

An Evaluation of E-Government in Estonia

Meelis Kitsing

Department of Political Science
National Center for Digital Government
University of Massachusetts Amherst
Amherst, MA 01003, USA
Email: mkitsing@polsci.umass.edu

Prepared for delivery at the Internet, Politics and Policy 2010: An Impact Assessment
conference at Oxford University, UK, on September 16-17, 2010.

Abstract

This paper offers an evaluation of e-government in Estonia, which is usually seen as the most outstanding exemplar in Central and Eastern Europe. The analysis incorporates both the public sector initiatives and developments in the private sector in contributing to the evolution of e-government. Private sector agents are seen as endogenous, not exogenous, in explaining the e-government performance. Ultimately, the development of Internet banking by private sector was fundamental in enabling the government to launch interactive online services. The findings reveal that practice of e-government varies significantly across different functional areas. Some ministries have provided innovative online services for the last ten years while others still struggle in making some basic information available online. The availability of innovative platforms for online political participation has delivered remarkable outcomes in the last elections, while they have consistently failed to engage public in the legislative process.

Keywords: electronic government, Estonia, electronic voting, online engagement, online services, internet banking

Introduction

Many recent studies have given Estonia high scores for successfully implementing its e-government. While being a former socialist country, Estonia is usually clustered together with wealthiest countries in Europe and the world. Indeed, the UN E-Government Survey 2008 compared Estonia with the Nordic countries, not with the ex-socialist countries. This outcome is even more remarkable when Estonia is placed into the context of Central and Eastern European (CEE) countries with similar levels of per capita Gross Domestic Product (GDP) and socialist heritage.

This paper explores the practice of e-government in Estonia by going beyond the index approach in e-government evaluation. It does not focus only on successful e-government projects but highlights also failures. It focuses on diverse outcomes in online service delivery and participation by describing different efforts in e-government implementation. In addition, it explains the reasons for diverse outcomes in e-government implementation.

The paper starts by discussing the concepts of e-government and Estonia's relative performance on the basis of three e-government indexes. Then it will review some existing explanations about Estonian e-government and proceed by offering an overview of specific institutional changes and placing the key agents and their actions in the institutional context. After that the paper will discuss the role of Internet banking, online service delivery and online engagement.

Estonian E-government in a Comparative Perspective

This part of the paper will place Estonian e-government in a comparative perspective by using e-government rankings from indexes that are closest to the holistic definition of e-government. Before starting to discuss empirical findings it is important to point out what is meant by the holistic definition. The emergence of e-government literature and ad hoc conceptualizations led to initial understanding of e-government in quite narrow, business-oriented and instrumentalist terms (Haertsch et al 2002, 17). E-government meant essentially online delivery of government services reflecting the "services first, democracy later" attitude typically found in e-government initiatives (Clift 2003). Hence, the distinction between e-government and e-governance was made by some researchers where the latter reflects the more democratic, representative and participatory aspects of political life in cyberspace (Clift 2003). Nevertheless, some scholars continued using the terms e-government and e-governance interchangeably, referencing the same phenomena (Drüke 2004, 11).

However, a number of scholars have incorporated both service and participatory aspects in their conceptualization of e-government and do not explicitly distinguish between e-government and e-governance. Gil-Carcia offers a holistic definition capturing all of these aspects: “

Electronic government is the use of information and communication technologies in government to provide public services, to improve managerial effectiveness and to promote democratic values and mechanisms; as well as a regulatory framework that facilitates information intensive initiatives and fosters the knowledge society (Gil-Carcia 2005, 27).

Similarly, Nixon and Koutrakou (2007) emphasize that e-government is not just about service delivery (even though they borrow somewhat functionalist definition from the World Bank). “E-government is about people and how their democratic governments act their name,” they write (Nixon & Koutrakou 2007, xix). Such conceptualization of e-government is similar to the definition of e-governance offered by Antiroikko et al: “...

...democratic e-governance is a technologically mediated interaction in transparent policy-making, development, and service processes in which political institutions can exercise effective democratic control within a representative system of government and, more importantly, in which citizens have a chance to participate and effectively influence relevant issues through various institutionally organized and legitimate modes of participation”(Antiroikko et al. 2004, 40-41).

Most importantly, these conceptualizations depart from narrow service-centered approach by introducing some strong normative connotations. Nondemocratic countries cannot promote democratic values and mechanisms. The term “e-government” as defined by Gil-Carcia will be used throughout this paper because it consists both services and participatory aspects and overlaps by the concept of e-governance as defined by Antiroikko et al (2004).

Estonia in E-Government Indexes

Since Estonia is a middle-income transition economy, it should be compared to a group of similar countries. The most appropriate comparison would be with other Central and Eastern European countries. The closest fit with the definition and most straightforward operationalization of the concept is found in the 2004 study by The Economist Intelligence Unit (EIU) ranked Estonia as first of ten on the list of new European Union (EU) member states and Turkey (Economist Intelligence Unit, 2004, 2). Estonia scored, 5.87 points out of 10, followed by the Czech Republic’s score of 5.67, and Slovenia’s 5.33. The EU benchmark study of online public e-services ranked Estonia eighth in the EU for online sophistication of its public sector services and fourth for online service availability (European Commission, 2005, 26). In both categories Estonia is a long way ahead of other Central and Eastern European countries and is clustered together with the richest EU members. The Economist Intelligence Unit and IBM Institute for Business Value E-readiness Index ranked Estonia 26th in the world and 1st in Central and Eastern Europe in 2005 (Economist Intelligence Unit, 2005).

