EGOVERNMENT TRENDS WITHIN THE EUROPEAN UNION

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Executive Summary

The goal of this thesis is to examine the trends of eGovernment in the European Union. This research has been done from both the academic research and the practice research perspective. The thesis is a part of my double-diploma master course 'European Studies' offered at the *University of Twente*, the Netherlands, and the *Westfälische Wilhelms-Universität Münster*, Germany. It was required that the subject was a European Union orientated one.

The search for an interesting subject brought me to Zenc, which is a consultancy agency for the public domain sector that resides in The Hague, the Netherlands. During this internship I had the chance to perform research on the eGovernment agenda in relation to the new generation benchmarks. eGovernment is one of the strategies of the European Union to increase the possibility to become more interactive, and therefore operate more efficient to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and social cohesion.

Besides the eGovernment trends within the European Union, one other important lessons can be drawn from this thesis: Information and Communication Technology is solely an enabler of eGovernment, it will only function successfully when (1) there is a vision, (2) the whole structure of an organisation is involved, (3) thus top-managers are the leading eGovernment projects, (4) the culture is considered, and (5) all other parties and relations (businesses and citizens) are profiting. The final reflection of the twenty-nine themes has lead to a conclusion of the eGovernment trends in the European Union on multiple levels, most important revealing that the themes vision, eVoting, government to business and citizens, registration, and identity management can be seen as the trend-setters of the eGovernment research within the European Union.

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1. INTRODUCTION

1.1 THE PROBLEM SETTING

This master's thesis will research the domains of government where the eGovernment (the electronic government) academic and practice researchers have conducted research. eGovernment is a hot issue for every government since it reduces the cost of dealing with governments and it improves the administrative efficiency as well as the transparency of a government. Several benchmarks[1] have already tested the eGovernment practices in many countries and the government consumers are becoming increasingly demanding when it comes to government services and therefore it is essential to treat them as client orientated as possible.[2]

The European Union believes in the ability of eGovernment to achieve all benefits of the information society and therefore eGovernment is a development that cannot be ignored by the European Union. During the past decennia, the Information and Communication Technology and their use have evolved in a rapid pace in the form of the rise of networks, shared databases, and Internet services. The first phase that has emerged is an online presence, where many governments have an informational website and the possibility to download forms. The second phase includes the possibility of Internet transactions, which enables the government to avoid time-consuming steps, and includes some sort of identification. The most recent phase is the two-way interaction and full electronic case handling, where no other formal procedure (paperwork) than the Internet is necessary for the applicants.[3]

There are already many domains of government discussed by academic researchers and practice researchers concerning the use of eGovernment in politics, policy, and the execution. However, most concentrate on a specific field of eGovernment rather than presenting the overall picture. Such an overall picture of the eGovernment research is useful for many reasons; first to obtain a birds- eye-view of the eGovernment research in general resulting in an insight in the opportunities and pitfalls of eGovernment, second to examine both the empirical and the theoretical research fields of eGovernment to find out the main overlapping

[1] The most important benchmarks are the ones of Capgemini, Accenture, United Nations, and the OECD.
[2] www.e-europeawards.org, European Awards organized by the European Commission.
[3] Arkel, J. van, *"In Search for the Electronic Identity of the European Citizen"*, AICF Conference 2005

eGovernment themes, and third to see where there is an overlap in the research and consequently where there are themes undervalued by either the academic or the practice researchers. Eventually the overlap will reveal the trends in eGovernment, which is the goal of this thesis, and the undervalued themes will reveal the blind spots. The empirical and theoretical perspectives will be used in order to introduce the total eGovernment research, thereby presenting the state of affairs of eGovernment research, which indicates how far eGovernment has already been a part of people lives' without them realising it.

1.2 THE RESEARCH

Since most research concerning eGovernment concentrates on a specific theme, I would like to concentrate on the total picture. Such an overall picture will help to indicate the possibilities of eGovernment. This master's thesis therefore has two goals; the first to evaluate eGovernment from an academic perspective and the second to examine eGovernment from a practice perspective. The research question can be put into one concrete sentence: ***"What are the trends in eGovernment within the European Union considered from both the academic and the practice perspective?"*** The intention of this thesis is to acquire a bird's eye view of the eGovernment trends within the European Union, comparing theory and practice sources.

The eGovernment literature and academic themes will first be studied from a theoretical perspective, while the practice part will highlight practice experiences presented by different European countries. First the literature concerning the debates in eGovernment will be examined to obtain the full capacity perception of eGovernment. Next the academic research will be examined to extend our knowledge and to make a first observation of the eGovernment themes. When the theoretical perspective has been clarified, the practice research will reveal if the themes introduced in theory, are actually the themes presented in practice. If there is an overlap, which will be analysed in the last part of this thesis, the eGovernment trends can be identified. These trends will introduce the themes discussed the most, and sub-trends will identify in which domains these themes are most represented, and whether or not there is a linkage between the academic and practice research. If there is no overlap in the theme research by academics or in practice might indicate that this theme is undervalued, or unrecognised as an important theme within the eGovernment research.

1.2.1 WHAT DOES THE LITERATURE CLARIFY ABOUT EGOVERNMENT?

The first sub- question formulated to support this research is "*What does the literature clarify about eGovernment?"* in order to deepen our understanding of the term eGovernment. This chapter will present an overview of the work of the principal researchers in the field of eGovernment focussing on theoretical papers. The authors that will be referred to are Klaus Lenk, Jane Fountain, Thomas Malone and Christine Leitner. The goal of this literature review is to keep a broad view of eGovernment at all times.

1.2.2 WHICH THEMES ARE BEING RESEARCHED BY ACADEMICS?

The second sub-question is "*Which themes are being researched by academics?"* The goal of this chapter is to concentrate on the theoretical perspective, contributed by the academic researchers, in order to fully explore the themes researched by them. Literature from researchers in this field, disseminated by means of conference/ workshops, publications and journal articles, will be examined and the main themes they address will be further analysed. This analysis will be performed by clustering the titles presented by the academics in specific themes. Theories presented in conferences and workshops will be the main source.

1.2.3 AT WHICH THEMES IS ACTION BEING TAKEN IN PRACTICE?

The third sub-question is *"At which themes is action being taken in practice?"* Not only the academic research is important to identify the trends in eGovernment, but also the practice research that present the applications of eGovernment. The trends and themes presented in the European eGovernment Awards, organised by the European Union in the prospect of the Lisbon Agenda, will be used, analysing the ones in Como 2003 and Manchester 2005. The country presentations will be processed in the same clustering act as the academics for purposes of comparison.

1.2.4 WHAT ARE THE EGOVERNMENT TRENDS AS REFLECTED BY ACADEMIC AND PRACTICE RESEARCH?

The following part will contain an analysis of the previous findings; this sub-question therefore is *"What are the eGovernment trends as reflected by academic and practice research?"* Since both the academic and practice viewpoints on eGovernment trends in application and development are identified, a double reflection will be made. This reflection will on the one hand evaluate what has been addressed by the academics that has not been presented in practice, and on the other hand what has been presented in practice that has not been researched by academics. This method will lead to an evaluation of probable blind spots in the eGovernment research within the European Union. The literature on eGovernment will contribute to those areas not being mentioned by both.

The research question *"What are the trends in eGovernment within the European Union considered from both the academic and the practice perspective?"* will be answered in the conclusion, making use of the outcomes of the previous chapters.

2. METHODOLOGY

This thesis has been divided in three main research phases: the collecting phase, the clustering phase, and the domain phase, the latter being future public administration domain, political domain, policy domain, and execution domain. The employed method will be clarified for each specific phase, whereby the focus will be on the rationale. The general method behind the research is called 'Grounded Theory' which does not aim for the truth but for the conceptualization of what's going on using empirical data. The basic idea of Grounded Theory is to read a textual database, and to discover, and label the variables and their interrelationships. This action is being referred to in this thesis as the collecting phase. Next, the variables will be labelled through open coding that is concerned with identifying, naming, categorising, and describing the phenomena found in the text. This will be done in the clustering phase. The important aspect is to have fairly abstract categories in addition to very concrete ones, as the abstract will help to generate the general theory. The last phase is the clustering phase, referred to by the Grounded Theory as the selective coding. In this phase one category has been chosen to be the core category, in this case the future public administration, political governing, policy, and execution domains, and relating other categories, themes, to that category.[4]

2.1. THE COLLECTING PHASE

To obtain the aspired bird's eye view, it was necessary to first collect all the conference papers that deal with the concept of eGovernment. Within the framework of eGovernment, as many conference papers as possible were examined. The rationale not to hold interviews was efficiency; the best way to identify the academic and practice researchers was by the means of the conferences, thereby already having access to their specific field. Another reasoning is that the total picture of eGovernment research is the aim of this research, which can be best explored with a large body of research, rather than with in depth research. The focus of this research was solely on the academic and practice field of eGovernment, rather than involving sector specific e.g. law, economy, and public policy conferences. Not to perform sector specific research had as a consequence that particular developments in eGovernment may have been overlooked. On the other hand, the advantage of this method is that the blind spots in the attention of eGovernment academics and practice research have been better identified.

[4]Glaser B.G. and Strauss A. L. (1967) *"Discovery of Grounded Theory- Strategies for Qualitative Research"*, Sociology Press
Strauss A. L. and Corbin J. (1990) *"Basics of Qualitative Research"*, Sage Publications

In order to proceed with this collection of the conferences papers in an as effective as possible manner, several networks were addressed by sending their conference invitations and links. This already yielded a high response, therefore the next step was to process the acquired information by transferring it onto an excel sheet. A distinction between examples from academic and practice perspective had to be made at this stage already, thereby creating the possibility of a comparison at a later stage. The title pages of the conference papers were scanned each on the presentation/paper title since, in general, a paper-title or presentation-title already gives a good indication of the contents.

The conferences examined turned out to be mostly held in Europe, probably because eGovernment is high on the agenda of the European Union. Other conferences mostly occurred in the United States of America who, together with Canada, was at the birth of eGovernment. Subsequently, the name or names of the authors were noted and where possible, their email addresses. These email addresses had no function for the research of the thesis itself, but may be useful for other purposes.[5] The last action was to enter the identification of the conference papers in the excel sheet in order to keep an overview of the examined conference papers. The processing of all the data eventually lead to a total of four-hundred plus names of academic and practice researchers that had presented their research findings. These papers and presentations have not been analysed on the reliability of the bases of their assumptions. Instead, only the contents have been explored to find out the eGovernment research field of specifically the academics.

[5] This report could be useful for narrowcasting, which is the process of addressing authors according to their previous work when organising a conference, rather than presenting possible subject and let everybody interested react.

2.2 THE CLUSTERING PHASE

The next stage contributing to the research was to cluster the acquired data, with the intention first to categorize the items (titles) into themes and second to categorize the themes into dimensions. Eventually the themes would be used for the actual research. To put the act of clustering in the words of two eGovernment academics: "The new continent is found physically, now we try to understand land on it." (Traunmüller and Wimmer) Before the clustering could start, a specific method of clustering had to be chosen. Should I use technical tools or physical tools, and are the themes defined beforehand based on assumptions or should I start unbiased? After primarily considering effectiveness and accuracy, the physical tools (hands, eyes, brains) and unbiased approach were chosen. The titles were all put onto separate cards and considered one by one. The themes were extracted by clustering the paper titles into specific eGovernment areas, using inductive reasoning. To exclude any form of bias, it was decided to cluster the titles together according to their similarities, without some theoretical framework in mind. The main advantage of using this purely inductive method is that the result of clustering is quite original and not biased. The main disadvantage of this method is that existing eGovernment may not have been identified, since they are not being researched by the eGovernment academics included in this research, even though they are important in the field of eGovernment. In the end this clustering resulted in twenty-nine themes each identifying an eGovernment research field as introduced by academic or practice researchers. These ultimate themes were the result of multiple revisions of a title or a clustering. One of the things that were done at a later stage was to distinguish the different kinds of architectures. Another cluster that was split off is eDemocracy, which was subdivided into eDemocracy, eVoting, eParticipation, and political actors online. This processing lead to the desired excel sheet, with in the first column the name of the researcher listed in alphabetic order. The processing of the names in alphabetic order had two unrelated consequences; first, it was easier to detect whether an author attended more than one conference or presented more than one paper, and secondly co-authors are listed separately and are therefore more easily identified. The latter was necessary since most conference proceedings listed the authors in alphabetic order; this way all contributors were acknowledged. The second column introduced the theme that the specific author had been allocated to, according to the title of his/her presented paper. By categorizing the titles of papers, it became possible to identify that one author could belong to more than one theme. Therefore the paper titles are presented in the third column, supporting the rationale for that specific theme.

2.3. THE DOMAIN PHASE

During the last phase of the research the themes found were clustered into the various domains of a government. At this stage the themes have been clustered for the last time into a core category (dimension), thus four different domains were identified from a policy management point of view: the future public administration domain, the political governing domain, the policy domain, and the execution domain. The end-result of the clustering has lead to a diagram introducing the themes according to their place in government. With this diagram an evaluation based on different dimensions has been possible: on the *total amount of research*, on the *academic and practice* research specific, and on the amount of *research per theme.*

3. ABOUT EGOVERNMENT

The first sub-question *"What does the literature clarify about eGovernment?"* will be used to give a clarification of the term 'electronic government' in its broadest sense. First, some descriptions mentioned in all sorts of eGovernment glossaries will be identified and elaborated upon. These descriptions will be supported with the illustration of the advantages and disadvantages of the use of eGovernment. The second part of this chapter will introduce four authors, each academics on eGovernment with their own field of interest, and will be compared on their points of view on a subject of eGovernment.

3.1. EGOVERNMENT INTRODUCED

Government organisations have public functions that are of general interest to citizens and business. While exercising their tasks like research, policy making, policy execution, democratic control, communication with the citizens, and internal administrative processes, information will emerge. The use of Information and Communication Technology increased the possibility of providing this information regardless of place and time. "Electronic government information can be acquired by the use of a computer and a network. It therefore allows easier policy coordination among ministerial departments, public agencies, and layers of government." (Leitner 2003:14)

An advantage that the Information and Communication Technology has provided governments with is the ability to improve the efficiency of government agencies and enhance business processes, which in their turn will lead to higher quality and customer oriented service delivery. The advantages of the eGovernment lie also in the possibility to involve citizens and businesses in certain decision making processes as well as administrative processes. Examples are the possibility to check the neighbourhood safety in the city, the request for a licence of some sort, or access to the most recent data timely enough to anticipate for instance plane arrivals and departure, and traffic jams etc. "The electronic government can provide a standardized window to citizens, which will enable them to have access to any public service, regardless of which organisation is in charge of it and where it is produced." (Lenk, Reichard, and Brüggemeier 2004) There are already developments that families will be notified electronically whenever they qualify for housing benefits or for the possibility to register electronically for building site. Due to links between systems, mistakes and incorrect data are easily detected, thus fraud is less tempting.

A disadvantage of eGovernment is that "it encroaches on privacy, especially when it involves data that reveals personal information as well as personal preferences. Another major disadvantage is the bi-section of society, since the majority of the Internet population consists of young, highly educated, white men."[6] (Jacobs and Janssen 2000:166) This has as an effect that the wealthier part of the society reap the full effect of eGovernment and the part of society that can not afford a computer and internet are left behind.

The intention of this chapter is to understand what eGovernment actually is and what it will become. The various definitions gave a good understanding of the concept of eGovernment. The key words mentioned in terms of eGovernment were Information and Communication Technology, communication, the enhancement of government processes, and increase in citizen participation. Now that the term eGovernment has been clarified, it's functioning, the possibilities, and the actual application is to be examined. To highlight the most important academics and practice researchers on their implications and paradigms was the next step in this exploring phase. Authors that are recognised for their innovative work will be summarized on their main findings. In the following section the concept of eGovernment will be examined more thoroughly by use of four acknowledged authors. These authors all are academics in a certain field related to the concepts of eGovernment, but do address the same issues. Therefore a comparison on their perspectives, concerned with the overlapping areas, will be made in order to get to a bird's eye view of eGovernment today.

[6] Jacobs C.W.J.M. and Janssen G.J.M. (2000), *"Overheid en Informatie- Werkprocessen en Informatiestromen in de Overheid"* Uitgeverij LEMMA BV, Utrecht.

3.2 THE FULL SCOPE OF EGOVERNMENT

eGovernment covers many areas of the government. There is a multitude of perceptions and implications on how to proceed and which way to manage the Information and Communication Technology supporting the electronic government. "Information management is the whole of activities, aimed at guiding and controlling the substantive, organisational, and technical designs, developments and maintenance of the information household." (Jacobs and Janssen 2000:229)

In this section several paradigms of four acknowledged authors of eGovernment related concepts will be introduced. The aim of this overview is to acquire the knowledge and understand the concepts that are under discussion in the eGovernment field. There are a few subjects that are reflective, and these will be addressed separately in the following sub-chapters addressed by the authors one by one. These subjects are implementation of Information and Communication Technology, decision making and level of control, the network organisation, conditions for success, and future prospects.

The first author to be summarized is Thomas W. Malone who is specialized in organisational change. Next Jane E. Fountain will be examined; she describes how Information and Communication Technology might also support the roles within an organisation rather than replacing them. The last two authors, Klaus Lenk and Christine Leitner, concentrate on how the structure of an organization changes due to the implementation of Information and Communication Technology.

