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DEVELOPMENT OF E-SERVICE ENVIRONMENT IN PUBLIC SECTOR AT THE LOCAL GOVERNMENT (CASE OF GEORGIA)

Master's Thesis

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Tallinn 2016

Author's declaration of originality

I confirm that I have constructed this Bachelor's/Master's thesis individually and that the current paper has not been presented by anyone before. All resources, viewpoints, citations, and other materials from other authors that have been used in this thesis have been referred to.

Mzia Gaprindashvili

(date)   (signature)

Acknowledgement

I would first like to thank my parents. I dedicate this thesis to my big family. I know what a great incentive is to feel support from each of the family member in every weak moment and difficult times. I felt your love and encouragement in every moment. I am grateful for everything that you did for me. Moreover, friends who helped me a lot in finalizing this project.

I would also like to express my special thanks of gratitude to my Supervisor and Co-Supervisor for helping me during the whole processes of writing my master's thesis.

Abstract

DEVELOPMENTS OF E-SERVICE ENVIRONMENT IN PUBLIC SECTOR AT THE LOCAL GOVERNMENT (CASE OF GEORGIA)

Today many States are trying to move to digital technology, Estonia gave the world an example of how to make government structures more accessible and transparent for citizens simplified the procedure of communication between citizens and government agencies. E-government is a big step into the future and Georgia since 2011 was used to introduce the practice of Estonia. The purpose of this thesis is to convey how moved Georgia to achieve world levels in e-government services. The thesis explores how the works of e-government in Estonia and how well this practice is applied in Georgia. Moreover, local municipal institutions that will provide answers to most interesting questions of concern to the citizens of Tbilisi will investigate it.

Based on a survey conducted in the municipalities in Tbilisi, it turned out that one of the problems for citizens was the registration process for children in kindergartens. There is an AS IS model and TO BE model, how the future work might help to solve the problem.

Keywords: E-Government, E-Services, Digital Administration, Business Process Modelling, Georgia.

This thesis is written in English and is 78 pages long, including 8 chapters, 11 figures, and 1 table.

Annotatsioon

E-teenuse keskkonna arendamine kohaliku omavalitsuse tasandil (Gruusia juhtumianaüüs)

Praegusel ajal mitmed riigid liiguvad üha enam tehnoloogia kasutamise suunas kusjuures Eestit saab pidada üheks näiteks valitsusasutuste kättesaadavamaks ning läbipaistvamaks muutmisel läbi parema kommunikatsiooni kodanike ning valitsuse vahel. E-riigi rakendamine on suur samm tulevikku ning Gruusia on juba 2011. aastast alates püüdnud Eesti praktikaid rakendada. Käesoleva magistritöö eesmärgiks on uurida, kuidas liikus Gruusia maailmatasemel e-riigi teenuste kasutamise suunas. Magistritöö uurib Eesti e-riigi teenuseid ning analüüsib, kui edukalt on neid rakendatud Gruusias. Lisaks on eraldi käsitluse all kohaliku omavalitsuse küsimused Tbilisi näitel.

Baseerudes Tbilisi piirkonna kohalikes omavalitsustes läbiviidud küsitlusele, on kodanike suurimaks probleemiks lasteaikakohtadele registreerimine. Magistritöös esitletakse AS IS ja TO BE mudelelid ning analüüsitakse, millisel viisidel on võimalik probleem lahendada.

Märksõnad: E-valitsuse, E-Teenused, digitaalne Administratsioon, Äriprotsesside modelleerimine, Gruusia.

Lõputöö on kirjutatud Inglise keeles ning sisaldab teksti 78 leheküljel, 8 peatükki, 11 joonist, 1 tabel.