The United Nations (UN) index offers a comprehensive picture of e-governments on a global level (United Nations, 2004; 2005; 2008). In 2004 Estonia was ranked 20th in the world, in 2005 it was 19th and in 2008 it was 13th. This clearly indicates constant progress in the implementation of e-government. Estonia received the highest scores among the Central and Eastern European countries in 2004, 2005 and 2008 (the UN did not carry out the studies in 2006 and 2007). In 2008 Estonia did not only score better than countries with communist past and similar levels of per capita GDP but it was ahead of its economically advanced neighbors such as Finland.

Shortcomings of the Index Approach

The indexes give an imperfect picture of the state of e-government. First, the indexes use different conceptualizations of e-government. As was highlighted above some of them are more holistic, more inclusive of different aspects of governance and broader in many other ways than others. For some conceptualizations democratic elements of governance are fundamental elements, while others take more service oriented approach. For instance, the UN studies fall short in the democracy and participation aspects of e-government that are important part of this paper. Second, even if there might be a common conceptualization or a similar conceptualization of e-government, then operationalization and the measurement of the concept will differ. Broad categories such as infrastructure and human capital may be given different relative weight. Variables can be treated differently. What is the relative weight of the availability of online tax submission vis-à-vis online voting? Should these variables receive the same weight in the index? The answer will be always arbitrary. Most importantly, the operationalization of concept will affect outcomes.

Third, there are problems with data. Of course, there are always problems with data but it seems that compiling an index on e-government means the use of particularly unreliable data. The data used is primarily “soft data” and data collection depends heavily on the judgment of evaluators. Who can make mistakes in their assessment and are usually not paid sufficiently to deliver a high quality work. However, it must be said that what we perceive as “hard data” is often not reliable either. In a recent paper on measuring the internet diffusion we point out some anomalies in the data set of International Telecommunication Union (Kitsing and Howard 2009). For example, Belarus has more internet users per 100 inhabitants in 2007 than any other country in the Central and Eastern Europe. Russia has more internet subscribers than users in 2007. Bottom line is that these studies come with many biases as they use different conceptualizations, measurement of concepts varies, and data collection relies heavily on the judgment of evaluators (Salem 2007).

Furthermore, the indexes tend overemphasize the service aspects of e-governments and focus on supply of e-government rather than actual demand. Indeed, the demand side has been understudied issue in the literature of e-government (Dimitrova and Chen 2006). Nevertheless, the gap between demand and supply may well indicate low quality and other problems affiliated with such services, particularly when compared with the popular use of services provided by the private sector, such as Internet banking.

In the end, citizens have to declare their taxes only once per year, while they may do online banking transactions on a daily or a weekly basis.

Causes and Effects

The above mentioned methodological problems create serious challenges for explaining outcomes in e-government implementation. If particular outcome is considered good, then it is usually assumed that it is intentional achievement of policy-makers. However, the research on e-government initiatives which has pointed out their limits and shown that majority such initiatives fail completely or partially in both the developed and the developing worlds (Gil-Carcia 2005, 2-3). These suboptimal outcomes suggest that decisions and actions by smart, well-intentioned and well-educated policymakers do not often lead to their intended consequences. We cannot explain e-government success or failure (however imperfectly they are defined) by purely insisting that forward-looking rational agents acted purposefully to achieve the particular outcome. In other words, a success cannot be explained purely on the basis of rational agency as well as a failure cannot be explained purely on the basis of structural and/or other factors that are beyond the control of agents. A more consistent approach assumes that rational agents acting on the basis of their self-interest sometimes intentionally and sometimes unintentionally contribute to a particular outcome.

Hence, policymakers and their decisions have to be analyzed within institutions, which are defined as the rules of the game (North 1990; Denzau & North 1994). Such institutionalist approach does not only place individual rationality in a particular context but it runs counter to the technological determinism found in many e-government studies and action plans. Technological determinism with its emphasis on objective technology that is believed to impact society independently of institutional framework ignores the fact that Internet is a network good (not as an independent good). Institutions, ideas and networks and their interactions impact how this technology is used by government and citizens.

That's why the next part will explore institutional changes, spread of ideas and networks of agents (rather than individual agents) as they affected the e-government performance by relying on original and secondary sources, and policy documents of Estonian government as well as international organizations. It will start by general discussion of e-government evolution in Estonia. Then it will discuss practice of e-government in different areas on the basis of concrete cases. This will highlight the nature of e-government practice.

Evolution of E-Government in Estonia

Several explanations emphasize decisions made by key officials that have shaped the evolution of e-government in Estonia (for example, see Ott & Siil 2003 & Siil 2001). Particularly, agency is considered important in these accounts in bringing about specific changes in the rules concerning IT use within government. Usually, the role of the local IT community, a loose network of government officials, IT specialists, and scientists, is

singled out as it became crucial in shaping government policies on IT spending, procurement, and use in the early 1990s. The existence of such a community stemmed from Estonia's fairly advanced human capital in IT. Estonia began investing in its Institute of Cybernetics as early as the 1960s (Dyker 1996; Landler 2005). While similar institutes in other Soviet republics focused on math and engineering, the Estonian institute concentrated on computer programming (Roth 2004).

