EA and eGov. According to the comparative study, EA usage in eGov adoption implies that EA will not provide assistance for local government in more sociopolitical areas. In effect, this forces local government to address these aspects by other means. Sociopolitical aspects are a key area of eGov documents. In particular, it is argued that eGov ought to enable aspects such as *access, accountability, availability, equity, green government, participation, provision of skills, transparency, and trust,* which are not supported by EA. Moreover, EA benefit claims in literature do not argue for benefits in terms of *need-driven development* or *user-oriented developments*. EA does not explicitly assist in matters such as *automation* and *service provision* either, since EA does not presuppose these aspects. It could be argued that automation and service provision in local eGov adoption will be positively affected by EA use implicitly, given the focus of reducing the administrative burden in G2B and G2C.

Following the analysis, it can be argued that the use of EA in local eGov adoption ought to assist local government in providing a platform for improving or increasing process thinking in its development processes. EA use should provide assistance to integrate ICT with administrational processes. It should also enable the organization to reduce the administrative burden for G2B and G2C by making processes more efficient and the organization more flexible. EA ought to assist local government by endorsing an increased use of standards and promoting collaboration both horizontally and vertically within the organization, as well as with external stakeholders. The use of EA ought to enable local government to make improvements in term of information management, information exchange, quality and security. It should enable decision-makers to acquire a more holistic view over the organization. EA use should enable local government to plan more strategically for longer time periods, ensuring the development of a more cost-efficient organization, with clear and defined responsibilities. EA ought to assist local government in achieving convergence and interoperability, both internally and with external stakeholders.

6.1.2 Critical Issues

It is one thing to initiate a discussion on how the use of EA in eGov adoption will enable local government that is based on literature study, or on eGov documents. However, it is another matter altogether for local government to go from 'ought' to 'provide'. It can be argued (Klievink & Janssen, 2009; Orlikowski & Iacono, 2001) that the transformation needed for eGov is not instantaneous and requires various new ways of working. Often, local government lacks a generic architecture (Hjort-Madsen, 2006) to enable communication between front and back office as well as with external ICT systems.

Studying eGov adoption in Örebro has shown that there are several critical issues that impact on the potential for local government to succeed with eGov adoption when working towards a whole-out enterprise following EA-thinking. The factors found to have a significant impact on the outcome of local eGov adoption were first presented by Ask, et al. (2008):

1. **Distinction between administrative and political responsibilities:** Any guarantees given to citizens on what she can expect in terms of service delivery have to be both legal and meaningful. In order for them to be useful, they need to provide real value to citizens. Issues arise when important things like "good education" cannot be guaranteed but rather elements of it, such as accurate information, can. Making service guarantees explicit also makes it clear where administration ends and where politics begins. This puts new pressure on politicians and civil servants. The foci of politicians and civil servants may differ in many cases, not because they do not share the same overarching objective, but because legal and other constraints may prohibit or prevent a civil servant from focusing directly on what politicians want. Administrative responsibilities may result in the project's focus being moved to other aspects than those originally intended, even though the result is, to all intents and purposes, eventually the one requested by the politicians.

2. **Political mandate:** MovIT developed documents that gave a detailed description of what citizens are guaranteed to receive from service delivery in Örebro. Local government projects like MovIT are endorsed to work according to eGov documents and guidelines as these are deemed to be critical instruments for convergence across city departments, both generally and in terms of forming a basis for developing standardized eServices. The guarantees are a direct result of political directives; without them, important tools would not be available.

3. **Political timing:** Political directives often come with time limits. In addition, politicians cannot dictate how certain actions should be done. This is because there are distinct differences between the political and administrational realms. In addition, self-governance is a highly institutionalized structure within local government, and local governments follow a NPM governance model. Thus, politicians have to focus on more strategic and

general terms, such as setting the agenda for time restraints to ensure that the administration works towards the overarching objectives. The study showed that this is beneficial in that it spurs on action. However, it can also cause trouble because it may affect quality. In the case of MovIT, a clear political wish for quick results was given the highest priority and all other criteria were adjusted accordingly.

4. **Resource allocation:** One of the critical points of NPM is resource allocation. As resources are distributed to individual departments, resources for projects have to be negotiated, even in a case like this, when political directives are strong. The result of the negotiations depends on individuals. It is basically the charm of the project manager – and of course any political pressure that she is able to put on departments – that makes the difference between failure and success. This pressure can come also come from other policies.

5. **Coordination under NPM:** Under the NPM model, individual departments are in charge of their budget. Any attempt at coordination must be more by carrot than by stick. Carrots include central funding; in this case, the IT plan and MovIT. Sticks may include legal regulations, although these are typically not detailed enough to prevent issues like the ones described here. This is precisely because the NPM model is supposed to encourage business thinking at a department level and, hence, real choices must be made at that level.

6. **Dependence on providers:** It is a long-standing problem that cities are in the hands of their suppliers. The study showed that these do not necessarily want cities to join forces to get better deals from providers. Also, it is hard for cities to engage with new providers. They often feel comfortable with the one they use and, in addition, they may find that handling many is generally more complicated.

7. **Choosing among standards and best practices:** While standards are clearly useful, they often come in the form of de facto standards or best practices and are therefore hard to discern. Timing is important. Over-standardization at an early stage may prove both costly and cumbersome, but so will waiting too long to use established best practices.

6.1.3 Competing structure when NPM meets eGov

From the initial study, it became clear that the governance model used in local government had a great impact not only on how the organization is structured, but also on the initiatives that local government can take, given certain situations. A common theme for the critical issues discussed by Ask & Grönlund (2008) is that, with a lack of national plans (*brought about by the documents being, to all intents and purposes, initiated voluntarily*) local organizations are struggling to find development models, including EA frameworks that are interoperable beyond the organization

and any economic responsibilities. During eGov adoption, local governments are faced with not only having to rely on external providers, but also the negotiation of resources internally. Even though collaboration is seen as a prerequisite, the governance model leads to struggles involving both cumbersome partnerships and makeshift solutions. Observations presented in the literature (Ask & Grönlund, 2008; Ask, et al., 2008) have shown that the structures that are created on the basis of NPM leave these factors open to local choice and the influences of strong individuals and groups, as well as to chance. NPM leaves these issues to be filled by negotiations among the many actors, all of whom have different roles, goals and action spaces.

NPM has many critics, who typically point to the differences between the public and the private sectors and show that NPM tends to ignore these differences (Boston, Martin, Pallot, & Walsh, 1996 & Walsh, 1996). In addition, there has been criticism that NPM is past its best (Hughes, 2003), and that other forms of government are appearing. It is claimed that such forms are related to the emerging practices of government networking, federalism, new active relations with citizens, and so on. Other issues may also be relevant, including those identified within NPM, such as politics, whole-system thinking, and person-centeredness (a return to the citizen rather than the customer). "Digital Era Governance" is one candidate (Dunleavy, et al., 2006). However, so far, NPM still remains the preferred management strategy in practice and, since the governance model impacts on eGov adoption, it is important to understand its impact.

Table 7 shows the Ask & Grönlund's (2008) findings, and presents the challenges of NPM in relation to eGov:

Table 7: Challenges of NPM and eGov

MovIT challenge	Reference eGovernment goal(s)	NPM features, tools and methods	eGov features, tools and methods
Distinction between administrative and political responsibilities	More efficient administration; Better services to citizens; Transparency and improved democracy	Blurred. Politicians can at any time make changes that affect operations	Clear. EGov draws on standards and interoperability which makes direct political intervention hard and slow.
Political mandate	More efficient administration; Better services to citizens; Transparency and improved democracy	Given within department. Across departments based on business agreements.	Relies on national standards and guidelines making political mandate less important in details
Political timing	More efficient administration; Better services to citizens; Transparency and	NPM directly implements political goals to the extent they can be specified in terms of actions, i.e., by budget	Most infrastructural items, e.g. Enterprise Architectures, are designed to provide long-term stability and avoid direct, and hence potentially disrupting,

	improved democracy	measures	political influence
Resource allocation	More efficient administration	Department budgets, service quality measures	Usually based on adherence to national plans regarding interoperability, process integration, standards, access, etc.
Coordination	More efficient administration	Coordination within departments centralized. Coordination across departments dependent on business agreements	Strong focus on standards and interoperability
Dependence on providers	More efficient administration	NPM makes scale advantages hard to achieve across departments; open to business agreements.	Scale advantages: National standards for software. National requirements for functionality. Enterprise architectures
Choosing among standards and best practices	More efficient administration. Better services to citizens and companies	Across departments based on business agreements.	Measures for service quality, interoperability, access, usability, etc.

The competing structures derived from eGov and NPM create a rather problematic situation for Swedish local government. As shown in **Table 7**, NPM leaves many issues that are critical to eGov success open to political decisions. This is somewhat surprising, given the basic idea of NPM. The NPM model blurs the distinction between political and administrative mandates by making interoperability issues dependent on many political decisions rather than one. In the Örebro case, a sudden political wind change did indeed spur on integration but, as a consequence, resource allocation and goals were made in a hurry to meet the new political deadline, based on enthusiasm among managers and project leaders. This certainly made positive things happen, but what about the next political wind change? Will the somewhat makeshift arrangements adopted now be strong enough to survive it? The structural issues surrounding the critical issues and the problematic issues surrounding NPM as governance model mean that the use of EA in Swedish local eGov adoption becomes a breeding ground for problems. Structures created are counterproductive for eGov adoption; the NPM creates structures that prevent a more explicit use of EA frameworks and EA methods.

6.2 Goal achievement – What has the Swedish local government in Örebro achieved with its use of EA in eGov adoption?

In its efforts to achieve the requested results without explicitly following an EA framework, the project did what could be argued to be the next best thing; it followed EA-thinking. In this way, it sought to emulate benefits to the project that were similar to those that could have been achieved if it had been able to follow the EA framework.

MovIT was launched by a political incentive towards making the city more citizen-centered: *"…Citizens and their choices in life are primary goal of the City. Whether the citizen is a student, tenant, user, client or customer she should always be the centre of the municipal efforts. No departments in the City exist as an end itself; the citizens' are always the most important stakeholder: The aim must be to improve quality of life for the citizens, by allowing them to take part in and engage in the decision-making processes at an early stage, which will create more well informed citizens and a stable democracy*" (Örebro municipality executive board, 2006). The MovIT project was launched to achieve the changes requested, thus allowing the administration to begin its transformation. MovIT would consist of a SC that would have the overarching responsibility for the project. The SC would initiate several sub-projects to do the actual work of making the administration become more citizen-centered. This meant that the SC based its attempts to achieve the objectives on the politician's wishes and the SC members' understanding of the same. They exercised their power by allocating resources following the norms endorsed by the NPM governance model, eGov documents and their view of EA-thinking to ensure that the project worked towards the requested result. The SC endorsed the idea of the project acquiring a holistic approach: "*We could not implement an e-service without doing a thorough analysis of our processes and organization because the added value*" to work towards the simplifying of processes, to improve collaborative work, and to integrate ICT to a larger extent within the administration, to bring about interoperability. The project focused on endorsing improvements to departmental efficiencies. Objectives of a more sociopolitical nature, including availability, access, participation and transparency, were to be achieved indirectly through administrational efficiency work.

The SC became more or less inclined to focus primarily on departmental efficiency, despite the fact that the political objectives were couched in terms of moving towards making the city more citizen-centered. Whilst the SC strived to ensure that this was achieved, its actual work was based on the premise of improving efficiencies. The shift in focus from improvements for citizens to departmental efficiency work can be related to the distinct *difference between administrative and political responsibility*. Politicians are only allowed to set the agenda through *political mandate*, such as eGov documents and guidelines. They also affect the project and its outcome by *political timing*. Even though politicians cannot demand how the work is actually done, they do have a say on what and when it should be done. With self-governance being an institutional property within local government, and eGov documents and guidelines not being mandatory, this as Grönlund

(2009) has argued, leads to a lack of clear steering. It becomes an issue for the SC to steer the project in order to lead the administration towards the objectives requested, as they see fit. Because of the discrepancy between the political and administrational realms, the SC develops project directives for the individual sub-projects based on their idea of what an efficient administration ought to be. This was carried out based on their understanding of the governmental eGov documents and guidelines. The NPM model led to sub-project groups being set up based on negotiation with involved departments in terms of *resource allocation*, such as manpower, funding and time. The sub-project leader would, *under NPM, coordinate* the actions taken and was requested to provide project updates to the SC, informing the SC of the project's progress. The sub-project leader would be in charge of doing the actual work and was free to use the tools they had at their disposal. Which is where the IS-heritage argued by (Hjort-Madsen, 2009) comes in, since an explicit EA framework or EA method is not used. Staff could use their experience and development methods currently at their disposal in a particular department. The actual actions taken to achieve certain goals are, therefore, determined by the departments or even the individual project members, not the SC. Tools and processes that are customary within that particular department or employee are used in an effort to reach the requested result. Similarly, Walsham (2002) noted the ability of humans to reflexively monitor their own actions and those of others, as well as the intended and unintended consequences thereof, creating a basis for social change. Project staff interpreted the communicated idea of the benefits of EA. Then, based on their interpretive scheme, the sub-project managers and project staff initiated actions in an effort to achieve the requested result based on the facility at hand and the norms by which the individual department abides.

Actions taken were carried out according to the sub-project leaders' interpretation of the directive, and the communicated objectives from the SC. In order to achieve the desired result, they *coordinated* their work, and *choose from among the standards* and *best practices they saw fit*. The sub-project leader also had to resolve any issues experienced because of *provider dependencies*. It was not just a matter of carrying out the actions deemed best to achieve the requested result; it was partially dependent on the outcome of the negotiations with ICT providers. It is also possible that the result desired by the project and/or individual employees might differ from that of the decision-makers. This could lead to an actual result that may or may not be in line with what the decision-makers intended. From this, it could also became apparent that NPM as a governance model could have a serious impact on eGov adoption. In this case, the departmental efficiencies took precedence, although the issue of finishing on time that was argued for by the politicians affected project actions since it became one, if not the, most important factor.

6.2.1 Goal achievement - Taking Initial steps towards EA in Local Government

The prerequisites prevent the project from working with an EA framework more explicitly. In addition, the NPM governance model, in many respects, forces the project to be based on EA-

thinking, given that the objectives correspond well with the EA benefits that are claimed in the literature, particularly in terms of improving departmental efficiencies. In essence, therefore, it becomes the initial, albeit immature, step in working with EA in Örebro's eGov adoption.

Table 8 (as first presented in (Ask & Hedström, 2011) records the achievement of the project goals in relation to EA using the NIST model. It shows skewed distribution of goals between different layers and between layers.

Table 8: Goal achievement[3]

Architecture layer	Goal achievement
Business	Focus on development of management documents and change employee perceptions. Development of documents is fairly easy, changing perception is more problematic
Information	The technical aspects of developing the information architecture were successful. Actual use of the architecture is more problematic because it in some circumstances' requires extensive changes in how employees work.
Information system	Rather arbitrary development of different set of services because of lack of connection to previous layers.
Data	The project focused primarily on development of other layers thus not much was done on the data architectural layer. The work that was done was achieved due to external state funding.
Delivery system	All goals found in this layer was achieved, The primary goal of developing an efficient administration by developing towards an EA meant improvements needed to be seen by the citizens. The project had to provide result, and to do so the project focused on the delivery system architectural layer.

Goal achievement was found in all layers, although MovIT focused primarily on goals that were categorized as belonging to the business architecture layer and the architecture information system layer.

In term of business-related issues, local government was assisted in the alignment of business and ICT in terms of the development of management documents on how to work and with what. However, it was an entirely different matter to change perceptions of employees to actually get the organization to begin to change towards the desired state. The NPM governance model endorses individualistic organizational structures at a grass-root, departmental and local

[3] For detailed goal charts see paper three (Ask & Hedström, 2011).

governmental level. These organizational structures do not really support cooperation to the extent anticipated or desired, leading to problems when integrating ICT and working towards convergence and interoperability.

The local government did not succeed in improving transparency, which could be expected given the above comparative analysis on the merits of EA in terms of eGov adoption. However, the empirical work has shown that local government does change towards becoming more need-driven and user-oriented in terms of development. This contradicts the document analysis, which suggested that following EA ought not to provide assistance in these areas, since EA does not presuppose that local government focuses on such aspects. However, administrational work is not an end in itself but exists to provide B2C and B2B services with need-driven and user-oriented development approaches that tend to make the administration more efficient. Therefore, it could be argued that, even though EA does not pre-suppose such focus, it does not preclude or prevent it.

The documental analysis suggested an initial step towards EA through 'EA-thinking', which ought to provide support for improving collaboration. Whilst observations did indicate that collaboration improved in some areas, in others, non-EA-related issues affected the collaboration efforts negatively. This was primarily because of complexity and inability to find common ground because of the use of the NPM governance model: "*The idea was to collaborate with SAMBRUK for the child care services to be implemented. But due to issues arising in term of not being able to agree on a services that 'fits' what we want, negotiations have begun with another company that can deliver a service at the end of the year* (project documentation) As a result, the local government did not succeed to the same extent as anticipated. In terms of improving administrational efficiencies, the initial step taken towards EA did enable the local government to improve efficiencies as it enabled local government decision-makers to acquire a more holistic view over the organization. It also enabled improvements in terms of flexibility since decision-makers can more accurately anticipate possible issues in the future and act accordingly. With more process thinking, the initial steps towards EA enable improved long-term strategic planning, as the comparative analysis suggested.

With regard to information handling, the initial steps towards EA did enable improvements to be made for information security and quality, as well as information exchange. Interestingly it also enabled local government in Örebro to improve its availability and access. Whilst this is a somewhat ambiguous result, since local government did become more accessible and available (i.e., the online service was improved), it did find itself unable to handle manual service delivery because of a lack of clear responsibility. In itself, it is surprising since EA that follows the prerequisite discussion ought to define responsibilities more clearly, on the whole.

With regard to information system architecture, local government was assisted positively by its initial steps towards an EA because the holistic view acquired provided a foundation to work

from, which enabled work on more fronts at the same time. Working on several fronts at once increased project complexity and, because to some extent NPM is counterproductive to eGov, it led to problems relating to arbitrary development; these then raised other problems, such as being able to anchor the desired changes. Despite the holistic view, a complex situation was created in which it was hard for those at the grass-root level to comprehend the whole situation.

In terms of data handling, the initial steps towards EA in local government did provide assistance. Primarily, this was because it helped the organization to focus on the technical aspects, albeit with process-thinking. The data aspect became a means to an end rather than an objective in itself. This meant moving the organization away from a techno centric focus, where eGov is seen to be successful merely by implementing more ICT. In this case, the data issues related to security and efficiency issues were deemed a prerequisite in order for the organization to integrate its ICT to a larger extent. EA-thinking enabled a more cost-effective development since more agencies were able to share common solutions.

As can be expected, EA does not presuppose automation. Thus, the local government did not manage to achieve its objectives related to automating certain processes. However, the problems experienced, which later led to this objective not being met, were not the consequence of the initial steps taken towards EA. Rather, the complexity that arose from the ambiguous development caused by the governance model affected eGov development negatively.

Similarly, in terms of improving delivery systems for the local government, the initial steps taken assisted in pinpointing where the local government needed to concentrate its efforts to solve possible bottlenecks and improve interoperability. The technical aspects became a means to an end where the local government used process thinking to align its ICT with its business. The changes needs to become visible and make sure that the delivery systems function as intended to ensure that citizens, businesses and, ultimately, politicians can see the changes made.

6.3 Problems experienced

In Ask & Grönlund (2008) I discussed how NPM is leaving issues that are critical to eGov success open to political decisions. Thus, instead of promoting change it conserves existing institutions. The issues raised by NPM and the means made available by EA-thinking – and with which the local government attempts to achieve its objectives – do not provide sufficient support beyond administrational efficiency measures, creating a complex situation that prevents local government from properly handling the critical issues that are crucial for their eGov adoption to succeed. Local government might acknowledge possible issues exist, but cannot deal with them because the existing structures prevent changes being made. Moreover, NPM fosters a culture of individualism, where centralized aims and objectives are seen as counterproductive, and changes endorsed are seen as intrusive to the normal workflow and departmental autonomy. In effect, it makes employees reluctant to change, despite possible benefits to be gained. Hence, as discussed in Ask & Hedström (2011), collaboration becomes problematic since departments tend to look

out for themselves first and the administration as a whole second. This is even more the case when it comes to different local governments collaborating in the acquisition of cost-effective ICT resulting in lost time and cost-benefits because of an inability to collaborate in the procurement processes.

To complicate matters even more, since EA does not provide support to handle the sociopolitical aspects, it leads to issues where the administration strives to improve administrational efficiencies. Since EA does not provide assistance in the socio-political area, many technical problems involving interoperability and standards become more complicated by adding a dimension of politics. On the one hand, eGov serves to improve administrational efficiencies; on the other, it serves to improve society as a whole. However, the NPM governance model prevents the development of national frameworks, which are necessary if the intent is to develop convergence processes within and beyond organizational borders. NPM creates many technical problems involved with interoperability and standards by adding a dimension of politics involving many political directly coupled to specific – as opposed to economic interest. This meant that the City of Örebro had to engineer local standards. Complicated cooperation across both political and economic borders is required, not only to adopt shared services but also to find economic advantages in procurement, services and so on. This was clearly illustrated (Ask & Grönlund, 2008; Ask, et al., 2008) in the discussion that took place during the SAMBRUK debacle, where collaboration between cities drew to a halt because of structural properties that prevented efficient collaboration.

As addressed in Ask & Hedström (2011), arbitrary development was observed, with project objectives selected on the basis of influential staff members rather than on their connection to the overall architectural idea. This led to a skewed focus and created a complex web of different goals. The skewness and complexity made it difficult for the project to reach its goals. Observations have shown that this happens because NPM enables other interests to take precedence over the overarching objectives. It affects the outcome of eGov adoption since it makes it possible for haphazard individual solutions to be implemented. Any benefit derived from EA-thinking is negated by the existing structures; these provide the norms that allow parts of the organization to move towards a different direction than that desired by the SC and project. The project has to divert time and resources in an effort to recover from deviations from the project objectives. Thus, it can be said that the holistic view is not only required by decision-makers, in order for changes to happen, but that employees in general need to have the means to see past their own workplace in order to see the changes made in a larger context by their department. Employees also need to see the benefit that any changes can bring to the organization, if they endorse them.