3.2.1 IMPLEMENTATION

One of the authors is Malone who wrote the book "*Inventing the Organizations of the 21st Century*".[7] In this book he explains that implementation is usually left to experts, with specialized knowledge for capturing and analysing data and to propose how processes should be changed. According to him, this approach creates the impression that there is a 'science of change'. Yet those close to the people and the implementation of reengineering know that human system change is not that precise, and that there is an art to achieving expected outcomes. According to Malone the art of change recognizes that evoking greater efficiency and new behaviours is not as simple or causal as traditional reengineering assumes.

[7] Malone, T. W., Laubacher, R., ScottMorton, M.S (2003) "*Inventing the organizations of the 21st century*", "Is Empowerment Just a Fad?" The MIT Press, USA

In her book *"Building the Virtual State"* [8] Fountain introduces an analytical framework of technology enactment that is meant to extend the institutional perspective that accounts for the importance of Information and Communication Technology in organisational life. According to Fountain, earlier findings proved that organisational structures and processes as well as institutionalized norms, beliefs and values, exerted a strong influence on Information and Communication Technologies. This influence on Information and Communication Technology has been shaped by the perceptions of individuals, their understanding of an information system and its potential, and the ways in which they would try to implement and use new Information and Communication Technologies and applications. With this in mind, organisations have to cope with Information and Communication Technology.

Nevertheless, organisations nowadays rarely use the full capability of their information systems and they do not often leverage their strategic potential. Individuals and organisations enact Information and Communication Technology by their interpretation, design, implementation, and use of it in their own organisation and networks. Yet only entrepreneurial or visionary professionals use the internet to develop new networked organisational forms or new capability typically through a mimetic process that operates within social networks. The one thing that is clear to Fountain is that organisations are changing due to Information and Communication Technology. However, they are not changing enough, most agencies enact Information and Communication Technology by what has been referred to by Fountain as 'plug-and-play'; organisations tend to patch information systems onto existing structures in ways that may enhance efficiency and capability, but that otherwise maintain the status quo.[9]

Government specific, Fountain explains that during the 1990's innovation efforts provided evidence that Information and Communication Technology in conjunction with government reform efforts is in the long run likely to result in substantial modification of the form and capability of the administrative state. The Internet and the World Wide Web have enabled government agencies to restructure their interactions with citizens e.g. client based systems to provide government information and services.

[8] Fountain, J. E (2001) *"Building the Virtual State- Information Technology and Institutional Change"*, the Brookings Institution, P 3-107

[9] This is also referred to by Zuurmond, A, (Professor ICT and institutional change at Leiden University) as the post coach syndrome.

Lenk explains in his paper *"How to Bring About Public Administration Reforms with e-Government"*[10] that the silo shaped organizations that used to dominate are now being forced to cooperate more due to the dominant existence of Information and Communication Technology. These silo organizations cooperated among themselves only to a limited extent, due to their vertical shape. Public managers are looking for guidance in an increasingly complex landscape of management recipes while recommendations are mixed up with fashion and fads. New Public Management[11] is one of the reforms, and considered to be the most aggressive reform movement of the last twenty-five years. It sought to introduce a broad range of principles from business management, specifically with the intention to create incentives for efficient action. However it has not always lived up to the high expectations. eGovernment, which is seen by Lenk as the most powerful agent of administrative reform, is still characterized more by talk than by reform action.

The statement that Leitner makes with regards to successful implementation of eGovernment is that it is not only about technology, but also about a change of culture; it implies major socio-economic innovations and political-administrative institutional changes based on new Information System Technologies applications and developments. Transforming culture is a key dimension of eGovernment. Leitner has evaluated the eGovernment Awards conference of 2003.[12] Her main finding on government's state of affairs in the European Union is that Governments at all levels are joining forces not only to share information and resources, but also to move towards seamless government. Some of her examples also clearly emphasised the increased efficiency due to the re-engineering of the processes in the back-office.

To summarize the perceptions of the authors, Malone explains that the implementation of Information and Communication Technology is not that simple. The problem is that it is mainly left to change experts and the people closest to the process are not enough involved. Another important observation has been made by Fountain; she explains that organisations rarely use the full capabilities of Information Systems, but just patch the Information System onto existing structures, while one of the most important aspects of any innovation is to make sure that it is being used by fully exploiting its unique strengths. An example of under use is

[10] Lenk, K 2005, *"How to Bring Administration Reforms with eGovernment"*, Published in Wimmer, M.A E-Government 2005: *Knowledge Transfer und Status*, Vienna: Oesterreichische Computer Gesellschaft 2005, pp 317-324

[11] New Public Management is the changeover from a traditional bureaucratic structure towards a more outcome-oriented and responsive types of public organisations.

[12] Leitner, C 2003, *"eGovernment in Europe- The State of Affairs"* Presented at the eGovernment 2003 Conference Como, Italy 7- 8 July. EIPA the Netherlands

when governments provide the ability to download forms from the Internet, but still ask the citizens to send them back by mail. The implementation will only be optimal when the form will be provided via the Internet and also submitted via the Internet. This will be possible in the future due to electronic identification and an electronic signature. The last observation made by both Lenk and Leitner is that actual implementation is not just a matter of technology but also of the matter of culture, which is not likely to change overnight.

3.2.2 DECISION MAKING AND LEVEL OF CONTROL

The decision making process and the level of control is also influenced by Information and Communication Technology, and the authors mentioned before have different approaches on the actual level of influence. Malone distinguishes three stages in the decision making process; the first stage is by independent, decentralised decision makers, the second stage is by centralised decision makers, and the third stage is by connected, decentralised decision makers. Malone believes that Information and Communication Technology will lead to some sort of decentralisation, but he does not know the extent. Malone argues that the effectiveness of decentralisation is at a point at which decisions are actually carried out and empowerment on that level has proven to lead to a higher economic motivation. People are more energetic and creative if they have autonomy in their work and additionally have access to more customer information.

Fountain also believes that Information and Communication Technology has the potential to affect coordination as well as production and decision making processes within and across institutions and organisations. According to her, Information and Communication Technology makes some structural features and operations relatively inexpensive and easy to implement, and is enacted by governments to support dominant societal values. The results of local activity in digital form are transferable to central databases almost immediately.

Not totally in line with Malone, Fountain also states that simultaneous centralisation and decentralisation are possible. As a practical matter agency officials have the ability to make structural adjustments without all of the constraints imposed by traditional trade-offs between centralisation and decentralisation. Decision support systems give clerks, low in the hierarchy, the ability to make more decisions because the rules or standards they have to follow are embedded in software rather than in the decision maker. Therefore, Information and Communication Technology does not only provide the potential for efficiency gains but also leads to the development of powerful new tools for control. During the twentieth

century, the bureaucratic state moved from direct supervisory control to bureaucratic control and now, in information based organisations, is moving to embedded control. Thus, the Internet has the potential to fundamentally affect the coordination, control, and communication of an organisation.

In his paper Lenk starts off with the similar statement as Malone, namely that the "era of stable government institutions ruling in a top-down way is now drawing to an end. Globalisation from above and the strengthening of civil society from below are joining forces to change the structure of national societies in Europe." Lenk is also concerned with the general external effect that Information and Communication Technology has a greater control on decision making. In the various stages of a reform process, different sets of actors and stakeholders want to influence the process and its results according to their own preferences. Information Systems are often introduced with too narrow a focus on technological capabilities and efficiency goals, paying insufficient attention to the people who have to use them. Here the most critical role is being played by senior managers and politicians and they have the task to make a reform process routine.

Leitner adds in this discussion that eGovernment cannot happen in a vacuum. She claims that eGovernment's further success is closely linked to fundamental change which will transform public governance and administration. She too concludes that stable government institutions are no longer ruling from top-down, in resonance with the statements made by the former authors. Decision making in the European Union is arranged in various levels and the notion includes democratic and cooperative policy formulation, citizen involvement, transparent and participative implementation of policies as well as continuous independent evaluation of their results and accountability of public decision makers. Though these aspects are still terra incognita for the vast majority of electronic solutions providers, they are at the heart of the future developments of eGovernment.

That decision making procedure is influenced by Information and Communication Technology is evident, but the opinions on the extent and the effects differ per author. Malone argues for pure decentralisation which will lead to higher motivation and customer service while autonomy remains. Fountain, on the other hand, while not disagreeing, also predicts a strengthening of centralisation since Information and Communication Technology is to be used not only for efficiency gains but also as a powerful tool for control. Lenk

reasons more along the lines of the changing role of management in decision making and the demanding role of senior managers and politicians to support Information and Communication Technology. Leitner thinks that, among other elements, the democratic and cooperative policy formulation will contribute to the improvement of policy making in the future. Leitner rather considers decision making from a European perspective where decentralisation has occurred, partially due to the European integration. Interoperability is the theme most likely to be implemented and to produce revenues. Since Information and Communication Technology allows network types of organisations, harmonisation and standardisation can be realised in a diversified European Union.

3.2.3 THE NETWORK ORGANISATION

Malone acknowledges that the Internet is the greatest model of a network organisation that has yet emerged, and according to him it reveals a startling truth; in an e-lance economy (electronically connected freelancers), the role of the traditional business manager changes dramatically and sometimes disappears completely. The work of the temporary company is coordinated by the individuals it is composed of, with little or no centralised direction or control. An e-lance economy might well lead to the blossoming of individual wealth, freedom and creativity; on the other hand it might lead to disruption and dislocation. Network organisations tend to perform well under conditions which require both efficiency and flexibility. Information and know-how are the important assets of a network organisation, they can create value, inalienability of know-how implies that the experts themselves need to exercise control, and information links increase the ability to handle complexity. Synergy helps motivate agents to work together. Jointly pursuing job opportunities then requires agents to balance several needs: flexibility and stability, generalisation and specialisation, decentralisation and centralisation. All these factors are widely being influenced by Information and Communication Technology.

A 'virtual state'[13] as described by Fountain also sees a government that is organized increasingly in terms of virtual agencies, cross- agency and public- private networks whose structure and capacity depend on the Internet and web. An institutional perspective alerts that government is likely to use the Internet differently than privately owned firms use it and

[13] The Virtual State has also been discussed by P.H.A Frissen in 1996, in his work he discusses that the connection between politics, government and technology will lead to a virtual state. The developments due to the postmodern processes of the community, partly due to fundamental Information and Communication Technology transformations, demand reorientation of politics and governments, as well as political theories and public administration.

therefore the effects, like government reform, are qualitatively different in firms and industries than in government. Institutions influence and are influenced by enacted Information and Communication Technologies and pre-dominated organisational forms. In contrast to private firms in the market, government agencies face strong institutional constraints on network information in the form of oversight relationships, the budget process, and a long tradition of adversarial bureaucratic politics. Technological logistics must be connected to, and integrated with, the logistics of the institutions and social relations that constitute inter-organisational networks. Virtual agencies succeed only when the agencies involved can develop and maintain social capital.

Fountain also wants to draw attention to the fact that the occurrence of network organisations signals one significant move away from bureaucracy. She explains that one of Weber's characteristics of bureaucracy is hierarchy. Although the Internet and the World Wide Web provide superior communication and coordination capacities, they do not replace hierarchy. She quotes Gerald Garvey who said; "The Taylorite world was bureaucratic in its very essence. For bureaucracy is, essentially, a means of combining capacity with control. Control is achieved through hierarchical supervision and administrative direction." The use of the Internet in a bureaucracy is likely to lead to greater rationalisation, standardisation, and use of rule-based systems. As she mentioned before, technology might be enacted to facilitate collaboration, shared information and enhanced communication. However, Fountain wants to stress that is sounds equally plausible that it may be designed and used coercively to promote conformance and control.

Lenk is more considered with the internal networks of an organisation. He believes that an adequate organisational architecture is best described by distinguishing local front-offices[14] from back-offices and uses a mediating structure (mid-office) to link the front- and back-office. One of the implications of this new structure is the potential for realising an integrated eGovernment. The integrations, as he suggests, take place in the following offices: customer-driven integration, resource-driven integration and process-driven integration. The fragmented and multi-layered character of present public administrations will be concealed behind access structures which no longer follow the intrinsic needs of service production but rather the concepts of a life-event oriented service delivery.

[14] The front-office is the department of any organisation that has direct contact with customers, the back-office is where the tasks of running the organisation are performed; these are often the information technology departments. www.wikipeadia.org, internet encyclopaedia Wikipedia.

Leitner agrees with Lenk, but also adds that integrated eGovernment will not come about automatically by introducing technical forms of front-office integration, such as portals, and back-office integration. Many structural choices have to be made, according to principles of good governance and other desirable outcomes. She states that there is a need for a win-win approach enabling the European Union countries to establish common goals and common standards. During the last few years, encouraging signs of enhanced cooperation have been observed. Inter-organisational cooperation, which is of vital importance for innovation alliances, has considerably increased. The best way to cope with challenges is to build multinational, multidisciplinary networks of cooperation. Electronic cooperation agreements and strategies among the different levels of government is a first step and equally important as their actual and practice implementation.

Most organisations are networking or will start to network as a result of Information and Communication Technology. According to Malone, the greatest effect of Information and Communication Technology on networking organisations is that the role of the traditional manager is changing, where synergy should motivate the agents to work together. Fountain agrees but rather sees the roles strengthened than changed. She also believes in an increase in virtual agencies, cross-agencies, and public-private networks while the maintenance of social capital is essential for an organisation. Lenk on the other hand thinks more in terms of internal networks and sees an integration of customer-driven, resource-driven, and process-driven integration possibility which will increase service delivery. Leitner also perceives the use of Information and Communication Technology as a supporter of integration, and as a facilitator of cooperation. She further claims that cooperation agreements and strategies among the different levels of government as a first step and equally important as their actual and practice implementation.

3.2.4 CONDITIONS FOR SUCCESS

Malone acknowledges that there are multiple conditions that influence the success of the implementation of Information and Communication Technology on the decision making procedure of organisations. He claims that there are three conditional factors and explains the necessity to consider how these factors relate to Information and Communication Technology. These three factors are: decision information, trust, and motivation. The first factor, decision information, is the most important aspect of Information and Communication Technology. The decision information is to bring easily communicable information to people who have knowledge, experience, or capabilities that are otherwise hard to communicate.

The second factor is trust, which can be increased via Information and Communication Technology since it supports to make, control, monitor, and socialize remote decision makers and less human interaction is necessary. The third factor is motivation, where Information and Communication Technology keeps some degree of autonomy, which is believed to make jobs more enjoyable, which in turn will lead to a higher motivation. He concludes that, although in some organisations it will never occur, in other organisations the decentralised decision makers will play increasingly important roles, due to the emerging knowledge economy and global connectivity.

Fountain on the other hands, describes that organisational arrangements that resemble networks more than hierarchies or markets are becoming increasingly visible although they have a long history that predates the Internet. She further believes that the Internet has strengthened the importance and use of informal networks, although she agrees with Malone that it has not replaced the importance of face-to-face contact or geographic proximity in the building of trust and social contacts. Those networks in which a threshold level of trust cooperation is developed and sustained generally have lower transaction cost, better resource sharing, increased learning among network partners, and greater levels of innovation. One of the central tasks of public administration and its management is the design and maintenance of effective organisations, in part through the repeated reorganisation of structural elements as well as coordination, function, and process flows in more or less systematic channels through which information, activity production, and decision making move.

Lenk clarifies regards to the condition for success that the concept of eGovernment emerged at a time when the role of the state was mainly perceived as subservient to the economy, forgetting about the wider role of public services for making societies function in peaceful ways. In the past and now, well intended reform projects have failed because of inadequate management of change, especially when human and organisational factors are neglected. Lenk further explains that public administrative reforms are not just about efficiency and cutting red tape. In order to let eGovernment projects contribute to reform goals it is essential to understand where one stands at the beginning of the process and to have a strategy which fits into a national framework. A European framework is not present yet since the European Union cannot do more than motivate for interoperability between the European Union countries as much as possible. According to Lenk there is no ‘single best way’ of administrative reform.

Lenk acknowledges that many factors contribute to making countries very different from each other, so that uniform blueprints will often not work. Policy windows for reform open up at different times, and the traditions and culture of the public sector vary greatly, even among neighbouring countries which shared common experiences in the past. "The mistaken perception that countries share a common problem is often accompanied by the idea that there is a range of solutions available, any or all of which will be beneficial. This misconception, peddled under the label 'best practice', has had tragic consequences in some developing countries where reforms have been pushed ahead faster than in OECD countries because they are imposed as conditions for loans and grants." (OECD 2003:6)

The main challenge that eGovernment currently faces according to Leitner, is that public sector managers need to be committed to invest in the future with a long-term view and that interdependence is necessary, thus a call for unity. Other keys to success are to use the skills of those responsible at all levels of administration to stimulate, to set agenda's and directions, and to mediate and negotiate effectively with all stakeholders involved. Leitner has identified the invention of an integrated access structure with a 'single- window' front-office as another future challenge for the European Union. Providing assistance to the customer is necessary and can be done by a multi-channel administration, multi-channel access involving multifunctional front-offices. eGovernment will only function well if all citizens have access to the information and range of services available. Solutions provided by eGovernment increase the level of service provisions and internal efficiency, but also the user friendliness and accessibility and bridge the digital divide.