In 1993, a strategy paper by the IT community was prepared with the sole aim of establishing principles for the management of modern, well-functioning state information systems (Ott & Siil 2003). A special IT department of the central government was formed, and the central government budget included a single category entitled "Number 37" for all IT expenditures of the various government agencies (Ott & Siil 2003). Government IT procurement was subsequently unified. These efforts culminated with the launch of government wide backbone network EEBone ("Peatee", meaning thruway in Estonian) in 1998. The network connected all government departments with secure access to the Internet and intranet (IADBC 2005, 5). In 2001 the X-Road system was implemented, enabling the various government databases to communicate with one another and allowing government officials as well as individuals to access information in these databases (IADBC, 2005, p. 5).

In addition to public sector officials the role of politicians and their interactions with officials must be considered. The IT community's early initiatives were supported by some political leaders because these initiatives were consistent with their goals of creating a minimal and efficient state in the 1990s. The promotion of e-government found its way into political rhetoric of politicians which were also the most radical in implementing economic reforms. It allowed to certain politicians on the center-right such as former Prime Minister Mart Laar to show themselves as a force of progress, while political forces on the left showed reluctance and skepticism towards e-government. As Estonian governments changed rapidly in the 1990s, it is hard to argue that the distribution of enthusiasm for e-government and support for the IT community's initiatives was spread evenly among all these different cabinets.

The contained nature of the officials influence on IT matters influence is demonstrated well by the fact Estonia of the 1990s did not have an industrial policy, nor did it engage in policies that would target the ICT sector or companies directly (Kilvits 1999, 263-265). Indeed, the late president Lennart Meri started a national discussion on the necessity of creating "Estonian Nokia" but it did not translate into any concrete policy action. General government spending on research and development in the 1990s was below 0.5 percent of the GDP, and there were no crucial technology or innovation policies to speak of (Kilvits 1999, 268-277). Even the spending on information and communication technologies (ICT) remained modest from 1995 to 2003 in comparison with other countries. Estonian government budget has allocated about one percent for the ICT expenditure throughout this period, while many other countries spend 2.5-4 percent of the budget (Krull 2003, 52-53). Only exception to this hands-off policy is the fact that in 1997 Estonia's public sector did support the launch of the Tiigrihüppe (Tiger's Leap) program, which provided information technology to many schools (Tiigrihüppe Sihtasutus 2006). However, even this support was very modest. The support of primary

and secondary schools can be seen as a provision of basic public goods and is not strikingly innovative even in the context of the CEE.

The harmonization of ICT policies within different government ministries and departments offers the most straightforward case for illustrating the constrained nature of agency and diversity of outcomes in the practice of e-government. The electronic exchange of official government documents is still limited still in 2007 because different departments purchased different software solutions which are not compatible with each other (Riismaa 2007). Even if they purchased same software packages, then often the same software was configured differently which lead to incompatibilities within government for handling data. These incompatibilities imply that data may have to be re-entered manually. Since the Estonian government departments tend to rely on proprietary solutions, then vendor lock-in is wide-spread. This lock-in may not eve mean always dependence on a company but on a particular person.

Institutional Context

As it was discussed in the previous chapter, this constrained nature of IT-savvy officials influence within the public sector does not mean the assumption of rationality and importance of agency should be abandoned, but rather it should be placed in the institutional context. Many empirical studies circulating in policy circles offer a descriptive laundry list of factors to explain Estonia's e-government success. These lists usually incorporate both agency-focused and structural explanations. Indeed, one recent study listed the following seven factors for explaining the e-government success in Estonia :

the EU membership..., ...strategic thinking within government to implement e-democracy, good attention to detail and positive attitude towards ICT policy, innovative thinking and the development of a legal framework, and the economic growth and the macroeconomic stability of the country" (Ernsdorff & Berbec 2007, 171).

However, the descriptive studies encompassing the contextual factors are overburdened with complexity, just as the homegrown rational agency story is characterized by simplicity. In the end, they offer a descriptive and static snapshot of a moment in time, while the chances of drowning in the sea of data are high. Often these accounts do not clarify what are their variables, which present a serious methodological flaw; as the distinction between independent and dependent variables is blurred. Technology and infrastructure are sometimes part of what seems like the dependent variable. Yet the same variables may also be independent variables, creating a circular explanation yielding not a causal story but, perhaps, a self-fulfilling prophecy, instead. The following parts of the paper will highlight key institutional changes, while keeping the dangers outlined above in mind.

E-government Legislation

The Table 1 provides a comparison of some key Estonian e-government-specific legislative acts with those of three other CEE countries. It demonstrates that E-government specific legislation was not passed significantly earlier in Estonia than it was the case of other countries in the CEE . Only clear exception is data protection act of 1996 which was passed in other countries 4-5 years later. Certainly, the mere time of adoption does not indicate the true impact of legislation. Indeed, the quality of Estonian legislation may be better than in the case of the other CEE countries. Nonetheless, the comprehensive assessment of such claims is beside the point made here. The laws were adopted in response to the increased demand; demand was probably more sophisticated in Estonia, thereby leading to more sophisticated legislation.