The results showed that, as a consequence of NPM, too many stakeholders became involved. Different departments within the administration experienced problems in finding common ground, making it difficult to achieve the intended outcome, even though EA-thinking endorsed a

more holistic view. In such a situation, cost benefits are lost because of arbitrary development, leading to higher time and costs spent on development as departments do not necessarily work in the same way or develop similarly. Consequently, ICT system and processes differ, and interoperability issues arise, including an inability to communicate and share information, which increases bureaucracy and is thus contrary to objectives. Accurate and up-to-date information does not reach the grassroots level that is affected by the changes. In addition, although EA is a way of defining clearer responsibilities, the opposite occurs, which in itself creates problems. It prevents the organization from beginning to change and leads to employees resisting changes that are endorsed because they go against how they work today.

7 Conclusion

The purpose of this licentiate thesis was to explore 'the role of EA use in Swedish local eGov adoption' by exploring prerequisites *(What are the prerequisites for using EA in Swedish local eGov adoption?)*, goals (*What has the Swedish local government in Örebro achieved with its EA use in eGov adoption?)* and problems (*What are the problems experienced by the Swedish local government in Örebro in its use of EA when adopting eGov?).* It has followed a framework that is based on the meta-model suggested by Johnson & Ekstedt (2007). This framework offers empirical insights into EA benefit claims that have been put forward by Tamm, et al. (2011b). It also offers insights into the role of EA in eGov adoption in Swedish local government.

7.1 Prerequisites - *What are the prerequisites for using EA in Swedish local eGov adoption?*

From an analysis of the literature, it can be concluded that EA, as a phenomenon, is thought to be, if not a silver-bullet, then at least a prerequisite to eGov success. However, EA does not provide support beyond enabling improvements in administrational efficiencies. According to the comparative analysis, EA use cannot assist Swedish local government where there are more politicized objectives; in this situation, local government is required to look elsewhere to find support for its work in term of increasing objectives such as **availability** and **access** to ICT and services. This does not match the observations made, which showed that Swedish local government improved its access and availability in some areas, but not in others. In addition, EA does not provide assistance with **skill** improvements in ICT usage. Likewise, EA does not provide assistance in **equality** improvements for citizens and businesses, nor does it assist local government in increasing **participation** in terms of G2C and G2B. Improved **transparency** and **trust** in local government are not supported by EA, nor does it support attempts to work towards a **greener government**. Moreover, EA ought not to provide support in terms of enabling **automation, need-driven development, and user-oriented development**; however, observation showed that it did assist. Finally, EA does not support **service provision** in general.

It was possible to identify several critical issues from the empirical study of the prerequisites: *distinction between administrative and political responsibilities; political mandate; political timing; resource allocation; coordination under NPM; dependence on providers; and choosing among standards and best practices*. These issues need to be acknowledged and handled appropriately by Swedish local government in order to improve the chances for success in eGov adoption. However, structures created as a result of the prevailing NPM governance model led to difficulties, as shown in **Table 7.** These issues hinder local government's attempts to move towards the desired structural changes.

7.2 Goal achievement – *What has the Swedish local government in Örebro achieved with its EA use in the eGov adoption?*

To a large extent, EA value is set according to the perceived benefits of eGov, at least in term of administrational efficiency. Hence, it seems to be a reasonable step for local government to take. EA-thinking improves the likelihood that a project will succeed. However, structures in an organization are constructed and re-constructed by its employees reclusively over time; in effect, this becomes a hindrance, preventing the project from a more explicit use of an EA-framework and negatively affecting the projects possibility to adopt eGov. Despite this structural problem, it is still possible – as observed – for a project that is based on EA-thinking to begin working.

Based on these empirical insights, EA-thinking enables Swedish local government to:

- Align business with ICT by following process thinking in terms of the development of management documents (i.e., how they work and with what).
- Change towards becoming more need-driven and user-oriented in terms of development.
- Improve internal collaboration between departments.
- Acquire a holistic view over the organization to some extent.
- Improve organizational flexibility.
- Improve long-term strategic planning.
- Improve information management, security, quality and exchange.
- Improve availability and access of Swedish local government.
- Improve ICT integration.

However local government in an already complex situation (see **Table 7)** affects the potential for local government to achieve its goals. In particular the NPM governance model endorses structures that are counterproductive to eGov. Consequently, Swedish local government not only has to face these issues, but also is forced to deal with even more issues because assumptions about EA benefits do not correspond with what actually can assist local government.

7.3 Problems - *What are the problems experienced by Swedish local government in Örebro in its use of EA when adopting eGov?*

Issues derived from the competing structures of NPM and eGov mean that Swedish local government is forced to acknowledge and handle several success factors, all of which have an impact on the outcome of eGov adoption. The inability to follow an EA framework or EA method more explicitly results in compromise within the project. EA-thinking, in itself, endorses certain structures which can lead to problems.

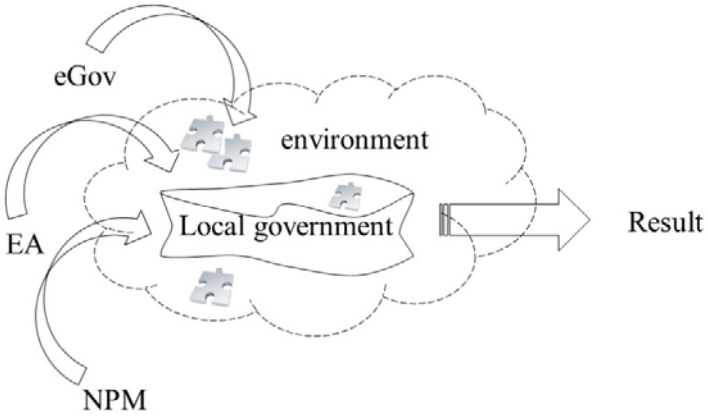


Figure 13: The structural triad

EGov, NPM and EA-thinking form a triad (as shown in **Figure 13),** with structural properties that, in some instances, correlate. In such cases, this can lead to positive changes. However, in other situations, they are contradictory, resulting in Swedish local government having a difficult time in adhering to the suggestions endorsed by the eGov project. This leads to incoherent progressions towards requested results. The existing structures hinder effective cooperation, both internally between different departments and externally with other local governments. Local government has to draw up local standards to meet the objectives because of an inability to develop complex cooperation across both political and economic borders to adopt shared services and find economic advantages in procurement, services and so on.

EA does not provide assistance in sociopolitical areas. Furthermore, NPM makes many technical problems involved with interoperability and standards even more complicated by adding to them a political dimension. As a phenomenon, EA does not provide support in handling the sociopolitical aspects, an area that is highlighted by the governance model. It complicates issues because local government has no suitable means to handle the situation. NPM leaves many of the issues that are critical to eGov success open to political decisions, so that it conserves existing institutions rather than promotes change. It creates a complex situation that prevents local governments from properly handling the factors that are crucial to the success of eGov adoption. Local government might acknowledge the issues, or potential issues, but it cannot handle them because the existing structures prevent changes from being made. NPM fosters a culture of individualism, where centralized aims and objectives can be seen as counterproductive; changes endorsed are seen as intrusive to the normal workflow and departmental autonomy. In effect, employees are reluctant to change, despite possible benefits. Collaboration becomes problematic since departments tend to look out for themselves first, before the administration as a whole.

Too many stakeholders became involved because of NPM, making it more difficult to find common ground and leading to the loss of cost benefits, and arbitrary development. In turn, this leads to longer development time and higher costs as departments do not necessarily work in the

same way or develop similarly. Local government experiences problems in terms of communication and the sharing of information, increasing bureaucracy, which is contrary to objectives. Local government also experiences problems in delivering accurate and up-to-date information to grassroots' levels, since these are no affected by the changes.

7.4 What is the role of EA in eGov adoption in Swedish local government?

Local government perceives EA to be a suitable way of moving forward. In this respect, the role of EA can be viewed as an appropriate and necessary methodological approach to achieve the desired ends. To succeed with the project (the politicians' objective), the project plan and carries out actions to enable the organization to change towards the objectives of adopting eGov. The NPM governance model hinders local government in their efforts. Different structural issues that stem from incompatibility between NPM and eGov give rise to complex situations. The structures that are produced and reproduced recursively over time assist collaboration in some area, whilst in others, they have the opposite effect, leading to arbitrary development. Such arbitrary development prevents the organization from being able to form clear responsibilities to progress as anticipated, leading to problems reaching the grassroots that are affected by the changes endorsed. Thus, local government experiences problems in integrating ICT, which also affects organizational interoperability.

The NPM governance model prevents the establishment of an EA framework on a larger scale. Since EA shares many of the central aspects of eGov, its role changes to become more of 'an idea' from which to work. This enables local government to move towards the structures endorsed by eGov, despite its inability to follow the EA frameworks more explicitly. Paradoxically, a situation is created whereby local government begins work by following an idea that is hindered by the very way in which local government is governed. In effect, local government has to circumvent itself and the structurational aspects that prevent the explicit use of EA. Consequently, local governments are, at the same time, forced to handle problematic issues arising from the incompatibility of eGov and NPM, and those that arise from following 'EA-thinking'.

EA-thinking does not provide support for local government beyond bringing administrational efficiencies. Politicized objectives need to be cared for by other means. Which means that EA-thinking takes the role of becoming only a means for internal departmental efficiency, rather than a means to allow Swedish local government to change in all areas, to improve society as a whole. In itself, this is problematic because it is likely that the changes that politicians want to see are precisely in those areas where EA does not provide assistance. EA-thinking, however, has been shown to assist local government in improving departmental efficiencies in a variety of ways which, regardless of the problems experienced, can be deemed to be beneficial.

8 Contribution to research and practice

This licentiate thesis has shown that the initial use of EA in local government eGov adoption is complex. Given the contradictory nature of NPM and eGov, local government has to acknowledge the negative impacts of NPM on eGov adoption. As well as acknowledging the issues that arise from EA use, a key area is a lack of support of local government in an area that is most likely to be endorsed by politicians. Politicians do not get re-elected based on efficient internal processes with a highly integrated ICT; rather, changes must be visible to citizens and businesses. This licentiate thesis has also shown that 'EA-thinking', as a means for local government, can move towards an EA without the explicit use of an EA framework or EA method. However, 'EA-thinking' may give rise to other issues that need to be acknowledged and dealt with. This licentiate thesis contributes to research by improving our understanding of the nature and importance of promoting and inhibiting different factors, including critical issues for succeeding with eGov adoption, the negative effects of NPM and how EA-thinking can lead to positive changes, even though it cannot assist local government in all aspects deemed important to eGov adoption.

In terms of practice, this thesis contributes by highlighting the problematic nature of institutionalized structures and the effect that this has on eGov adoption. It also contributes by enabling local governments to acknowledge the problems identified. This allows them to better understand their own development and possibly avoid similar problems or at least have a better understanding of how to handle the issues that arise.

8.1 Future Research

EA cannot provide assistance in the sociopolitical arena. EGov, as a phenomenon, ought to enable not only departmental efficiency improvements but also have a positive effect on society as a whole. How can local governments reconcile this mismatch? I argue that future research ought to focus on analyzing the process that EA-thinking gives rise to. The findings from this study indicate that many of the negative aspects will be negated by a more explicit use of an EA framework or EA methodology. Given the environmental circumstances, Swedish local government are in with decentralization being more or less an institutional structure that is not likely to change. It is argued that standardization is the means to integrate ICT and to acquire interoperate and convergent processes in a decentralized environment. But is it really that easy? How come local governments are still hampered with inefficiencies? It would thus be beneficial to study EA-thinking as concept more thoroughly to improve our understanding of the processes that EA-thinking gives rise to and enable a better understanding of how EA-thinking affects efforts to achieve convergence and standardized processes in a whole-out organization.

Another aspect that is not addressed thoroughly in this study, but which would be worth analyzing further, is how the grassroots acknowledge and in affect deal with the structural contradictions within an organization that seem to arise from NPM, eGov and EA-thinking. We

know from this study that the grassroots are reluctant to change because of a lack of information. However, it is not clear how this affects those at a grassroot level more explicitly. This is interesting because, in line with the argument put forward by Giddens in his structuration theory, human actors reflectively create and recreate structures recursively, creating the social environment around them. Even though this to some extent has been studied given the arguments that organizational change cannot happen overnight but requires time. Arguably, human actors in local government should have the ability to work towards structural changes despite the contradictory structures that this licentiate thesis has shown to exist. However, I am not convinced that it is just a matter of time. This study has observed the opposite; in other words, NPM actually strengthens and preserves existing structures, preventing changes from happening. This suggests that nothing will change, whether or not time is taken into account.

8.2 Limitations

As with all studies, this study has limitations. As a researcher, I have chosen a methodology based on my perspective of social reality and the object of study. Thus, there are some limitations in terms of scope. For example, given my position in the SC, the managerial focus limits the study in terms of how employees (i.e., those at the grassroot level) acknowledge and in affect deal with the structurational contradictions found in this study. I was able to acquire some insight into this through semi-structured interviews with sub-project managers, as well as participatory observations in workshops. But I believe more work could have been done to study employees more closely. This would involve taking a bottom-up perspective rather than the top-down one used in this study.

In terms of my involvement and how this affected the later outcomes of this study, the findings of this case are both relevant and reliable because of my efforts to explicitly explain the perspective and methodology used, alongside my continuous efforts to triangulate data collection and analyze using multiple tools. However, as with all single case studies, the question of generalizability can be questioned. As has been mentioned in the methods section, since this is a longitudinal case study of a single case in Swedish local government, it would be erroneous to generalize. The findings are and should be seen as an extrapolation of the specific case. Thus, I have gone beyond the contextual restraints of this particular organization, which means that given that the rules and regulations are common to all Swedish local government authorities, and in many respects are the same for local government within the EU as well, it is possible to discuss the structural issues on the premise that similar issues can be found elsewhere. In this respect, this study is of value beyond the confines of Örebro City.

Reference

Abou, Z. E. S. (2007). A Theory-Based Approach to the Relationship between Social Capital and Communites of Practise. *The Electronic Journal of Knowledge Management, 5*(3), 257-264.

Ask, A., & Grönlund, Å. (2008). *Implementing Challenges: Competing Structures When New Public Management Meets eGovernment.* Paper presented at the EGOV 2008, Torino.

Ask, A., Hatakka, M., & Grönlund, Å. (2008). The Örebro City Citizen-Oriented E-Government Strategy. *International Journal of Electronic Government Research (IJEGR), 4*(4), 69-88.

Ask, A., & Hedström, K. (2011). Taking Initial Steps towards Enterprise Architecture in Local Government

Electronic Government and the Information Systems Perspective. In K. Andersen, E. Francesconi, Å. Grönlund & T. van Engers (Eds.), (Vol. 6866, pp. 26-40): Springer Berlin / Heidelberg.

Bekkers, V. (2007). The governance of back-office integration. *Public Management Review, 9*(3), 377-400.

Boston, J., Martin, J., Pallot, J., & Walsh, P. (1996). *Public Management: The New Zealand Model*. Auckland: Oxford University Press.

Bryman, A. (2001). *Samhällsvetenskapliga metoder* (B. Nilsson, Trans.): Liber.

Changqing, G., Kezhen, H., & Fei, M. (2005). Comparison of innovation methodologies and TRIZ. *The TRIZ Journal*.

CIO Council. (1999). Federal Enterprise Architecture Framework. from http://www.cio.gov/documents/fedarch1.pdf

Cook, M. E., Dawes, S. S., Juraga, D., Werthmuller, D. R., Pagano, C. M., & Schwartz, B. F. (2004). *Bridging the Enterprise: Lessons from the New York State-Local Internet Gateway Prototype*.

Dunleavy, P., Margetts, H., Bastow, S., & Tinkler, J. (2006). *Digital Era Governance*. Oxford: Oxford University Press.

E-Delegation. (2011, Jan 27th, 2011). Vägledning för automatiserad samverkan. Retrieved May 5th, 2011, from http://wiki.edelegationen.se/index.php/V%C3%A4gledning_f%C3%B6r_automatiserad_samverkan

EAdirections. (2007). *Embrace Enterprise Transformation as a Core Concept*.

Ebrahim, Z., & Irani, Z. (2005). E-government adoption: architecture and barriers. *Business Process Management Journal, 11*(5), 589-611.

eGovRTD2020. (2007). *Roadmapping eGovernment Research Visions and Measures towards Innovative Governments in 2020*.

EU - COM(2003) 567 final. (2003). *The Role of eGovernment for Europe's Future*.

EU - COM(2005) 229 final. (2005). *i2010 - A European Information Society for growth and employment*.

EU - COM(2006) 173 final. (2006). *i2010 - eGovernment Action Plan: Accelerating eGovernment in Europe for the Benefit of All*.

EU - eEurope 2002. (2000). *eEurope 2002 - An Information Society For All - Action Plan*.

EU - eEurope 2003. (2001). *eEurope 2003 - A Co-operative effort to implement the Information Society in Europe - Action Plan*.
EU - eEurope 2005. (2002). *eEurope 2005 - An Information Society for All - Action Plan*.
EU - eEurope. (2000). *eEurope - An Information Society For All*.
EU. (2004). *eGov Research in Europe*.
EU. (2009a). i2010 eGovernment Action Plan Progress Study Summary Report.
EU. (2009b). Ministerial Declaration on eGoverment.
EU. (2010). *The European eGovernment Action Plan 2011-2015 Harnessing ICT to promote smart, sustainable & innovative Government*.
Finansdepartementet. (2009). *National Action Plan for eGovernment*
Fong, E. N., & Goldfine, A. H. (1989). *Information Management Directions: The Integration Challenge*.
Giddens, A. (1979). *Central Problems in Social Theory: Action, Structure and Contradiction in Social Analysis*. London: Macmillan.
Giddens, A. (1984a). *The Constitution of Society: Outline of the Theory of Structuration. .* Cambridge: Polity Press.
Giddens, A. (1984b). *Profiles and Critiques in Social Theory*. London: Macmillan.
Gore, A. (1993). *Reengineering through Information Technology. Accompanying Report of the National Performace Review*. Washington: Office of the Vice President.
Gottschalk, P. (2009). Maturity levels for interoperability in digital governmen. *Government Information Quarterly, 26*, 75–81.
Grant, G., & Chau, D. (2005). Developing a Generic Framework for E-Government. *Journal of Global Information Management, 13*(1), 1-30.
Grönlund, Å. (2001). En introduktion till Electronic Government. In Å. Grönlund & A. Ranerup (Eds.), *Eletronisk förvaltning, elektronisk demokrati - Visioner, verklighet, vidareutveckling*: Studentlitteratur, Lund.
Grönlund, Å. (2002). *Electornic government - Design, applications, and management*: Hershey, PA: Idea Group.
Grönlund, Å. (2005). Introducing W-Gov:History, definitions, and issues. *Communications of AIS, 15*.
Grönlund, Å. (2009). "It's The Economy Stupid" - Why Swedish e-government action plan will not deliver better government, and how it could. *2009*(2).
Grönlund, Å. (2010). Ten Years of E-Government: The 'End of History' and New Beginning. In M. Wimmer, J.-L. Chappelet, M. Janssen & H. Scholl (Eds.), *Electronic Government* (Vol. 6228, pp. 13-24): Springer Berlin / Heidelberg.
Guijarro, L. (2007). Interoperability frameworks and enterprise architectures in e-government initiatives in Europe and the United States. *Government Information Quarterly, 24*(1), 89-101.
Heeks, R. (1999). *Reinventing government in the information age. International practice in IT-enabled public sector reform*. New York: Routledge.
Heeks, R. (2003). Most eGovernment-for-Development Projects Fail: How Can Risks be Reduced? *iGovernment Working Paper Series, 14*.
Helbig, N., Gil-Garcia, J., & Ferro, E. (2009). Understanding the complexity of electronic government: Implications from the digital divide literature. *Government Information Quaterly 26*, 89-97.

Hjort-Madsen, K. (2006). *Enterprise Architecture Implementation and Management: A Case Study on Interoperability*. Paper presented at the Proceedings of the 39th Hawaii International Conference on System Sciences.

Hjort-Madsen, K. (2007). Institutional patterns of enterprise architecture adoption in government. *Transforming Government: People, Process and Policy, 1*(4), 333-349.

Hjort-Madsen, K. (2009). *Architecting Government - Understanding Enterprise Architecture Adoption in the Public Sector*. IT-University of Copenhagen.

Hjort-Madsen, K., & Pries-Heje, J. (2009). *Enterprise Architecture in Government: Fad or Future?* Paper presented at the Conference Proceeding of the 42nd HICSS.

Hood, C. (1995). The "New Public Management" in the 1980s: Variations on a Theme. *Accounting, Organization and Society, 20*(2/3), 93-109.

Hughes, O. (2003). *Public Management and Administration: An Introduction, 3rd ed*. Bassingstoke. UK: Palgrave.

IDABC. (2004). *European Interoperability Framework for European public services*.

IFEAD. (2011). Extended Enterprise Architecture Framework (E2AF). Retrieved from http://www.enterprise-architecture.info/Images/E2AF/E2AF%20A0%20New%20Poster%2003-2005%20version%201.4.pdf

Johnson, P., & Ekstedt, M. (2007). *Enterprise Architecture Models and Analyses for Information System Decision Making*: Studentlitteratur.

Klein, H. K., & Myers, M. D. (1999). A Set of Principles for Conduction and Evaluating Interpretive Field Studies in Information Systems. *MIS Quaterly, 1*(67-94).

Klievink, B., & Janssen, M. (2009). Realizing joined-up government — Dynamic capabilities and stage models for transformation *Government Information Quarterly, 26*(2), 275-284.

Klischewski, R., & Abubakr, R. (2010, 5-8 Jan. 2010). *Can e-Government Adopters Benefit from a Technology-First Approach? The Case of Egypt Embarking on Service-Oriented Architecture*. Paper presented at the System Sciences (HICSS), 2010 43rd Hawaii International Conference on.