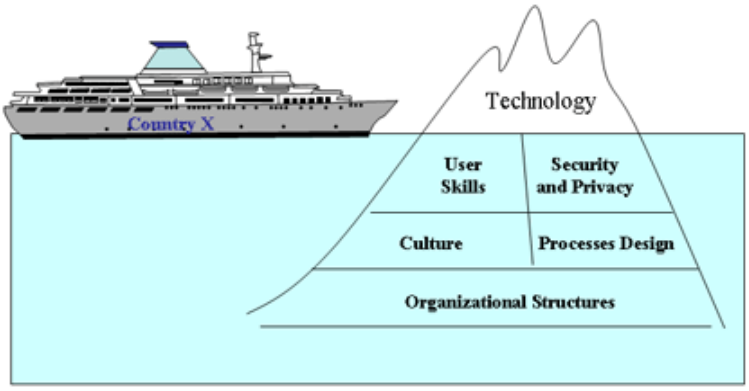
To recap, there are several conditions mentioned that provide a successful use of Information and Communication Technology and increasing the use of eGovernment. Malone introduces the first three conditions: the need of good decision information, to have a threshold level of trust, and motivation of the lower levels. Fountain adds that the use of systematic channels can enhance the threshold level of trust. Lenk also sees the necessity of understanding where one stands at the beginning of the process combined with committed managers, thus a change in the management process. Finally, Leitner adds to this discussion that culture, good cooperation, and the accessibility of eGovernment services for the citizens is of great importance for success since eGovernment will only function well if all citizens have access to the information and services available.

3.2.5 FUTURE PROSPECTS

"To fully exploit the possibilities of new Information and Communication Technologies, we need to expand our thinking and envision radically decentralised organizations- the Internet, all kinds of markets, and scientific communities as new models for organizing work in the 21st century." Malone pictures himself in a virtual world where firms are largely horizontally integrated, where there is a persuasive role of firms in employees' lives, where employees have ownership of the firm, and where employees select the firm's management. What is lagging behind technology is imagination.

Fountain is a bit more extensive on her perception of the future of a state. She explains that building a virtual state is about the process and politics of institutional change rather than a set of predictions about the end result. As networked computing becomes a bigger part of the government infrastructure, more and more policy entrepreneurs will take its growing acceptance as an invitation to increase their agencies' resources and capability or responsiveness. As institutional, technological, social, and political logistics collide and are negotiated, so will the virtual state be built.

Lenk is more reluctant than Malone and Fountain when it comes to the influence of Information and Communication Technology on organisations. He thinks that eGovernment is just a new name for the informatisation of the public sector, which has been going on for several decades now. Yet, it has been observed that eGovernment resembles an iceberg, the nine-tenth of its volume below water surface are as important as the top. The external has to be completed by perspectives which address that part of the machinery of government which is hidden below the water surface. A focus on the business process of public administration is particularly important since in this perspective it becomes obvious that eGovernment can become the main driver of reforms in the future. All public administrations will eventually no longer appear as a set of independent agencies, which had to be approached separately, but as a collective unit with which contact can be made via one and the same portal or window; 'single window access'.



According to Leitner, a new architecture of public service delivery is emerging, meaning that front-offices come closer to citizens and enterprises while back-offices can be located anywhere. Service production and service delivery are split in location, but linked via networks. In the case of a full-fledged 'single window' access, as described by Lenk, the back-offices of all public administrations can be accessed from any front-office. Separating front-offices from back-offices also allows for the integration of data, documents and processes so that better service and important productivity gains will follow. Thus organisations will be restructured and borders redrawn according to the logistics of decentralisation/centralisation. An electronic transformed sphere will lead to a new balance of European, national, regional, and local public institutions.

The authors were all examined on their future prospects of the influence of Information and Communication Technology on the whole organisation. Malone sees horizontally integrated firms, with bigger roles for the employees. Fountain perceives that if institutions, techniques, social and political logistics collide and negotiated, that the virtual state will be built. Lenk considers eGovernment the main driver for organisational reform, which will no longer be a set of independent agencies but a collective unit, providing a 'single window' access. Leitner also sees this 'single window' and predicts a new balance at European, national, regional and local public institutions and structures.

To conclude is to answer the question: "*What does the literature clarify about eGovernment*?" The main themes were highlighted and a divide in the ability and the effects of Information and Communication Technology on organisations are observed. These authors have observed eGovernment from an institutional perspective, elaborating on the influence on the organisational structures, cooperation, and implementation criteria. The most important conclusion is that Information and Communication Technology allows a further harmonisation and standardisation within the European Union because it allows network types of organisations contraire to the necessity of integrating structures and cultures. eGovernment is a process that mostly emerged during the last decade and is developing at accelerated pace and therefore "old" topics are still relevant. Are these the areas that have been presented and researched by academic and practice researchers in the field of eGovernment as well? The next two chapters will present an overview of the research area of both the academic and practice research, which eventually will lead to their comparison in the last chapter.

4. RESEARCH BY ACADEMICS

4.1 THE INTRODUCTION OF THE THEMES

The concept of eGovernment is being researched in two different fields: in the academic field and in the practice field. The sub-question supporting in this chapter is; *"Which themes are being researched by academics?"* The goal of this chapter is to expand the aspired bird's eye view of the eGovernment themes that are being discussed by academics in specific. The first clustering of over four-hundred paper titles resulted in a total of twenty-nine themes that covered multiple areas of eGovernment. These themes will at a later stage be presented in a diagram, according to the government domains they represent. In this chapter the themes will be illustrated by a definition, supported by examples with reference to an academic that has performed research in this specific field and a short introduction of the content of the paper/presentation/workshop will be provided. This introduction will give an additional definition of the theme, an advantage or disadvantage, an example of an innovative improvement or a specific application. The evaluation of these themes will be presented in a later chapter.

1. ARCHITECTURE

Architecture is a broad theme that covers an extended area of eGovernment. Architecture is the practice of applying a comprehensive and rigorous method to the description of a current or future structure of an organisation's processes, information systems, personnel, and organisational sub-units, so that they align with the organisation's core goals and strategic directions. The architecture themes identified are application architecture, data architecture, process architecture, and technical architecture.

§ APPLICATION ARCHITECTURE

Application architecture is the architecture that is involved in the use and the tasks that Information and Communication Technology systems are performing. The application architecture is also known as the functional architecture, and maps the application used in an organisation and the interdependencies between these applications. Beer, Kunis and Runger[15] have written a paper on component based software architecture for eGovernment applications. They explain that the rising need for eGovernment applications leads to many

[15] Beer, D, Kunis, R & Runger, G, *"A Component Based Software Architecture for eGovernment Applications", 2006, ARES 06* Conference.

new approaches. They introduce reference architecture for eGovernment systems (RAfEG) with the key features being: flexibility, security, adaptability, and interoperability between authorities. The efficient use of heterogeneous systems and hardware platforms allow the execution of large interactive applications in eGovernment.

§ DATA ARCHITECTURE

Data architecture is the broad architecture behind data. It are the data that are a part of the organisation's information model and offers definitions for every data item that is used in an organisation. The data architecture enables interoperability because it's uniquely defines data items, thereby creating opportunities for data exchange between departments or organisations. Chase and Straat[16] have introduced a metadata registry. This registry contains organised concepts and data models within a community of interest or domain. Unstructured documents can use descriptive metadata that references from this same foundation of registry concepts. This creates a single source for both data models and metadata vocabularies within a domain. These intelligent documents can convey both structured and unstructured content that can act as a data exchange and presentation platform for a wide range of content types. In total there are six people who have researched data architecture.

§ PROCESS ARCHITECTURE

Process architecture is a system that maps the business processes of the organisation and the interdependencies between these business processes. Barone and Di Pietro[17] introduced an example of such a system. Their paper presents *'Arianna'* which is used for defining a standard in describing the Semantics[18] of eGovernment services. Such a standard was born when sharing information with Italian local public administration entities. All the information contained in the model's repository is made available through one eGovernment catalogue via the Internet. In total there are fifteen academics that have researched process architecture.

§ TECHNICAL ARCHITECTURE

Technical architecture controls the managing and processing of information and is the technical part of the policy execution. It is the hardware and communications component of the government. There is no academic author identified who has discussed this theme, only practice research.[19]

[16] Chase, E & Straat, M, *"Information Interoperability and Intelligent Documents"*, 2005, *eGovInterop05*.
[17] Barone, A & Di Pietro, P, *"Semantic of eGovernment Processes: a Formal Approach to Service Definition", 2005, DEXA* Conference.
[18] Semantic structures unstructured data, giving meaning to words and phrases, sort of www2.
[19] All Architecture definitions abstracted from: Zuurmond, A. 2005, *"Organisational Transformation Through the Internet"* Cambridge University Press.

2. BEST PRACTICE/BENCHMARKS/MEASUREMENT/RESEARCH

§ BEST PRACTICE

Best practice is a management idea that asserts that there is a technique, method, process, activity, incentive, or reward that is more effective at delivering a particular outcome than any other technique, method, process, etc. Best practices in eGovernment are examples of successful eGovernment projects. The idea is that with proper processes, checks, and testing, a project can be rolled out and completed with fewer problems and unforeseen complications. Driessen[20] has written a report with the purpose to test if eGovernment pays off. In this report she presents best practice case studies. She has chosen eight countries with a specifically successful eGovernment out of twenty-five cases. The criteria she used were: (1) does the case present an innovative service using Information and Communication Technology, (2) does it contribute to improvement for customers and organisations involved, (3) does it involve multiple changes in the back-office, and (4) is there co-operation between organisations involved?

§ BENCHMARKS

Benchmarks are a process used in management whereby organisations evaluate various aspects of their processes in relation to best practice, usually within their own sector. This allows an organisation to develop plans on how to adopt a best practice, with the aim to increase some aspect of performance. Germanakos, Christodoulou, and Samaras[21] introduce in their paper about eGovernment benchmarking status methodology a third level classification methodology for the better review and quality evaluation of a city's technological infrastructure and Information and Communication Technology legacy systems. The proposed benchmarking status methodology provides a correlated and efficient environment with all the necessary mechanisms and procedures that a city could follow to identify its current status with regard to government infrastructure, potential gaps, weaknesses, and opportunities.

[20] Driessen, H, *"Does eGovernment Pay-Off?"* for Eurexemp in cooperation with CapGemini and TNO, 2005, *eChallenges 05* Conference.

[21] Germanakos, P, Christodoulou, E & Samaras, G, *"Towards the Definition of an eGovernment Benchmarking Status Methodology"*, 2006, *ECEG 06* Conference

§ MEASUREMENT

Measurement is the process of estimating the costs and benefits of eGovernment. Savoldelli and Filipazzi[22] have written a paper about performance measurement in networked public administrations. In their paper they investigate the elaboration and proposal of a model of general validity able to assess the performance of European Networked Administration. Currently, the factors that have the greatest impacts on the public administration performance have been identified and broken down into more measurable dimensions. Further development concerns the definition of a specific balance scorecard and the validation of this model in the field.

§ RESEARCH

Academic authors have taken the research field of eGovernment as their research object. These authors try to answer questions like how mature is this research area, what methods are used by academics in the research area, what theories are developed etc. Grönlund, Norris, and Gant[23] explain that eGovernment is a rapidly growing field, but one that is still immature and in search of defining boundaries, core focus, methods, and theories. There is a large and growing field of practice and a growing body of research, but a lack of and a strong need for rigor and focus without which research cannot make a worthwhile contribution to practice.
There are a total of eighteen academics that have researched one of the fields in best practice, benchmarks, measurement, and research.

3. BUSINESS PROCESS REDESIGN

Business process redesign is a management approach that examines aspects of a business and its interactions and attempts to improve the efficiency of the underlying processes. Business process redesign has three targets: customer friendliness, effectiveness, and efficiency. In a government business process redesign is mainly used to achieve a customer orientation; business processes are redesigned from a customer perspective. There are a total of twenty-two academics that have researched business process redesign. Wimmer and Klischewski[24] wrote an article in a German eGovernment journal in which they propose a reengineering model called Open Choice, which according to them can function as the foundation of the production achievement reorganisation in the public sector.

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[22] Savoldelli, A & Filipazzi, S, *"Performance Measurement in Networked Public Administrations"*, 2005, *eGovInterop 05* Conference
[23] Grönlund, Å, Norris, D. F, John, P, *"eGovernment Research Methods and Foundation"* 2006, *HICSS 39* eGovernment track Conference
[24] Wimmer, M & Klischewiski, *"Wissensbasiertes Prozessmanagement im E-Government"* , 2005, summary in the journal *LIT verlag- Münster- Hamburg- Berlin- Wien- London.*

4. DECISION SUPPORT SYSTEM

Decision support systems are a class of computerized Information Systems that support decision making activities. In a more precise way, Turban (1995) defines it as "an interactive, flexible, and adaptable computer-based Information System especially developed for supporting the solution of a non-structured management problem for improved decision making. It utilizes data, provides an easy-to-use interface, and allows for the decision maker's own insights."[25] There are a total of eight academics that have researched decision support systems. In the paper of Sebestyénová[26] a decision support system is described that consist of a user's questionnaire. The core of the system is created by a database of modelling, control, and simulations tools for manufacturing processes and an intelligent decision system, a generic block, which provides relevant reasoning about suitable algorithms, and tools in respect of the user's requirements and description of processes.

5. EDEMOCRACY

There's a differentiation between eDemocracy in a narrower and in a broader sense. eDemocracy in the narrower sense stands for the electronic execution of the constitutionally planned formal decision document. In the broader sense eDemocracy covers also the efforts to involve the citizens more in forming of political opinions and self-organization processes. The two elements supporting eDemocracy are eVoting and eParticipation, both will be explained further in this list.[27] There are a total of three academics that have researched eDemocracy. Jeitziner[28] explains that there is an essential difference between eDemocracy and eVoting; eDemocracy is about more than just voting. It is also about pre-voting including the availability of information, opinion formation, and decision making and the selection of the political parties and candidates.

6. EGOVERNMENT POLICY

eGovernment policy is concerned with the role of the state to define the legal framework for the use of Information and Communication Technology in a specific country. Furthermore, it must award subsidies or other means of support e.g. installation of computers in schools and financial assistance for Information and Communication Technology start-up. The electronic

[25] Turban, E & Aronson, J.E (2001) *"Decision Support Systems and Intelligent Systems"* Prentice Hall
[26] Sebestyénová, J, *"Decision Support System for Modeling of Systems and Control Systems Design"* , 2006, *e|Gov Days 2006 Prague* Conference
[27] www.glossar.iwv.ch, eGovernment Glossary Online.
[28] Jeitziner, B, *"eDemocracy beyond eVoting"*, 2005, eChallenges05 Conference

policy is the national part of eGovernance.[29] There are a total of twenty-six academics that have researched eGovernment policy. The European Union has a policy context problem according to Princen and Timmermans.[30] An increasing number of scholars have analysed the EU as a functioning political system rather than a developing integration project. The main research in the area of policy is divided between applying mainstream theories from public administration and public science, while others have formulated theories that are European Union context specific. This policy problem reflects the 'sui generis' character that many ascribe to the European Union, neither a pure international organisation nor a national state. Formulating theories that cover both domestic and EU policy making dynamics would offer two benefits; the potential for theory building and learning across students of domestic and EU politics will be increased, and the it creates the possibility to identify more clearly in what respects these various political systems differ and in what respects they are alike.

7. EPARTICIPATION

eParticipation is the participation supported by Information and Communication Technology in processes regarding government and governance. Processes in this case may concern administration, service delivery, decision making, and policy making. The term participation means taking part in joint activities for the purpose of reaching a common goal. eParticipation is also the use of Information and Communication Technology for a better participation in democratic debate and better decision making.[31] There are a total of twelve academics that have researched eParticipation. Macintosh[32] defines eParticipation as efforts to broaden and deepen political participation by enabling citizens to connect with one another and with their elected representatives using Information and Communication Technologies. This research area requires a novel combination of technical, social, and political measures.

8. ESERVICE DELIVERY

eService delivery is about providing governmental services at all levels with the use of the Internet. eService delivery may vary from publishing information on public service delivery on a website, e.g. in product catalogues. Public services are becoming increasingly personalised, by focussing on user friendliness and accessibility. Some examples of eService delivery also clearly emphasise the increased efficiency due to the re-engineering of back-

[29] www.glossar.iwv.ch, eGovernment Glossary Online.
[30] Princen, S & Timmermans, A, *"Policy Studies in a EU Context"*, 2005, *NIG 05* Conference
[31] www.europa.eu.int, European Commission Online.
[32] Macintosh, A, *"Understanding eParticipation"*, 2006, dg.o2006 Conference

office processes.[33] There are a total of seventeen academics that have researched eService delivery. Milicevic, Gareis, and Korte[34] have written a paper concerned with user oriented online public service provisions within the European Union. The paper presents the areas that should be addressed by policy makers and service providers. They outline that the discussion around online public services has recently put much stress on the high diversity of a user's needs and preferences. In addition they state that online public services are not being used to their full potential. The issue of under-used online services is equally relevant a phenomenon and is regularly traced back to user orientation in a wider sense.

9. eSERVICE INTEROPERABILITY

Many services offered by government organisations are interdependent and citizens often need a number of different public services at the same time. eService interoperability is the electronic service involving interoperability between computer systems. It includes, but is not limited to, electronic data interchange and messaging service. The focus is on preserving the information content so that the information receiver without loss or change of meaning can use it. [35] There are a total of thirty academics that have researched eService interoperability. Zangl, Werth, and Adam[36] have written a paper on providing pan-European public services through an interoperability framework. The interaction of processes from public service needs which must be integrated in an interoperable infrastructure. Such a solution was developed in the EU project 'InfoCitizen' on a conceptual and technical level.

10. eVOTING

eVoting is the possibility to exercise one's political rights with the help of Information and Communication Technology via the internet or mobile phone. This includes ballots and signings of initiatives and referendums. eVoting in a narrower sense also means that ballots are simply on a website. They are used for opinion research or questionings of customers.[37] There are a total of twenty-eight academics that have researched eVoting.

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[33] Leitner, C, 2003, *"eGovernment in the Europe: The State of Affairs"*, Presented at the eGovernment 2003 Conference Como, Italy. Published by the European Institute of Public Administration, Maastricht, The Netherlands.