Table 1 about here

In other words, the quality of Estonian laws does not explain the success of its e-government. It just reformulates the puzzle. Estonia does not have a e-government strategy, nor did it create a special office or ministry for information society, as was the case in Slovenia, for instance. The 1998 Principles of Information Policy was very general strategy document and all the following acts have been quite specific (Krull 2003, 49). Formal law-making in IT, as in many other areas of public sector, has been quite minimal in Estonia. The Estonian approach has seen implementation as the key, and no need for writing excessive documents and creating additional layers of bureaucracy. Indeed, the standard critique of the local e-experts is that Estonian government does not have a clear vision and a work plan and there is a lack of cooperation among different government agencies and between private and public sector (Krull 2003, 49). Nevertheless, Estonian e-government implementation has been fairly successful in the CEE context without such documents and formalized cooperation, while many other countries which at least formally have adopted such documents and formalized cooperation do not score that well on the e-government rankings.

The Internet Banking and Electronic Services

The previous discussion of agency demonstrated that high degree of IT use in government sector was achieved because the goals of two sets of rational agents (IT community and political reformers) converged albeit for different reasons. The IT community was interested in putting its knowledge into practice, while political leaders viewed IT as a means to achieve an efficient and minimal government. The strongest element of Estonia's e-government is its provision of electronic services to the public. The causal explanation for understanding the evolution of these services needs to incorporate a third set of agents: the private sector. Indeed, contributions of the public sector agents in ICT issues is not comparable to the developments that ensued in the private sector that unintentionally contributed to the provision of e-government services.

This refers to more than just the birth of numerous IT companies of which some most well-known examples are Kazaa, Skype and Playtech. The liberal economic regime and sound financial policies benefited the birth of the banking sector, which became an influential IT innovator by introducing Internet banking in 1996 (Lustsik 2003, 24). The quality, security and simplicity of its service attracted the majority of Internet users as its customers (Lustsik 2003, 27). Already in 2002, 57 percent of Estonian Internet users used Internet banking (Lustsik 2003, 24). This service classified as the third most important reason for Internet use, behind communicating via email (76 percent) and using search engines (62 percent). Many state agencies started to use the identification verification system used in Internet banking, thereby enabling government services to work online. Since 2000 Estonians have been able to file their taxes online, using the identification system offered by electronic banking services. The study on use of government online services conducted in 2002 already indicated then that the 48 percent of Estonian Internet users pay for e-government services through the Internet banking (Krull 2003, 58). Other ways of using e-government services were less exploited by the people. Hence, the Internet banking demonstrates that changes in the formal rules provided incentives for self-interested agents to find innovative solutions that encouraged Internet use. The contribution of political leaders and that of the IT community in the public sector has been primarily in the form of rule-making and provision of services based on private sector developments. In other words, rule-making specific to the electronic government has answering demands in the marketplace and/or seeking to provide services in the areas where transaction costs were lowest.

Most importantly, it was rational for the banks to cooperate with government because it allows reaping benefits from the Internet as a network good. Essentially, banks such as Hansapank (it was renamed Swedbank in 2008) became hubs in the network. Clients are able to access services of government agencies as well as other services provided by private sector with a few mouse clicks while being logged onto the online banking environment. Citizens accessing government agencies are directed to the websites of banks if it was necessary to identify his or her identity. It was rational for government agencies to rely on this solution and cooperation because it was efficient, secure, simple and kept costs minimal.

In 2002 the government introduced electronic identification cards that can be used as identification method for online transactions. The ID-card is more secure and sophisticated substitute for cards with numerical codes used in the Internet banking. However, the ID-cards did not gain a immediately considerable following (E-User, 2005). The previous simple method of Internet banking remained the primary form of online identification. In recent years banks have actively supported the use of ID cards in Internet banking by lowering the amount of daily transactions that can be made by old Internet bank identification method and price discriminating in transaction fees. In addition to private sector, ID cards have become widely used by municipalities as a method for buying bus tickets. At the website www.pilet.ee people can purchase bus passes by using their ID card. The purchase of ticket can be controlled on the bus by swiping the card through the card reader. However, these are more recent developments which build on the initial success of Internet banking. From the perspective of long-term

evolution the Internet banking was more fundamental in explaining the emergence of interactive e-government services than strategizing in the government and its more recent initiatives such as the ID-card. As the next part of the paper explains opportunities provided by the Internet banking for online identification were exploited inconsistently by different public sector agencies.

Inconsistency of Electronic Services

In spite of comparatively successful overall implementation Estonia's e-government services remained inconsistent. While the Estonian government made international headlines with its paperless "e-government" sessions and most citizens filed their taxes online, as recently as many basic services remained only available offline. The online delivery of services by government departments can be classified as islands of excellence (such as tax authority), laggards and confusing services (implying that services are formally available but they are too confusing to use and/or different parties involved in service delivery are not familiar with requirements).

I have highlighted some islands of excellence above. As far as laggards are concerned, then let me point out some examples. For instance, the simple task of replacing a driver's license still required printing out application forms, filling them in manually and making several physical visit(s) to the Registry of Motor Vehicles in 2002. Even in 2007, the Registry of Motor Vehicles asked to email the documents to its different local subsidiaries once they have been signed with a digital signature (Autoregistrakeskus, 2007). Submission of such forms on their website was not available. In October 2009, the Registry offers availability of paperless services. However, it is limited to individuals who have done transactions with the registry after October 2004 and who have submitted their signature (which is kept on electronic file) in 2006 and later. As Estonian driver's license usually last 10 years, then it may be useful service for those who have lost their driver's license. However, its potential for replacing driver's licenses for most users will be limited until 2016.