Kubiceck, H., & Hagen, M. (2000). One Stop Government in Europe: An Overview. In H. Hagen M. Kubicek (Ed.), *One Stop Government in Europe. Results from 11 National Surveys* (pp. 1-36). Bremen

OECD. (2003). The E-Government imperative. Paris: OECD E-Government Studies.

Orlikowski, W. J. (1992). The Duality of Technology: Rethinking the Concept of Technology in Organizations. *Organization Science, 3*(3), 398-427.

Orlikowski, W. J., & Baroudi, J. J. (1991). Studying Information Technology in Organizations: Research Approaches and Assumptions. *Information Systems Research, 2*(1), 1-28.

Orlikowski, W. J., & Iacono, C. S. (2001). Desperately seeking the "IT" in IT research - A call to theorizing the IT artifact. *Information Systems Research, 12*(2), 121-134.

Patton, M. Q. (1990). *Qualitative Evaluation and Research Methods* (2nd Edition ed.). Newbury Park, CA, Sage: Sage Publications.

Pozzebon, M., & Pinsonneault, A. (2005). Challenges in Conducting Empirical Work Using Structuration Theory: Learning from IT Research. *Organization Studies, 26*(9), 1353-1376.

Regeringen. (2004). *Bill 2004/05:175 - Från IT-politik för samhället till politik för IT-samhället*.

Ross, J. W. (2003). Creating a Strategic IT Architecture Competency: Learning in Stages. *MIS Quarterly Executive, 2*(1), 31-43.
Ross, J. W., Weill, P., & Robertson, D. C. (2006). Enterprise Architecture As Strategy: Creating a Foundation for Business Execution. Boston: MA: Harvard Business School Press.
SALAR. (2011). Official website of Swedish Association of Local Authorities and Regions. Retrieved May 19th, 2011, from http://english.skl.se/
Salmans, B., & Kappelman, L. A. (2010). The State of EA: Progress, Not Perfection. In L. A. Kappelman (Ed.), *The SIM Guide to Enterprise ARchitecture* (pp. 165-217).
SAMBRUK. (2011). Business Development and Shared Use of Municipal e-Services. Retrieved February 2nd, 2011
Sarantis, D., Smithson, S., Charalabidis, Y., & Askounis, D. (2009). A Critical Assessment of Project Management Methods with Respect to Electronic Government Implementation Challenges. *Syst Pract Action Res, 23*, 301-321.
Schekkerman, J. (2004). Extended Enterprise Architecture Framework (E2AF) Essentials Guide: IFEAD.
Sessions, R. (2007). *A Comparison of the Top Four Enterprise-Architecture Methodlogies*.
Sharan., B., Merriam. (1994). *Fallstudien som forskningsmetod*: Studentlitteratur.
SOU 2009:86. (2009). *Strategi för myndigheterns arbete med e-förvaltning*.
Stephen King. (2000). *On Writing - A Memoir of the Craft*. London: Hodder and Stoughton.
Tague, N. R. (2005). *The Quality Toolbox* (2nd ed.).
Tamm, T., Seddon, P. B., Shanks, G., & Reynolds, P. (2011a). Delivering Business Value Trough Enterprise Architecture. *Journal of Enterprise Architecture*.
Tamm, T., Seddon, P. B., Shanks, G., & Reynolds, P. (2011b). How Does Enterprise Architecture Add Value to Organisations? *Communications of the Association for Information Systems, 28*(10).
The Open Group. (2010). TOGAF as an Enterprise Architecture Framework. Retrieved 20 October, 2010, from http://www.opengroup.org/architecture/togaf8-doc/arch/
UN. (2004). *Towards access for opportunity. Global E-Government Readiness Report 2004*.
UNDESA. (2003). *e-Government at the Crossroads. World Public Sector Report 2003*: United Nations: New York.
Wahyu A. Arifiyanto, & Surendro, K. (2009). *Enterprise Architecture for E-Government In Indonesia*. Paper presented at the International Conference on Electrical Engineering and Informatics.
Walsham, G. (1995). Interpretive Case Studies in IS Research: Nature and Method. *European Journal of Information Systems, 4*(2), 74-81.
Walsham, G. (2002). Cross-Cultural Software Production and Use: A Structurational Analysis. *MIS Quarterly, 26*(4), 359-380.
Weerakkody, V., Janssen, M., & Hjort-Madsen, K. (2007). Integration and Enterprise Architecture Challenges in E-Government: A European Perspective. *International Journal of Cases on Electronic Government, 3*(2), 13-35.
Weill, P. (2007). *Innovating with Information Systems: What do the most agile firms in the world do?* Paper presented at the Presented at the Sixth e-Business Conference. Retrieved from http://www.iese.edu/en/files/6_29338.pdf
VERVA. (2006). *Vägledningen 24-timmarswebben*.

Ville Seppänen, Jukka Heikkilä, & Katja Liimatainen. (2009). *Key Issues in EA-Implementation: Case Study of Two Finnish Government Agencies*. Paper presented at the 2009 IEEE Conference on Commerce and Enterprise Computing.

Wu, R. C.-Y. (2007). Enterprise integration in e-government. *Transforming Government: People, Process and Policy, 1*(1), 89-99.

Yu, E. (2002). Modeling Organizations for Information Systems Requirements Engineering. *The IEEE International Symposium on Requirements Engineering*, 34-41.

Yu, E., & Mylopoulos, J. (1998). *Why Goal-Oriented Requirements Engineering.* Paper presented at the Proceedings of the 4th International Workshop on Requirements Engineering: Foundations of Software Quality (REFSQ'98), Namur, Belgium and Pisa, Italy.

Zachman, J. (1987). A Framework for Information Systems Architecture. *IBM Systems Journal, 26*(3), 276-292.

Zachman, J. (1996a). Enterprise Architecture: The Issues of the Century. *Database Programming and Design magazine, March '97*.

Zachman, J. (1996b). THE FRAMEWORK FOR ENTERPRISE ARCHITECTURE: Background, Description and Utility.

Zachman, J. (2007). Architecture Is Architecture Is Architecture (pp. 1-9): Zachman International.

Zachman, J. (2011). *The Zachman Framework for Enterprise Architecture - The Enterprise Ontology*.

Örebro municipality executive board. (2006). *Budget 2007 With Priority Goals for Örebro Municiaplity [Budget 2007 med prioriterade mål - Örebro Kommun]*.

Appendix

The appendix consist of the interview guide and three published papers

Appendix I – Interview guide

Information: The intention of this interview is to collect data to will write a chapter for a book on project management within eGovernment. We will conduct interviews with you in the SC as well as interviewing all sub-project managers.

We would appreciate if you informed us if you wish to be anonymous. If you decide that you wish to be anonymous then your answers will be treated as such. The anonymity of individual SC-members will be ensured by only referring to the "SC", "sub-project managers" or "project member" rather than using individual names. This also means that if one of you wish to be anonymous than all of you will be treated as such. As been mentioned and agreed upon City of Örebro and the project MovIT will be referred to by name i.e., will not be anonymous.

You all will be provided with material used to enable you to comment on our work and for you to do factual corrections as well as allow you to elaborate on our interpretation in case you feel it is erroneous. We would also like to inform you that we might need to come in contact with you again either by email or phone in case any problems arise when we transcribe and analyze the data collected.

We would also like to mention that it is possible that we ask you to elaborate on aspects of the project that you know we already have knowledge of given that Andreas Ask is part of the SC as an observer and knowledgeable eGov PhD student. The reason for this are to allow you to elaborate on them as to improve the data collection as it allows us to not only rely on only our knowledge of it. The interview will be recorded and later transcribed for analysis.

Lastly we would like to ask all of you if you have any concerns or questions you like to ask us before we begin? We should also mention that you are free to elaborate on the question ask as you see fit and if you have any questions later on, please do not hesitate to ask us

QUESTIONS[4]

- Presentation of each respondent, what is their role in the organization is and their role in the project
- Can you elaborate on the purpose of MovIT?
    - Can you elaborate on the objectives of MovIT?
        - Can you elaborate on how MovIT will work to achieve the objectives?
        - Can you elaborate on how goal achievement will be measured?

[4] This guide should be seen as a guide not a static document since the interview was semi-structured respondents were free to elaborate as they saw fit and their responses can and did lead to other question not mentioned here.

    - Can you elaborate on who decided to launch MovIT and why?
        - Can you elaborate on what kind of decisions that needs to be taken higher up in the organizational hierarchy?
    - Can you elaborate on what kind of decision MovIT can take?
    - Can you elaborate on when MovIT was launched?
        - Can you elaborate on how long MovIT will continue?
        - Can you elaborate on when each individual sub-project launched?
        - Can you elaborate on how long each individual sup-project will continue?
    - Can you elaborate on how the work of making the city more citizens centered will continue after project completion?
- Can you elaborate on how it was decided that MovITs would composite of several sub-parts?
    - Can you elaborate on how sub-project managers were/are chosen/hired?
    - Can you elaborate on what kind of responsibility sub-project managers have?
        - Can you elaborate on what kind of decision making power sub-project managers have?
- Can you elaborate on project resource allocation in term of project as a whole and its sub-parts?
    - Can you elaborate on what kind of costs fall within MovIT budget?
    - Can you elaborate on what kind of that will be handled by the individual departments or the organization as a whole (i.e., cost that will not be added to MovITs budget)
- Can you elaborate on how individual eServices to be implemented was chosen?
    - Can you elaborate on whether there were any criteria for choosing the eService that would be part of MovIT and if so can you elaborate on those criteria?
- Can you elaborate on whom in the organization that has the decision-power to decide that a particular eService should be part of MovIT?
- Can you elaborate on how decisions concerning MovIT or the objectives MovIT strive for are anchored in the organization as a whole?
    - Can you elaborate on whether or not individual departments have any say on the eServices added to MovIT?
- Can you elaborate on how MovIT handle time, cost and quality issues?
    - Can you elaborate on what kind of compromises' MovIT is willing to make in term of time, cost and quality?
    - Can you elaborate on whether or not MovIT have considered a minimum requirement in term of quality and if so what is it and why this level?
    - Can you elaborate on whether or not MovIT is willing to compromise costs issues i.e., willingness to higher costs to ensure improved quality?
    - Can you elaborate on whether or not MovIT is willing to compromise the time schedule to ensure project achieving its objectives with higher quality?
    - Can you elaborate on whom decide whether or not a compromise is acceptable?
- Can you elaborate on how MovITs work has been anchored internally as well as externally?

Appendix II – Ask, A., Hatakka, M., & Grönlund, Å. (2008). The Örebro City Citizen-Oriented E-Government Strategy. *International Journal of Electronic Government Research (IJEGR)*, 4(4), 69-88.

The Örebro City Citizen-Oriented E-Government Strategy

Andreas Ask, Örebro University, Sweden

Mathias Hatakka, Örebro University, Sweden

Åke Grönlund, Örebro University, Sweden

ABSTRACT

This article discusses practices, opportunities, and challenges in local e-government project management by means of a case study involving interviews, document studies, and an element of action research, over eight months. The analysis against e-government success factors finds seven "critical issues"; political timing, resource allocation, political mandate, distinction between administrative and political responsibilities, coordination of departments, dependence on providers, and use of standards. We found these issues open for local choice, influences of strong individuals and groups, and chance. This is a consequence of the prevailing strategic model for the public sector, New Public Management, which leaves these issues to be filled by negotiations among many actors with different roles, goals, and action space. The general lesson is that there is a need for practical ways of acting strategically to reduce the risk level and increase the ability to implement policy.

Keywords: *electronic government (e-government); electronic services (e-services); new public management (NPM); 24/7 agency*

INTRODUCTION

Electronic government (e-government) is typically defined as a positive development concerning three main actors; government administrations; users of government services, i.e. citizens and companies; and the political system due to "better democracy" typically meaning more openness (Gore, 1993; Grant & Chau, 2005, Grönlund, 2002; 2005; OECD, 2003; UN, 2004; UNDESA, 2003). e-government definitions across the globe unanimously point to these three things, more efficient operations, better services and better democracy. An example is the EU definition:

Electronic Government is the use of Information and Communication Technologies in public administrations combined with organizational change and new skills in order to improve public services and democratic processes. [EU, 2004]

The value of e-government is supposed to come as (1) administrative rationalization, in particular government reorganization and integration across and within government agencies, and (2) increased value for citizens due to more openness, better integrated and hence better, quicker and more transparent services (Grönlund, 2002). Values of e-government are hence mainly conceived at system – whole-of-government – level. It is conventional wisdom that e-government benefits come from reorganization, not from ICT directly. Adding ICT to existing processes means added costs. Benefits have to come either by reduced production costs or better services, or both. The academic discussion of values is well summarized by Table 1 (adapted from Lau, 2007), and includes both tangible and non-tangible costs and benefits.

While these values can seem reasonable enough, achieving them is altogether a different challenge. Not only are intangible values just that, intangible and hard to measure, also, even if measured they are hard to balance against more tangible costs. Attempts have been made and measures devised (e.g. eGEP, 2006a; 2006b), but it has proven hard to implement such criteria in the incentives of individual government agencies, where the development is supposed to take place. Hence basic tangible economic measures so far prevail and grander plans for interoperability, better services to citizens, etc. come second. Also in terms of doability e-government implementation is a challenge because of the complexity of government organization, the complexity of demands, and the lack of general standards to follow.

Swedish government is organized in three tiers, national, regional and local, each politically governed. Many tasks cut across levels, e.g. health care which involves both local and regional levels as producers of health care and national government as providing health insurance and regulation, mainly for the medical part. The Swedish public sector has a strict new public management (NPM) management model, which means governance is by budget and goals, not detailed regulation. This means coordination and standardization are for the most part not issues for enforcement but up to negotiation among many actors with both political and economic agendas. The NPM mode of governance is at work not only at the organizational level, it also applies within cities and regional organizations.

E-government in Sweden, as in the industrialized world in general, is funded within the ordinary budgets. This means any investment will have to pay back within the budget of the involved organization. Guiding the development are general national plans, but details are largely left to individual government agencies. The development so far has seen the large national government agencies such as Taxation, Social Insurance, Labor Market Information, and Student Loans applying electronic service (e-service) models to substantial economic benefit and considerable service improvement using web sites with information and automated services and call centres to replace staff. In municipalities the picture is different. Scale benefits are harder to find as many cities are small and because municipal organization is heavily departmentalized, borders drawn both by different legal frameworks

Table 1. Values pertinent to e-government (Lau, 2007)

	GOVERNMENTS	NONGOVERNMENT STAKEHOLDER
Direct financial costs and benefits	Reducing costs, increasing value of services	Better services, reduced administrative burden
Direct non-financial costs and benefits	Synergies across delivery channels, sharing and reusing data resources	Increased user satisfaction, increasing privacy
Indirect costs and benefits	"Good governance"; supporting legitimacy, supporting growth	

regulating different tasks and by traditions, and professional competence areas.

The general view is that municipalities/local governments are lagging, and there is a call for them to implement e-services. This is for reasons of economy and modernity as well as management. e-services have shown to be efficient elsewhere, people tend to increasingly prefer e-services to traditional ones, and city management wants to have better tools for steering the organization and producing qualitative and measurable output.

This article will illustrate the complexity of achieving real change by means of a case study of a local e-government design and implementation project in a Swedish city. The research questions are

- How is e-government implementation projects managed?
- How are whole-system e-government success factors such as interoperability, standards, convergence incentives etc. handled in local development?

The purpose of the article is mainly to illustrate the complexity and point to particularly difficult challenges where the "butterfly syndrome" seems to apply: little differences in local conditions may entail very different decisions leading to vastly different results.

BACKGROUND: THE MOVIT PROJECT

Örebro City is considered big in a Swedish perspective. It has 11474 employees and a population of 127 733 at turn of the year 2005 (Örebro City executive board, 2006, p. 37). The development towards e-services had been going on for many years. It is impossible to set a fixed starting point as the target has moved. Starting from setting up webs in the mid-1990s, steps have been taken at several occasions. In 2001 the "24 hour agency" came up, after national government initiative. In 2004 the first project aiming at integrating the city IT-wise, the "e-Platform", was launched. In 2005, 0,8 MSEK were designated to coordinating e-services and in 2007 the responsibility this was transferred from the IT Advisory board to the MovIT project, to be described below. The purpose was to achieve more powerful coordination as control was moved from the IT people to the direct control of the CEO (Chief Executive Officer, a title increasingly used for the highest administrative official in Swedish cities).

After the 2006 election a new political majority expressed a need for City of Örebro to become more citizen oriented. In the budget for 2007 it was explicitly stated that the focus for the City's activities must be the citizens.

...Citizens and their choices in life are the primary goal of the City. Whether the citizen is a student, tenant, user, client or customer she should always be the centre of the municipal efforts. No department in the City exists as an end in itself; the citizens' are always the most important stakeholder. The aim must be to improve the quality of life for the citizens, by allowing them to take part in and engage in the decision-making processes at an early stage, which will create more well informed citizens and a stable democracy. (Örebro City executive board, 2006, p. 4)

To implement this political wish, the City needed to improve the services towards businesses as well as citizens. The City needed to improve their efficiency and to become more easily accessible. The politicians wanted their citizens to see the City as a service provider and it should be clear what kind of services it provided. To accommodate this, the City launched a project called FRAM with the primary goal of designing a new organizational plan for the entire administrative staff. The purpose was to reallocate resources amounting to 150 MSEK to achieve "services close to the citizens". This is a considerable number, roughly 3% of the total City budget and perhaps 20 % of the administrative costs, although these are not possible to directly trace in the budget as they are dispersed across departments. To achieve this, FRAM has two main focus areas.

1. Streamlining internal processes within the City, to implement automation, and self service where possible, to relocate staff to enable the City to respond to the needs of the citizens in a more direct and effective way (the bottom left box in Figure 1).
2. External processes, directly affecting the citizens; such as providing e-services, providing a unified and improved complaint management procedure so the citizen could give feedback on the services the City provides. This is the MovIT project (the bottom right box in Figure 1).

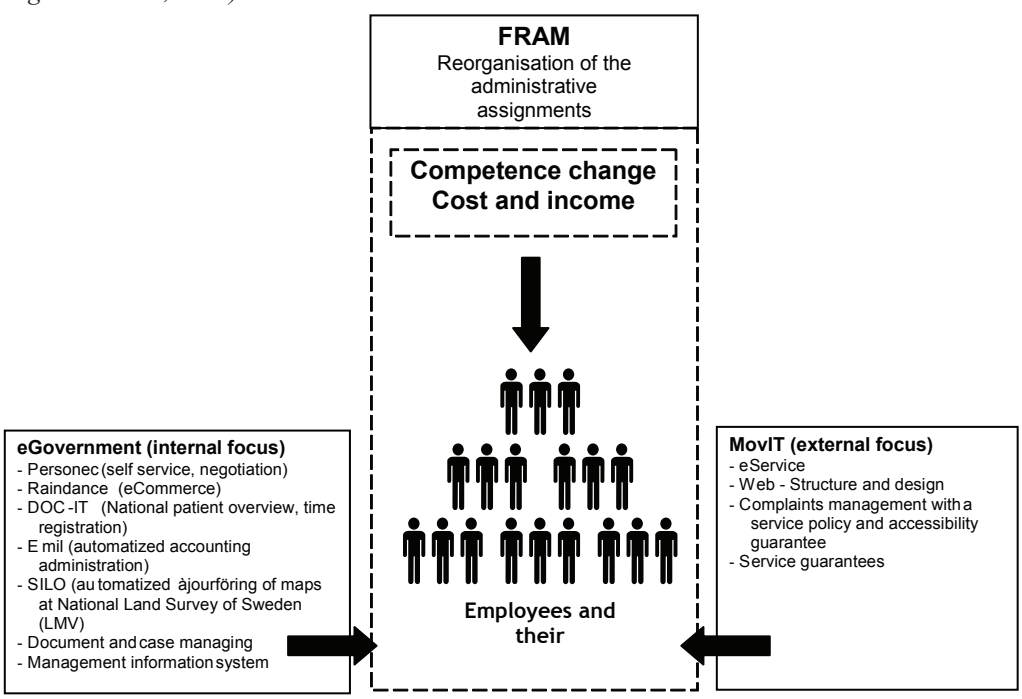
The projects are interrelated. FRAM is to free resources, MovIT is to design a citizen-centered approach to services. The bottom left box in Figure 1 illustrates not a project but the ongoing work with e-government to improve back-office administrative routines. Clearly development of e-services affect the internal organizational – and the other way around – so the development is conceived as moving forward in parallel with the two projects interacting. In this early phase, experiences are sought from implementation of a few services so as to be able to decide on the best organization before the large-scale implementation.

This article focuses on the MovIT[1] part, because that is most crucial for e-government implementation. To be effective, both the reorganization of administrative work (FRAM) and the back-office administrative support ("e-government") must be designed to support the e-service model (Grönlund, 2004).

METHOD

The first and second authors have taken part in the MovIT project since it was launched in May 2007 as part of a large-scale cooperation between the City and the university aiming at both employing university resources to help in development and giving PhD students access to empirical data. The process therefore included

Figure 1. Overall map of Örebro efforts for achieving citizen-oriented services (MovIT – Steering Committee, 2007)



an element of action research. However, the data for this article was specifically collected in early 2008, halfway into the MovIT project. Interviews were made (by authors 1 and 2) with key actors in the project, in total 10 people, and documents guiding the development in the City since the early 2000s were analyzed. Group interviews were conducted with the members of the steering committee. Individual interviews were held with the project managers and with representatives from the organizations that were affected by the changes. The authors also studied all the documentation produced during the project, such as project reports, project directives etc. Based on this information, the project history was described by the first author. The third author, who has not taken part in the project work in any way, then analyzed the story in the perspective of e-government development in general. Issues that were particularly interesting for either posing obstacles or facilitating development were then investigated further by additional interviews and information searching. This way we were reasonably able to distinguish between the role as advisors and participants in the project group and the analytical role. The findings were presented to the steering committee and the project managers to check accuracy of details and to get feedback on the conclusions drawn.