List of abbreviations and terms

DA	Digital Administration
DLF	Deer Leap Foundation
DDoS	Distributed denial-of-service
e-banking	Electronic banking
e-cabinet	Electronic cabinet, a tool Estonian government uses to held government sessions
EaP	Eastern Partnership
eGA	e-Governance Academy
e-ID	Electronic identification
e-government	Electronic government, usage of information and communication technologies to improve the work of public services.
e-mail	Electronic mail
e-procurement	Electronic procurement, automated procurement processes that are uses a web application.
e-service	Electronic service
e-Estonia	Term used, to describe Estonia as one of the most advanced country to using electronic solutions
e-voting	Electronic voting
EU	European Union
EMFA	Estonian Ministry of Foreign Affairs
EU-12	12 countries that joined the EU between 2004-2007 (Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, and Romania)
ESIDA	Educational and Scientific Infrastructure Development Agency
GDP	Gross domestic product
GNI	Gross national income
ID card	Identification card
ICT	Information and communications technology
IMF	International Monetary Fund

MFA	Ministry of Foreign Affairs
MoES	Ministry of Education and Science
m-Parking	Mobile parking
ODA	Official development assistance
OECD	Organization for Economic Co-operation and Development
OSF	Open Society Foundation
SIM	Subscriber identity module
SK	Certification Centre in Estonia, providing certifications for Authentication and digital signing for a national identity card
TLF	Tiger Leap Foundation
UN	United Nations
UNDP	United Nations Development Program
USB	Universal Serial Bus

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1 Introduction

Today the Internet has become an important tool for everyday life. It is used for finding and storing information instead of memorizing it, doing business, entertaining and spending time, communicating and many other online possibilities are growing fast. Even many services provided by government offices and local governments can be used online.

Communication between governments and citizens has moved from a paper-based world to online e-government portals, which besides information provide also governmental services. With this shift, there is an overload of information. For instance, the Estonian State Portal eesti.ee provides more than 200 public sector e-services, more than 400 information articles and contact information of more than 2500 governmental and local agencies and institutions in three languages. (Riigiportaal eesti.ee. (2013).

The growth of available information amount has led to finding ways to understand the users' needs and behavior. Search engines work based on presenting most popular search results. Online business puts an effort to effectively determine a particular customer needs and preferences, (Ntwanga, F., Calitz, A. P., & Barnard, L. (2008) in order for higher customer satisfaction and sales. Many companies, for example, Google and Facebook, have invested billions of euros in the implementation of personalized tools for their e-commerce platforms. (Ntwanga, F., Calitz, A. P., & Barnard, L. (2008).

Compared to e-commerce sites, e-government portals are not aiming to get profit, and that is one of the reasons, why most of the e-government portals do not adapt to user needs and do not present only information and e-services what user wants or is most interested in. Therefore, the research problem is that e-government portals have not used common personalization yet; however, for efficient provision of e-services and for raising user satisfaction, it is needed to understand how to personalize e-government portals. The success of e-government portals can be measured against user satisfaction, evaluated for user-centric approaches, but also, personalization could be evaluated.

Effective e-Government can provide a wide variety of benefits including more efficiency and savings for governments and businesses, increased transparency, and greater participation of citizens in political life.

ICTs are already widely used by government bodies, as it happens in enterprises, but e-Government involves much more than just the tools. It also involves rethinking organizations and processes and changing behavior so that public services are delivered more efficiently to people. Implemented well, e-Government enables citizens, enterprises, and organizations to carry out their business with government more easily, more quickly and at a lower cost.

Cross-border Digital Public Services allow achieving the digital single market: in the European Union's internal market, people are able to move freely – either for work or for private reasons – so they need to be able to deal easily with public services outside their home country.

ICT systems are now at the heart of government processes, but efforts are still needed to ensure they continue to improve the delivery of government services.

As part of its strategy, the European Commission is taking concrete actions for the development of Cross-border Digital Public Services. These include, but are not limited to, the creation of European interoperable platforms such as a common framework for citizens' electronic identity management (eID), and the fostering of innovation through the Competitiveness and Innovation Program (funding Large Scale Pilots and e-Participation projects).

Guidelines are available on how to make better use of open standards for ICT systems of public authorities in order to avoid dependencies on certain suppliers of ICT systems (lock in).