One of the weakest delivery of online services is demonstrated by a recent example involving the Ministry of Social Affairs. The illustration involves the Department of Labor Market which an agency under the Ministry of Social Affairs. In March 2009 when Estonia had entered the worst recession since regaining its independence in 1991 and unemployment was skyrocketing, the department announced that it will publish the lists of available jobs online (Kallas 2009). The department collects data on available jobs in order to give this information to unemployed people. However, the department had not published these lists online before and made the list only available in their offices. According to the department, the list of available positions were not published online because of lack of resources. This goes without saying that some basic services such as submitting applications for unemployment benefits are not available online. The latter is explained by the institutional constraints as the law on labor market services and benefits requires unemployed to register in person at the department (Kallas 2009). Nevertheless, this failure to use some of the basic functionality offered by the Internet occurred in the country where one of the most successful start-up companies

in the end of 1990s was CV Online. This jobs portal attracted not only local venture capital but also investments from Silicon Valley from well-known investors such as Esther Dyson. CV Online expanded successfully to many other CEE countries such as Hungary and the Czech Republic.

Other areas that lag behind are building and construction approvals as well as many other municipal services. It seems that as large and as advance municipality as Tallinn is delivering services online which primarily are based on services nation-wide, while most municipal services remain offline as the portal www.tallinn.ee reveals. As far as confusing services are concerned, then the government portal www.eesti.ee is too complex. Transactions involving registered companies (such as increasing and decreasing share capital) and applications for child support are examples of confusing and complex services which may lead to offline interactions – even if supposedly they could be handled online.

Online Engagement

The provision of services that would encourage electronic participation and democracy are the weakest part of the Estonian e-government. This is the clearest indication that Estonian e-government initiatives have been reacting to the demands of the private sector and general public, and that they have been implemented in areas where transaction costs are lowest.

The most well-promoted early innovation was a portal called TOM (abbreviation of the Estonian name “Täna Otsustan Mina” – “Today I Decide”), which was launched in 2001 and allowed members of the public to submit proposed laws and/or proposed amendments to the laws electronically. In the beginning, the whole concept was so haphazardly thought out that the most active contributors of new laws and changes to the laws were Mickey Mouse and other cartoon characters. Ironically, government ministers often had to start their responses to the proposals by addressing “Dear Mickey Mouse.” Later on the process required each submitter to reveal his or her real identity, but the portal’s impact on encouraging participation is marginal at best. The portal had 6742 registered users in the beginning of 2007 (Tana Otsustan Mina, 2007). Estonian population is about 1.4 million.

In 2007 the government opened a new portal called Osalusveeb (meaning participation web). Initially, the portal at www.osale.ee offered opportunities for expression opinions on the new laws and other pieces of legislation prepared by the ministries. More recently, the functions of TOM and osale.ee have been integrated and osale.ee now offers opportunity for registered users to vote on different ideas concerning public policy. Since, the voting on ideas is in the beta version at the time of writing this chapter, the analysis of osale.ee focuses on one of its function as a platform for engaging public in the legislative process.

There were 65 new laws and other government documents posted for consultations at the portal www.osale.ee from June 28, 2007 to May 15, 2009 (Osalusveeb, 2009). The number of posted comments gives an indication of public engagement. As it turns out by counting the number of posted comments the portal fails

to engage public in the legislative process. About one third of all posted laws acts received no comments. 19 received 1 comment, 7 laws received 2 comments, 4 laws received 3 comments and 3 laws received 4 comments. Nevertheless, it must be pointed out that a small minority of proposals received more comments.

Since the success of such portal depends on both demand by citizens and supply of new material by ministries, then data on number of new legislative materials submitted by different ministries offers an indication of supply. The count of number of laws posted for consultation at www.osale.ee reveals that some ministries are significantly more eager to promote public engagement than others. Ministry of Interior Affairs had posted 14 new laws and legislative acts for consultation in this time period and Ministry for Economy and Communications had posted 10. These two ministries were followed by relatively meager postings by others: Ministry of Social Affairs posted six acts while Ministry for Environment and Ministry of Education and Science posted both five. All other ministries posted less than five – out of them two ministries (Culture and Defense) posted only one act for public consultation.

This data demonstrates clearly that the practice of e-government can be radically different than some nominal variables would suggest. In a large N-study which would among other variables try to analyze online engagement Estonia would simply get a certain score for having such portal. However, the actual practice reveals that it is not sufficient to provide technology and some ground rules for engagement. Agency matters as well. Even if the broad structural context is the same, then some ministries are more eager than others in promoting engagement. Citizens are more motivated to comment on a small minority of legislative acts while show no interest of vast majority of acts posted for consultations. Since this research is based on some basic indicators found on the website, the future study should engage in textual analysis and assess the quality of comments that a small number of legislative acts have received. This would reveal further the nature of this limited online engagement.

Remote Electronic Voting

The second initiative to engage public in democratic process is the possibility to vote electronically which has also received considerable scholarly attention (Alvarez et al., 2009; Bochsler, 2010) . Table 2 indicates that about 2 percent of all voters used this opportunity in the municipal elections of 2005. The online voting was used in the general elections in March 2007 as well. About 5 percent of casted votes were submitted online. In June 2009, The European Parliament Elections were held where about 15 percent of votes were submitted online. In the last municipal elections in October 2009 almost 16 percent of the votes were casted online. The core idea behind the Estonian remote electronic voting system is that the provision of these online channels for voting removes another barrier. Such institutional design makes voting easier which, in turn, leads to an increase in turnout.