Although there may still be a risk of bias due to two of the authors having taken active part in discussions, if not formal decisions, it should be noted that we do not draw either specific or general conclusions about causal relations in the development. We use the case story to extract problematic situations which are key to a successful development process, as measured by generally agreed e-government success factors. These problematic situations are analyzed in terms of their antecedents so as to provide understanding of the situation in which decisions crucial to the future development are made. The purpose of this is to achieve a better understanding of local development processes. While this understanding can serve as guidance for others, and while we do believe that the situations we found in Örebro are quite common, we do not claim that our findings are complete or universally applicable. We see them as lessons learned, and our contribution is to highlight these lessons and to relate them to the discussion about e-government strategies in such a way as to be able to discuss (local) implementation of strategies, an area still in need of research.

The main quest for our investigation was to understand how transformational projects aiming at fundamental change are managed. Successful e-government amounts to reorganization and focus on citizens and this is precisely the goal of MovIT. More specifically, our research questions were:

1. How is project work organized, and resources allocated, so as to achieve the political goals of "citizen centred services?
2. How are issues of standards, cohesion and convergence—basic e-government success factors—handled so that interoperability and effectiveness are achieved not just in an internal perspective but also with respect to coordination and cooperation with other government organizations?

MAIN FOCUS OF THE ARTICLE: FINDINGS

This section describes the MovIT project in terms of its design and its different sub projects. The description is a narrative from which we have extracted "critical issues." These are, in this text, implicitly derived from the e-government literature which we do not here review. In the Conclusions part, these critical issues are more strictly reviewed by relation to some models from that literature.

PROJECT ORGANIZATION, THE MOVIT SETUP

The MovIT project was set up to implement a political decision. The City CEO has the overall and official responsibility of the project, however, as some of the changes may have political implications she needs to get approval from the

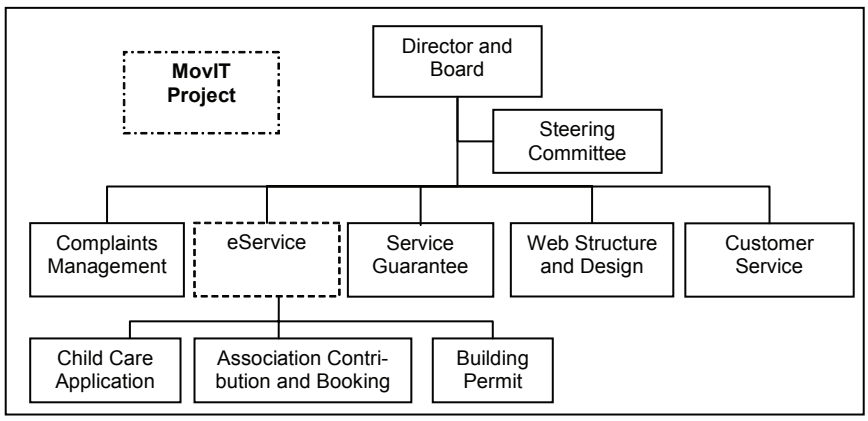
City Executive Board, the political executive body. The project includes a Board representing all three program sectors (Children and Education, Civil Engineering and Social Welfare) and staff from the central City Administration Office. The CD and the Board are the formal decision makers of MovIT. The project also features a steering committee of six people; the project manager who is a development coordinator outside of MovIT and is part of the Board as well, the head of the Information Department, who is also part of the managerial body, one IT-strategist, one organization strategist, one organizational and IT coordinator and one PhD student from Örebro University. The steering committee has the operational responsibility to decide on the processes and activities in the projects owned by MovIT.

It was clear that politicians wanted quick action. As MovIT was not in the position to implement projects at individual city departments, it was important to set up the project in such a way that MovIT proposals could be quickly endorsed by the different sectors and aligned with already existing strategies for IT and organizational development. In order to achieve this, it was decided that the steering committee would consist of people that had adequate competence, such as development work, had an organisational rather than departmental perspective on development, and who had previously shown that they could handle the pressure that change involves. Steering committee members were solicited by the Board after discussion within the board on suitable staff members, they were chosen on the criterion of competence, not representativity.

Initially there were four sub-projects within MovIT: Complaints management, e-service, Service Guarantee, and Web structure and design, each with a separate project manager and a project group. The manager for each project would be responsible for adherence to the project directives, to brief the steering committee on progress, to ask for permission on activities, ideas etc. Later on, one more project was added: Customer Service. The steering committee realised that one of the key points where citizens would contact the City would be the central City Reception (called customer service), as opposed to at the individual departments, and due to this it was decided to incorporate it with MovIT.

This set of projects (Figure 2) was intended to cover the problem situation well enough to get started; a few test services, policies for the purpose of focusing more directly on citizens, and reorganization to implement these policies and at the same time accommodate the envisioned gradual transition towards e-services. As we shall see below, different approaches were taken for the different sub projects. Some were conducted top-down, such as the service

Figure 2. Components of the MovIT project



guarantee and the customer service, while others were implemented in a bottom-up fashion, such as the web services.

Priorities

MovIT started to implement a political initiative, and meeting deadlines was important. Politicians wanted results quickly, the subprojects should be finished and the e-services implemented and operational when the steering committee handed in the final project report in August 2008. Although no formal date for delivery was politically decided, the steering committee considered quick action very important. As a result, all other criteria were designed to meet that critical limitation. One of the steering committee members expressed this problem during the group interview:

We see time as "sacred" as it is a political decree which ultimately implies compromises either with cost or quality, and in our case it will be the quality that will suffer first. If we would abide by the quality demands, it would at least take a year to deliver a functioning e-service. (S1, October 31, 2007)

As a consequence, the steering committee was very clear to explicitly pass this decision on in the different project directives; the schedule of each project was not to be deviated from.

Critical issue 1, political timing: Political directives often come with time limits. This is good in that it spurs action but it can also cause trouble as quality may be affected. In this case political wish was clearly given strong preference. Although we cannot today see distinct negative outcomes of this it certainly has affected the project process as we shall see below.

Financing and Resources

The MovIT budget was estimated to 1.5M SEK during 2007. This budget would cover common costs i.e. activities that were common for all areas of the City like the service guarantee, service policy etc. education of staff regarding the accessibility guarantees etc. The three e-service projects would not be covered by the MovIT budget. This was because the steering committee felt that the design and implementation of e-services should be seen as organizational improvements and hence be covered by the budgets for each department and for the IT department. The argument was that this would lead to the staff being more effective. However if the e-service implementation would require any additional cost due to usability and accessibility requirements imposed centrally departments could ask for financial support, subject to Steering Committee approval. Criteria for approval were not settled beforehand.

Furthermore, neither MovIT overall nor the individual projects had any clear guidelines on how to fund activities. It all came down to what the steering committee felt was reasonable.

We decide the budget; but the project managers can come up with activity suggestions and suggestion on how work. But it is the committee's responsibility to accept the idea as feasible and say ok run with it. (Steering committee member, October 31, 2007)

Salaries for people participating were paid by city departments, not by MovIT. Staff hence had to be recruited by voluntary agreements with departments. In total, around 50 people were recruited to work with MovIT, each contributing anything from 25 % to 100 % of their working time. This was done by means of informal arrangements which meant that each department had to bear the costs for staff working on MovIT. This meant that some staff had to work on the MovIT project as well as with there normal duties in the City without any time reduction. This conflict of interests led to negotiations between departments and MovIT management. While enough understanding was reached to keep the project running, this informal resource allocation was a constant trouble.

The informality was not just about the actual project, but also about the actual e-services to be implemented. This is something that the project managers were somewhat unclear about. Some of the project managers acknowledged

that the organization he or she was worked for would cover the cost for the implementation of the e-service but one of the project managers saw it as "reasonable to assume" that the MovIT project would fund some parts of the implementation when the organization felt it became to expensive. The reason for this was due to the fact that it was requirements from the steering committee that had to be followed during negotiation with a supplier, and if the cost then became to high then the manager assumed that it would be funded by MovIT as it was their requirements. And in some ways this was also true as the steering committee had approved to cover some of additional costs when the negotiations through SAMBRUK (an informal cooperation with several other cities) was still an option, but when those negotiation broke down and the alternative found was the current system provider the steering committee backed down on their previous decision and took on the entire cost as it now was a matter of internal improvements of an existing system.

Critical issue 2, resource allocation: This story shows one of the critical points of NPM. As resources are distributed to individual departments resources for projects have to be negotiated, even in a case like this when political directives are strong. The result of the negotiations depends on individuals. It is basically the leadership skills of the project manager – and of course any political pressure s/he is able to put on departments – that makes the difference between failure and success. This pressure can come from other policies, and as we shall see below some such means were indeed used.

COMPLAINTS MANAGEMENT

The complaints management project, as it somewhat negatively was called, was the first to be launched by MovIT. It began in May 2007 and it was decided that the project would deliver a general service policy and an access guarantee proposal by the end of 2007. It was also charged with the task of generating a common complaints handling procedure for the entire City.

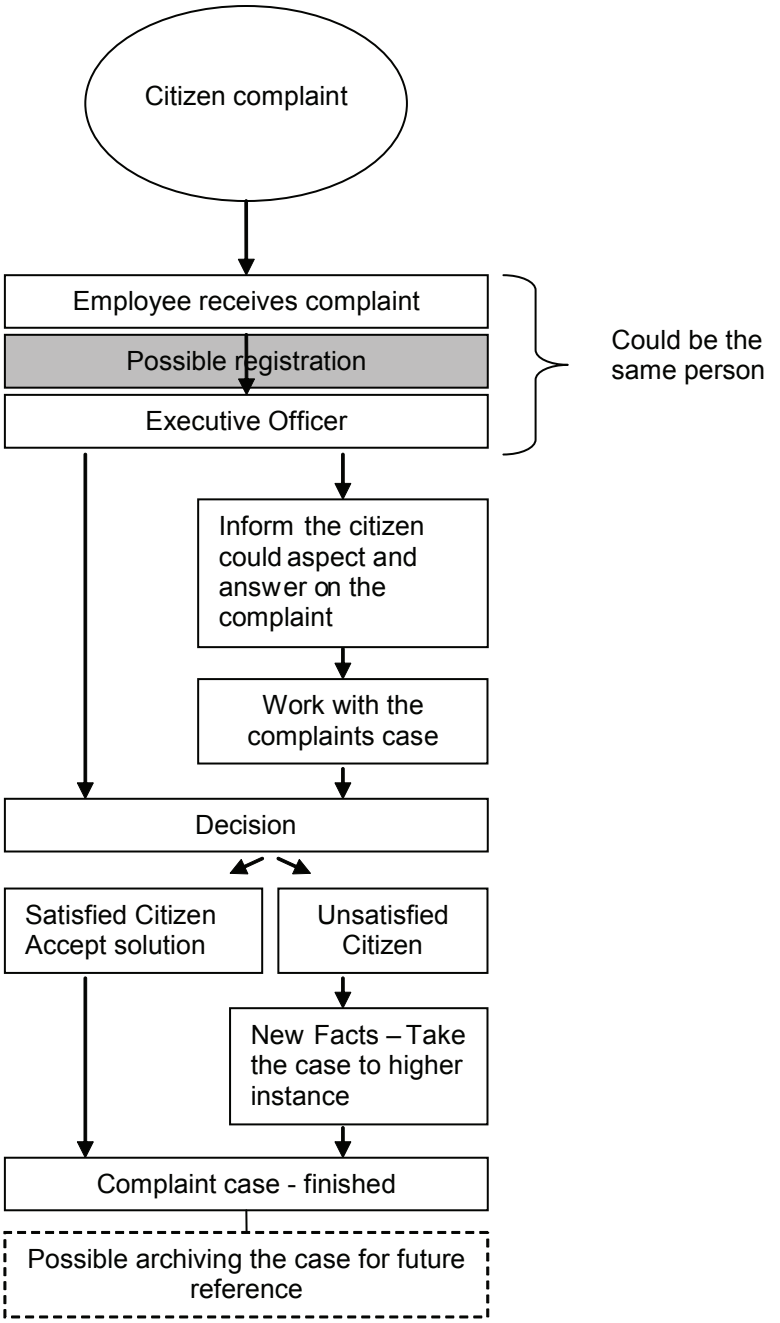
Prior to MovIT Örebro City did not have common complaints procedure so each department could handle the complaint as they saw fit. The only common procedure that existed was the registration of incoming and outgoing documents as mail and e-mail fall under the Swedish principle of Public Access and must be registered and saved for later access by the public. The lack of a common procedure however made it hard to follow up on any complaint or feedback centrally and rendered it almost impossible to do any form of statistical analysis on the complaints and the responses to these for the entire City. This was seen as ineffective and therefore a common procedure was developed. Adhering to this, every employee would know how to handle complaints and all complaints would be dealt with in the same way. Figure 3 shows the process model that was developed.

The project group decided on four categories of complaints (Children & Education, Health & Welfare, City Engineering and Other/unknown). This categorization made it possible to shorten the lead time of the complaints handling procedure as the responsible person receiving complaints would more quickly be able to pass them on in the correct direction. To help employees in handling incoming complaints the "gift principle" (meaning considering any input a "gift", something positive to be used for improvement of services) was formulated. This principle states explicitly how to handle the citizen and her complaint and it prevents the employee from becoming defensive when a citizen contacts the City to complain.

When speaking with a citizen regarding a complaint you should:

- Tell the citizen that you are sorry that the citizen has concerns and is dissatisfied;
- Promise that you will deal with the problem, if you can not solve it yourself then you will make sure the right person received the complaint;
- Ask for as much information as possible
- Thank the citizen for contacting you with her concern or issue;
- Explain that the reason why you are grateful is because it is important for the City to get feedback because it allows the City

Figure 3. The process model for the complaints procedure (Örebro City, 2007a)



to handle or solve the issue. (Örebro City Administrations Office, 2007)

In addition to creating a common complaints procedure the MovIT project would also create a service policy and an access guarantee. These two documents would assist employees in

their communication with citizen. The service policy) would state how each employee should act towards citizens, the access guarantee would state how and when the City should be accessible for a citizen.

The service policy that was accepted by the Executive Board states that it is every employee's responsibility to:

- answer all citizens in a committed, affable and professional way,
- make sure that citizens get in touch with whoever they seek or need to find,
- handle any complaints, standpoint or proposal according to the common complaints procedure,
- contact the citizen as soon as there is an answer to a question or a decision,
- apologize when a mistake has been made,
- correct any mistakes, and
- inform when s/he is not available.

The common responsibilities for individual employees are to:

- always focus on the citizens' needs,
- give information in a way so it can be understood by all citizens,
- make sure that all important information is accessible for citizens,
- help each other and to collaborate to give the citizens' business and visitors good quality services,
- continuously learn from the work being done whether it be mistakes or good work in order to improved the processes continuously, and
- use the service guarantees that exist and make sure that citizens' get knowledge of its existence and make it easily accessible.

On top of the service policy there is the access guarantee. This states that all citizens should be able to get in contact with every department, organization etc. during weekdays. A citizen should only need to call once to get in touch with the employee s/he is seeking. If no employee responsible for the issue the citizen needs help with is immediately available, the citizen should be contacted within two days of the initial contact. Any decision, contact or answer of a question through mail or e-mail should be communicated to the citizen within five workdays. The access guarantee also states that citizens always should experience that employees in the City are addressing their issue in a sympathetic, helpful, and efficient way. Furthermore, citizens should recognize that the City and its employees correct any mistakes done. Citizens should also be aware of the City's goals to improve all things that need to be improved.

To be able to have a common procedure for complaints the project defines "complaint" as

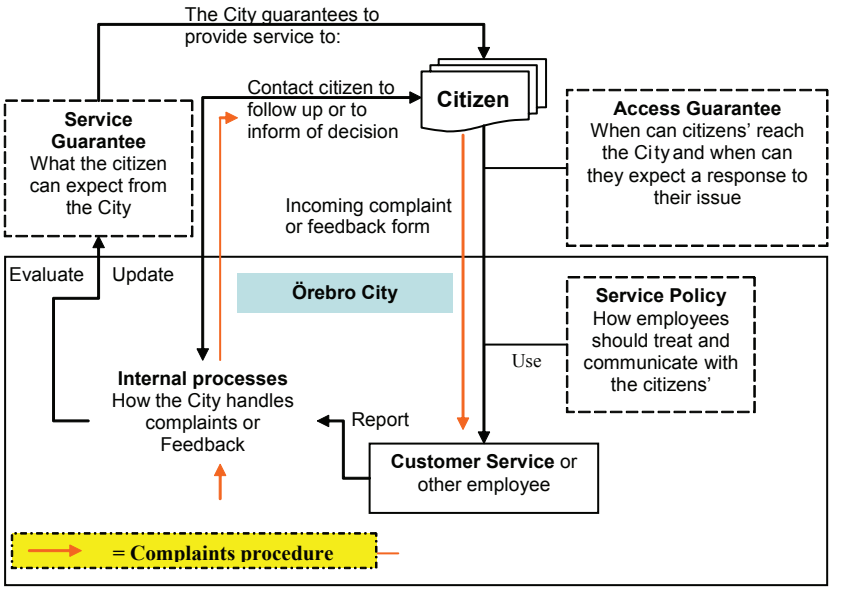
when a citizen shows signs of, or expresses, a dissatisfaction of the service delivery, the quality of the service provided, or the lack of, or unavailability of, service. (Örebro City, 2007b)

Based on these common principles each department then has to define complaints specific for their area. This work falls outside of MovIT and the project group would only provide the general definition. Figure 4 shows the general complaints procedure as defined by MovIT and its relation to the service policy and the guarantees for access and service.

The service policy and access guarantee have been approved by the City executive committee and the service policy have been in effect since January 1st 2008, the access guarantee will be in effect from September 1st 2008. The complaints procedure has been approved and during 2008 and the work in creating the routine and connecting it to the customer service will continue throughout 2008. No issues or problems have been perceived that will cause any problems for the continuation of the subproject.

Critical issue 3, political mandate: The guarantees described above are critical instruments for convergence across city departments, both generally and in terms of forming a basis for developing standardized e-services. The guarantees are a direct result of political direc-

Figure 4. The relations between service policy, accessibility & service guarantees and complaints procedure.



tives. Without such, important instruments will not be developed.

The service guarantee sub-project was responsible for designing and implementing local service guarantees at departments throughout the City, all based on the common guarantee discussed above. These guarantees would state clearly what a citizen can require from the City when they utilize a particular service from the City.

To move this work forward the steering committee decided that 24 employees were needed as "development coaches". These coaches would be educated in designing (local) service guarantees, and would then each help one department with the design of their guarantees. Eventually only 14 people were found, but this seems not to have significantly slowed down the process. There were not as many focus groups (the method used) as planned, but guarantees were produced on time. A bigger problem was that the project manager could not influence who got assigned as coach, this was decided each department and not necessarily by the competence criteria on the project's wish list. This caused problems as the manager in some cases had to work as a supervisor to some of staff in the project group instead on only focusing on leading the project forward.

The service guarantees were developed on time. The basic content of a guarantee is the following:

1. Description of the service area.
2. Explicitly stated guarantee.
3. Contact information if the citizen wants to give feedback or complain.
4. What kind of service the City is offering in return in case of unsatisfactory delivery of service.
5. How the citizen could acquire more information regarding the service area.

The project group designed a total of 15 guarantees:

- Four within the School sector, focusing on what a citizens as parents and children can request regarding education.
- Seven within the Social Welfare sector focusing on financial aid, and aid to elderly and disabled citizens.

- Four in the Civil Engineering sector regarding environment and health protection, food control, building permits and water supply, snow removal and garbage disposal.

These guarantees address many issues including delivery time, assistance availability, information availability etc. Each guarantee is tailored for a specific service. While there is no general guarantee, several services might have the same guarantee specification. One of the issues that had to be solved was the service in return in case the City failed to deliver the service as the guarantee states. Guarantees in the public sector are complicated as there are many kinds of services and each comes with specific legal regulation. According to the Swedish Association of Local Authorities and Regions (SALAR) a city can only offer four types of responses when dealing with complaints and service guarantees:

- Being proactive: the City contacts a citizen and explains that s/he can not get the service s/he is supposed to, and explains why. The reason would likely be legal regulation.
- Free service: If the City for some reason can not provide the service when it should, in some cases the citizen can get the service free at a later time. This is something that is common occurrence in the welfare system if a citizen eligible for welfare does not get the check on time s/he could get cash so as to be able to buy groceries. And this would not lead to a reduction of welfare later on.
- Economic compensation can be given to individual citizens if the service delivery is unacceptable.
- Alternative service: If alternative services exist then a citizen could choose an alternative instead. For instance, if the home care service cannot make their food delivery the citizen could get the offer to visit a local restaurant at the City's expense.

In some cases financial guarantees are impossible, for example in education, because Swedish law prohibits cities to give economic compensations of any kind of services provided free of charge due to legislation. In such cases guarantees can only be about availability, access to information, venues for influencing services, and similar.

The 15 service guarantees in Örebro were accepted by the Executive Board and have been sent out to the city departments for an internal trial period between January and March 2008. The project group will continue to develop new guarantees in areas not yet addressed and make changes to the ones already designed based on the feedback they receive from the trial period. They will also start on creating tutorial information to be used to educate staff when the guarantees get implemented. One of the problems still to be solved is the lack of development coaches.

Critical issue 4, distinction between political and administrative responsibilities: As this story shows, clearly guarantees have to be both legal and meaningful, i.e. providing real value to citizens. Issues arise when e.g. "good education" cannot be guaranteed in terms of compensation. Is "information" and "availability" enough? This is where the distinction between politics and administration becomes clear. The administration can only guarantee access, anything to do with the quality of education beyond professionalism and legal actions are rather political issues.

E-Services

The City had been working towards implementing e-service for several years prior to the launch of MovIT, starting in 2002 when discussions on becoming a "24/7 agency" begun. At that time discussions involved mainly technical staff working on the possibilities of complying with the 24/7 agency guidelines. With no interest at strategic level in the city, progress was slow.