[34] Milicevic, I, Gareis, K & Kort, W. B, *"Making Progress Towards User Orientation in Online Public Service Provision in Europe"* , 2005, *eChallenges 05* Conference

[35] www.cabinetoffice.gov.uk, UK Cabinet office of the e-Envoy.

[36] Zangl, F, Werth, D & Adam, O, *"Providing Pan- European Public Services through an Interoperability Framework"*, 2005, *eGoveInterop 05* Conference

[37] www.glossar.iwv.ch, eGovernment Glossary Online.

Volkamer and Krimmer[38] have written about the anonymity in Internet based voting protocols. Internet based elections and ballots via the Internet bring great benefits. But at the same time, new possibilities to manipulate the elections will arise; besides other network specific attacks, sniffing of the network traffic becomes interesting. According to Volkamer and Krimmer the problem is the voter's IP (Internet Protocol) address and the fact that in practice there is no anonymous communication channel.

11. GEOGRAPHICAL INFORMATION SYSTEM (GIS)

A geographic information system is a system for creating and managing spatial data and associated attributes. In the strictest sense, it is a computer system capable of integrating, storing, editing, analyzing, sharing, and displaying geographically referenced information. In a more generic sense, GIS is a 'smart map' tool that allows users to create interactive queries, analyze the spatial information, and edit data. There are a total of five academics that have researched geographical information system. Berntzen, Steinmann, and Krek[39] have written a paper on the innovative use of geographical information systems. According to them, web based access has made it possible to use geographical information systems as a tool for enhancing democracy, enabling transparency, and providing new services. They have developed an innovative system that includes the establishment of 'map hostels' and a web-based interface that allows voluntary organisations and citizens to provide their own map data for public consumption.

12. GOVERNMENT TO BUSINESS AND GOVERNMENT TO CITIZENS (G2B/G2C)

Government to business and citizens describes the relationship, based on Information and Communication Technology, between the public and the private sector. Relationships exist not only between the government and individuals, but also between the government and corporate bodies. Most of the relationships of the government can be found in the dimension G2C or C2G. Thereby, G2C includes a broad variety of relationships between the government and the citizen e.g. citizens as a subject of the state or as a classical client of the state.[40] There are a total of fourteen academics that have researched government to business

[38] Volkamer, M & Krimmer, R, *"Secrecy Forever? Analysis of Anonymity in Internet Based Voting Protocols"*, 2006, *ARES 06* Conference
[39] Berntzen, L, Steinmann, R & Krek, A, *"Innovative use of Geographical Information Systems to Facilitate Collaboration between the Government and Citizens", 2005, eChallenges 05* Conference
[40] www.glossar.iwv.ch, eGovernment Glossary Online.

and government to citizens. Poelmans[41] has examined what citizens can expect when eGovernment is implemented. He explains that a prerequisite for measuring the eGovernment from the demand side instead of the supply side is to know what citizens expect from eGovernment. In the relation of government to citizen it is important to know what government promises to citizens, what citizens are actually being offered, and what citizens themselves consider important.

13. GOVERNMENT TO GOVERNMENT (G2G)

eGovernment can offer a range of services for communication between government agencies. One of the early steps is to deploy various electronic forms that help government agencies communicate with each other. State agencies will improve services and increase the efficiency and effectiveness of government operations through collaboration, communication, and data sharing between government agencies at all levels.[42] There are a total of twenty-seven academics that have researched government to government. Riedl[43] has identified in his paper the engineering eGovernment platforms and given government to government solutions to the problems that arise in this area. These problems mainly deal with heterogeneity on all levels including: ontology, laws, processes, administrative cultures, and citizens' expectations and technology. To address this problem he suggests using high quality blueprints and implementing low risk development processes.

14. IDENTITY MANAGEMENT

Identity management is an integrated system of business processes, policies, and technologies that enable organizations to facilitate and control their users' access to critical online applications and resources, while protecting confidential personal and business information from unauthorized users. It represents a category of interrelated solutions that are employed to administer user authentication, access rights, access restrictions, account profiles, passwords, and other attributes supportive of users' roles/profiles on one or more applications or systems.[44] There are a total of thirty academics that have researched identity management. Lips and Taylor[45] explain the content of identity management as digitalizing of a citizens' identity, and dependent on the service sought, and taking measures by government

[41] Poelmans, M, *"The e-Citizen Charter, e-Quality Promoting Equality between Citizens and their Government"*, 2005, *eChallenges05* Conference
[42] www.glossar.iwv.ch, eGovernment Glossary Online.
[43] Riedl, R, *"Engineering eGovernment Platforms and G2G Solutions"*, 2005, *eGovInterop 05* Conference
[44] www.wikipedia.org, Internet Encyclopaedia Wikipedia.
[45] Lips, M & Taylor, J, *"Electronic Government: Towards New Forms of Authentication, Citizenship and Governance"*, 2005, OII Safety and Security 05 Conference.

to authenticate that identity online. This process then allows for registration to the service arena, for an assessment of entitlement to the service, and in some cases for a transaction to be completed in this online environment. The process allows for denial or access to the service.

15. INFRASTRUCTURE

Infrastructure, most generally, is the set of interconnected structural elements that provide the framework for supporting the entire structure. The technical infrastructure is based on different technical standards, which in turn means that the knowledge and expertise of the Information and Communication Technology staff can, when necessary, only be fragmented. Information infrastructure enables cooperating organisations to create a flexible variant of chain integration. "The inter-organisational information infrastructure can be seen as a takeover of the boundary spanning functions, normally performed by street level bureaucrats with their typical high levels of professionalism. With the international information infrastructure put in place, organisations can accommodate much more dynamic situations, more interdependencies, and more complexity without decentralising their control structures." (Zuurmond, A, 2005:13) There are a total of six academics that have researched infrastructure. Gadda, Perdoni, and Savoldelli[46] have built an innovative knowledge management infrastructure within European public administration. They have developed the KIWI project, which improves upon the insertion of an information database, thus enabling public employees to access anywhere and anytime relevant knowledge, transformed from implicit to explicit, through mobile devices. It involves an organisation and a management change between headquarters and branches.

16. INTEROPERABILITY

Interoperability means the capacity to inter-link systems, information, and ways of working. This kind of interoperability of information systems allows integrated provision of services in a one-stop portal, no matter how many different administrative systems or bodies are involved. But interoperability is not just a question of linking up computer networks; it also concerns organisational issues, such as inter-working with partner organisations that may well have different internal organisation and operating methods.[47] There are a total of twenty

[46] Gadda, L, Perdoni, V & Savoldelli, A, *"KIWI: Building Innovative Knowledge Management Infrastructure Within European Public Administration. The Case of Prefecture of Milan."*,2005, *eGoverInterop 05* Conference
[47] www.europa.eu.int, European Commission Online.

academics that have researched interoperability. Andersen, Klischewski, and Scholl[48] explain in their paper about eGovernment infrastructure and interoperability that the vision posed by government is dependent on and leads to increased vertical and horizontal integration of government operations and services. Business processes and supporting information and technology infrastructures will be redesigned, streamlined, interfaced, and integrated across government levels and branches presumably leading to gains in internal effectiveness and efficiency as well as to improved internal and external services. The normative integration process poses technical, organisational, managerial, and also statutory and constitutional changes.

17. LEGAL FRAMEWORK

A legal framework is a pre-condition for the development of the information society for users. This precondition is to have trust in the reliability, security, and integrity of electronic communication systems. One of the crucial components of trust in Information and Communication Technology is information privacy, which demands the creation of a trusted framework for the collection, exchange, and use of personal data in commercial and governmental context. Data protection laws permit, and even facilitate, the commercial and governmental use of personal data while providing to individuals control over what to disclose.[49] There are a total of five academics that have researched the legal framework. Carlson[50] states that it is generally accepted that the global information society needs comprehensive and effective privacy protection in order to build trust and confidence on the part of its participants. But he also states that the potential advantages in terms of enhancing citizens' trust in the benevolence of eGovernment greatly outweigh any abstract danger to the state in the form of individuals misusing the system. According to him, online privacy protection policies and data protection laws need to be upgraded.

18. MOBILE EGOVERNMENT

Mobile eGovernment is the extension of eGovernment to mobile platforms, as well as the strategic use of government services and applications which are only possible using cellular/mobile telephones, laptop computers, personal digital assistants, and wireless internet infrastructure. Proponents of mobile Government argue that it can help make public

[48] Andersen, K, V, Klischewski, R & Scholl, H. J, *"Introduction to the 2006 Minitrack on eGovernment Infrastructure and Interoperability"*, 2006, HICCS 39 Conference
[49] www.internetpolicy.net, Global Internet Policy Initiative.
[50] Carlson, C. N, *"e-Citizenship and its Privacy Protection Issues"*, 2006, *ECEG 06* Conference

information and government services available 'anytime, anywhere' and that the ubiquity of these devices mandates their employment in government functions. An example of such beneficial use of mobile technologies would be the sending of a mass alert to registered citizens via short message service in the event of an emergency. There are a total of seven academics that have researched mobile government. According to Krimmer, Moon, and Hackney[51] the use of mobile devices has reached higher rates of penetration than Internet adoption. The development of smart phones that use the Internet for data and voice along with enhanced GPS capabilities has resulted in a number of eGovernment applications, which are not only suited for mobile government internal uses, but also for serving the citizens.

19. ONTOLOGY FOR POLICY

In computer science, ontology is a data model that represents a domain and is used to reason about the objects in that domain and the relations between them. Ontology is a tool for a community to agree upon the meaning of terms and relations so that they may be used to reliably shared knowledge and information used in policy.[52] There is only one group of persons that has conducted research in ontology for policy. Segev and Gal[53] have written a paper that describes the problem associated with multilingual systems in the local government. They have developed multilingual ontology's that can allow the correlation between different local governments and their appropriate languages and topics of interest. Thus the one representation of ontology allows multiple mappings from each language to the same ontology.

20. POLITICAL ACTORS ONLINE

Political actors use the web to be transparent, and to inform the citizens of their activities. One of the forms to be online is with the use of blogs, which help to shape the political agenda. Other examples of the use of the Internet by political actors are for campaigning and polling.[54] No academic has conducted research considering political actors online.

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[51] Krimmer, R, Moon, M.J & Hackney, R, *"Mobile eGovernment (M-Government)"*, 2006, *HICCS 39* Conference

[52] www.wikipedia.org, Internet Encyclopaedia Wikipedia.

[53] Segev, A & Gal, A, *"eGovernment Policy Evaluation Support Using Multilingual Ontology's"*, 2005, *eGovInterop 05* Conference

[54] www.ipdi.org, Institutes for Politics Democracy and the Internet.

21. REGISTRATION

Registration is to collect inter-related data from one specific database, relating to governmental branches. The idea is to collect as much inter-related data as possible in one place, thereby resulting into a decrease of the administrative burden.[55] There are three academics that have researched registration. Forster[56] introduces the Belgian administration where they have developed two central registers: one for economic operations and one for citizens. Data collection processes are the key to data quality, a unique identifier should be used as a primary key in data exchanges, search functionalities are not optional, centralised coordination and quality control are needed, and one should not store data centrally if there are no more than two data consumers.

22. SECURITY

Security is the collection of safeguards that ensures the confidentiality of information, protects the systems or networks, and is used to process it and control access to it. Hence, security safeguards impose appropriate access rules for computer information.[57] There are twenty- six academics researching security. White, Cresswell, and Jones[58] suggest that the critical infrastructures in the security issue are those sectors whose loss would have a severe detrimental impact on the nation and the ability to conduct business and government operations. Government organisations should be familiar with the importance of testing of cyber incidents and the ability to respond emergency and security situations. Information and Communication Technology can help to enhance the ability of governments to ensure the safety and security of citizens.

23. SHARED SERVICES

Many government organisations have common business processes and therefore decide more and more to outsource these business processes to shared services. "Organisations (may) agree on a shared service centre, which executed the actual process or a part of that process. A new organisation is set-up in which all the participating organisations have some influences, e.g. by participating in its governance, or the process is assigned to existing

[55] www.stroomlijningbasisgegevens.nl, Stroomlijning Basis Gegevens.
[56] Forster, S, *"Common Registration of Economic Actors"*, 2005, *IDABC 05* Conference
[57] www.europa.eu.int, European Commission Online.
[58] White, G. B, Cresswell, A. M & Jones, S, *"Introduction to the 2006 Minitrack on the eGovernment Security"*, 2006, *HICCS 39* Conference

organisations."[59] Shared services are the convergence and streamlining of an organisation's functions to ensure that they deliver the organisation the services required of them as effectively and efficiently as possible. This often involves the centralising of back-office functions such as Human Resource and Finance, but can also be applied to the middle- or front-offices. A large-scale cultural and process transformation is often a key component of a move to shared services. Shared services are more than just centralisation or consolidation of similar activities in one location, called service centres, but shared services mean running these service activities like a business and delivering services to internal customers at a cost, quality, and timeliness that is competitive with alternatives, such as outsourcing.[60] There are twelve academics researching shared services. Corradini, Polzonetti, and Riganelli[61] stress that the evolution of Information and Communication Technology outsourcing in shared services can significantly support the development of eGovernment processes. This is necessary since the introduction of a digital government requires a considerable involvement of resources that can be unsustainable for small public administrations. Shared service centres can help to overcome problems that arise in this field.

24. TRANSFORMATION

Due to Information and Communication Technology governmental organisations are able to change fundamentally. The impact of the transformation will not only depend on technology but also on organisational resources and strategic vision. Transformation is how to move beyond the traditional public administrations that are based on hierarchical and bureaucratic processes. Thus investing in organisational change and not just in technology is essential.[62] There are twenty-five academics researching transformation. Lenk, Brüggemeier, and Reichard[63] add that eGovernment transformation is concerned with the structure of the authority and the control of eGovernment. Because eGovernment is operated from the roots of the organisation to the daily implementing of clerical work, organisation reform is possible.

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[59] Meester, M and Jörg, P, "*Approaches to Common Business Processes*," in "e-Government for better government," OECD, 2005.
[60] www.wikipedia.org, Internet Encyclopaedia Wikipedia.
[61] Corradini, F., Polzonetti, A & Riganelli, O, "*Shared Service Centre for eGovernment Policy*", 2005, *eGovInterop05* Conference
[62] www.europa.eu.int, European Commission Online.
[63] Lenk, k., Brüggemeier, M & Reichard, C, "*eGovernment und die Erneuerung des öffentlichen Sektors*", 2005, summary in the journal *LIT verlag Münster-Hamburg-Berlin-Wien-London*.

25. VISION

The vision of eGovernment considers the government in the next five- to ten years. Answers will be given to questions like how will the government be organised by then, and what will be the situation regarding citizens and businesses relation. The vision specifies the objectives of eGovernment in the long run. Strategy grids, scenario analyses, and estimates on future developments can be used to figure out these objectives.[64] There are thirty- seven academics researching vision. Burgelman, Centeno, and Bogdanowicz[65] explain that eGovernment has lead to new needs that have to be adjusted to Lisbon Targets, demands, and the enlargement of the European Union. eGovernment has to be considered beyond being 'only' a policy for complementing or substituting deficiencies in present day government. Future trends will be considered with offering potential for location based and social or cultural specific solutions for the extreme mobile and diversified society the European Union will be in 2010. Vision building of European Union 2010 is essential, the needed services and demands and the according technologies, bottlenecks, policies, and strategies.

The sub-question that initiated this chapter was: *"Which themes are being researched by academics?"* The themes that are indicated were the result of collating four hundred paper and presentations titles. The number of academics that are identified as researching a specific theme is introduced as well. This number will not be used for an analysis at this stage, but will at a later stage. However, it already gives a good impression of the 'popularity' of the theme. This chapter provided an overview of all the dimensions of eGovernment from an academic perspective. The next chapter will introduce the practice of eGovernment.

[64] www.ercim.org, ERCIM news.
[65] Burgelman, J.C, Centeno, C & Bogdanowicz, M, *"eGovernment in EU in 2010: Key Policy and Research Challenges"*, 2005, *IDABC 05* Conference

5. PRACTICE RESEARCH

The sub-question of this chapter is *"At which themes is action being taken in practice?"* The European Union countries at the eEurope Awards conference present this practice research. The European is known for its strategy to make Europe a prosperous and high competitive region regards to other economic strong continents like the United States of America. eGovernment is one of the strategies that can increase the possibility for a member state to become more interactive and therefore operate more efficient, accounting for a part of the European Union. Therefore the goal of the European Union is to make each member state within its borders to become as eGovernment minded as possible. A couple of strategies have been set out in order to support the eGovernment developments within each member state as well as to encourage member states to see the importance of eGovernment implementations. These strategies will be introduced and reflected upon in the first part of this chapter.

Since the European Union is very interested in the eGovernment concept, questions have arisen regarding its implementation. Is there a connection between European Union membership and eGovernment? Are the most prosperous member states also the most active in eGovernment, and is one a result of the other? The latter question is of course hard to answer, but in general the most important question that has risen is; does the European Union contribute to the development of eGovernment within the member states of the European Union? By knowing this, the specific themes will also give a good identification of the sort of eGovernment that has been of interest within these countries and their relations with the European Union. For the purpose of this research each European Union member state has been grouped together according to their regions, thereby providing a better overview of their eGovernment general and theme specific practice. This research will be introduced in the second part of this chapter.[66]

[66] www.cia.gov, The Worlds Factbook.