Table 2 about here

Of course, benefits of electronic voting such as reduced transaction costs are only one side of the coin. On the other side, the electronic voting has also costs – e.g. reduced civic engagement, privacy and security concerns. Indeed, these costs are not just technical or emerge from a particular civic republican and/or communitarian theoretical perspective. Rational choice literature, for example, has demonstrated that citizens may cast a vote simply because of a personal need which is not material, sense of civic duty which makes them feel good, they have imperfect information which implies that they might be misled or reputational gains (others see them in the voting booth) (Merill & Grofman, 1999; Moon 1990 & 1992). In other words, it may be rational to vote in a particular institutional context. Even from the rational choice perspective the benefit of reduced transaction costs in casting a vote through electronic means may be offset by the cost of not being able to show to others the act of voting – e.g. the fulfillment of civic duty. Thus, electronic voting might be a good substitute for offline alternatives for some people but certainly not for everybody.

Even if the Estonian experiment reduces some transaction costs for voting it increase some others. From a purely practical point of view, voters do not simply need the access to the computer but the use of ID-card is required as well. The use of ID-card requires a purchase of ID-card reader (which can be purchased for less than 10 US dollars). One of the main reasons for low participation in online voting in 2005 is simply the fact that the online use of ID card was not as widely spread then than it is now. In 2006 about 25 000 ID card owners used them online for variety of services such as banking (card can be used as a regular identification document – for instance, it can be used for traveling within the EU). In 2009 the number of online users had increased to about 250 000 (Rudi 2009). So this is a story of typical adoption process where early adopters proved ID card a reliable way to vote online and in the last elections 104 413 people submitted their vote online (Vabariigi Valimiskomisjon 2009).

The practice in Estonia has shown that ID-card readers may be sometimes quite unreliable (particularly, the cheaper ones) and not work properly with some browsers (such as Firefox and Google Chrome). Apple users tend to have more problems with the card readers. All of this may actually create additional barrier for voting rather than to move the barriers. Particularly, for the segments of society with a lower income, insufficient computer skills and without incentives to vote. The disagreement about the e-voting among Estonian parties is based on the notion of such distributional divide. Parties representing less fortunate segments of population are against the e-voting, while center-right parties aggressively push for the e-voting (Drechsler, 2006).

The preliminary conclusion drawn from the early experiment in 2005 is that it did not increase participation in the election but was used as an alternative method to cast one's vote (Drechsler 2006). Similarly, electronic voting in the 2007 parliamentary elections did not increase turnout (Bochsler 2007). Nevertheless, the last results of municipal elections were correlated with increased participation – 16 percent voted online and over 60 percent of the electorate participated. The last figure is unusually high for municipal elections which seems to suggest that e-voting might have contributed for the increased participation. Of course, a correlation does not equal causation and a more careful causal analysis is needed for explaining this increased participation.

Policy Perspectives

Various Estonian e-government projects have received considerable attention in the policy-making circles. Usually the most successful projects are highlighted in these accounts while shortcomings are ignored. These biased accounts often give impression that Estonian e-government is a result of a grand strategy and deliberate action of rational policymakers. On the basis of these pretense of knowledge often lessons for other countries are offered.

This paper argues, however, that reality on the ground is significantly more diverse than such stylized studies of e-government indicate. By evaluating both online service delivery and participatory elements of Estonia e-government, the paper finds the online service delivery to be generally more effective and have a greater impact than online participation. But once the e-government service delivery is disaggregated, then this analysis finds that the availability of online services varies widely among different government departments. This allows to picture the e-government implementation as a process which is characterized by tinkering with existing ideas and solutions rather than a large-scale social engineering.

Most importantly, Estonian e-government performance does not stem a grand strategy for implementing the e-government that could be transferred to other countries. The incremental change has been enabled by developments in private sector and driven by narrow government initiatives with different levels of success. As this study showed, the practice of e-government varies considerably depending on the ministry and function to be fulfilled. Furthermore, the e-government-specific legislation in Estonia emerged around the same time as in many other CEE countries. The general institutional framework governing ICT in Estonia, which encouraged competition, was more fundamental in leading to the e-government performance than were specific e-government initiatives.

Certainly, some targeted initiatives took on a more important role such as the harmonization of information technology use within the government. But there, too, positive outcomes were achieved because these were consistent with the broader goals of political leaders to exploit IT for implementing more minimalist and efficient state bureaucracy. Hence, the paper highlights specific circumstances as important variable in explaining e-government implementation which makes it more complicated to offer “best practices” based lessons to other countries.

Research Perspectives

The paper also makes an important addition to the literature, which so far has tended to overlook the specific interactions between private and public sector agents by focusing on interaction within the government and/or the one-way relationship with the private sector (for example, outsourcing provision of e-government services to companies). Hence, this study of Estonia’s e-government practice is not just a mere case study of an individual country but offered a broader contribution to the existing literature on e-government. The study shows that developments in the private sector should not be

exogenous but endogenous to explanations of outcomes in e-government practice. The early development of a secure and reliable Internet banking system in Estonia offered a springboard for the launch of online public sector services, the most advanced aspect of Estonia's e-government. Hence, the existence of such private sector agents and the innovation they bring with them are necessary for understanding e-government success in Estonia. They played a crucial role in cutting transaction costs for the supply and creating demand for public sector online services. The future research can build on these preliminary findings by applying both multi-method approach and using more insights from the existing literature.