During 2003 the City launched a pilot project focusing on creating common definitions of concepts for the entire city and to create a knowledge bank for e-service issues. In the final report of this pilot it was argued that e-services will affect all parts of the city and that creating

common definitions would allow efficiency in implementing e-service in the future. The pilot put together common definitions for concepts such as e-service, e-government, e-democracy, e-ID etc. The final report pointed out that "we have created the first (theoretical) version of the common definitions that the City will use, the definitions will however require revisions and updates as the City implements more e-services". This pilot is in a sense MovIT's pre-study as MovIT in many cases follows the recommendations and uses the definitions the pilot developed.

In 2005 the City allocated 800 000 SEK to coordination of e-services. One purpose was to prevent uncoordinated development of e-services at individual departments. Örebro also joined SAMBRUK, an organization involving many cities in establishing interoperable and shared technical solutions. Although the City had been working consistently on moving towards becoming a 24/7 agency for the past few years, at this point it became clear that designing universal—city-wide—formats for e-services required a more comprehensive analysis:

We had ideas of implementing an e-service earlier but then someone started to think and it turned out that we could not implement an e-service without doing a thorough analysis of our processes and organization because the added value to citizens could not only come from just providing the service online, we also needed to make our processes and our organization more efficient. (Steering committee member, November 28, 2007)

Under the MovIT project, in 2007 departments were invited to submit proposals for e-services to the IT Advisory Board (ITAB). Some proposals did not take issues like citizen value into consideration, and so the ITAB turned many proposals down. This standpoint was eventually altered so as to not exclude departments which might have led them to consider separate and potentially non-interoperable solutions. The Board started to accept proposals with a requirement clause: in order for the IT-advisory board to add the service into the IT-plan — which is necessary for achieving central funding — the department had to arrange so the service provided would at least reach a certain minimum level with respect to the requirements set by the ITAB; it had to be compatible with the current software and it had to comply with the current security standards. For MovIT, another basic requirement was that the service would either improve the efficiency and effectiveness of the organization, provide added value to citizens, or both.

One reason for this change in attitude was that the ITAB felt that if they kept turning many proposals down then no or very few services would ever be provided as an e-service. Another reason was that there were problems with suppliers trying to circumvent the decision making hierarchy of the City;

What is happening is that suppliers circumvent the centralized IT-support and the production manager and the IT-advisory board and call directly to department managers and tell them "we have a great IT solution for you" and then persuade them to not contact our IT-support. The department manager becomes interested and checks his budget and figure it's better to spend the money before the financial year ends. (Steering committee member, October 31, 2007)

Clearly this is an important issue for interoperability. The ITAB move towards becoming more welcoming to e-service proposals from departments was designed to promote interoperability and convergence. By approving the proposals they would be able to prevent suppliers from circumventing the ITAB (and nowadays MovIT); the head of the organization would have to discuss any system accepted in the IT plan with the ITAB.

Critical issue 5, coordination of departments: Under the New Public Management (NPM) governance model, individual departments are in charge of their budget. Any attempt at coordination must be more by carrot than by stick. Carrots include central funding, in this case the IT plan and MovIT. Sticks are legal regulation, but such is typically not detailed enough to prevent problems like the ones here

described, precisely because of the NPM model — it is supposed to encourage business thinking at department level and hence there must be real choices to be made at that level.

The entire re-organization of the administrative processes, the FRAM project, was planned to be completed during spring 2008. In parallel MovIT launched its e-service project with the goal of implementing a set of e-services which should be operational by January 2008. As time was tight, the steering committee wanted to speed up ongoing work with e-services rather than start new projects from scratch. Hence they reconsidered previous projects and looked into which e-services the IT advisory board had approved and added to the general IT-plan. Several departments had already begun moving from manual to electronic services and were at different stages in their implementation. Three e-services — out of some 40 proposals — were selected to initially be implemented as MovIT projects, all of which already existed in the general IT-plan:

1. Child care service to parents; application, information, registering of vacation etc.
2. Applications for building permits.
3. Service to civil society organizations, mainly sports clubs; booking and applications for financial support.

This choice of already approved projects was intended to make implementation quick. There were also other considerations. There is some confusion generally as to the definition of an e-service is. In the mid 1990s anything on the web would be considered a service, but gradually this has changed. Today, Verva (the Swedish national regulatory body for e-government) defines e-service as: Service that has been designed to be delivered electronically, using technology such as mobile phones, digital TV, Computers or through advanced telephone services. This is a wide, general, definition so to be able to make distinctions and monitor progress. Verva also defines four levels of e-services; information, interaction, transaction and integration. The information level consists of presenting the City and the services it provides on the Internet, which Örebro has done at orebro.se. The interaction level concerns providing simple services on the City website such as application forms, and other simple self service like searching for public documents. Örebro has reached this level to some extent. The transaction level is about allowing for citizens to acquire, set and edit private information by providing personalized e-service which requires special login such as e-ID. The City is doing pre-studies how they can achieve this level and the Work the e-service project does in MovIT is mainly about this level. The integration level is the final level where the city is integrated enough to become transparent. This is the 24/7 authority; the city has achieved convergence and interoperability between its departments so as to allow for citizens to be able to access everything the city provides on the Internet through one single contact point.

Örebro, quite naturally, has adopted Verva's definition. MovIT set focus on the third level, transaction, thus eliminating some of the proposals in the IT-plan as they could be categorized as being level one or two. Hence MovIT raised the general level of ambition somewhat. Next, time and costs had to be considered as well as benefits. The criteria chosen were:

- How much it would cost to implement.
- How long it would take to implement.
- How it would benefit the citizens.
- How popular it would be.

Because complete e-services, meaning level 3 or 4, were still new and demand was unknown it was considered beneficial to initially implement popular services so the very idea of e-service would not have to be marketed to the public.

Implementation

The services that were chosen turned out to be more problematic to implement that initially understood. Örebro City is part of SAMBRUK which is a joint project involving over 30 municipalities in Sweden. The idea is to collaborate when developing e-services, sharing software, definitions and process models. The project follows the ambitions and statements made by

the Swedish government; to become a coordinated public sector with e-services (http://www.sambruk.se/). Participation is voluntary so cities decide themselves which e-service projects they will participate in. However, they do need to be ready to adjust to the common guidelines in some common fundamental issues. The large number of cities collaborating in SAMBRUK makes procurement procedures a daunting endeavor. First all must reach a common ground on specifications, suppliers, time frames, cost distribution etc. Then they need make deals with suppliers, which may not be easy as these may be more interested in dealing with cities individually. MovIT thought that collaborating with several other cities would allow them to put more pressure on the suppliers and to divide the development cost between many partners thus lowering the cost for Örebro. Hence two of the e-service projects (Service to civil society organizations and Child care service to parents) begun negotiations through SAMBRUK during fall 2006. For the Child care service to parents' project this cooperation proved unsuccessful:

We had begun the procurement procedure with SAMBRUK in the fall last year but it did not turn out well since the major suppliers where unwilling to open their system for an external e-service. This lead to postponement of the procurement and we had look for other solutions (Project manager, November 28, 2007)

This unwillingness made the negotiations require more time then anticipated. Indeed they would not reach the final stage until at the earliest in April/May 2008, that is, by the time the whole MovIT project was expected to be finished. Hence a new solution was needed. A new supplier was brought in, who had a product that needed some adjustment. This meant unanticipated costs, but it brought the plan reasonably back on schedule

The Civil society organizations support project also experienced problems with the SAMBRUK cooperation, however this time it was not due to the suppliers but the cities themselves. They could not come to an agreement on which suppliers to use since almost all of them advocated to use their own supplier. In the end the SAMBRUK negotiations were postponed and the project manager had to come up with an alternative solution. The alternative chosen was a module available for the current information system. However the module was not completely compatible with the system – despite it being a module of it – and hence needed some updating. From a quality point of view this was not deemed to be the perfect solution but the steering committee agreed to it since they wanted an e-service to become implemented. The first part of the e-service was launched in December 2007, and citizen can now book facilities owned by the City.

In conclusion, this subproject has not achieved all its goals. The building permit project is on hold until further notice pending results from evaluation of an external pilot involving five other cities regarding a common e-service for building permits. The project for Child care service is hoping to solve the technical issues during 2008 so the e-service can be launched although somewhat later then originally anticipated. The NGO support project has launched an e-service and to be able to develop it more, the project needs to do more analysis and to find a solution for the locking and passage system. This work will continue during 2008.

Verva has also agreed to fund the eID solution MovIT has agreed upon for three e-services, since the building permit project is on hold. MovIT decided to add another service. The third and new service is closely related to the Child care service to parents' project. It's a service for parents to allow them to get information on their children's attendance records. This service does not have its own project group as it is closely related to the Child care services.

Critical issue 6, dependence on providers: It is a long standing problem that cities are much in the hands of their suppliers. As this story shows, these do not necessarily want cities to join forces to get better deals from providers. Also, it is hard for cities to engage new providers. They often feel comfortable with the one they use, and handling many is generally more complicated.

WEB STRUCTURE AND DESIGN

In the project directive for the web structure and design project it stated that the project should focus on a few specified target groups when designing the web structure and design for the city's web site (www.orebro.se). To achieve this, the project group decided on a method that focuses on charting effects. The project group did extensive analyses of the organization's strategies and other both political and administrative steering documents to see what the City wanted to achieve strategically. Based on this information the project group had workshops with decision makers and strategic staff to come up with a set of main target groups. Although clearly the web is for all it would not be possible to focus on all possible target group that might exist. Hence the City followed Verva's methodological advice. Verva recommends prioritizing between the existing target groups and to acquire in-depth knowledge of the chosen target groups as it is a condition to "be able to choose between functions and solutions for the overarching design of the website, to create a logical information structure and a good graphic layout, and to realize the most benefits of the IT-investment" (Verva, 2007)

Eventually five target groups were selected as first priority. In-depth interviews with citizens' belonging to those target groups were held, based on which "personas", archetypical users, were designed with the assistance of a consultant company, InUse, experts in this field. The personas were intended to encompass five of the main target groups; the choice was Parents, Entrepreneurs, Relative, Recreational, and Culture. Clearly this solution is partial – how about elderly, for example? Immigrants? While it is possible that the web design can be improved this way, it is clear that new demands will follow as supply and use increase. However, this method is just one out of many to decide web design. This method focused on web design with the purpose of being close to certain user groups which are thought to have distinctly different needs. There are alternatives. One would be focusing on general usability for the purpose of making services "look and feel" as similar as possible. One argument for such thinking is that over a lifetime most people will use all services, parents help children, children help parents and so they become assistant users for some other target group. Hence, the argument goes, it is best to have a consistent and proven general design. For such design there are international guidelines. Yet another, compatible, alternative is focusing on clustering service supply according to "life situations". This approach groups services for "youth", "parents", "elderly" together so users not just find things they actually look for but also become aware of services relevant to them which they did not know about beforehand. Examples of this include many national web sites in e.g. Austria and Sweden. Whichever method chosen there is no single best solution. There are always trade-offs to be made.

Critical issue 7, use standards selectively: Standards are clearly useful as they facilitate design. As this story shows there are not only technical standards but also such that pertain to use and service organization. These standards are rather best practices than unequivocal standards, but best practices often become so familiar among users that changing them is hard. In this case there was no complete service supply to organize, but in a few years there will be. Then there will be need for another revision of the web. Timing is important, On the one hand, imposing an abundance of standards to a web with yet very few services may be overkill. On the other hand, making too special designs—non-standard—may prove expensive at next revision as services may have developed in different directions design wise and may require considerable changes.

FUTURE TRENDS

In this article we have told a story of an ongoing radical e-government case involving considerable reorganization and a clear, politically decided, citizen focus. Our findings can be summarized as a number of critical issues, critical because the choices made at these junctions may have profound effects on the outcomes. In this section we first summarize the challenges, and then go on to analyzing them in terms of

future trends in the field. The changes and the importance of them are:

1. **Political timing:** Political directives often come with time limits. This is good in that it spurs action but it can also cause trouble as quality may be affected. In this case clearly political wish for quick results was given highest priority and all other criteria were adjusted accordingly.
2. **Resource allocation:** This story shows one of the critical points of NPM. As resources are distributed to individual departments resources for projects have to be negotiated, even in a case like this when political directives are strong. The result of the negotiations depends on individuals. It is basically the charm of the project manager – and of course any political pressure s/he is able to put on departments – that makes the difference between failure and success. This pressure can come from other policies, and as we shall see below some such means were indeed used.
3. **Political mandate:** The guarantees described above are critical instruments for convergence across city departments, both generally and in terms of forming a basis for developing standardized e-services. The guarantees are a direct result of political directives. Without such, important instruments will not happen.
4. **Distinction between administrative and political responsibilities:** As this story shows, clearly guarantees have to be both legal and meaningful, i.e. providing real value to citizens. Issues arise when important things like "good education" cannot be guaranteed but rather elements of it such as access, information etc. Making service guarantees explicit also makes it explicit where administration ends and politics starts. This puts new pressure on politicians
5. **Coordination under NPM:** Under the NPM model, individual departments are in charge of their budget. Any attempt at coordination must be more by carrot than by stick. Carrots include central funding, in this case the IT plan and MovIT. Sticks are legal regulation, but such is typically not detailed enough to prevent issues like the ones here describes, precisely because of the NPM model – it is supposed to encourage business thinking at department level and hence there must be real choices to be made at that level.
6. **Dependence on providers:** It is a long standing problem that cities are much in the hands of their suppliers. As this story shows, these do not necessarily want cities to join forces to get better deals from providers. Also, it is hard for cities to engage new providers. They often feel comfortable with the one they use, and handling many is generally more complicated.
7. **Choosing among standards and best practices**. While standards are clearly useful they often com in the form of de facto standards or best practices and are therefore hard to discern. Timing is important. Over standardization at an early stage may prove both costly and cumbersome, but so will waiting too long to use established best practices.

At a more general level this case story can be considered in the perspective of strategic management model. The prevailing model today is New Public Management, a model where economic measurement at department level is the most prominent technique. We have seen in this case that many of the problems encountered have to do quite directly with this model. A common theme in this story is that lacking national plans local organizations are struggling to find development models that are both interoperable beyond the own organization and economical. This struggle involves both partnerships and makeshift solutions, here illustrated for example by the SAMBRUK problems and the ITAB's changes in strategy to prevent other actors – vendors and departments – to circumvent the City policy. While it is methodologically incorrect to generalize from a single case, it is clear that these problems are directly derived from the NPM governance model. Hence the case is illustrative also for other countries even if the details may be different depending on the exact implementation of NPM. The case shows

that the economic model for governance, NPM, is conserving institutions rather than promoting change in several ways:

- It prevents development of national frameworks, such as enterprise architectures, which are necessary for the convergences processes that need to take place to make interaction across government organizations smoother. We saw in this case that such would have helped at several points, where now instead the City had to cook up local standards.
- It requires complicated cooperation's across both political and economic borders to not only implement shared services but also to finding economic advantages in procurement, service etc. This was clearly illustrated by the SAMBRUK debacle.

In summary this case exhibits a quite ambitious project where e-government ideals such as interoperability, single face to citizens, customer-oriented services etc. were clearly proclaimed at the political level and ambitiously implemented at the administrative level. While changes are still ongoing we can already see "inscriptions" in the form of policies for services and access, an increased set of standards at city level, and a started if not yet completed reorganization of the administration. We have highlighted some problems for local e-government development and pointed out that many of these have to do with lack of national coordination and a strategic model for government that is not conducive to such comprehensive changes that are necessary to make the best out of e-government. We believe that that a future trend is that this type of ambitious whole-of-government, albeit only local in this case, approaches will become ever more important, for economic as well as service reasons. We believe governments, including local, will over the next few years develop – indeed, will have to develop – skills in meeting these challenges. This involves strategic changes to the NPM governance model, not just little fixes to emergencies, as this case has demonstrated.

CONCLUSION

This article has studied a case where a city has attempted a politically decided strategic overhaul of service supply with a strong focus on citizen value. We found seven "critical issues" which are necessary to address in a coherent and determined manner in order to be able to pursue such a strategic management approach. The seven issues are political timing, resource allocation, political mandate, distinction between administrative and political responsibilities, coordination of departments, dependence on providers, and wise use of standards. These are issues where development is open for local choice, influences of strong individuals and groups, and indeed chance. Addressing them strategically amounts to a considerable change in the mainstream governance paradigm, New Public Management, as this is not sufficient to implement all the potential benefits of e-government. Indeed, this situation is in much a consequence of NPM. This model by design leaves these issues in a void which has to be filled by negotiations among many actors with different roles, goals, and action space.

While this case tells just one story of how these negotiations turned out, there are general lessons to learn in that there is such a void, that it has to be filled, and if it is not filled strategically it will be open for unexpected turns of events. Clearly one case is not enough to show how this should be done, but this case clearly illustrates some of the challenges to be met, as well as benefits and shortcomings of different approaches to problem solutions which are common today.

REFERENCES

Accenture (2005). *E-Government leadership in customer service: New expectations, new experiences*. Retrieved December 15, 2005, from www.accenture.com

Accenture (2004). *E-Government leadership: High performance, maximum value*. Accenture Consulting. Retrieved December 15, 2005, from http://www.accenture.com/xdoc/en/industries/government/gove_egov_value.pdf

Behn, R. D. (2006). The challenge of evaluating M-Government, E-Government, and P-Government. In Mayer-Schönbeger & Lazer (Eds.), *From Electronic Government to Information Government*, 213-238. Cambridge, Massachusetts: MIT Press

Boston, J., Martin, J., Pallot, J., & Walsh, P. (1996). *Public management: The New Zealand model*. Auckland: Oxford University Press.

CSN (2006). Annual Report. http://www.csn.se/polopoly_fs/1.2432!arsredovisning2006.pdf (visited Jan 27, 2008)

DGIM (2005). Online availability of public services: How is Europe progressing. Web based survey on Electronic Public Services. *Report of the fifth measurement, October 2004. Prepared by Capgemini for the European Commission Directorate General for Information*. Retrieved December 15, 2005, from http://europa.eu.int/information_society/soccul/egov/egov_benchmarking_2005.pdf

Dunleavy, P., Margetts, H., Bastow, S., & Tinkler, J. (2007). *Digital era governance: IT corporations, the state, and E-Government*. Oxford: Oxford University Press, 2006. ISBN 0 19 929619 7

eGEP (2006a). *Measurement framework final version*, eGov Economics Project, European Commission, Brussels. http://217.59.60.50/eGEP/Static/Contents/final/D.2.4_Measurement_Framework_final_version.pdf (visited Jan 20, 2008)

eGEP (2006b). *Compendium to the measurement framework*, eGov Economics Project, European Commission, Brussels. http://217.59.60.50/eGEP/Static/Contents/final/Measurement_Framework%20_Compendium.pdf (visited Jan 20, 2008)

EU (2004). *eGov Research in Europe. European Commission*. . Retrieved December 15, 2005, from http://europa.eu.int/information_society/programmes/egov_rd/text_en.htm

Gore, A. (1993). Reengineering through Iiformation technology. Accompanying *Report of the National Performance Review*. Washington: Office of the Vice President.

Grant, G., & Chau, D. (2005, January-March). Developing a generic framework for E-Government. *Journal of Global Information Management, 13*(1), 1-30.

Grönlund, Å. (2002). *Electronic government – Design, applications, and management*. Hershey, PA: Idea Group.

Grönlund, Å. (2004). The E-Service model - As implemented at Swedish National Labour Market Administration. In K Mark Weaver (ed), *Proceedings of Academy of Mangement*, New Orleans August 11-13, 2004. www.aomonline.org

Grönlund, Å. (2005). Introducing W-Gov: History, definitions, and issues. *Communications of AIS, 15*(electronic journal, www.cais.org).

Jervall, L., & Persson, T. (2006). *IT-stöd inom landstingen i Sverige*.

Lau, Edwin (2006). Electronic government and the drive for growth and equity. In Mayer-Schönbeger & Lazer (Eds.), *From Electronic Government to Information Government*, 39-58. Cambridge, Massachusetts: MIT Press

Malmer, G. (2007). *IT-strategi för vård och omsorg*. http://www.skl.se/artikel.asp?C=5235&A=48864, visited Jan 15, 2008.

OECD (2003). *The E-Government imperative*. Paris: OECD E-Government Studies. ISBN 92-64-10117-9

Örebro City executive board. (2006). *Budget 2007 med prioriterade mål (Budget with priorities)*. Örebro kommun.

Örebro City Administration Office. (2007). *Servicepolicy och Tillgänglighetsgaranti för Örebro Kommun*.

Örebro City. (2007a). *Dialogen kring Klagomål*

Örebro City. (2007b). *Klagomålshantering i Örebro Kommun*

MovIT – Steering Committee. (2007). *Medborgarorienterad verksamhetsutvecking med stöd av IT*

UN (2004). *Towards access for opportunity. Global E-Government Readiness Report 2004*. New York: United Nations, Department for Economic and Social Affairs, Division for Public Administration and Development Management. Retrieved December 29, 2005, from www.unpan.org/eGov4.asp

UNDESA (2003) *e-Government at the Crossroads. World Public Sector Report 2003*. United Nations Department of Economic and Social Affairs. United

Nations, New York. Retrieved December 29, 2005, from www.un.org/esa/desa/desaNews/desa94.html

Verva (2007) *Utgå från målgruppernas behov***.** Retrieved February 1, 2008, from http://www.verva.se/verksamhetsstod/webb/vl24/2006/2/1/3/

West, D. M. (2003). *Global E-Government*, http://www.insidepolitics.org/egovt03int.pdf; (visited August December 29, 2005)

World Bank (2004) *World Bank E-Government.* Retrieved December 29, 2005, from http://www1.worldbank.org/ publicsector/egov/

ENDNOTE

1 MovIT is Swedish acronym for *Citizen oriented development with ICT support*.

Andreas Ask is a PhD student in informatics at Örebro University (Swedish Business School) in Sweden. Andreas graduated with a master in informatics 2007 from Örebro University. His research area is e-government; focusing on providing new knowledge about the nature and importance of different promoting and inhibiting factors, ways of overcoming obstacles, and understanding of how to use ICT for realizing benefits from ICT use in government. To understand how convergence can be achieved across multiple government organizations. Beside his PhD works he is also involved in several research projects in Bangladesh and EU

Mathias Hatakka is a PhD student in informatics at Örebro University (Swedish Business School) in Sweden. Mathias graduated with a master in informatics 2006 from Örebro University. His current research areas are e-government and ICT supported distance education focusing on how available and appropriate technology can be used to improve the situation in developing countries. Besides his PhD works he is also involved in several research projects mainly in Bangladesh and Sri Lanka.