5.1 EGOVERNMENT AND THE EUROPEAN UNION

5.1.1 THE LISBON STRATEGY

The European Union supports the evolvement of eGovernment through multiple initiatives and programmes. The European Union acknowledges that eGovernment affects the lives of the citizens in general and provides protection, control and cooperation where needed. The main themes that are displayed throughout all the programs are illustrated in the 'eEurope 2005 Action Plan.' The main aim is described as "to stimulate secure services, applications, and content based on a widely available broadband infrastructure."[67] The focus of the 'eEurope 2005' is on the user, which includes improved participation, the opening up of opportunities for everyone, and the enhancement of skills. The focus of the 'Action Plan' is on the one hand at stimulating services, applications and content, covering both online public services and e-business, and on the other hand at addressing the underlying broadband infrastructure and security measures. The four interrelated tools to reach this aim are: policy measures, facilitating the exchange of experiences in good practice, monitoring and benchmarking, and the overall coordination of existing policies.

The 'eEurope 2005 Action Plan' is part of the Lisbon Strategy to make the European Union "the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and social cohesion" by 2010.[68] The Lisbon Summit was designed to mark a turning point for the European Union's enterprise and innovation policy. The main aim is to support the high-level integration of social and economic policy with practice initiatives to strengthen the European Unions research capacity, to promote entrepreneurship, and to facilitate the adoption of Information Society Technology. There are three principal issues that had to be realised by European Unions member states: investments in Research and Development of three percent of the Gross Domestic Product, reduction of red tape to promote entrepreneurship (i.e. reduction of needlessly time-consuming procedures), and achieving an employment rate of seventy percent for men and sixty percent for women.

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[67] http://europa.eu.int/information_society/eeurope/2002/news_library/documents/eeurope2005/execsum_en.pdf Executive summary *"eEurope 2005 Action Plan- An Information Society for all"* communication from the European Commission to the Council, the European Parliament, the European economic and social committee and committee of the regions.

[68] Groenendijk, N. S, 2005, *Simulation Game European Institutions (176419) - The Lisbon Agenda and the MAFF 2007-2013.*

The i2010, which stands for European Information society in 2010, is an initiative that seeks to provide an integrated approach to the Information society and audio-visual policies in the European Union. This integrated approach includes regulations, research, employment, and the promotion of cultural diversity. The focus of this programme is on fast and visible results, building on an optimistic outlook for Information and Communication Technology industries and markets, while encouraging fast growth built around the convergence at the levels of networks, services, and devices. The main objective is to ensure that the citizens of the European Union, businesses, and governments make the best use of Information and Communication Technology in order to improve industrial competitiveness, support growth, support the creation of jobs, and meet key societal challenges. eGovernment is one of the key elements laid out in the Information Society Action Plan i2010. The main aim of eGovernment is to bring administration closer to the citizens and businesses by providing online services.

According to a group of senior nationals, eGovernment can contribute to the Lisbon Strategy, and they have proposed a re-focus on the European Unions eGovernment strategy for bolstering administrative efficiency to meet the competitive objectives. The following issues are a part of the proposed refocuses:

- Transforming public administration to speed up the responses to business and citizens to help deliver the Lisbon competitiveness objectives in 2010,
- Define concrete targets for 2010 like; reducing the administrative burden for businesses and citizens with twenty-five percent, ensure interoperability of pan-European public services using open standards, and define common measurements for efficiency, red tape trust and security of online public services.
- Improve finance issues (ease of access, standard set of measurements).

According to these senior nationals eGovernment is expected to improve and accelerate administrative efficiency in order to reach the European Unions Lisbon targets of economic growth and competitiveness.[69]

5.1.2 THE EEUROPE AWARDS

To promote the intentions mentioned above, the yearly eEurope Awards have been established. The overall goal of the eEurope Awards is to promote the best practices among the European Union, candidate countries, as well as among the European Free Trade Area

[69] www.euractiv.com, an independent media portal fully dedicated to EU affairs.

countries, which cover eGovernment and other areas, and are part of the 'eEurope 2005 Action Plan'. With this award conference the European Union hopes to facilitate the sharing of experiences and mutual learning from each other in order to meet the Lisbon Targets. The aim of the award conference is to highlight and disseminate efforts made by European national, regional, and local administrations using Information and Society Technology in order to increase efficiency and performance and to improve the quality and accessibility of public services.

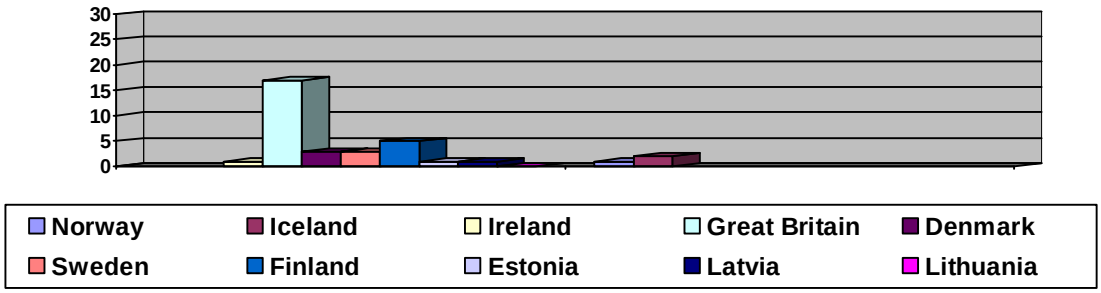
In total there have been four eEurope Award shows; eGovernment 2003, eHealth 2003, eHealth 2004, and eGovernment 2005. For this research the eGovernment Awards of 2003 and 2005, respectively held in Como, Italy, and Manchester, Great Britain, will be examined. For the purpose of this chapter, which is to introduce the eGovernment in European context, the eGovernment practice efforts of each European Union country will be highlighted based on information from these conferences. The winner of the eGovernment Awards in 2003 were: *Bremen Online Services* (Germany), *HELP- Virtual Guide to the Authorities* (Austria), and *Institutions and Tax Information between public administrations* (Spain) and in 2005: *KSI ZUS- social security Poland* (Poland), *EID* (Denmark), *Kadaster-on-line* (the Netherlands), and *Revenue Online Service* (Ireland).

5.2 PRACTICE RESEARCH AND EGOVERNMENT THEMES

	Transformation	*Vision*	*eGovernment Policy*	*Interoperability*	*eDemocracy*	*eVoting*	*eParticipation*	*Political Actors Online*	*Legal Framework*	*Ontology for Policy*	*eService Delivery*	*G2B/G2C*	*G2G*	*Process Architecture*	*Business Process Redesign*	*eService Interoperability*	*Application Architecture*	*Decision Support System*	*Data Architecture*	*GIS*	*Registrations*	*Technical Architecture*	*Infrastructure*	*Identity Management*	*Security*	*Mobile eGovernment*	*Shared Services*	*Best Practice/Benchmarks/Measurement/Research*	***Total***
Ireland			1					1													1								***3***
Great Britain			1		1	2	1					4	1	1							2						2	2	***17***
Iceland							1					1																	***2***
Norway																				1									***1***
Denmark				1			1					1																	***3***
Sweden												1	1								1								***3***
Finland								1				2									1								***4***
Estonia						1																							***1***
Latvia						1																							***1***
Lithuania																													***0***
Poland													2																***2***
Czech Republic	1												1																***2***
Slovekia																													***0***
Hungary																						1					1		***2***
Romania															*1*														*1*
Bulgaria																					*1*								*1*
Turkey																					1								***1***
Cyprus																													***0***
Greece			1									1																	***2***
Malta																										1			***1***
Italy			1	1					1		1	4	1				1			1	3		1	2				1	***18***
Slovenia												1																	***1***
Spain					1	1	1				1	3									1								***8***
Portugal																				1								1	***2***
France				1								2				1					2						1		***7***
Switzerland						2						1																	***3***
Austria					2	2	2				1	3		3			1				1			4	1			1	***21***
Germany				1	1		1		1		2	5	2		1				1		2			3	1		2	3	***26***
Netherlands	1	1													1						2						1	1	***7***
Belgium				1			1					2			2	1				1	2			1				1	***12***
Luxembourg																													***0***
Canada	1																											1	***2***
USA		1											1						1					1				1	***5***
Brazil						1																							***1***
South Africa																												1	***1***
Iran																												1	***1***
Iraq													1																***1***
Philippine	1																												***1***
Japan											1																		***1***
China									1				1																***2***
Total	***4***	***2***	***4***	***5***	***5***	***10***	***8***	***2***	***3***	***0***	***6***	***31***	***11***	***4***	***5***	***2***	***2***	***0***	***2***	***4***	***20***	***1***	***1***	***11***	***2***	***1***	***7***	***14***	***167***

The above table provides an overview of the themes and the European Union countries that are performing eGovernment practice research on them. As can be seen, the most researched themes are government to business and citizens, registration, best practice, benchmarks, measurement and research, identity management, government to government, and eVoting. All of the themes mentioned are represented by ten or more practice research papers. But how are these themes connected to the Lisbon Strategy of the European Union? The following section will introduce the practice research, member state specific. The goal of this exercise is two-fold: to identify which of the European Union countries seem to have eGovernment high on their agenda, and whether there is an explanation as to their position with regard to the European Union. Each country will be introduced according to their regional position within the European Union. The bulk of the information is presented in the eEurope Awards conference in 2003 and 2005, while there are a few practice researches originating from additional conferences. The countries are introduced in geographical order. First North Europe is introduced, then East Europe, followed by South and West Europe, finally ending with a short introduction of research in the rest of the world.

5.2.1 NORTH EUROPE

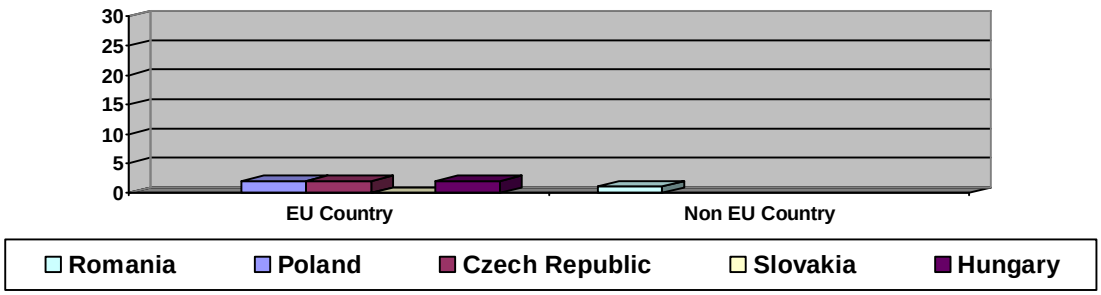


First the **North European Union** countries are being examined. Together they have presented thirty-four eGovernment practice research papers. As can be seen from the chart, Great Britain has contributed by far the most research papers, accounting for half of the total. Great Britain entered the European Union in 1973. The research of Great Britain is mainly concentrated on a government to business and citizens theme, which is in line with the focus of the European Union. Finland that entered the European Union in 1995, follows Great Britain in the eGovernment practice research, and also concentrates its research mainly on the field of government to business and citizens. Other countries that are active in the eGovernment practice research are Denmark and Ireland who entered in 1973, and Sweden who entered in 1995, which can be noted for their similar interest in the field of registration,

while other areas are very diverse. Denmark and Ireland are especially successful in their eGovernment application, as they were the ones that were awarded with an eEurope Award in 2005 by the European Union. Estonia and Latvia, who both entered the EU in 2004, did contribute to the eGovernment practice research although with only one research paper each in the field of eVoting. Lithuania (2004) is the one Northern European Union country that did not contribute at all to practice research.

The Northern **non European Union** countries that contributed to the eGovernment practice research are Iceland and Norway. Neither of these countries are a part of the European Union but are a part of the European Free Trade Area countries, thus are a part of the European Economic Area and therefore are able to participate in the aspects of the European Union's single market. Iceland has presented two papers, while Norway has introduced one paper only.

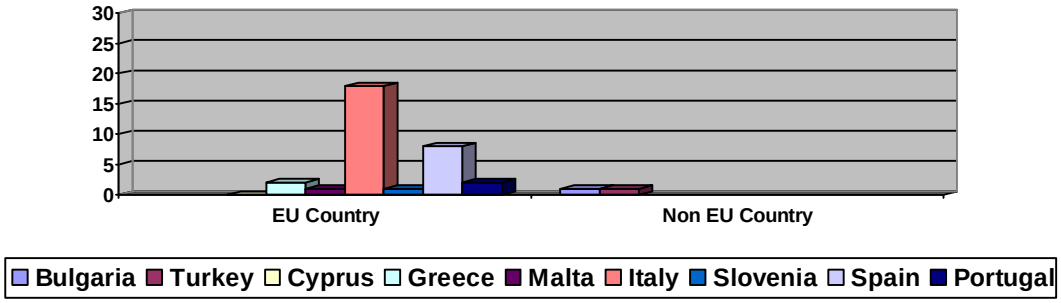
5.2.2 EAST EUROPE



It can be concluded that in general the **East European Union** countries did not contribute much to the eGovernment practice research with a total of merely six research papers. Poland, Czech Republic, and Hungary, have presented two research papers each, whereby Poland is an important contributor since it won an eEurope Award in 2005. These papers are mostly concerned with the field of government to government. Slovakia has not presented a paper. All of the east-European Union countries entered in the year 2004 and have still growing economies.

Romania is the only **Eastern non-European Union** country that did do research in the eGovernment and has presented one practice research paper. Romania, as Bulgaria, will be a European Union member state beginning on the first of January, 2007.

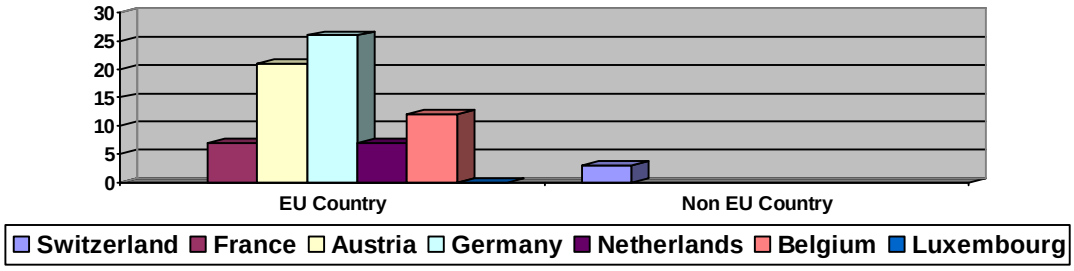
5.2.2 SOUTH EUROPE



The **South European Union** countries are diverse in their eGovernment practice research. They, like the Northern countries, produced thirty-four research papers whereby Italy presents the majority with eighteen research papers. The papers presented by Italy, who is a part of the European Union from the beginning in 1957, concentrate on the government to business and citizens theme. Spain, who entered in 1986, is also well represented in this diagram and follows Italy with eight papers. Unlike Italy, Spain did win an eEurope Award (in 2003) and, therefore, is to be noted for its eGovernment implementation. Other Southern European Union countries that performed practice research in eGovernment are Greece (1981) and Portugal (1986), each with two contributions. They are followed by Malta and Slovenia, who both entered in 2004, each with one paper on eGovernment practice research. Malta is the only country that has conducted research in mobile eGovernment. Cyprus, who also entered the European Union in 2004, is the one Southern European Union country that did not present any eGovernment practice research papers in the conferences reviewed.

Bulgaria and Turkey are the **Southern non-European Union** countries that presented an eGovernment practice research. Bulgaria is not yet a part of the European Union but will starting on January, 2007 together with Romania. Turkey is an official candidate for European Union membership, but with its economy as its main barrier may be barred. Both contributed one paper in the field of registration.

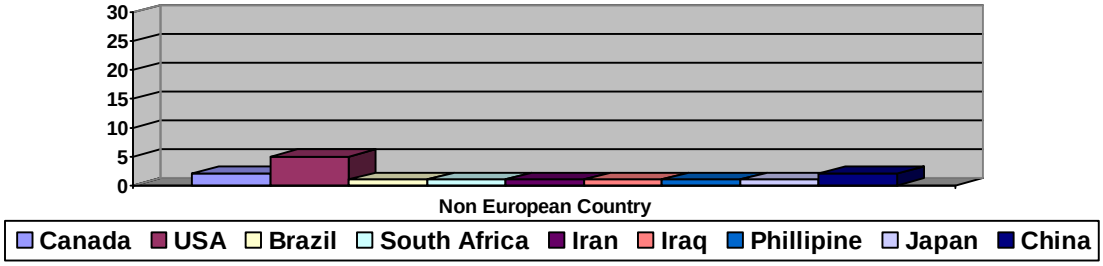
5.2.3 WEST EUROPE



The **West European Union** countries are in general very well represented in the eGovernment practice research. There are a total of seventy-six research papers introduced, whereby both Germany and Austria account for the majority, totalling forty-seven. Germany, who is a co-founder of the European Union in 1957, has a total of twenty-six eGovernment practice research papers and is most interested in the government to business and citizen theme, followed by best practice, measurement, benchmark and research, and identity management. Austria, who entered the European Union in 1995, has presented a total of twenty-one research papers, mostly concentrating on the identity management, government to business and citizens, and process architecture themes. Both Germany and Austria were rewarded for their eGovernment efforts with an eEurope Award in 2003. Germany and Austria are followed by Belgium, who is also a co-founder, and accounts for twelve papers. The subjects of the papers are very diverse, ranging from the government to business and citizens, business process redesign, to the registration theme. France and the Netherlands are both co-founders, and both account for seven eGovernment practice research papers each, and both are regularly addressing the registration theme. The Netherlands won an eEurope Award in 2005 for its eGovernment practice. Luxembourg, who is also a co-founder, is the only west European Union country not being engaged in eGovernment practice research.