The purpose of this thesis is to research and analyze the possibilities and limitations of creating a personalized e-government portal that would consider its user's behavior and needs, the decision makers' goals and legal limitations. In particular, the thesis will focus on the case of the Estonian State Portals and Georgian e-Local Government Portals, What is the Digital Administration and how it works how Local Governments are/will be more effective with Digital Administration (DA), how Georgia can use the Estonian experience to make DA better.

The central problem of this thesis topic is about using of DA at the local government level. How data exchange works, how looks data exchange environment and how it can be better, its interoperability with other participants of e-governance processes.

Today the attitude and views of the state are changing, changing their formalities and dimensions, changing their working principles and manners. The state moves to e-Governance. Nowadays to have good government you should have good e-governance.

Moreover, to have good e-governance for citizens at first you should have good infrastructure inside the building of e-service environment. This topic is about how to develop e-service environment in the public sector in Georgia at local government. The author believes that digital administration (DA) makes organizations, local government and governance more efficient. It makes them transparent, interoperable and accountable. Because of Georgia is on a way of development, this topic special emphasis on the development of e-service environment in Georgia with the digital administration (DA) through the digital management system (DMS). The author will compare Georgia's and Estonia's examples.

1.1 Motivation

Georgia for 6 years as moved to the e-government, this is a very important event for a small state and for the author it was important to explore this industry in her homeland, as in the near future she will attempt to contribute to the development of electronic services in Georgia. The author wants to explore all areas of e-services to find solutions for currently existing problems in this sector.

The author interested in her country's development movements on e-governance field. The author interested in challenges, achievements, and plans of Georgia. Generally, e-services need to communicate with many stakeholders and data should be digitalized. The main actor on the development of e-governance is Ministry of Justice. It is working on these issues with some state and local agencies and with other ministries. On the one hand, it is interesting to get more information how these processes have done in Georgia. How data exchange environment looks. On the other hand, what problems have the government in the process of development? To look what are the better ways and how it can be improved.

1.2 Research Questions

In the paper, research author has three main questions for analyzing cases and conditions of centric problem. The overall research question (RQ) is to find out how well developed in Georgia ICT capabilities of local government. Main questions:

RQ 1.How digital administration (DA) makes work more effective?

Authors talks about the effectiveness of DA processes in the fourth chapter. How DA helps processes to build better structure and how DA with the help of document management system is more appropriate for work facilities.

RQ 2. How can DA linked to public services? The second question is discussed in the fifth chapter. The connection between public services and digital administration, how ICT helps to increase the way that citizens are getting public services. Moreover, how it helps with paperless management.

RQ 3. How business processes are effecting service provision? How can we create good e-services based on those assumptions? Sixth chapter is oriented on those questions and summing up the situation analyses. Service provision has an influence on business processes, and service design will be analyzed in different areas in Georgian e-governmnet.

2 State of Art

The internet and related technologies have made a substantial impact on the way organisations conduct business around the world, the European Union local governments have expanded their presence on the Internet and using the Internet to provide public services to its citizens (Layne & Lee, 2001; Singh & Byrne, Performance Evaluation of e-Business in Australia, 2005; Torres, Pina, & Acerete, 2006).

Governments, too, have made major advances in their efforts to govern more effectively to the extent they have adopted web-based and related technologies (Torres, Pina, & Acerete,2006). Democracies across the world have appreciated the practice of e-governance to improve the quality of services provided to their citizens and to business environments (Layne &Lee, 2001). More recently, the reliance on digital governance has become increasingly popular where digital governance includes both the electronic government and electronic democracy (Riccucci & Rutgers, 2011). One significant component of digital governance is increasing the direction of flow of information, communication, resources and services accessible to the public (Riccucci & Rutgers, 2011).

The quality of e-government and effective public administration have become also as indicators for investors and introducing a successful e-government practice also attracts foreign investments (Pavel, 2013).