Åke Grönlund is professor of informatics at Örebro University (Sweden), also affiliated to department of informatics at Umeå University (Sweden) and Agder University (Norway). Åke's research has a strong focus on electronic government as part of the more general topic of coordination of organizations and networks using ICT, including electronic service delivery, organizational redesign, electronic information infrastructures, and ICT-enabled coordination of work. A particular focus is developing countries, "ICT4D." Consultant work includes the World Bank, Sida, government, and EU projects.

Appendix III – Ask, A., & Grönlund, Å. (2008). Implementing Challenges: Competing Structures When New Public Management Meets eGovernment. Paper presented at the EGOV 2008, Torino.

IMPLEMENTATION CHALLENGES: Competing structures when New Public Management meets eGovernment

Andreas Ask, Åke Grönlund

Dept of Informatics, Swedish Business School at
Örebro University, SE-701 82 ÖREBRO, SWEDEN
{andreas.ask, ake.gronlund}@oru.se

ABSTRACT: This article discusses practices, opportunities and challenges in local eGovernment project management; the development towards eGovernment and "the 24/7 agency". Analyzing a case against eGovernment success factors we find seven "critical issues"; political timing, resource allocation, political mandate, distinction between administrative and political responsibilities, coordination of departments, dependence on providers, and use of standards. These are issues where development is open for local choice, influences of strong stakeholders, and chance. This situation is a consequence of the prevailing strategic model for the public sector, New Public Management. This model by design leaves these issues in a void which has to be filled by negotiations among many actors with different roles, goals, and action space. The general lesson is that the void needs to be filled strategically; to reduce the risk level and increase the ability to implement policy or it will be open for unexpected turns of events.

Keywords: eGovernment, New Public Management, Project Management, 24/7 Agency

1. INTRODUCTION

Electronic Government (eGov) is typically defined as a positive development concerning three main actors; government administrations; users of government services, i.e. citizens and companies; and the political system due to "better democracy" typically meaning more openness [1] [2] [3] [4] [5] [6] [7]. eGov is employed to deliver a more efficient administration, better services and more openness. It is conventional wisdom that eGovernment benefits come from reorganization, not from ICT directly. Benefits have to come either by reduced production costs or better services, or both. While costs are comparably easy to measure, assessing benefits are much harder. Both the academic discussion and practitioner development efforts have recognized both financial and non-financial costs and benefits of many kinds, e.g. [8], and tried to devise useful measures, e.g. [9]

M.A. Wimmer, H.J. Scholl, and E. Ferro (Eds.): EGOV 2008, LNCS 5184, pp. 25-36, 2008.

[10]. In practice it has proven hard to implement such criteria in the incentives of individual government agencies, where the development is supposed to take place. Hence basic tangible economic measures so far prevail and grander plans for interoperability, better services to citizens, etc. come second. Also in terms of do ability eGovernment implementation is a challenge because of the complexity of government organization, the complexity of demands, and the lack of general standards to follow. But complexity is not the only problem. While many governments are well managed in many respects, eGov systemic gains – reorganization – have everywhere been hard to realize. This paper looks at, but in particular beyond, the complexities to the structures for handling them, the government management model. In the industrialized world, this is today New Public Management (NPM). While heavily criticized, e.g. [11] [12], it is clearly the prevailing paradigm.

In government practice, Electronic Government was conceived under the NPM regime and has been seen as the perhaps most effective implementation tool. Could it be that many of the "complexities" in implementing eGov are not inherently insurmountable but rather become complicated precisely because of the management model? This article investigates this issue by means of a case study from an eGov development project at municipal level, where conflicts between the departmental approach of NPM and the universal standardization approach of eGov are most likely to clash. In city government two standardization principles clash. Cities accommodate many departments which are each governed by different national regulation – social service, social benefits, schools, communications, etc. In each of these sectors there is a conflict between within-sector standardization and across-sector standardization. Cross-sector standardization would make cities appear more unified to citizens and would rationalize city administration. But national government encourages national standardization by sector as that is beneficial for each sector. To further complicate the picture, the NPM model is based on department efficiency, which means national regulation such as standardization is hard to enforce. This means the clashes are not necessarily only between national and local political levels but between different organizations at different government levels, each driven by its business goals.

This paper illustrates and analyzes the complexity of achieving real change by a case study of a local eGovernment design and implementation project in a Swedish city. The research questions are**:** *How are eGov implementation projects managed at local government (city) level?* And *How are whole-system eGovernment success factors such as interoperability, standards, convergence incentives etc. handled in local development?* The purpose of the paper is both to illustrate the complexity and to point to issues where the governance model is unable to properly handle the challenges. This means the paper aims at opening a discussion about the relation between further eGov development and governance models in general, here using NPM as a vehicle.

The article is organized as follows. Following this Introduction, Section 2 briefly introduces New Public Management as a background for the case study. Section 3 provides another necessary background description of the Swedish public sector and gives an overview of the project studied. Section 4 discusses the method. Section 5

M.A. Wimmer, H.J. Scholl, and E. Ferro (Eds.): EGOV 2008, LNCS 5184, pp. 25-36, 2008.

presents the empirical findings and highlights seven "challenges". Section 6 concludes by summarizing the findings and analyzing them in view of eGovernment goals and NPM tools.

2. NPM AND eGOVERNMENT

The NPM was coined in academia in the early 1990s. By now most governments in developed countries have followed, more or less, at least in practice. NPM is seen as a managerial strategy based on theory of public choice which seeks to enhance the efficiency of the public sector and the control that government has over it. The basic idea is that more market orientation in the public sector will lead to greater cost-efficiency for governments, without having negative side effects on other objectives and considerations that "old public management" – detailed regulation based on political goals – could achieve. The following seven elements (as summarized by [21]) are characteristic for NPM: (**1**) *Decentralized budget responsibility*, (**2**) *Internal (quasi) markets*, (**3**) *"Cost awareness", ongoing rationalization of operations to increase productivity*, (**4**) *Use of management methods and models from private sector*, (**5**) *Increased formal action space and more clear responsibilities for managers at different levels*, (**6**) *Efficiency is measured by explicit and measurable goals* and (**7**) *Focus on "customers" and results*. To be able to do this large bureaucracies are broken into business-like cost units so that the above measures can be effectively applied.

Clearly NPM has many critics, who typically point to the differences between the public and the private sectors and show that NPM tends to ignore these differences e.g. [13]. Academics have claimed that NPM has its best years behind e.g. [11], and that other forms of government are appearing. Such forms are claimed to have to do with emerging practices of governments networking, federalism, new active relations with citizens, etc., but also with issues that have been found lost in NPM such as politics, whole-system thinking, and person-centeredness (back to citizen rather than customer). "Digital Era Governance" is one candidate [12]. However, so far NPM remains the preferred management strategy in practice.

3. SWEDISH eGOVERNMENT AND THE MovIT PROJECT

Swedish government is organized in three tiers, national, regional and local, each politically governed. The Swedish public sector has a strict NPM management model, which means governance by budget and goals, not detailed regulation, also within cities and regional organizations.

eGovernment in Sweden, as in the industrialized world in general, is funded within the ordinary budgets. National plans are typically general and for guidance only, details and decisions are largely left to individual government agencies. The development so far has seen the large national government agencies such as Taxation, Social Insurance, Labour Market Information, and Student Loans applying e-service models to substantial economic benefit and considerable service improvement using

M.A. Wimmer, H.J. Scholl, and E. Ferro (Eds.): EGOV 2008, LNCS 5184, pp. 25-36, 2008.

web sites with information and automated services and call centres to replace staff. In municipalities the picture is different. Scale benefits are harder to find. Municipal organization is heavily departmentalized, borders drawn by different legal frameworks regulating different tasks, traditions, professional competence areas, and local competition for funds.

The general view is that municipalities are lagging, and there is a call for them to implement e-services [14]. This is for reasons of economy, modernity, demand, and management. eServices have shown to be efficient elsewhere, people tend to increasingly prefer e-services to traditional ones, and city managements want better tools for steering the organization and producing qualitative and measurable output.

3.1 THE MOVIT PROJECT

Örebro City has some 11000 employees and a population of over 130 000 [15]. In 2005, the MovIT project was set up to achieve coordination across the city, under direct control of the CEO (Chief Executive Officer). In the budget for 2007 it was explicitly stated that the focus for the City must be "*to improve the quality of life for the citizens*" [15]. To implement this political wish, the City needed to improve the services towards businesses and citizens, improve efficiency and become more easily accessible. The politicians wanted their citizens to see the City as a service provider and it should be clear what kind of services it provided. To accommodate this, the City launched MovIT that would focus on the external processes, directly affecting the citizens, and reorganize the internal supporting structures accordingly. There were five sub-projects in MovIT: Complaints management, eServices, Service Guarantee, Web structure and design, and Customer Service, each with a separate project manager and a project group. This set of projects would cover the problem situation well enough to get started; a few test services, policies for the purpose of focusing more directly on citizens, and reorganization to implement these policies and at the same time accommodate the envisioned gradual transition towards e-services.

4. METHOD

Data for this article was collected in early 2008, halfway into the MovIT project. Interviews were made with key actors in the project, and documents guiding the development in the City since the early 2000s were analyzed. Group interviews were conducted with the members of the steering committee, individual interviews with project managers and with representatives from the organizations that were affected by the changes. All documentation produced during the project, such as project directives and reports, political documents etc, was studied. Based on this information, the project history was described as a "case story" [4] by the first author. Then a case analysis based on NPM and eGovernment goals, tools and methods was done by the second author. Situations and issues that were particularly interesting for either posing obstacles or facilitating development were then investigated further by additional interviews and information searching. These problematic situations were analyzed in terms of their antecedents so as to provide understanding of the situations

M.A. Wimmer, H.J. Scholl, and E. Ferro (Eds.): EGOV 2008, LNCS 5184, pp. 25-36, 2008.

and processes in which decisions crucial to the future development are made. For validation the article was presented to the steering committee and the project managers to check accuracy of details and to get feedback on interpretations and conclusions.

While the project is still underway and final outcomes not yet clear, this paper can already provide knowledge to achieve a better understanding of local development processes. While we do believe that the situations we found in Örebro are quite common, we do not claim that our findings are complete or universally applicable. Our contribution, beyond the case description and analysis, is to highlight critical issues about these development processes and to point to the great importance for eGovernment success that the governance model employed has.

5. FINDINGS

The MovIT project was set up to implement a political initiative, and meeting deadlines was important. Politicians wanted results quickly, the subprojects should be finished and the eServices implemented and operational when the steering committee handed in the final project report in August 2008. As a result, all other criteria were designed to meet that critical limitation: "*We see time as "sacred" as it is a political decree which ultimately implies compromises either with cost or quality, and in our case it will be the quality that will suffer first. If we would abide by the quality demands, it would at least take a year to deliver a functioning eService.*" [16] The steering committee very clearly passed this on to the different subproject directives; the schedule of each project was not to be deviated from. Hence,

Challenge #1: Political directives often come with time limits. This is good in that it spurs action but it can also cause trouble as quality may be affected. In this case clearly political wish was given strong preference. Although we cannot yet see the final outcomes of this, it certainly has affected the project process.

5.1 Financing and resources

The project budget was only for new items such as producing the service guarantee. Design and implementation of eService, for example, was considered organizational improvements and hence to be covered by the departments' budgets. NPM adhering, the argument was that this would lead to departments becoming more effective. However if the eService implementation would require any additional cost due to usability and accessibility requirements imposed centrally departments could ask for financial support, subject to Steering Committee approval. Criteria for approval were not settled beforehand. Hence, resource allocation in practice came down to what the project management could persuade departments to provide. In total around 50 people were recruited to work with MovIT, each contributing 25 % - 100 % of their working time. Time allocation was done by informal arrangements which meant that each department had to bear the costs for staff working on MovIT and that this work was in conflict with their ordinary work. This conflict of interests

M.A. Wimmer, H.J. Scholl, and E. Ferro (Eds.): EGOV 2008, LNCS 5184, pp. 25-36, 2008.

led to negotiations between departments and MovIT management. While enough understanding was reached to keep the project running, this informal resource allocation was a constant trouble. For example, the steering committee had approved to cover some of the additional costs for technology, but as the joint procurement procedure (with other cities, to reduce costs) broke down and a new option had to be quickly found the steering committee backed down on their previous decision and central funding was used to cover the entire cost as it now was seen as a matter of internal improvements of an existing system.

Challenge #2. Resource allocation for joint development is a critical point in NPM. As resources are pre-allocated to individual departments, resources for projects have to be negotiated, even in a case like this when political directives are strong. The result of the negotiations depends on the individuals involved. It is basically the charm of the project manager – and of course any political pressure s/he is able to put on departments, e.g. using other policies as leverage – that makes the difference.

5.2 COMPLAINTS MANAGEMENT

The complaints management project would deliver a general service policy and an access guarantee proposal by the end of 2007. It was also charged with the task of generating a common complaints procedure for the entire City.

Prior to MovIT Örebro City did not have a common complaints procedure so each department could handle complaints as they saw fit. This was seen as ineffective and therefore a common procedure was developed, complaints defined as "when a citizen shows signs of, or expresses, a dissatisfaction with the service delivery, the quality of the service provided, or the lack or unavailability of service" [17]. Adhering to this new procedure, every employee would know how to handle complaints and all complaints would be dealt with in the same way.

On top of the service policy there was the access guarantee. This stated that all citizens should be able to get in contact with every department, organization etc. during weekdays. A citizen should only need to call once to get in touch with any employee s/he is seeking or, the citizen should be contacted within two days of the initial contact, any decision or answer within five workdays. The access guarantee also stated that citizens always should experience that employees in the City are addressing their issue in a sympathetic, helpful, and efficient way. Furthermore, citizens should recognize that the City and its employees correct any mistakes made. Citizens should also be aware of the City's goals to improve all things that need to be improved.

The service policy has been in effect since January 1st 2008, the access guarantee will be in effect from September 1st 2008. The complaints procedure has been approved and the work on creating the routine and connecting it to the customer service will continue throughout 2008.

Challenge #3: These guarantees are critical instruments for convergence across city departments, both generally and in terms of forming a basis for developing standardized e-services. The guarantees are a direct result of

M.A. Wimmer, H.J. Scholl, and E. Ferro (Eds.): EGOV 2008, LNCS 5184, pp. 25-36, 2008.

political directives. Without such, important instruments like these will not be developed. It should not be forgotten that the enthusiasm behind MovIT stems from a change in power and implements a politically controversial view of the public sector as a service institution.

The service guarantee sub-project was responsible for designing and implementing local service guarantees at departments throughout the City, all based on the common guarantee discussed above. These guarantees would state clearly what a citizen can require from the City when they utilize a particular service. "Development coaches" were educated in designing (local) service guarantees and would then each help one department with their guarantees. The basic content of a guarantee is the following: *Description of the service area*, *Explicitly stated guarantee*, Contact information *if the citizen wants to give feedback or complain*, *Description of what kind of service the city is offering in return in case of unsatisfactory delivery of service*, and *Explanation of how the citizen can acquire more information regarding the service area*.

The project group designed a total of 15 guarantees, four within the School sector, focusing on what citizens as parents and children can request regarding education, seven within the Social Welfare sector focusing on financial support and aid to elderly and disabled citizens, and four in the Civil Engineering sector regarding environment and health protection, food control, building permits and water supply, snow removal and garbage disposal. These guarantees address many issues including delivery time, assistance availability, information availability etc. The 15 service guarantees were accepted and are undergoing an internal trial period between January and March 2008. The project group will continue to develop new guarantees in areas not yet addressed and make changes to the ones already designed.

Challenge 4: Good design of service guarantees, both bringing citizen added value and being administratively easy to handle, is critical for success. Clearly guarantees have to be both legal and meaningful, i.e. providing real value to citizens. Issues arise when, for example, "good education" cannot be guaranteed in terms of compensation. Is "information" and "availability" enough? This is where the distinction between politics and administration becomes clear. The administration can only guarantee access, anything to do with the quality of education beyond professionalism and legal actions are rather political issues.

5.3 eSERVICES

Örebro had been working towards implementing eServices since 2002, when discussions on becoming a "24/7 agency" begun. At that time discussions involved mainly technical staff working on the possibilities of complying with the 24/7 agency guidelines. With no interest at strategic level in the city, progress was slow. MovIT set out to coordinate eServices; one important purpose was to prevent uncoordinated development of eServices at individual departments. Örebro also joined SAMBRUK, an organization involving many cities in establishing interoperable and shared technical solutions. At this point it became clear that designing city-wide formats for eServices required a more comprehensive analysis: *"…it turned out that we could not*

M.A. Wimmer, H.J. Scholl, and E. Ferro (Eds.): EGOV 2008, LNCS 5184, pp. 25-36, 2008.

implement an eService without doing thorough analysis of our processes and organization because the added value to citizen could not only come from just providing the service online we needed to make our processes and organization more efficient." [18] Such comprehensive analysis was not done centrally, but departments were invited to submit proposal for e-services and the IT Advisory Board (ITAB) developed criteria for assessment of proposals. While most proposals did not take issues like this into consideration, for fear of different departments developing separate and potentially non-interoperable solutions the ITAB had to accept proposals with a requirement clause: in order for the ITAB to add the service into the IT-plan – necessary for achieving central funding – the department had to arrange so the service provided would at least reach a minimum level with respect to the requirements set by the ITAB and MovIT; (1) be compatible with existing software, (2) comply with the current security standards; (3) improve the efficiency and effectiveness of the organization, provide added value to citizens, or both. The ITAB move towards becoming more welcoming to e-service proposals was designed to promote interoperability and convergence. By approving the proposals they would be able to prevent suppliers from circumventing the ITAB (and nowadays MovIT); the departments' heads would have to discuss any system accepted in the IT plan with the ITAB.

Challenge #5: Under the NPM model, individual departments are in charge of their budget. Any attempt at coordination must be more by carrot than by stick. Carrots include central funding, in this case the IT plan and MovIT. Sticks are legal regulation and bylaws, but these are typically not detailed enough to prevent issues like the ones here described, precisely because of the NPM model which is designed to encourage business thinking at department level and hence must provide departments real choices.

As the time schedule was tight, the steering committee wanted to speed up ongoing work with eServices rather than start new projects from scratch. Three eServices were selected to initially be implemented as MovIT projects; Child care service to parents, application forms for building permit and service to NGOs, mainly sports clubs, all of them already existing in the general IT-plan. Implementing the services turned out to be more problematic that initially perceived. Örebro is partner in SAMBRUK, a project involving over 30 municipalities in Sweden, the idea of which is to collaborate in developing eServices by sharing software, definitions and process models. The large number of cities within SAMBRUK and the lack of national and/or generally agreed standards make the procurement procedure a tedious endeavour. For both the Child care and the NGO service project this cooperation proved unsuccessful: "*the major suppliers were unwilling to open their systems for an external eService. This lead to postponement of the procurement and we had look for other solutions."* [19]

New suppliers were brought in which led to unanticipated costs but at least brought the plan reasonably back on schedule. This subproject has not achieved all its goals. The building permit project is on hold pending results from evaluation of an external pilot involving five other cities regarding a common eService for building permits. The project for Child care service is hoping to solve the technical issues during 2008 so the eService can be launched even if later than planned. The NGO support project

M.A. Wimmer, H.J. Scholl, and E. Ferro (Eds.): EGOV 2008, LNCS 5184, pp. 25-36, 2008.

has launched an eService but to be able to improve it, more analysis is needed to find a solution for the locking and passage system. This work will continue during 2008.

Challenge #6: It is a long standing problem that cities are much in the hands of their suppliers. Suppliers do not necessarily want cities to join forces to get better deals. Cities are often reluctant to engage new providers as they often feel comfortable with the one they use, and handling many is generally more complicated.

5.4 WEB STRUCTURE AND DESIGN

The project directive for the webs structure and design project required focus on a few specified target groups when designing the web structure and design for the city's web site. The City followed Verva's (the national e-Service authority) methodological advise which recommends prioritizing among target groups and acquiring in-depth knowledge of the chosen target groups so as to "be able to choose between functions and solutions for the overarching design of the website, to create a logical information structure and to create the correct graphic layout, and to realize the most benefits of the IT investment" [20]. Five target groups were selected as first priority. In-depth interviews with citizens' from these groups were then held based on which "personas", archetypical users, were designed. The personas chosen were Parents, Entrepreneurs, Relative, Recreational, and Culture. Clearly this solution was partial – how about elderly, for example? Immigrants? While it is possible that the web design can be improved this way, it is clear that new demands will follow as supply and use increase. However, this method is just one out of many to decide web design. An alternative approach would be focusing on general usability for the purpose of making services' "look and feel" as similar as possible. One argument for such thinking is that over a lifetime most people will use all services, parents help children, children help parents and so they become assistant users for some other target group. Hence, the argument goes, it is easiest with a consistent and proven general design. For such design there are international guidelines. A third alternative would be focusing on clustering service supply according to "life situations". This approach groups services for "youth", "parents", "elderly" together so users not just find things they actually look for but also become aware of services relevant to them which they did not know about beforehand. Examples of this include many national web sites in e.g. Austria and Sweden. Whichever method chosen there is no single best solution. There are always trade-offs to be made.