Switzerland is the one western European country that is **Western non-European Union**, but it is a part of the European Free Trade Area together with Norway, Iceland, and Liechtenstein. Switzerland has presented a total of three eGovernment practice research papers, which mostly concentrate on the eVoting theme.

5.2.4 REST OF THE WORLD



Non-European countries also presented practice research papers on eGovernment; a total of fifteen papers were found. The United States of America accounts for the majority of the research with five research papers. When comparing the themes of the countries it can be seen that the subject of the research papers are very diverse. Canada and China presented two eGovernment practice research papers each, while all other countries presented only one each. This does not exclude the possibility that these countries are making an effort in the field of eGovernment, or that they would not be active in other eGovernment practice research themes.

To conclude regarding the question *"At which themes is action being taken in practice?"* two issues are pursued: (1) to identify the eGovernment themes that are most frequently being discussed, and (2) to determine if there is a connection between European Union membership and the interest in eGovernment. After putting the eGovernment themes and the European Union member states in a diagram, it could already be seen that the government to business and citizens theme was discussed the most. A deeper examination of the specific member states showed the same results. Another theme that often has been discussed is registrations. Both the themes government to business and citizens and registration seem to be aligned with the Lisbon Targets to ensure that the citizens of the European Union, businesses, and governments make the best use of Information and Communication Technology in order to improve industrial competitiveness, support growth and the creation of jobs, and meet key societal challenges. Other popular themes are best practice, benchmarks, measurement and research, identity management, government to government, and eVoting.

The second question that was to be examined in this chapter is whether or not there is a connection between European Union membership and eGovernment practice research. The European Union countries that account for the highest number of papers contributed are the

West European Union countries, mostly Germany and Austria. The West European Union member states are also the countries that have been a part of the European Union for the longest period of time; most of them belong to the founders. That said, also to be noted is the fact that Austria, who contributed many papers, is not a part of the European Union for such a long time as many others who also contributed. Maybe even more important, how is it that Luxembourg, who is a co-founder, does not seem to be very interested in eGovernment practice research with not one paper at all? Is it not the European Union's membership that is connected, but size and economy? That would explain why countries like Italy, Germany, and Great Britain are the main contributors. It would also explain why the future (candidate) European Union countries Bulgaria, Romania, and Turkey do not produce a high number of practice research which is also true for the EFTA countries; Norway, Iceland, and Switzerland. Thus better to say that eGovernment is connected with wealth. However, since wealth is connected with European Union[70] membership, there may be an indirect relationship to that membership.

[70] Assumption made on the fact that European Union countries are to have a healthy economy.

6. THE REFLECTION

This section will answer the question: *"What are the eGovernment trends as reflected by academic and practice research?"* Each government domain, as presented in the diagram, will first be discussed regarding its content, followed by an analysis of the figures and representation volume. Also the link between the academic research and the practice research will be examined and possible gaps (blind spots) in the research will be identified. Eventually the trends in the eGovernment research will be evident.

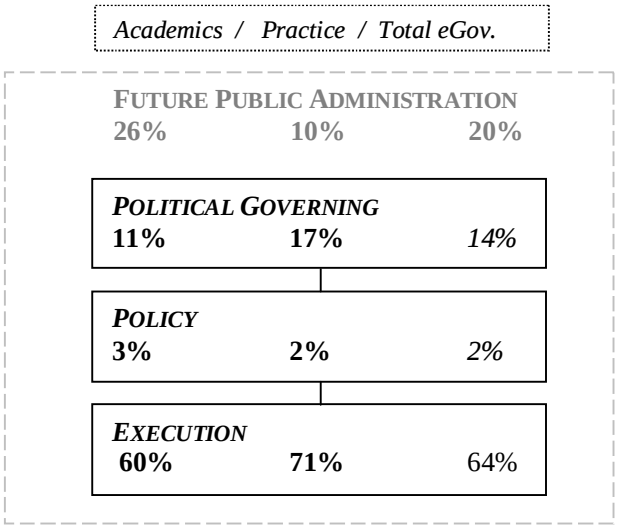
First, the government domains that resulted from clustering the themes for a second time from the themes into the dimensions will be introduced. With this clustering the governmental layers have functioned as the foundation for the naming of the domains. All countries have a public administration that can be divided into layers. Although these layers are not exactly the same for each country they are comparable. The top layer is where the governing of the state, government and the public affairs, is performed. It is the domain where the political parties and its ministers decide on the matters concerned with the governing of the state. This domain is best described with the term *political governing*. When the decisions are being made at the political governing level, they will be translated into policy before being executed, which is mostly done by the ministries. This domain of the public administration is the one that translates the decisions into a plan of action. The term *policy* will be used to indicate this specific domain. The last step in public administration is to make sure that the policy that has been adopted will be implemented. This implementation and execution is being done by the municipalities and independent bodies. This last domain, therefore, will be referred to as the *execution* domain. Nevertheless, these three domains can not function without the overarching domain that is concerned with the mission and vision of the public administration in general; it is the determined strategy. Since this domain covers the whole public administration and is concerned with the future aims, it will be addressed to as the *future public administration*.

Second, the total amount researchers will be identified, distinguished by their academic- and practice research. Each theme introduces figures, and percentages. The figures in the left-hand corner of the diagram present the number of academic research papers. The figures in middle of the diagram present the total number of practice research. The percentages in the right-hand corner of the domain represent the total of academic and practice research in that

specific domain in proportion to the total number of research in eGovernment as a whole. The percentage introduces the diagram total in proportion to the total in the domain, academic and practice specific making comparison between academic- and practice research possible. In light of the Lisbon Strategy and the outcome of the earlier research, to be expected is that the themes closest to the citizens will be the ones most addressed by both academic and practice research.

6.1 THE DOMAINS OF A GOVERNMENT

There are four different domains: future public administration, political governing, policy and execution. A more extensive explanation will be given in the following section.

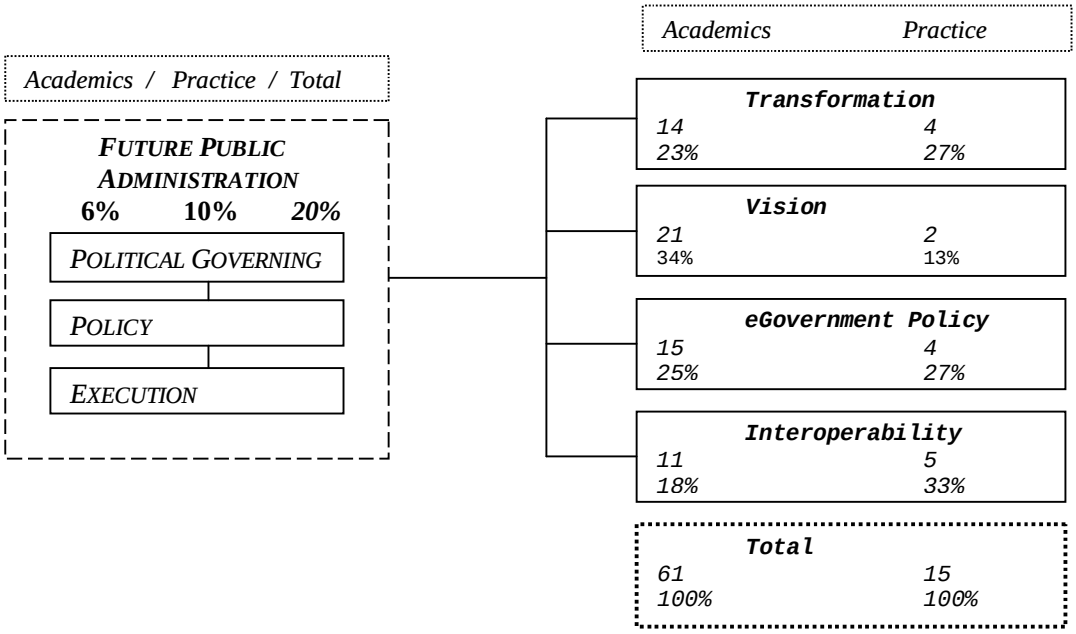


Considering the outcomes of the research that is already being processed we know now that there are a total of twenty-nine themes. The trends that can be expected when we consider the goals of the European Union's Lisbon Strategy are that most eGovernment research will be preoccupied with the themes that are of benefit to the business and citizens, and that will contribute to the economic and social cohesion in order to create stable member states. Therefore when we consider the effect of eGovernment on the domains of government as a whole, we can conclude that there is little attention by both academic- and practice researchers for the influence of Information and Communication Technology on policy (2%). In comparison to other domains, policy is only represented by two percent of the total research, three percent of the academic research, and two percent of the practice research. This is a remarkable result since Information and Communication Technology can be used very profitable in the making of policy which can be exerted by innovations like Semantic web structures and meta-data, whereby Semantic web structures, unstructured data, and meta-data are data about data, like a library catalogue. Apparently academics and practice

researchers have not identified this opportunity of Information and Communication Technology, or do not think this opportunity is worth the effort.

eGovernment is primarily concerned with providing services and with the actual application. In addition to this conclusion, it is further found that execution is the most discussed eGovernment research domain (64%) followed by the future public administration domain (20%), and subsequently by the political governing domain (14%). The execution domain seems to have a major preference regards to the eGovernment study and implementation of Information and Communication Technology in the execution of policy. This is in line with the Lisbon Strategy of the European Union, or can otherwise be clarified that these results are of a direct effect to the citizens and businesses, therefore being the most visible result. The future public administration and policy domains comprise the majority of academic research papers contributed, while the political governing and execution domains have of the most practice research paper contributions. The next section will highlight the domains specific to the identification of the trends within eGovernment.

6.2 THE FUTURE PUBLIC ADMINISTRATION DOMAIN



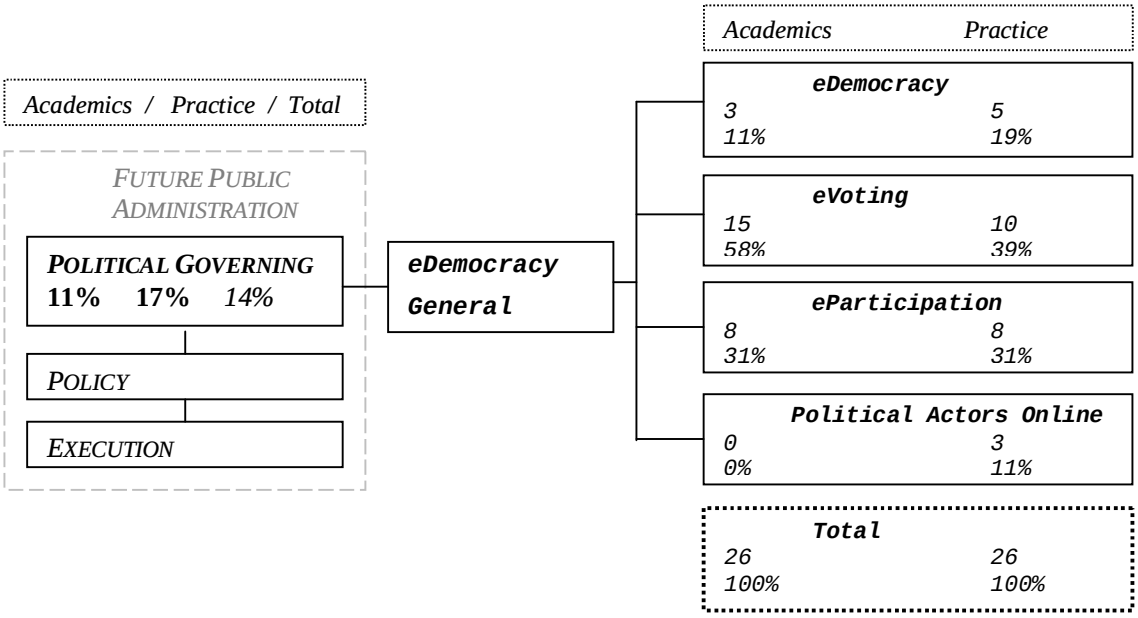
This diagram introduces the first government domain, i.e. the future public administration, which is not an actual visible domain of the public administration, but the academic domain that is concerned with the future of the public administration. Vision, transformation, eGovernment policy, and interoperability are the future public administration themes. Like any other organisation, the vision and the mission are important to structure of the organisation. Vision is the image that the organisation seeks to create while mission is the actual purpose of the being of the organisation. In the implementation of eGovernment it is essential to have a vision and to work towards that vision. Along these lines the contribution of transformation of a government organisation, is being achieved at best when a vision is well described. The transformation process is to change the structure of an organization in such a matter that policy making will be influenced, as well as the organisation and the government itself. Transformation is the qualitative change of an organisation and is "a function that changes the position or direction of the axes of a coordinated system."[71]

In the whole eGovernment research, the future public administration has a majority of academic research (26%) compared to the practice research (10%). The observation of a difference this big is quite striking, since it might indicate a fundamental shortcoming in the practice of eGovernment considering the future of public administration. The fact that many

[71] www.wordreference.com, Internet English Dictionary.

academics do write in this domain may indicate that the implementation phase is on the doorstep, but the small amount of practice research shows us that the implementation phase has not yet been ended successfully. Vision is the theme where the academics have researched primarily both in the total number of research, as compared to the practice research. The eGovernment policy theme describes which policies governments have developed to achieve their view on what future governments will look like. Interoperability is able to realise cooperation between business processes, information systems, and organisational cultures. All have a higher representation of academic research papers, but in comparison to the practice research do not have the majority of the papers published.

6.3 THE POLITICAL GOVERNING DOMAIN



The political governing discusses issues like how the government is elected and how citizens are involved in the eventual policy making. This domain is concerned with how citizens are enabled to execute their democratic rights therefore all contributions in this domain can be allocated to the label of the general eDemocracy. The most significant feature of this domain is the increasing concern with including the citizens in government actions with use of Information and Communication Technologies to replace face-to-face contact. The involvement expresses itself in the form of the sub-domain eDemocracy, which discusses the contributions on how eGovernment is changing our democratic system in general, ranging from eDemocracy in specific to eVoting, eParticipation, and the political actors that are online, although the latter group is quite small.

eVoting is concerned with how the electoral system is affected by Information and Communication Technology. The eParticipation theme discusses how citizens can be involved in the process of policy making. Political actor's online discusses how to use the Internet to communicate with the constituents. It is to be noted that a higher percentage of practice research contributions (17%) appeared than academic research contributions (11%). Practice researchers seem to be more confident with the promises of Information and Communication Technology for the change of the political governing. In the overall political governing research, the research performed by academics represents the same research volume as the research performed by practice researchers. The themes eVoting and

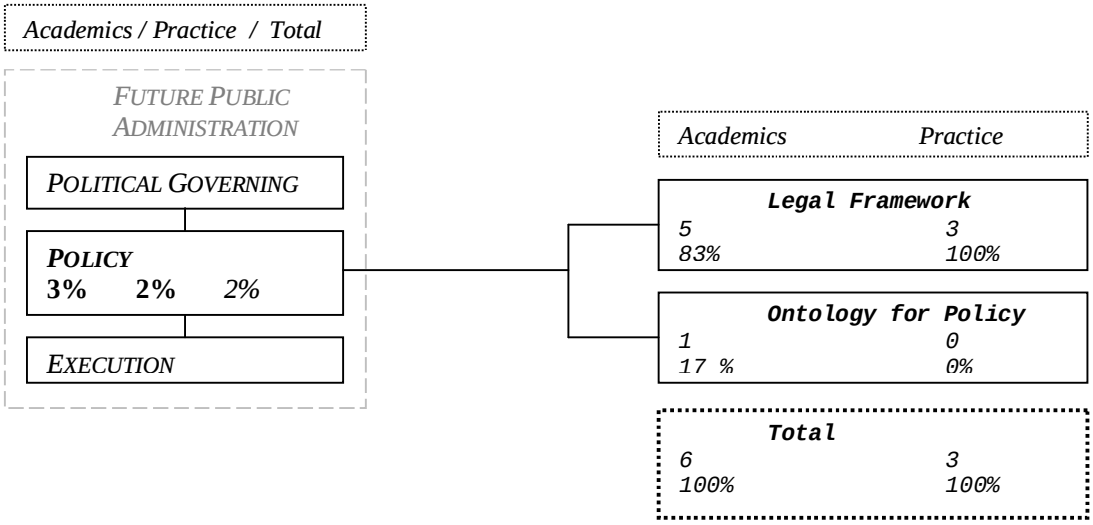
eParticipation are the ones most addressed in the specific political governing domain, opposed to eDemocracy and political actors online, whereby eVoting is the one theme discussed more by academics than in practice research. The academic as well as the practice researchers seem to be especially interested in the change of the voting process and the increase in citizen participation, although it seems that the academic researchers could pay more attention to the eParticipation themes.

Little has been said about the communication between the government and its citizens. Communication in this sense means that the citizens are kept up-to-date with the recent decisions and developments at all levels of government. An example of is the need to communicate to citizens is shown in a report published by 'friends of Europe,' EurActiv, and 'Gallup Europe' titled: "Can EU hear me?" This report deals with the communication deficit of the European Union and the ways its institutions can better connect with Europe's citizens. The report is a multi-annual project and consists of an opinion poll, a survey of political leaders and opinion makers, plus the findings of a study group. Recommendations indicate the desirability to employ popular 'good will ambassadors' to promote the benefits of Europe. Stick in a message to citizens, encourage the media to report on the political differences at EU level, and set up an EU newsroom to supply international media with up-to-date footage. The report ends with the motivation to adopt a decentralised approach by making national governments responsible for communicating EU policies and setting up a 'communication task force' at member state level.[72]

eDemocracy in general receives little attention, thus its focus on the fundamental changes in political governing as a result of eGovernment seems to be out of the research domain of both the academic and practice research. This observation may be defended by the reasoning that academic and practice researchers are more concerned with practical issues, like how eVoting can be technically implemented or how citizen's participation in the policy making can be organised, rather than with the fundamental questions on the actual change of the political governing.