Conclusion

Estonia's high rankings in e-government implementation among Central and Eastern European countries revealed by various e-government indexes does not necessarily provide sufficient insight into actual practice of e-government. The gap between formal indicators of e-government performance and actual practice of e-government was evident by analyzing and offering some concrete examples of online services as well as harmonization of IT within government. The discussion above highlights the difference between online opportunities and actual exploitation of these opportunities. Such outcome does not indicate a failure of e-government but rather brings attention to the fact that actual practice of e-government is significantly more heterogeneous than some aggregated indicators would suggest.

This study emphasized the role of diverse actors within specific institutional context of Estonia. Estonian e-government outcomes are diverse and cannot be explained by deliberate rational actions of strategically focused policy-makers. It pointed out that positive externalities of the private sector innovation and government rule-making did not lead to uniform outcomes in delivering the e-government services and engaging public online. In Estonia, the actual practice shows that provision of services that offer venues for participation and democratic involvement have involved recently in a rather haphazard manner. They have evolved because the developments in both public and private sector have reduced transaction costs for implementing such projects (for example, the use of computers is widely spread and infrastructure is well developed). Despite such general institutional changes and general advancement of technology, it is clear that actual use and value of technologies in government depends on solutions on micro level. That is where citizens experience a great divergence in the actual use of services and what is supposed to be formally available. Quite clearly, some Estonian public sector bodies have been more eager to offer services and engage citizens online than others. Even though Estonians have been able to file taxes online for almost ten years, Estonian Department of Labor Market has not managed to publish simple information about available jobs online. Estonian government officials have proudly demonstrated their interactive online tools such as TOM and osale.ee for engaging citizens online but in reality these tools are used by insignificant amount of citizens and some of their functions such as providing platforms for online consultation in the legislative process have clearly failed.

Hence, the effectiveness of online service delivery and online engagement has depended primarily on specific initiatives within particular ministries rather than centralized efforts within government. This is particularly so as the environment for providing online services has been place since the mid-1990s. Some government departments and their leaders have been more eager than others in exploiting opportunities provided by private sector such as the Internet banking, which have offered a safe and simple method for identification in the process of transacting online since 1996. This cooperation between private and public sector has contributed significantly to the effective delivery of online services and by doing so has had the greatest impact on citizens.

All of this is not to undermine the achievements of Estonia in implementing e-government but rather to point out that any analysis of e-government has to consider heterogeneous nature of e-government performance. This may slow down the progress of e-government research but without this consideration there will not be progress at all.

References

- Alvarez, R. Michael, Thad E. Hall, and Alexander H. Trechsel. 2009. Internet voting in comparative perspective: The case of estonia. *PS: Political Science and Politics* 42 (3): 497-505.
- Antiroikko, A-V, M. Malkia, and R. E. Savolainen. 2004. *Transformation in governance: New directions in government and politics*. London: Idea Group Publishing.
- Autoregistrikeskus. Paberivaba ARK. 2007 [cited January 2008]. Available from <http://www.ark.ee>.
- Bochsler, Daniel. 2010. Can internet increase political participation? remote electronic voting and turnout in the estonian 2007 parliamentary elections. Paper presented at Conference "Internet and Voting", Fiesole, Italy.
- Clift, Steven. 2003. E-democracy, E-governance and public net-work. *Publicus.Net*, <http://www.publicus.net/articles/edempublietwork.html>.
- Denzau, Arthur, and Douglass North. 1994. Shared mental model: Ideologies and institutions. *Kyklos* 47 (1): 3-31.
- Dimitrova, D. V., and Y. C. Chen. 2006. Profiling the adopters of e-government information and services: The influence of psychological characteristics, civic mindendness and information channels. *Social Science Computer Review* 24 : 172-88.
- Drechsler, W. 2006. Dispatch from the future. *Washington Post*, November 5, 2006, sec B01.
- Drüke, H., ed. 2004. *Local electronic government: A comparative study*. London: Routledge.
- Dyker, D. 1996. The computer and software industries in the east european economies. A bridgehead to the global economy?. *Europe-Asia Studies* 48 (6): 915-30.
- Economist Intelligence Unit. 2005. *E-readiness index*. London: Economist Intelligence Unit and IBM Institute for Business Value, .
- . 2004. *E-government in central europe. rethinking public administration*. London: Economist Intelligence Unit, .