Challenge 7: Standards are clearly useful as they facilitate design. As this story shows there are not only technical standards but also such that pertain to use and service organization. These standards are rather more best practices than unequivocal standards, but best practices often become so familiar among users that changing them is hard. In this case there was no complete service supply to organize, but in a few years there will be. Then there will be need for another revision of the web. Timing is important, On the one hand, imposing an abundance of standards to a web with yet very few services may be overkill. On the other hand, making too special designs – non-standard – may prove

M.A. Wimmer, H.J. Scholl, and E. Ferro (Eds.): EGOV 2008, LNCS 5184, pp. 25-36, 2008.

expensive at next revision as services may have developed in different directions design wise and may hence require considerable changes and costs.

5. CONCLUSION

This paper has reported an ongoing radical eGovernment case involving considerable reorganization and a clear, politically decided, citizen focus. Our findings have been pinpointed above as a number of challenges, critical because the choices made at these junctions may have profound effects on the outcomes. A common theme for them all is that in the lack of national plans local organizations are struggling to find development models that are both interoperable beyond the own organization and economical. We have shown above that this struggle involves both cumbersome partnerships and makeshift solutions.

Analyzing these issues in the perspective of the NPM model we find that many of the problems encountered have to do quite directly with this model. Table 1 summarizes the relation between NPM and eGov as expressed by the findings of this case study by plotting the seven challenges discussed here against the three overall eGovernment goals (More efficient administration; Better services to citizens; Transparency and improved democracy) and NPM tools for dealing with the challenges.

Table 1: Challenges of NPM and eGov

MovIT challenge	Reference eGovernment goal(s)	NPM features, tools and methods	eGov features, tools and methods
1. Political timing	More efficient administration; Better services to citizens; Transparency and improved democracy	NPM directly implements political goals to the extent they can be specified in terms of actions, i.e. by budget measures	Most infrastructural items, e.g. Enterprise Architectures, are designed to provide long-term stability and avoid direct, and hence potentially disrupting, political influence
2. Resource allocation	More efficient administration	Department budgets, service quality measures	Usually based on adherence to national plans regarding interoperability, process integration, standards, access, etc.
3. Political mandate	More efficient administration; Better services to citizens; Transparency and improved democracy	Given within department. Across departments based on business agreements.	Relies on national standards and guidelines making political mandate less important in details
4. Distinction between administrative and political responsibilities	More efficient administration; Better services to citizens; Transparency and improved democracy	Blurred. Politicians can at any time make changes that affect operations	Clear. eGov draws on standards and interoperability which makes direct political intervention hard and slow.

M.A. Wimmer, H.J. Scholl, and E. Ferro (Eds.): EGOV 2008, LNCS 5184, pp. 25-36, 2008.

5. Coordination	More efficient administration	Coordination within departments centralized. Coordination across departments dependent on business agreements	Strong focus on standards and interoperability
6. Dependence on providers	More efficient administration	NPM makes scale advantages hard to achieve across departments; open to business agreements.	Scale advantages: National standards for software. National requirements for functionality. Enterprise architectures
7. Choosing among standards and best practices	More efficient administration. Better services to citizens and companies	Across departments based on business agreements.	Measures for service quality, interoperability, access, usability, etc.

As the table shows, NPM leaves many issues critical to eGov success open to political decisions. Somewhat surprisingly, given the basic idea, the NPM model blurs the distinction between political and administrative mandates by making interoperability issues dependent on many political decisions rather than one. For example, a national policy on interoperability would have reduced many of the problems encountered in this case because the integration would have been based on standards rather than a political wind change. This would have meant the long-term integration work would have had a constant mandate and every decision would be considered in that perspective. In the Örebro case a sudden political wind change indeed spurred integration but as this was new, resource allocation and goals were made in a hurry to meet the political deadline, based on enthusiasm among managers and project leaders. This certainly made positive things happen, but what about next political wind change? Will the changes now somewhat makeshift implemented be strong enough to survive?

While it is methodologically incorrect to generalize from a single case, it is clear that these problems to a large extent are directly derived from the NPM governance model. Hence the case is illustrative also for other countries even if the details may be different depending on the exact implementation of NPM. The case shows that the economic model for governance, NPM, is conserving institutions rather than promoting change in several ways:

- It prevents development of national frameworks, such as enterprise architectures, which are necessary for the convergences processes that need to take place to make interaction across government organizations smoother. We saw in this case that such would have helped at several points, where now instead the City had to cook up local standards.
- It requires complicated cooperation's across both political and economic borders to not only implement shared services but also to finding economic advantages in procurement, service etc. This was clearly illustrated by the SAMBRUK debacle.
- It makes many technical problems involved with interoperability and standards more complicated by adding to them a dimension of politics involving many political directly coupled to specific – as opposed to economic interests.

M.A. Wimmer, H.J. Scholl, and E. Ferro (Eds.): EGOV 2008, LNCS 5184, pp. 25-36, 2008.

REFERENCES

1. Gore, Al. (1993). Reengineering Through Information Technology. Accompanying Report of the National Performance Review. Washington: Office of the Vice President.
2. Grant, G., Chau, D. (2005) Developing a Generic Framework for E-Government. Journal of Global Information Management, 13(1), pp 1-30, Jan-March 2005.
3. Grönlund, Å. (2002) Electronic Government – Design, Applications, and Management. Hershey, PA: Idea Group.
4. Grönlund, Å. (2005) Introducing e-Gov: history, definitions, and issues. Communications of AIS, Volume 15 (electronic journal, www.cais.org)
5. OECD (2003) The e-Government Imperative. Paris: OECD e-Government Studies. ISBN 92-64-10117-9
6. UN (2004) Global E-Government Readiness Report 2004. Towards Access For Opportunity. New York: United Nations, Department for Economic and Social Affairs, Division for Public Administration and Development Management. Retrieved December 29, 2005, from www.unpan.org/egovernment4.asp
7. UNDESA (2003) e-Government at the Crossroads. World Public Sector Report 2003. United Nations Department of Economic and Social Affairs. United Nations, New York. Retrieved December 29, 2005, from www.un.org/esa/desa/desaNews/desa94.html
8. Lau, Edwin (2006) Electronic Government and the Drive for Growth and Equity. In Mayer-Schönbeger & Lazer (eds), From Electronic Government to Information Government, pp 39-58. Cambridge, Massachusetts: MIT Press
9. eGEP (2006a) Measurement Framework Final Version, eGovernment Economics Project, European Commission, Brussels. http://217.59.60.50/eGEP/Static/Contents/final/D.2.4_Measurement_Framework_final_version.pdf (visited Jan 20, 2008)
10. eGEP (2006b) Compendium to the Measurement Framework, eGovernment Economics Project, European Commission, Brussels. http://217.59.60.50/eGEP/Static/Contents/final /Measurement_Framework%20_Compendium.pdf (visited Jan 20, 2008)
11. Hughes & Owen, 2003
12. Dunleavy, P., Margetts, H., Bastow, S., Tinkler, J. (2007) Digital Era Governance: IT Corporations, the State, and E-Government. Oxford: Oxford University Press, 2006.
13. J. Boston, J. Martin, J. Pallot, and P. Walsh, Public Management: The New Zealand Model. Auckland: Oxford University Press, 1996
14. Ministry of Finance (2008) Swedish National Plan for eGovernment [*Nationell handlingsplan för den svenska eFörvaltningen*], Retrieved March 3, 2008 from http://www.regeringen.se/sb/d/9942/a/96512
15. Örebro municipality executive board. (2006), Budget 2007 With Priority Goals for Örebro Municipal [*Budget 2007 med prioriterade mål Örebro Kommun*].
16. Steering committee member 2007, Interview held on October 31, 2007
17. Örebro Municipality. (2007). Örebro Municipal Complaints Procedure [*Klagomålshantering i Örebro Kommun*]
18. Steering committee member 2007, Interview held on November 28, 2007
19. Project manager 2007, Interview held on November 28, 2007
20. Verva (2007) Swedish National Guidelines for Public Sector Websites [*Vägledningen 24-timmarswebben*]. Retrieved February 1, 2008, from http://www.verva.se/verksamhetsstod/webb/vl24/2006/2/1/3/
21. Hood, C. (1995) The 'New Public Management' in the 1980s: Variations on a theme. *Accounting, Organizations and Society*, 20/2/3): 93-109.

M.A. Wimmer, H.J. Scholl, and E. Ferro (Eds.): EGOV 2008, LNCS 5184, pp. 25-36, 2008.

Appendix IIII – Ask, A., & Hedström, K. (2011). ***Taking Initial steps towards Enterprise Architecture in Local Government*** **Paper presented at the 2nd International Conference on Electronic Government and the Information Systems Perspective.**

Taking Initial steps towards Enterprise Architecture in Local Government

Andreas Ask, Karin Hedström

Department of Informatics, Swedish Business School at Örebro University, Sweden

{andreas.ask, karin.hedstrom}@oru.se

Abstract. The purpose of this study is to increase the understanding of immature use of Enterprise Architectures (EAs). In this paper we present results from an eGovernment initiative in a Swedish local government. This longitudinal case study illustrates the problems of taking initial steps of moving towards an EA during the development and implementation an eGovernment initiative. Through an analysis of goal achievements, we develop a better understanding of the challenges of using EA frameworks for local eGovernment-projects. Our results show that the immature use of the EA framework resulted in parts of the organization deviating from plan where individual members began to implement individual solutions, instead of basing decisions on the overall architecture. This impaired project's possibility to develop towards an EA in an efficient way.

Keywords: eGovernment, e-service, Enterprise Architecture, Convergence, Goal-achievement, electronic government

1 Introduction

The recent financial crisis has made eGovernment an even more important part of government development. The crisis has forced many governments to re-evaluate how they spend tax payers' money, making eGovernment one way forward in rebuilding trust in government and improving performance [1]. Governments spend a huge amount of money on information technology (IT). For instance, the US federal government, planned to spend $75.8 billion on IT in 2010 [2], hoping that these projects will lead to better government by saving costs, more effective policies and programs, and improved quality of services [3]. However, eGovernment-projects are very complex and difficult to manage, making it a risky business to develop and implement such initiatives [4]. For instance, [5] has shown that the failure rate for eGovernment projects is as high as 85 %.

EGov play a pivotal role for public administration, where eGovernment has the possibility to change the operational processes of government services [6]. These changes relate to different functions and levels of government affecting service

K.N. Andersen et al. (Eds.): EGOVIS 2011, LNCS 6866, pp. 26-40, 2011.

convergence and administrative reform. Enterprise Architecture (EA) is often suggested as a framework for eGovernment initiatives, and as way forward to achieve standardization, convergence and interoperability in local governments [7]. EAs are therefore proposed as a useful framework for creating a comprehensive and coherent view across business to deliver business change supported and enabled by IT [8]. Placing information and services online require an integrative architecture framework approach [9]. This is what EA frameworks can offer us, as a way of working. However, the use of EA is not binary. In practice, one can expect the use to be more or less strict. There is high diversity in how government agencies address organizational issues, where some agencies identify business requirements as the most important issue, whereas others have models and tools for dealing with descriptions of the enterprise, and some explicitly use EA as a framework for organizational development [7]. This can be compared with existing research on systems development methods that shows that developers use methods in a pragmatic way [10]. Methods are, therefore, rarely used in their entirety or as expressed by their creators [11]. Developers' experience or inexperience of the method, or parts thereof, shape their use [12]. The same is true for EAs; they are adapted to the specific situation, and the use of EAs varies depending on the organization, the users and their experience. There is need for more research on how EAs are adapted and used in practice, and there is also a lack of research on the results of these adaptations [13]. This paper seeks to answer to this call for more empirical research on actual implementation and management of EAs.

The purpose of this study is to increase the understanding of immature use of EA. In this paper we present results from an eGovernment initiative in the s Swedish local government. The purpose of the eGovernment initiative was to, present a "single interface" to citizens and adjusting service production accordingly. This case illustrates the problems of the initial steps of moving towards an EA during the development and implementation an eGovernment initiative. Through an analysis of goal achievements, we develop a better understanding of the challenges of using EA frameworks for local eGovernment-projects.

The paper is structured as follows. First we address related research, followed by a section on research design in section three. Section four describes the goal analysis followed by a discussion in section five, and the paper ends in section six with concluding remarks.

2 Enterprise architecture

eGovernment is a means for organizational reform [5], where complex socio-technical structures are enacted between social actors recursively over time [3, 14]. Transforming local government involves new ways of working. It can be argued that the problematic nature of transforming local government stem from other issues than technological, and arguably this is a key challenge in succeeding with eGovernment implementation. Furthermore, it is difficult to assess the benefits and outcomes of eGovernment initiatives beforehand. Benefits and outcomes are not known a priori, but rather the essence of how technology is enacted reveals subsequent benefits and outcomes [3]. One reason why systemic gains from implementing eGovernment are

K.N. Andersen et al. (Eds.): EGOVIS 2011, LNCS 6866, pp. 26-40, 2011.

hard to reach could be that implementing IT in many cases are not enough. Thus back office integration is a bottleneck as multi-departmental collaboration in many cases requires unique business processes [15].

The socio-technical nature of eGovernment initiatives makes it important to use a framework or ways of working that support such a perspective. EAs, and its purpose to achieve business goals and visions, by including technology, information systems and social actors in the change process, support a socio-technical view on eGovernment initiatives. According to the founder of the first EA framework [16] a 'framework is simply a logical structure for classifying and organizing the descriptive representation of an enterprise that is significant to the management of the enterprise as well as to the development of the enterprise systems'. EA is thus a framework that includes the whole business or organization, with the purpose of aligning business processes and goals, as well as 'the applications and systems that constitute its technical infrastructure' [7]. In other words, EAs embrace the whole 'IT landscape' of an organization [17]. The purpose of EAs are usually to support IT and business alignment through strategy and business orientation, increased transparency, improved communication between business and IT, better planning, and better adaptability of market, business, and technology [18]. Local governments need to address interoperability issues. Semantic interoperability is necessary to ensure consistent use of concepts, technical interoperability is important for effective communication between information systems, and convergence between organizational processes is needed to achieve required flexibility [19]. The holistic view management required of local government can be achieved using EA, as it supports a socio-technical view of local government organizations including people, information, and technology.

There is a high diversity of EA use within governments, and government development towards EA is dependent on executive officers' familiarity with EA management tools and practices [7]. If executive officers lack knowledge of EA tools and practices, there might be a reluctance to change towards EA within the organization, and changes occur only if institutional forces are endorsed [8].

Using EAs is not an easy task. Previous research reports problems on process inefficiencies and information system integration due to lack of coordination and integration of processes and information systems across different government organizations [13]. Using rigorous EA frameworks in public sector organizations with its complex logic and dynamics, with many and sometimes conflicting goals together with strict legal norms, and a vast number of organizational services, risk impairing the organizational flexibility needed by public organizations [13]. Another common critique against EA is the lack of clearly defined scopes and concepts, which makes the use difficult [8].

2.1 The NIST Enterprise Architecture Model

Different EA frameworks advocate different focal areas, albeit sharing similar traits in terms of representing an organization by different and related layers. The National Institute of Standards and Technology (NIST) model [20] is generic in a sense that similar layers can be found in other well-known EA framework. Such as the Extended Enterprise Architecture Framework (E2AF) with its business, information,

K.N. Andersen et al. (Eds.): EGOVIS 2011, LNCS 6866, pp. 26-40, 2011.

information-systems and technology layers [21]. The TOGAF with its business, data, applications and technology architecture, where the data and application architecture are referred to as the information system architecture in E2AF [22], to name a few.

The NIST-model is a widely accepted model, and consists of five separate but related layers [20]. The layers presented in the NIST model is the *business architecture* layer – serves to provide the organization with knowledge of internal and external information and data needs. It provides a blueprint of policies, procedures, processes and their relationship to enable the accomplishment of the overall business objective. The *information architecture* layer establishes the information needs for the business layer, specifying content, and format, providing requirements specification for organizational data for the information system architecture layer. The *information system architecture* establishes a framework for acquire, process, produce and distribute in accordance with the previous layers. The *data architecture* layer establishes the architecture for access, use and maintenance of data in order for the organization to be able to acquire the information needed to work towards the business objectives. The *delivery system architecture* layer is the technical implementation to meet the above layers. The NIST model illustrates a diversity that needs to be accounted for in order to acquire an overarching view of an organization. Given the multitude of layers an organization can and are represented in, flexibility becomes essential for back office integration towards a seamless organization [23]. From a centralized perspective decision makers cannot only deal with the business architectural layer, and for instance delegate work to be done within the information system architecture. The organization needs to handle the information architectural layer as it being the intermediate layer between business and information system. Likewise subsequent layers also need to be taken into account in order to ensure an organization that is working towards meeting the overall objectives of the organization.

3 Research design

This study is classified as an interpretive longitudinal case study [24], [25], since the purpose is to increase the understanding of immature use of EA in a real case setting. We chose to study goal achievement in a longitudinal study to enable 'the process of change to be observed over time, including the shifting actions and perceptions of the participants' [26]. The study was conducted between 2007 and 2009 on an eGovernment-project in a Swedish local government. The purpose of this project was to transform the local government into becoming an efficient service provider, with reduced bureaucracy, increased transparency, and streamlined processes with faster decision-making processes. Another objective was to empower citizens, and build citizen confidence. To achieve this end, the internal processes needed to become more convergent. This meant improving organizational and technical interoperability, making the administration more flexible and efficient by focusing on external processes, and reorganize internal supporting structures. The overall goals and visions of the project were very much inspired by EA, without an explicit and conscious use of an EA framework. In other words, the local government embarked on an EA journey, without much experience of EA or methodological EA support.

K.N. Andersen et al. (Eds.): EGOVIS 2011, LNCS 6866, pp. 26-40, 2011.

3.1 The case

The project was launched in 2007, and the first thing was to develop a new website design and structure, where several e-services were going to be implemented. During the eGovernment-project there were plans to develop and implement internal documents supporting a new citizen centered way of working. This meant coordination of departmental processes in order to enable development of more simplified processes and activities. Documentation of the process analysis could be used to increase administrational transparency, as the city could inform citizens on what, how and why officials do what they do. Plans for automation and/or rationalization were suggested, if possible change work tasks from administrative work to core work. It was also important to build citizen trust and this was to be done by creating a unified platform for citizen contact. It should not matter what kind of service a citizen uses, it should be apparent that citizens are using services provided by the city. Ideally all e-services should look and feel the same so a citizen could learn to use one service to know them all. The eGovernment-project was managed by a steering committee (SC) who had the operational responsible to plan and set goals for the project. The eGovernment-project was built up by a number of sub-projects. The question about citizen empowerment was managed in two collaborating sub-projects. The eGovernment-project also initiated one sub-project with objectives to implement the new website design and structure. E-service development was divided into one sub-project for each e-service. Another important issue for the development, is the membership of Municipalities for Joint Development of e-Services (SAMBRUK) – a joint cooperation between 86 municipalities in Sweden for development and procurement of e-services [27], which was deemed beneficial for the city.

3.2 Data collection

We collected data from a number of sources (project documentation, observations, and interviews) in order to support data triangulation [28] (see Table 1). Participatory observations were chosen as the primary data gathering technique, given that being participant observer allows a more inside view of the organization [25]. Conducting participant observations allowed us to capture not only the explicit goals found in project documentation, but also to follow discussions on more implicit goals and how they were managed within the project. Participatory observations were done on project SC meetings, as the SC was the most important group for decision making in the eGovernment-project. Participatory observations were also done during project workshops in order to follow how project objectives were operationalized and to study how the work to reach the objectives was done. Data were also acquired via semi-structured interviews with the leaders for the sub-projects, and from a group interview with the SC. The interviews focused on project goals, project management, resource allocation, perceived and actual effect on the organization, and relation to other parts of the project. In addition to interviews and observations, we had access to historical documentation relevant for the creation of the eGovernment-project and project documentation between 2007 and 2009. The documents covered a nine year period between 2000 and 2009. This made it possible to cross-reference between

K.N. Andersen et al. (Eds.): EGOVIS 2011, LNCS 6866, pp. 26-40, 2011.

stated objectives in project documentation with how the SC and sub-project leaders viewed project objectives, and the actual work being done. Due to ethical considerations participation in the interview was optional and each respondent was given feedback to ensure correctness, and the respondents' answers were treated confidential. Four complementary interviews were made, two with individual SC members and two with subproject managers if particularly interesting issues emerged during the analysis.

Table 1: Data collection sources

Data collection method	Time Period	Number	Hours
Observations – SC meetings	07-05-01 – 09-10-31	40	148
Semi-structured Interviews	07-11-27 – 07-11-30	6	3
Group Interview	07-10-31	1	1
Observations - Project workshops	08-09-01 – 08-12-31	10	72

3.3 Analysis

The analysis was carried out in four steps although it was an iterative process as the project was followed for two years. First we listed all project goals. Second we used the NIST-model as a framework for categorizing the empirical data following the five layers described in the model. The third step was to analyze goal achievement within each layer. The purpose of the analysis was to see if the goals put forward in the eGovernment-project had been fulfilled or not, and uncover problems with an immature use of EA for eGovernment innovations in a local government.

The categorized goals were analyzed following goal graph technique [29], where we structured goals into clusters and by identifying the relationships between main goals and sub-goals. This is illustrated by using a notation inspired by Yu [30]. We selected goals put forward as important by the project members in interviews and observations, as well as goals found in documents related to the project. We used the organization's definition and naming of high-level goals and supporting sub-goals.

4 ANALYSIS

The analysis is structured according to the five layers in the NIST-model, where we have used goal graphs to analyze each layer. As stated in the research design we are interested in goal achievements, and achieved goals are shaded in Fig. 2 to 5. Goals that have not been achieved are shown as white goals. Related goals are presented in clusters in the graph.

K.N. Andersen et al. (Eds.): EGOVIS 2011, LNCS 6866, pp. 26-40, 2011.

4.1 Business Architecture Layer

The goals identified in the business architecture layer reflect the eGovernment-project's ultimate contribution. The top goal for the business architecture layer, illustrated in Fig. 1, is an efficient administration [G40]. The members of the eGovernment-project viewed this as a means to become a more citizen centered municipality. As is shown by the analysis, this goal is not achieved. One major reason for this was the different departments working on their own agendas instead of supporting the overall goal. The following voice illustrates this: 'look after oneself first, others later.' In order to develop a more efficient administration, there was a need for improving the use of available resources [G16], increase transparency [G7], and enable fast decision-making [G6]. Goal [G16], to improve the use of available resources never left the drawing board, since the e-service development received all the attention. An efficient administration also included a more transparent organization, providing more up-to-date information to citizen regarding their errands. In addition, it also meant providing citizens with an easy way to acquire information. Within the eGovernment-project a number of tools to achieve this end were developed, but the transparency has not increased. Hence, [G7] has not been achieved.