[72] www.friendsofeurope.org, official website Friends of Europe.

6.4 THE POLICY DOMAIN



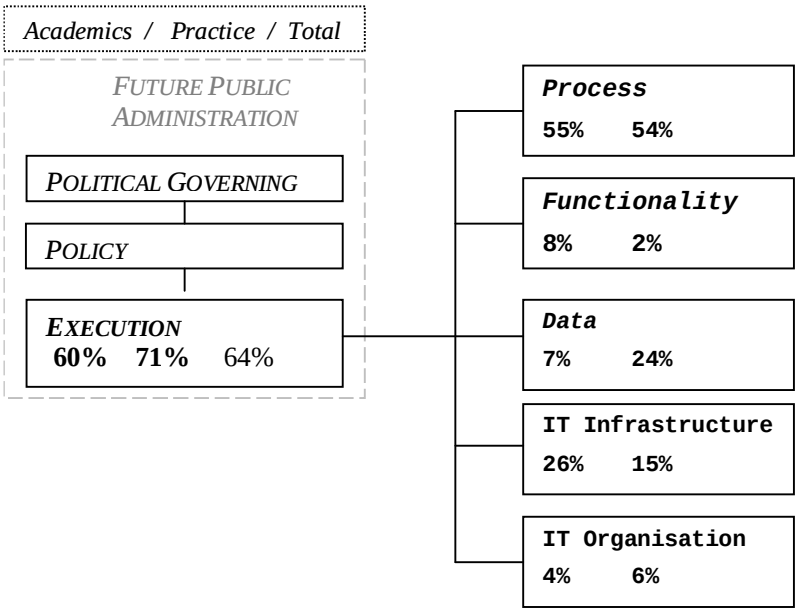
Policy is a plan of action to guide the decisions and actions of a government, and this domain is concerned with the process of policy making and the outcome of this process. Policy making can also be explained as: "the process by which governments translate their political vision into programmes and actions to deliver 'outcomes', desired changes in the real world." (Modernising Government White Paper, 1999)[73]

In the overall eGovernment research on policy has a very small majority of academic research (3%) opposed to the practice research (2%). The policy domain is in general not highly represented; six academic researchers and three practice researchers. Bovens (2005) offers a possible explanation for this low figure; "the Information Society causes high levels of turbulence and puts the liberal layer of the legal state under pressure. Information and Communication Technology experts can usually give a reasonable overview of the state of art considering technology, but are by far not able to predict the social use of the technology, thus let alone are they able to provide an insight in the legal problems that might rise after possible use."[74] The legal framework, which is concerned with the outcome of the policy making process, and the ontology for policy, which focuses on the process of policy making, are poorly introduced subjects by both academic and practice research. Ontology for policy has not received any attention from practice researchers and has one contribution from the academic research. Apparently there is no attention for changes in the process of policy as a result of the implementation of Information and Communication Technology.

[73] www.policyhub.gov.uk, UK policy hub.
[74] Lips, M. Bekkers, V and Zuurmond, A (2005) *"ICT en Openbaar Bestuur,"* Bovens, M *"De Digitale Rechtsstaat."* Uitgeverij Lemma b.v. Utrecht.

6.5 THE EXECUTION DOMAIN

Execution is occupied with the formulation and execution of policies and laws. This execution domain consists of contributions on how eGovernment influences the execution of policies. There are a large amount of themes that contribute to this domain, and therefore have been divided into five sub-domains: process, functionality, data, Information Technology infrastructure, and Information Technology organisation. These sub-domains will be introduced each with their accompanying themes.



Government organisations have business processes to execute policies. Therefore, the first sub-domain is process. This sub-domain is concerned with how business processes of governments are redesigned using Information and Communication Technology. In order to support these business processes, governments make use of functionality therefore the second sub-domain is functionality. This sub-domain focuses on what functionalities Information and Communication Technology can offer for governments to enhance their operations. To execute the business processes, supported by Information and Communication Technology functionalities, government need data. The third sub-domain therefore is data, which contains information about individuals, buildings, cars, land etc. This sub-domain discusses how the use of Information and Communication Technology influences the way in which government organisations collect, store and use data. These business processes, functionalities and data that the government make use of are supported by techniques, hardware and wires. The fourth sub-domain that complements these items is concerned with the technical infrastructure, and is called Information Technology infrastructure. All the sub-domains

mentioned do not work if they are not properly managed. The fifth sub-domain is Information Technology organisation, and is responsible for the maintenance and development of functionalities, data and the Information Technology infrastructure. The sub-division of the domain execution is based on the theory of Henderson and Venkatraman (1992 in Zuurmond, A 2005) who have developed a model for Information and Communication theory. This division is applicable for this purpose since Information and Communication Technology is an important element in eGovernment.

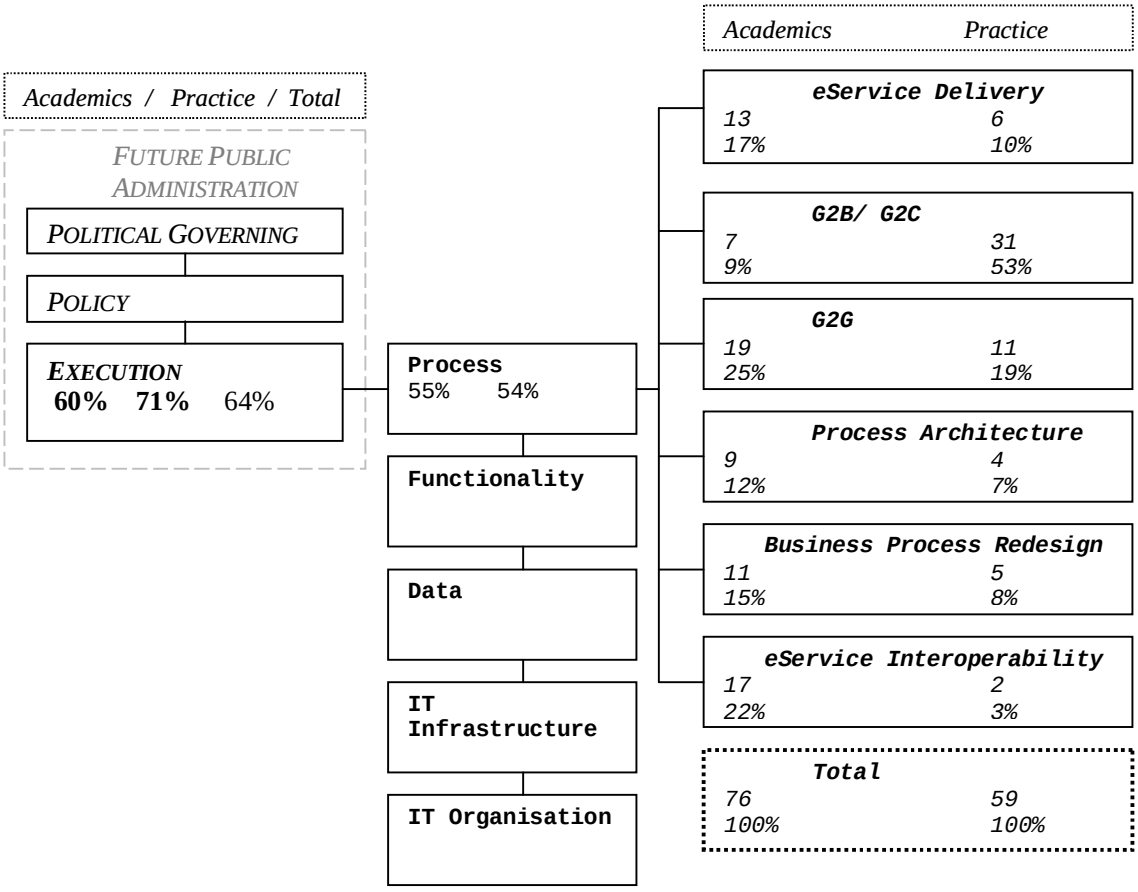
The role of Information and Communication Technology in the use of execution has as a main task to follow the execution process and the achieved results. When a deviation occurs in the set aim, the policy executer is able to react quickly and adequately. Another use of Information and Communication Technology is the support of transactions that are the result of law and legislation and the execution of policy.[75]

In the overall eGovernment research the execution domain has a great share of paper contributions compared to the other domains, having a sixty-four percent majority. The execution has a majority of practice research (71%) opposed to the academics research (60%). The division into the five sub-domains brought two interesting insights. The first insight is that the sub-domain process receives by far the most attention by the academic (55%) as well as by practice research (54%). An explanation might be that in this domain the short-term-revenues of eGovernment are to be found, thus large attention is worth the while. The second insight is that the sub-domain Information Technology infrastructure is second in receiving a lot of attention. Since this sub-domain deals with the technical issues of eGovernment, it is not surprising, since often Information and Communication Technology specialists are the ones that deal with eGovernment and so the approach is often technology based.

Each sub-domain will be examined, and a reflection on the outcome will be included in order to predict future developments, and therefore identify the trends of eGovernment.

[75] Lips, M. Bekkers, V and Zuurmond, A (2005) *"ICT en Openbaar Bestuur,"* Bovens, M *"De Digitale Rechtsstaat."* Uitgeverij Lemma b.v. Utrecht.

6.5.1 PROCESS



Process is the input, throughput, and output of a government; it is the analysis and design of workflows within and between organisations. It is the consecution of steps in the policy execution.

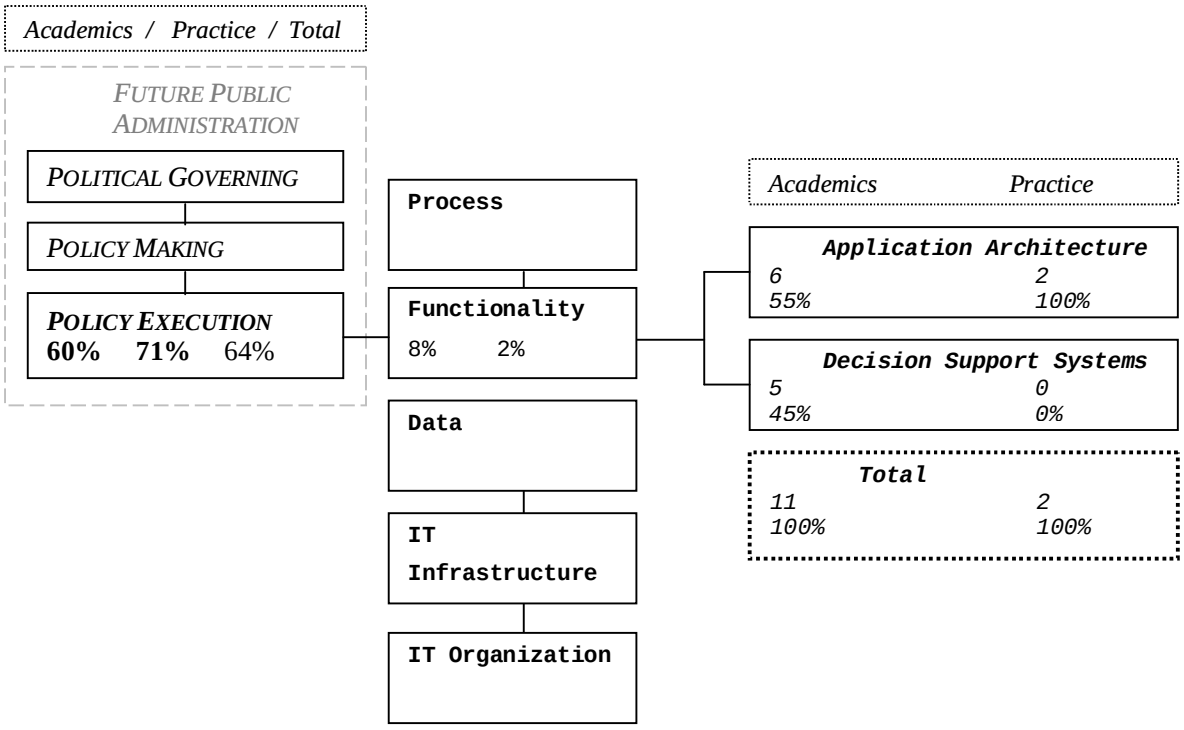
The process field is by far the largest research area in this domain, consisting of a total of seventy-six academic research and fifty-nine practice research, and representing fifty-five percent of the total academic research and fifty-four percent of the total practice research. The themes allocated to process are government to business and citizens, government to government, process architecture, business process redesign, eService interoperability, and eService delivery. The latter is concerned with how business processes of public service delivery organisations can be enhanced and improved using Information and Communication Technology.

Government to government and government to business and citizens are generally well represented. Government to government is concerned with the cooperation between different governmental organisations, thus efficiency, which mostly means that the business processes have to be adjusted. Government to government cooperation is mainly researched by academics, with a six percent deviation. The government to business and citizen theme is a part of the process of eGovernment since it is concerned with how Information and Communication Technology influences the relationship between governments and businesses and citizens, and it involves the changes of business processes of governments in order to become more citizen- and business orientation. The government to business and citizens is mainly researched by practice research and here there is a significant deviation of forty-four percent between the academic and the practice researchers. Apparently the academic researchers are more interested in how efficient governments interact with each other using Information and Communication Technology and are practice researchers more concerned with the client-orientation of governments in how they interact with citizens and businesses. This could imply that the academic researchers are less concerned with the benefits of the society than the practice researchers. It is remarkable though that the academics are that interested in efficiency, it was to be expected that this would be a typical practice research area.

Process architecture, which is the mapping of business processes, and business process redesign, which is the reshaping of business processes are both relatively equally distributed, and presented. Academics have given a little bit more attention, with respectively five and seven percent, to both of the themes. The eService interoperability theme, which is concerned with the enhancing of the interdependencies between public services, has most often been addressed by academics.

The most evident shortcoming at this level is the lack of eGovernment implementation and innovations. These are important areas since they have a direct influence on the structure of an organisation. The fact that many academics publish in this specific area indicates that the implementation phase is imminent. There is management potential in the future area of public administration. However, one has to bear in mind that this domain covers the whole government and not just a department. This means that an innovation or transformation can only be evaluated after a few years of operation in order to be able to present a sufficient case study that will support the practice research.

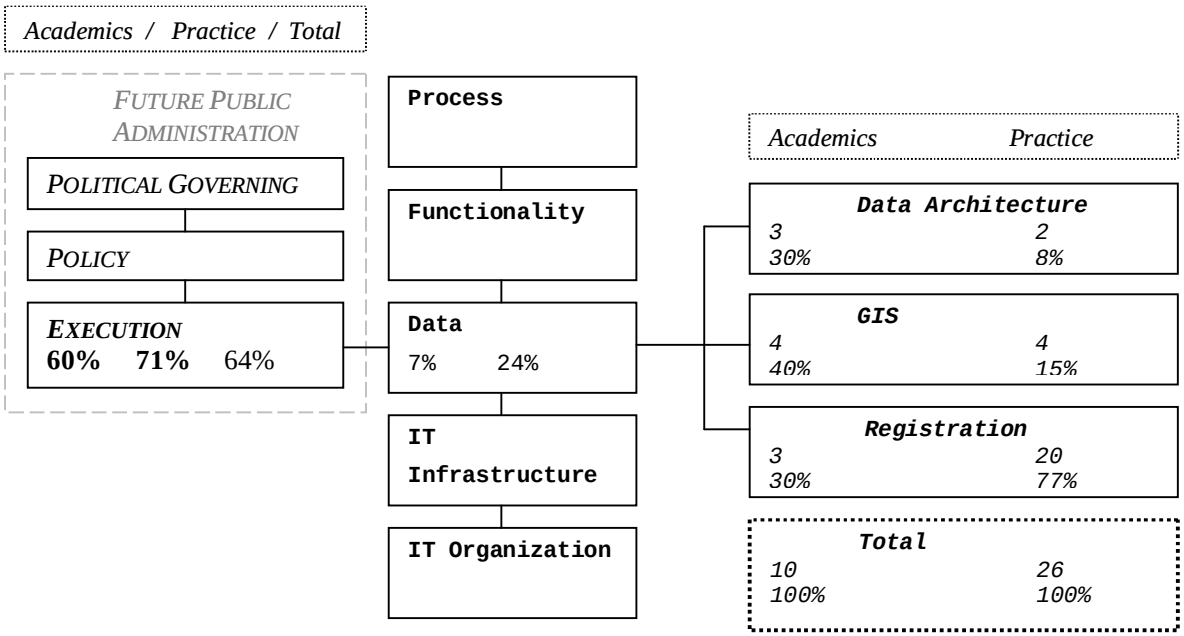
6.5.2 FUNCTIONALITY



Functionality is the next group and here fourteen academic research papers were found versus four practice research. Functionality is the collection of functions of Information and Communication Technology that governments use to execute their business processes.

In this sub-domain two themes are being discussed: application architecture and decision support systems. According to Henderson and Venkatraman (1992) application architecture, or functional architecture as they call it, is part of the architecture that defines what Information Systems are in use and the tasks that these systems are performing. Examples of such a system are operational systems, financial systems, office automation software, etc. A decision support system is a functionality which is used by governments to perform their processes, in this instance their planning and control systems. In general, mainly application architecture is being discussed, although the representation is not high and the deviation between academics and practice research is major with forty-five percent. Decision support system is only referred to by academics, and also has a deviation of forty-five percent. Thus the themes in this domain do not receive much attention, especially not from practice researchers. This is remarkable since the sub-domain focuses on how Information and Communication Technology functions can be used in the execution of policy, but apparently is not an interesting research field.