- Ernsdorff, M., and A. Berbec. 2007. Estonia: The short road to e-government and e-democracy. In *E-government in europe. re-booting the state.*, eds. P. G. Nixon, V. N. Koutrakou, 171-183. London: Routledge.
- European Commission. 2005. *Online availability of public services: How is europe progressing?* Luxembourg: European Commission Directorate General for Information Society and Media., .
- E-User. 2005. *E-government country brief: Estonia*. E-User: Public Online Services and User Orientation, 8/2005.
- Gil-Carcia, Ramon. 2005. Enacting state websites: A mixed method study exploring E-government success in multiorganizational setting. PhD dissertation.State University of New York at Albany.
- Haertsch, P., P. Schubert, and D. Selz, eds. *Digital elforgreich*. Berlin: Springer.
- IDABC. 2005. *E-government in estonia*. Brussels: European Communities, June.
- . 2005. *E-government in latvia*. Brussels: European Communities, June.
- . 2005. *E-government in slovakia*. Brussels: European Communities, June.
- . 2005. *E-government in slovenia*. Brussels: European Communities, June.
- Kallas, R. 2009. Tööturuamet paneb töökuulutused internetti. *Ärileht*, March 2, 2009.
- Kilvits, Kaarel. 1999. Innovation and restructuring in estonian industry. In *Harmonisation with the western economics. estonian economic developments and related conceptual and methodological frameworks.*, eds. Ulo Ennuste, Lisa Wilder. Tallinn: Estonian Institute of Economics at Tallinn Technical University.
- Kitsing, Meelis, and Philip N. Howard. 2009. *Turning dirt roads into information highways: The conceptual misformation of the internet diffusion*. Seattle: University of Washington: World Information Access Project Working Paper, 2009.2.
- Krull, A. 2003. *ICT infrastructure and E-readiness assessment report*. Tallinn: Praxis Center for Policy Studies, .
- Landler, M. 2005. Hot technology for chilly streets in estonia. *New York Times*, December 13, 2005.
- Lumiste, Runno, Robert Pefferly, and Alari Purju. 2007. *Estonia's economic development: Trends, practices, and sources. A case study*. Washington, DC: World Bank Commission on Growth and Development.
- Lustsik, O. 2003. E-pangandus eestis: Kiire kasvu põhjused ja tegurid. *Kroon Ja Majandus* 3 .
- Merill, S., and B. Grofman. 1999. *A unified theory of voting: Directional and proximity spatial models*. Cambridge: Cambridge University Press.
- Moon, D. 1992. What you use still depends on what you have: Information effects in presidential elections, 1972-1988. *American Politics Quarterly* 20 : 427-41.
- . 1990. What you use depends on what you have: Information effects on the determinants of electoral choice. *American Politics Quarterly* 18 : 3-24.
- Nixon, P. G., and V. N. Koutrakou, eds. 2007. *E-government in europe. re-booting the state*. London: Routledge.
- North, Douglass C. 1990. *Institutions, institutional change and economic performance* . Cambridge: Cambridge University Press.

- Osalusveeb. Data and information. in Riigikantselei [database online]. Tallinn, 2009 [cited July 1 2009]. Available from www.osale.ee.
- Ott, A., and I. Siil. 2003. Eesti e-riik tulgu *Eesti Päevaleht*, February 7, 2003, sec Comment.
- Riismaa, K. *Implementation of Paper-Free Document Exchange in the Estonian Public Sector*, DEXA E-Government Conference in Regensburg, Germany sess., 2007, .
- Roth, D. 2004. Catch us if you can. *Fortune*. February 16.
- Rudi, Hanneli. 2009. E-valimised töid juurde 11 222 ID-kaardi kasutajat. *Postimees*, June 23, 2009.
- Salem, Fadi. 2007. Benchmarking the e-government bulldozer: Beyond measuring the tread marks. *Measuring Business Excellence* 11 (4): 9-22.
- Siil, I. 2001. *Estonia: Preparing for the information age*. International Council for the Information Technology in Government Administration, ICA Information No. 74.
- Täna Otsustan Mina. Information and data about the portal. 2007 [cited October 20 2007]. Available from <https://www.eesti.ee/tom/ideas.py/avaleht>.
- Tiigrihüppe Sihtasutus. 1999. *Tiigrihüppe programm 1997-1999*. Tallinn: Tiigrihüppe Sihtasutus, .
- United Nations. 2008. *UN E-government survey 2008. from E-government to connected governance*. New York: United Nations, .
- . 2005. *Global E-government readiness report 2005: From E-government to E-inclusion*. New York: United Nations, UNPAN/2005/14.
- . 2004. *Global E-government readiness report 2004: Towards access for opportunity*. New York: United Nations, UNPAN/2004/11.
- Vabariigi Valimiskomisjon. Elektroonilise hääletamise statistika. in Vabariigi Valimiskomisjon [database online]. Tallinn, 2010 [cited June 10 2010]. Available from <http://www.vvk.ee/index.php?id=10610>.
- Vassil, Kristjan. 2007. E-valimistest osavõtmise kogemuse ja tegurid. E-valijate võrdlev analüüs 2005. aasta ja 2007. aasta riigikogu valimiste põhjal. Masters., Tartu University.

Table 1. The Time of Adoption of e-Government Specific Legislation in Estonia, Latvia, Slovakia and Slovenia.

Act/Document	Estonia	Latvia	Slovakia	Slovenia
Strategy for e-government	NA	2002	2004	2001
E-signature and E-document	2000	2002	2002	2000
Strategy for information society	1998	1999	2001	2003
Data protection	1996	2000	2002	1999
Access to public information	2001	1998	2000	2003

Source: Composed by the author with data from IDABC (2005, 2005a, 2005b and 2005c).

Table 2. Internet Voting in the Estonian Elections (2005-2009).

Type of elections	Date	E-votes (% of all votes)	Turnout (%)	E-voting turnout (% of all eligible voters)	First time online ID- card users (%)
Municipal elections	October 2005	1.8	47.4	0.9	61
Parliamentary elections	April 2007	5.4	62	3.4	39
European Parliament	June 2009	14.7	43.9	6.5	19
Municipal elections	October 2009	15.7	60.6	9.5	18.5

Source: Composed by the author on the basis of data from Vabariigi Valimiskomisjon 2010