Goal [G6], to enable fast decision-making, is associated with a complex web of sub-goals as illustrated in Fig. 1. First of all, decision-making was to be improved by simplified processes and procedures [G11], operationalized through efficient processes designed based on self-services [G8]. This meant, according to the SC, that it was not enough to transfer existing manual services to e-services, without changing the organization: 'we could not implement an e-service without doing thorough analysis of our processes and organization. The added value to citizens could not only come from just providing the service online, one important aspect of service delivery is to enable us to provide faster decision-making.' Hence, employees were supposed to develop services from the citizens' perspective [G10] as well as become more citizen focused [G12]. To achieve this end decisions were made to educate the entire workforce (12 525 employees), including managers, on service policies, accessibility guarantee and the rationale of the eGovernment-project [G17, G18]. As the basis for the education several managerial documents had to be developed [G21, G23, G25, G28] and implemented [G20, G22, G24, G26, G27], for example regarding the service policy and a common complaints procedure. The empirical data shows that the managerial documents were developed and implemented as planned [G20, G21, G22, G23, G24, G25, G26, G27, G28]. However, the education efforts did not provide the results requested.

K.N. Andersen et al. (Eds.): EGOVIS 2011, LNCS 6866, pp. 26-40, 2011.

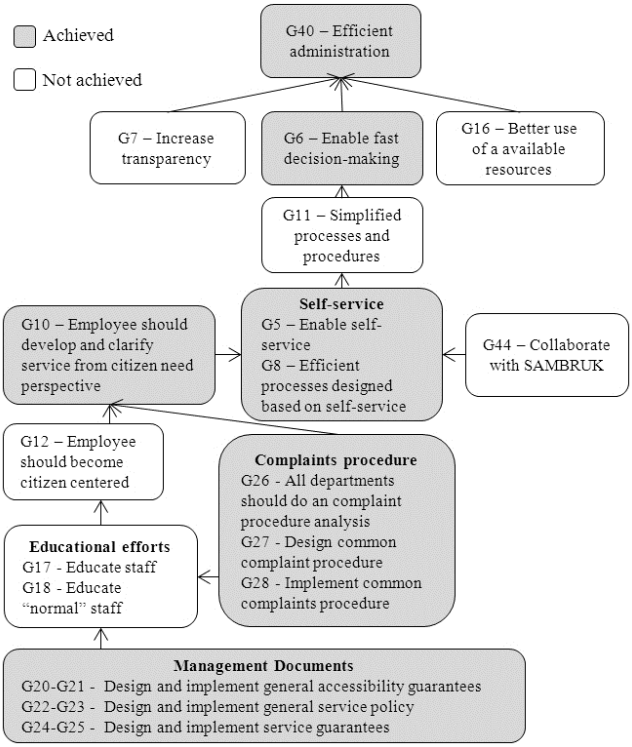


Fig. 1. Goals in the business architecture layer

Thus, the eGovernment-project was unable to reach goal [G12] that employees should become more citizen centered. We nevertheless saw a change in attitude and employees began to discuss services development from a citizen perspective, but not in a structured manner based on the managerial documents. As a consequence, some departments did not follow the structure suggested by the eGovernment-project, instead they begun developing procedures based on their own preferences. One example is the implementation process of the common complaints procedure, which is illustrated by a SC member: ’If department ‘X’ and ‘Y’ are deviating from the idea of a common complaints procedure, what else is neglected? Are we actually getting through to the departments with the work we are trying to do, and what we want to achieve?’ The members of the eGovernment-project had to step in to make sure all departments began working as intended in order to ensure the common complaint procedure goal [G28].

In addition to the goals described above, self-services had to be enabled [G5] in order to achieve the efficient processes. To achieve this, the local government was supposed to take a point of departure in the employees’ ideas [G10]. The eGovernment-project achieved [G10], but not because of educational efforts [G17-18], the changes were achieved by forcing departments to change. SAMBRUK [G44] is a network of municipalities in Sweden, with the purpose of exchange experiences regarding e-services. However, the collaboration did not go as anticipated according

K.N. Andersen et al. (Eds.): EGOVIS 2011, LNCS 6866, pp. 26-40, 2011.

to the SC: ‘collaborating cities where unable to agree on issues and major suppliers were unwilling to open their systems for an external e-service.’ These disagreements lead to postponed procurement of the necessary IT, and [G44] was therefore not achieved. However, the local government pursued other possibilities and acquired deals with IT-suppliers on their own. Accordingly, they were able to fulfill [G5] and enable self-services.

This mix of achieved and non-achieved goals resulted in a more efficient self-service process, but not in simplified processes over all. Hence, we find that [G8] was fulfilled, while [G11] was not achieved. In the end this resulted in faster decision-making [G6], which contributed to a more efficient administration [G40], however not to the extent that was expected.

4.2 Information Architecture Layer

Six goals on the information architecture layer were defined. The top goal, shown in Fig. 2, concerns the need to improve availability [G19]. In turn this goal contributes to an efficient administration on the business layer. Better availability was divided into two parts as shown in the goal graph: to provide easy access to municipality information [G4] and to solve 75% of all incoming calls at the city front office [G34].

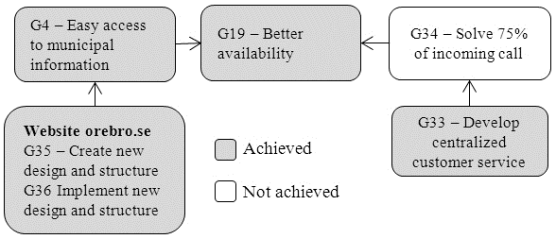


Fig. 2. Goals in the information architecture layer

The former goal was to be achieved through implementing and deploying a new website for the municipality [G35, G36]. The latter goal, on the other hand, would improve the availability towards citizens who preferred using manual channels, as one SC member noted: ’they have the option to contact us manually’. In order to implement this solution, the eGovernment-project launched a centralized customer service [G33]. Both these solutions would also allow individual departments to focus on their core work and hence contribute to a more efficient administration on the business layer. The eGovernment-project succeeded to reach five of the goals in the information architecture layer, as shown in Fig. 2. They implemented and delivered a new website [G35, G36]. During the development work focus groups consisting of citizens to elicit requirements and validate the design were used. The new website improved access to municipality information [G4] and hence contributed to improvements in the general availability [G19]. The eGovernment-project implemented the centralized customer service [G33]. However, in terms of handling 75% of all incoming calls, the eGovernment-project has not reached its goal [G34]. A couple of months after launching the new centralized customer service they handled

K.N. Andersen et al. (Eds.): EGOVIS 2011, LNCS 6866, pp. 26-40, 2011.

only 10% of all contacts. This was because staff required training, and there were uncertainties in terms of who owns the problem when citizens contacted the city. Despite not reaching the set percentile the numbers are continuously growing, and regardless of how small percentile it is, it still contributes to improve the city‘s availability [G19].

4.3 Information System Architecture Layer

The information system architecture layer consists of a complex web of goals related to development of different e-services, as illustrated in Fig. 3. However, it is possible to identify a number of goal clusters in the Fig. 3. We identify a cluster of six goals [G48-G53]. These goals concern e-services for childcare and is related to [G45] the evaluation of e-services using VERVA’s accessibility guidelines (the Swedish Administrative Development Agency, which was closed down 2009). [G45] was achieved, but none of the e-services were delivered, and [G48-G53] were not fulfilled. For example, the eGovernment-project was not able to fulfill [G48], the possibility to use double signature, where both parents, in the case of shared custody, signed an application for childcare.

A second goal cluster [G54-G55, G58-G60] concern e-services for primary and secondary schools. These e-services involve multiple stakeholders: 42 primary schools, and 7 secondary schools. Hence, this created a complex situation, especially considering the unsuccessful educational efforts (see [G17-G18] in Fig. 1) which is expressed in a project report and discussed during a SC meeting: it is hard to get time to anchor the changes in the organization’. Despite the complex situation, the eGovernment-project successfully implemented e-services for application to secondary school, absent management, and schedule changes [G58-G60]. Concerning the primary schools [G54-G55] these e-services are gradually implemented in the municipality, but they are not completed. Goals [G29-G31] were extensions of the common complaint procedure (see [G28] in Fig. 1) implemented as e-services: to complain, make suggestions, and make service requests online. These e-services were easily implemented over the Internet, as was the implementation of a tool for online applications [G38].

Goals [G69, G73-G74] are three goals that were not fulfilled by the eGovernment-project. They concern, in that order, a layered map function where each department would present themselves using a geographical information system, an eService for associations to apply for city contribution, and an e-service for applying for temporal alcohol selling license. [G69] was never implemented due to technical complexity, [G73] was postponed due to the failed negotiations with SAMBRUK (see [G44] in Fig. 1), and [G74] was not implemented since the department in charge did not believe in the idea.

K.N. Andersen et al. (Eds.): EGOVIS 2011, LNCS 6866, pp. 26-40, 2011.

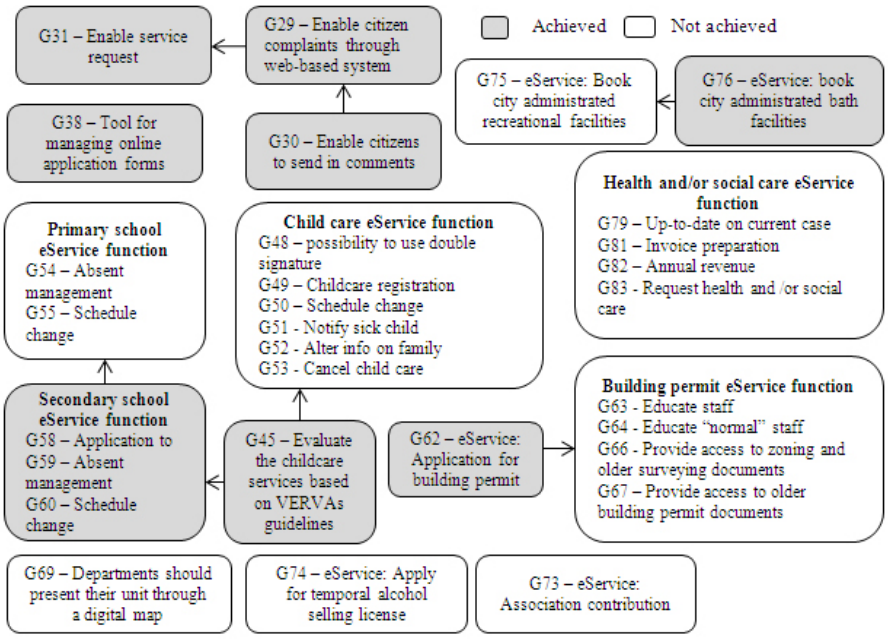


Fig. 3. Goals in the in the information system architecture layer

At the bottom right corner of Fig. 3 we find a goal cluster associated with applying for building permits [G63-G67]. The main functionality, an e-service where citizens could apply for building permits [G62], was implemented successfully. However, it was not delivered within the expected time frame since many legal issues had to be solved, and the additional functionality [G63-G67] was therefore postponed. The goals [G79, G81-G83] constitute a cluster about e-services and health and social care. For example, the intention was to create functionality for preparing invoices for health and social care [G81]. However, these goals were dropped from the project. It was decided that the development would be done best outside of the eGovernment-project alongside other social and health care development projects. Finally, in Fig. 3, we find a small goal cluster [G75-G76] concerning a booking service. Through e-services it would be possible to book recreational facilities in the municipality. Yet again, this functionality was not delivered due to failed negotiations with SAMBRUK (see [G44] in Fig. 1).

K.N. Andersen et al. (Eds.): EGOVIS 2011, LNCS 6866, pp. 26-40, 2011.

4.4 Data Architecture Layer

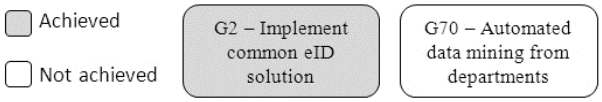


Fig. 4. Goals in the data architecture layer

The eGovernment-project focused primarily on implementation of e-services, endorsing change in employee perception of their work and working to improve processes and procedures. Consequently, there was not much work planned on the data architecture layer, as shown in Fig. 4. Only two goals were identified in this layer: implementation of a common eID [G2] and automated data mining from departments [G70]. [G2] was included in the project since the eGovernment-project wanted different departments to build their e-services on a standardized platform. This way the eGovernment-project would ensure that e-services developed later on would benefit from the work done. Hence, eID was only means to the end of implementing a shared platform since many of the e-services on the information system architecture layer required electronic identification. This was accomplished by acquiring state funds from VERVA for implementation of a shared eID-solution. The need for automated data mining [G70] was associated with the idea that each department would present themselves on the website using a geographical information system (see [G69] in Fig. 3). However, as discussed earlier the map function was dropped for complexity reasons. As a consequence the data mining objectives was also dropped from the project scope.

4.5 Delivery System Architecture Layer

We identified four goals on the delivery architecture layer, which were all implemented successfully. Starting at the top nod in Fig. 5, we find the goal to implement a municipal portal [G37]. This was linked to the need for a new municipality web site (see [G35] in Fig. 2). In order to achieve this, there was a need to implement an infrastructure for secure exchange of documents between authorities in the public sector and other organizations [G1, G3]. These two goals were fulfilled through procuring and deploying an Enterprise Content Management (ECM) system. The ECM became the hub of the municipalities' delivery system infrastructure, where secure exchange of documents was implemented. Goal [G68] was associated to the idea of a layered map on the web site where different department could present themselves using a geographical information system. As discussed above, this functionality was not implemented, but the delivery system for this part of the web site was implemented during the eGovernment-project project. Accordingly, [G68] was fulfilled.

K.N. Andersen et al. (Eds.): EGOVIS 2011, LNCS 6866, pp. 26-40, 2011.

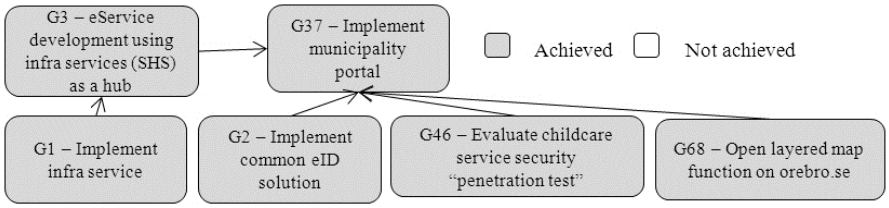


Fig. 5. Goals in the delivery system architecture level

Conclusion

The purpose of this study is to increase the understanding of use of EA. Illustrating the problems of the initial steps of moving towards an EA during the development and implementation eGovernment. There is need for more research on how EAs are adapted and used in practice, and there is also a lack of research on the results of these adaptations.

The analysis of the project goals showed a skewed distribution of goals between the different layers in the NIST model. Goal achievement could be found in all layers, although the project primarily focused on the business architecture layer and the architecture information system layer, making most goals related to these two levels. We argue that the lack of an explicit EA framework resulted in a somewhat arbitrary development. Goals were selected based on influential staff members, rather than based on its connection to the overall architecture idea. It resulted in parts of the organization deviating from plan beginning, where members instead started to implement individual solutions. This affected the eGovernment-project's possibility to develop towards an EA in an efficient way.

Table 2 below presents a summary of the goal achievement and problems the eGovernment-project experienced due to aspects such as project complexity, departmental autonomy, existing organizational structures etc. The experiences observed in the eGovernment-projects case can be used as a starting point for further studies.

Table 2: Goal achievement and problems experienced

Architecture layer	Goal achievement	Problems experienced
Business	Focus on development of management documents and change employee perceptions. Development of documents is fairly easy, changing perception is more problematic	Problems reaching grass-root level thus difficulties arise for the organization to adapt to new way of working due to existing structures
Information	The technical aspects of developing the information architecture were successful. Actual use of the architecture is more	Uncertainties in ownership of certain information and lack of knowledge due to implementing an entirely new department

K.N. Andersen et al. (Eds.): EGOVIS 2011, LNCS 6866, pp. 26-40, 2011.

	problematic because it in some circumstances' requires extensive changes in how employees work.	caused problems handling the manual aspects of information architecture
Information system	Rather arbitrary development of different set of services because of lack of connection to previous layers.	Problems in collaboration with other cities. Here the technical aspects become an issue due to arbitrary development. It creates a complex web of goals, and it becomes hard to anchor the changes needed.
Data	The project focused primarily on development of other layers does not much was done on the data architectural layer. The work that was done was achieved due to external state funding.	Complexity and skewed focus caused problems in reaching the goal in the data architectural layer.
Delivery system	All goals found in this layer was achieved, The primary goal of developing an efficient administration by developing towards an EA meant improvements needed to be seen by the citizens. The project had to provide result. Thus the project focused on the delivery system architectural layer.	None of consequence

5 References

1. OECD: The Financial and Economic Crisis. IMPACT ON E-GOVERNMENT IN OECD COUNTRIES. OECD (2009)
2. Hoover, N.J.: Government IT Spending To Increase 7% Next Year InformationWeek May 12, (2009)
3. Helbig, N., Gil-Garcia, J., Ferro, E.: Understanding the complexity of electronic government: Implications from the digital divide literature. Government Information Quaterly 26 89-97 (2009)
4. Melin, U., Axelsson, K.: Managing e-service development – comparing two e-government case studies. Transforming Government: People, Process and Policy 3, 248-270 (2009)
5. Heeks, R.: Reinventing government in the information age. International practice in IT-enabled public sector reform. Routledge, New York (1999)
6. Lee, J.: 10 year retrospect on stage models of e-Government: A qualitative meta-synthesis. Government Information Quarterly 27, 220-230 (2010)
7. Guijarro, L.: Interoperability frameworks and enterprise architectures in e-government initiatives in Europe and the United States. Government Information Quarterly 24, 89-101 (2007)
8. Hjort-Madsen, K., Pries-Heje, J.: Enterprise Architecture in Government: Fad or Future? In: Conference Proceeding of the 42nd HICSS. (2009)
9. Ebrahim, Z., Irani, Z.: -government adoption: architecture and barriers. Business Process Management Journal 11, 589-611 (2005)

K.N. Andersen et al. (Eds.): EGOVIS 2011, LNCS 6866, pp. 26-40, 2011.

10. Stolterman, E.: How system designers think about design and methods: Some Reflections Based on an Interview Study. Scandinavian Journal of Information Systems 4, 137–150 (1992)
11. Fitzgerald, B.: The Use of Systems Development Methodologies in Practice: A Field Study. The Information Systems Journal 7, 201-212 (1997)
12. Fitzgerald, B., Russo, N.L., Stolterman, E.: Information Systems Development - Methods in Action. McGraw-Hill, Berkshire, UK (2002)
13. Weerakkody, V., Janssen, M.: Integration and Enterprise Architecture Challenges in E-Government: A European Perspective. International Journal of Cases on Electronic Government 3, 13-35 (2007)
14. Orlikowski, W.J., Iacono, C.S.: Desperately seeking the "IT" in IT research - A call to theorizing the IT artifact. Information Systems Research 12, 121-134 (2001)
15. Klievink, B., Janssen, M.: Relaizing joined-up government - Dynamic capabilities and stage models for transformation. Government Information Quarterly 26, 275-284 (2009)
16. Zachman, J.: THE FRAMEWORK FOR ENTERPRISE ARCHITECTURE: Background, Description and Utility. Zachman International (1996)
17. Rohloff, M.: ENTERPRISE ARCHITECTURE – FRAMEWORK AND METHODOLOGY FOR THE DESIGN OF ARCHITECTURES IN THE LARGE. European Conference on Information Systems (ECIS), (2005)
18. Günzel H., Rohloff M.: Architektur im Großen: Gegenstand und Handlungsfelder. In: Paper presented at the Jahrestagung der Gesellschaft für Informatik. (2003)
19. Bekkers, V.: Flexible information infrastructures in Dutch E-Government collaboration arrangements: Experiences and policy implications. Government Information Quarterly 26, 60-68 (2009)
20. Fong, E.N., Goldfine, A.H.: Information Management Directions: The Integration Challenge. vol. 500-167, pp. 174. National Institute of Standards and Technology,, Washington DC (1989)
21. Schekkerman, J.: Extended Enterprise Architecture Framework (E2AF) Essentials Guide. IFEAD (2004)
22. The Open Group, http://www.opengroup.org/architecture/togaf8-doc/arch/
23. Gottschalk, P.: Maturity levels for interoperability in digital governmen. Government Information Quarterly 26, 75–81 (2009)
24. Klein, H.K., Myers, M.D.: A Set of Principles for Conduction and Evaluating Interpretive Field Studies in Information Systems. MIS Quaterly 1, (1999)
25. Walsham, G.: Interpretive Case Studies in IS Research: Nature and Method. European Journal of Information Systems 4, 74-81 (1995)
26. Walsham, G.: http://www.opengroup.org/architecture/togaf8-doc/arch/. Journal of the American Society for Information Science 49, 1081-1089 (1998)
27. The Swedish Association of Municipalities for Joint Development of e-Services – Sambruk,
28. Patton M. Q.: Qualitative evauation and research methods, Newbury Park, CA, Sage (1990)
29. Yu E, Mylopoulos J.: Why Goal-Oriented Requirements Engineering. In: Proceedings of the 4th International Workshop on Requirements Engineering: Foundations of Software Quality (REFSQ'98), pp. 133-154. Presses universitaires de Namur, (1998)
30. Yu, E.: Modeling Organizations for Information Systems Requirements Engineering. In: The IEEE International Symposium on Requirements Engineering, pp. 34 - 41. (1993)

K.N. Andersen et al. (Eds.): EGOVIS 2011, LNCS 6866, pp. 26-40, 2011.