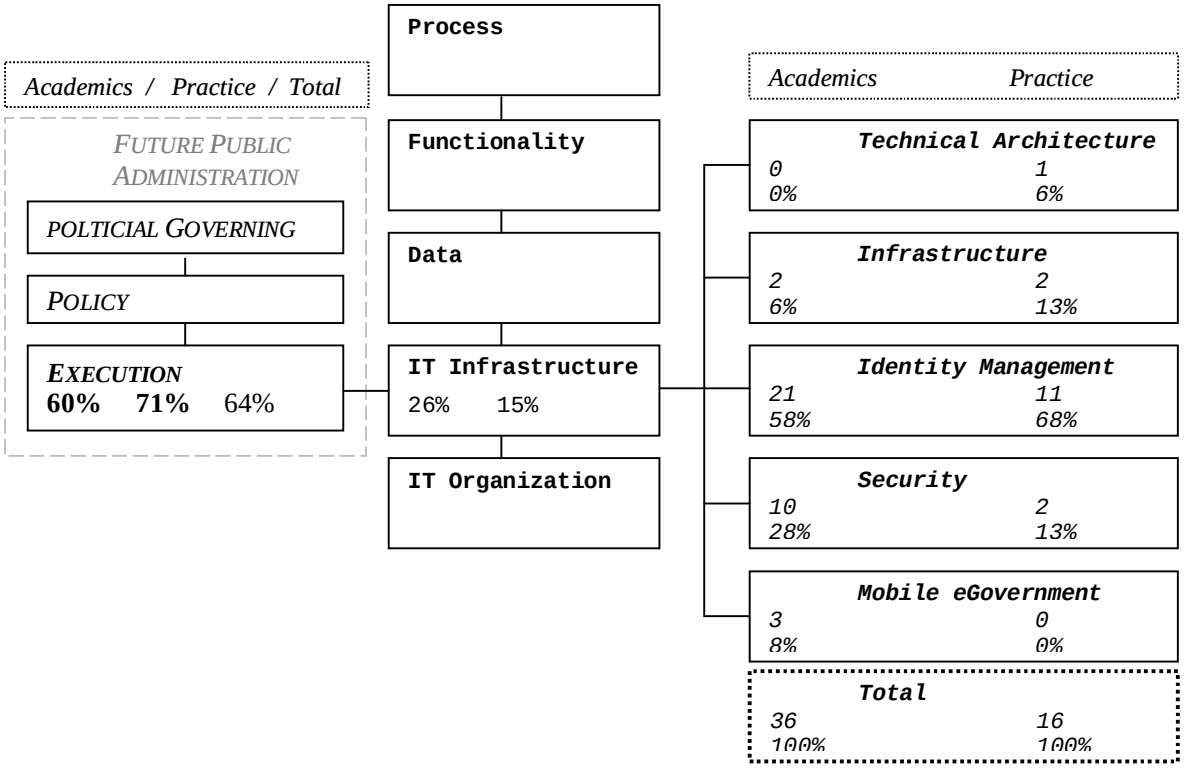
6.5.3 DATA



The sub-domain data is concerned with the collection, use and storage of data by governments. Registration, data architecture, and geographical information systems are data that are part of the organisational information model and are used as input in the execution. Most of these data are linked with use of networks and provide online services.

Both data architecture, which maps what data an organisation uses, where it collects and where it is being stored, and geographical information systems, which is a way of organising and representing data in a for the user manageable way, are both rarely represented by academic or by practice research. Data architecture in figures only deviate one, but in percentage twenty-two percent, which means that in comparison there is a significant distinction in this area. The same conclusion can be drawn for the geographical information systems were the total number of papers is similar, but the percentages show a difference of twenty-five percent. Registration, which deals with the question of how public administration can set up a network of registrations so that every government organisation has access to high quality data, is the only field that is much more often introduced in practice research than in academic research, with a majority no less of forty-seven percent. The same explanation applies here as for the government to business and citizens; it is a result related field. In this case it is the relief of the administrative burden therefore many practice research pay attention to this theme.

6.5.4 TECHNICAL IT INFRASTRUCTURE

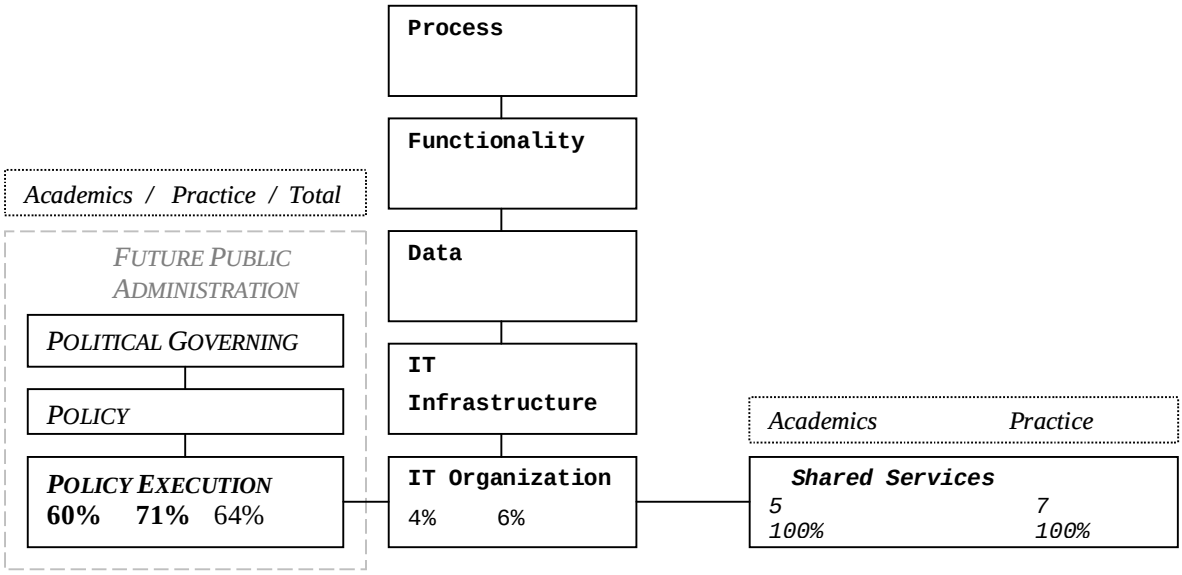


The sub-domain Information Technology infrastructure consists of the hardware of computers and servers and of Communication Technology like networks and routers. The technical architecture, the infrastructure, identity management, security, and mobility are the themes introduced in the Information Technology infrastructure. The total amount of academic research papers is thirty-six and sixteen practice cases have been researched.

The technical architecture, which maps the Information Technology infrastructure, and the infrastructure, which consists of more or less technical elements that together open possibilities for eGovernment, are both not mentioned too often, although comparatively speaking a few more practice researchers than academic researchers have addressed this theme. Mobile eGovernment, which focuses on using mobile devices to enable access to data and services from every possible location, is also mentioned infrequently, although a bit more often by academics than by practice researchers. Identity management and security are frequently discussed, although security has a strong deviation between the representations, differing fifteen percent, while identity management is differing ten percent, only the majority represented by practice researchers. Identity management deals with the questions of how identities can be determined in a virtual environment. Security contributes by finding

solutions for ensuring security of data, traffic, and identities, which are all essential elements for enabling eService delivery and other business process redesigns.

6.5.5 IT ORGANISATION



Information Technology organisation assures that the investment in Information and Communication Technology generates business value and mitigates the risk associated with it. This functioning can be seen as the help desk of execution. In the original concept, staff was replacing organisation since it concerns the management organisation that manages the Information and Communication Technology (Henderson and Venkatraman 1992 in Zuurmond, A 2005). There is only one contribution made in this field, namely the shared service theme. Shared Services is when a number of government organisations decide to unite their Information Technology organisations. There are five academic research papers on this topic, while there are seven practice cases.

To conclude this chapter is to answer the sub-question: "*What are the eGovernment trends as reflected by academic and practice research?"* The 'Grounded Theory' approach intended to get the knowledge of the trends in eGovernment using empirical data. This thesis aspired to make a reflection regarding this research question on the total amount of research, the research academic and practice specific, and the research per theme. The first remark can be made regards to the policy domain, which seems undervalued with a two percent research total. This is remarkable since Information and Communication Technology has proven to be very useful in the making of policy and has many possibilities. Second, the political

governing domain showed that eDemocracy receives little attention from academic researcher and practice researchers. Thus the fundamental change of political governing is out of the research span of both academic and practice research. The eParticipation theme neither receives the attention from the academic researchers which could be expected considering the possibilities shown by the practice researchers. Third, the execution sub-domain process is by far most researched by both academic and practice researchers. This result can be clarified by the fact that this sub-domain introduced the quick-wins, short-term-based-revenues. Fourth, the academic and practice research are divided over the domains; the future public administration and policy domains represent an academic research majority and the political governing and execution domains represent a practice research majority. Fifth, in general there seems to be a lack of eGovernment implementation and innovation, these are important aspects since they are of direct influence on the structure of an organisation. The last conclusion that can be made to answer the sub-research question is that the most popular themes are: government to business and citizens, registration, and identity management, which belong to the execution domain, the theme vision allocated to the future public administration domain and eVoting from the political governing domain.

7. CONCLUSION EGOVERNMENT TRENDS

The question that initiated the research is: *"What are the trends in eGovernment within the European Union considered from both the academic and the practice perspective?"* The two main goals of this research were to examine eGovernment as approached in academic research and eGovernment in practice research. In order to come to a sound conclusion, four sub-questions were formulated. Each of these research questions has been explored in depth and has provided a piece of information towards a sound conclusion on the main research question.

The first sub-question was intended to clarify the concept of eGovernment and to identify the fields of discussion. The goal of this question was to find out "*What does the literature clarify about eGovernment?"* eGovernment can be addressed from multiple perspectives; some like to address eGovernment as a research discipline, while others prefer the actual application, or the improvement of government processes. The literature introduced a few authors that have dealt with the influence of Information and Communication Technology on either government or businesses processes. Their main findings are that implementation is complicated and may cause the failure of using the full capability of the Information and Communication Technology, in other words change management experts are required when implementing. Decision making and the level of control are also influenced by Information and Communication Technology, resulting into the necessity to balancing top-down control with bottom-up decision making. This change in control may lead to higher decentralisation and a changing role of the management. Information and Communication Technology will also result in a strengthening, or even a rise, in networks. All authors agreed that the conditions for success are a certain level of good decision information, trust, and motivation via systematic communication channels and it is essential that managers be committed. The future prospects on the effect of Information and Communication Technology on a government or a firm differs. The general conclusion is that physical integration is not necessary anymore and there is a possibility of integration on all levels of a government.

The second sub-question was *"Which themes are being researched by academics?"* The academic researchers were extracted from many eGovernment, or related, conferences. After examining over four-hundred academic researchers, and after the paper titles had been clustered into a total of twenty-nine themes, each of these themes was introduced by its

definition. This method was a time consuming one, but for the purpose of this research it did give a good overview of the main themes discussed in eGovernment. It is to be expected that any extension of this research will redefine, but will not alter, the overall conclusions. The clustering identified the main themes in the academic research; however, in order to come to the main trends within eGovernment, more thorough research was necessary.

The eGovernment research is not solely an academic research, since elements of eGovernment are already in a phase of implementation and application. For this reason, the practice research has been examined as well, and contributed to the total of twenty-nine themes. The sub-question that supported this specific research was *"At which themes is action being taken in practice?"* with the underlying question: "Does the European Union contribute to the development of eGovernment within the member states of the European Union?" The European Union is a supporter of the concept of eGovernment and puts a lot of effort into stimulating implementation among the European Union countries as a part of the Lisbon Agenda. Accordingly, the European Union has organised an annual eEurope Award conference, where the best practices of eGovernment on different levels are awarded. The conference proceedings have been examined on their papers and presentation contributions in order to identify the eGovernment practice themes. The first conclusion is that the most practice research contributions came from the two West European Union countries Germany and Austria, followed by the North European Union country of Great Britain and the South European Union country of Italy. It is hard to conclude that European Union membership and eGovernment efforts are directly aligned, but they seem so in an indirect manner. Also, both themes that seem to be aligned with the Lisbon Targets, the business to citizens and businesses and registration, also seem to be the most popular research themes.

When both the academic and the practice eGovernment research had been examined, one last sub-question remained, *"What are the eGovernment trends as reflected by academic and practice research?"* In order to answer this question, a more in-depth analysis of the themes of eGovernment was required. In order to do so, first the eGovernment themes were allocated in the domains of a government. In a government four domains can be distinguished: future public administration, political governing, policy, and execution. In this reflection a range of conclusions became evident. One of the conclusions is on the domain level: the execution has the great majority with sixty-four percent opposed the policy domain with a two percent contribution to the whole eGovernment research. Another interesting result is that half of the

domains, future public administration and policy, have a majority of academic research papers, while the other two domains, political governing and execution have a majority of practice research contributions.

The last range of conclusions can be made on the level of each specific domain. The domain future public administration is the highest government level and is mostly being discussed by academic researchers, with vision as their main theme. The fact that vision is most often discussed underscores the importance having a vision of the future in mind when implementing eGovernment. The political governing domain is the next level in a public administration, where, relatively speaking, more eGovernment practice research has been conducted than academic research, with eVoting as the most researched theme, followed by eParticipation. Possible blind spots in the political governing domain are the eParticipation and eDemocracy themes, both could receive more attention by academics, especially since the practice research has introduced the possibilities regarding these two themes. That these two themes are frequently discussed in the political governing domain with eDemocracy in general as the sub-domain indicates that there is much attention being paid to the execution of eDemocracy by practice research. The next domain is policy; however, this domain seems to be an undervalued by both academic and practice research, although there are many possibilities in this domain especially when implementing Information and Communication Technology. The legal framework is the main contributor in the policy discussion, and the relative share of paper contributions are quite even. The legal framework paid much attention to the privacy issues that arose under many citizens with the implementation of eGovernment.

The last government domain is the application of eGovernment in the execution domain. Execution has five sub-levels and has by far the highest share of performed eGovernment research. The fact that the execution domain reveals the most eGovernment research papers may be clarified by the possibility of quick-wins and that eGovernment on the short term is still technology driven. In general the main driver in the execution domain reveals to be client orientation, efficiency, and transparency. The first sub-level is the process and has been more researched by academics than by practice researchers. The main theme on this level is government to business and citizens, meaning that for most government the actual benefits for their citizens and for business are an important result, and has client orientation as its main driver. Another contributor is the government to government theme, which is concerned

with the cooperation between different governmental organisations, and has efficiency as its main driver. Functionality is the second sub-level, and has dealt with the application of the architecture theme. The third sub-level is data and has the registration theme accounting for the majority. Registration is a theme that shows result in the relief of the administrative burden and will have a direct effect on the citizen. The Information Technology infrastructure is the fourth sub-level and has identity management as the most identified theme. The main form of identity management is through the use of electronic identity and electronic signatures, these increases the use of the internet instead of paperwork and will result in a relief of the administrative burden, and introduced transparency as driver. Information Technology organisation is only represented by one theme, and therefore is not noticeable for the overview of eGovernment trends.

The analysis of both the academic and practice eGovernment research has identified more narrowly the main trends in eGovernment. By first identifying twenty-nine themes, then examining their academic and their practice research volumes, and finally analysing them according to their position within a government domain, the following themes account for the trends in eGovernment research as can be detected within the European Union:

- **Vision** is the theme that discusses the future prospect of eGovernment and therefore acknowledges that eGovernment is an innovation with great effects.
- **eVoting** and **eParticipation** are the themes that deal with enhancing democracy of a country on the execution level.
- **Government to business and citizens** is the theme that discusses how to use eGovernment in order to improve the relationship between the public and private sector.
- **Registration** is the theme that shows that when data is stored in registrations, a collection of inter-related data in one database, governments can decrease their administrative burden.
- **Identity management** is the theme that will increase the facilitation of accessing the user's critical online applications and resources while protecting confidential information.

Besides the eGovernment trends within the European Union, one other important lessons can be drawn from this thesis: Information and Communication Technology is solely an enabler of eGovernment, it will only function successfully when (1) there is a vision, (2) the whole structure of an organisation is involved, (3) thus top-managers are the leading eGovernment projects, (4) the culture is considered, and (5) all other parties and relations (businesses and citizens) are profiting.

In the beginning of the European Studies Master course I would never have thought to have learned so much, not only about the European Union, but also about the public administration in general. This thesis contributed to this in a significant manner. The choice for an internship was a good one; much insecurity concerning the progress of the research was taken away and much access to the literature has been provided. Another advantage was the assistance received during the gathering and clustering of the themes used for this research. Eventually the research method chosen, clustering eGovernment academic and practice research papers presented in eGovernment conferences did result in a birds-eye view of the trends within eGovernment. I did notice that during this research the limited knowledge of eGovernment was useful; it ensured that there was not any bias during the clustering since I did not know what to expect. Another aspect that I did not realise, due to my lack of knowledge in the field of eGovernment, was that the debates as presented in the literature were neither new nor old. By this I mean that the eGovernment issues introduced three years ago are also still the issues of today. eGovernment is an innovation that needs time for implementation and results, positive or negative, will only appear after a few years. For a next time I would try to use more diverse research methods, for instance making more use of interviews, in order to get more up-to-date on what lives in a specific field. eGovernment is a hot item in the European Union, and being able to explore the future prospects, has been a privilege.

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