E-government is the new way of public administration. Basically, it is a transformation of traditional government by the influence of revolution of technologies (Torres, Pina, & Acerete, 2006). Komito (2005) believes that when citizens interact with the state's administrative structure through e-government, they learn that they can participate in the system and benefit by their participation. (Teder, 2014).

According to Palvia and Sharma (2007), e-government is a generic term for web-based services from agencies of local, state and federal governments. The authors believe that in e-government, the government uses information technology and particularly the Internet to support government operations, engage citizens, and provide government services. The interaction may be in the form of obtaining information, filings, or making payments and a host of other activities via the World Wide Web.

Although websites are becoming essential elements of modern public administration, almost all city governments are shifting from the traditional bureaucratic

concept to the e-government concept (Pavel, 2013). The growth of citizens' expectations and needs led to a new approach to delivering services by the public administration in order to respond to this new social demand. Interactive web applications allow citizens to complete many tasks online (Pavel, 2013). The quality of the services provided, results, and customer satisfaction is now at the core of this new approach. The demand by public service consumers for the same level of responsiveness and service from their governments as they expect from the private sector and the growth of citizens' expectations are leading to a new approach to service delivery by the public administration (Palvia & Sharma, 2007). In order to keep up with expectations, governments are taking a pro-active approach by anticipating the citizen's needs and making changes in how it works in order to meet those needs (Torres, Pina, & Acerete, 2006). One main challenge for governments is to identify user needs and to design e-government projects according to the identified target users. For every e-government project, coherence must be seen as the ultimate test: users will ignore governments' efforts in carrying out e-government strategies and visions if the service leads to more bureaucracy and/or less societal, economic, and individual benefits (Pavel, 2013). Torres, Pina and Acerete (2005) also directing attention to the point, e-government initiatives can refocus attention on a number of issues such as how to collaborate more effectively across agencies and tiers of public administration (seamless) and how to enhance customer focus. Its potential goes far beyond early achievements, enabling qualitative gains in work processes, results, and efficiency. If implemented properly, it will help to develop and consolidate principles of good governance such as democratization, coherence, effectiveness, transparency, and accountability. An extension of this survey might be to analyze to what extent e-government initiatives meet citizens' demand and need (Torres, Pina, & Acerete, 2005).

All city governments are involved in e-government initiatives although with different levels of development. There is no clear relationship between public administration styles and e-service developments. E-government needs to be integrated into the broader public management reform framework. It offers the potential to bring citizens closer to their governments, regardless of the type of administration system that a country has (Torres, Pina, & Acerete, 2006).

The successful implementation of e-governance practices leads to better delivery of services to citizens and citizen empowerment through access to information. E-

governance enables people to gather information regarding any institution of government and be involved in the decision-making process; it brings governments closer to citizens.

E-services also provide an increase of accountability and trust. For citizens, it is like "Light in the black hole of bureaucracy". Traceability of the status of their requests and transactions increases transparency and trust.

Rothstein points out that trust is rarely given unconditionally, especially to governments composed of unknown and unaccountable individuals. Trust is earned, based on actual interactions that citizens have with particular agencies of the state. That trust, once gained, can be extended to other agencies of the state and transmuted into a social capital that leads to a greater commitment to civil society (Rothstein, Social Capital, Economic Growth and Quality of Government: The Causal Mechanism, 2003).

Satisfaction with e-services is increasing their use of proficiency and service improvement. E-services, the use of which has certain regularity and longevity, consider the positive feedback, such as tax return compliance. A large number of users of e-services has actually fulfilled its purpose, users find that e-services have helped them save time and get the desired information more quickly and reduce the bureaucracy and time spent dealing with the authorities. The survey findings will nicely point out of a clear guideline for government and owners of e-services, which may help to raise the rankings - definitely, should continue promotion campaigns of public e-services and the State Portal as well. Since satisfaction with e-services is high, there is no reason for them not to use e-services, lack of or poor quality, but the low level of awareness. In one campaign to promote all areas of e-services is not possible, therefore, there should be campaigns done for specific target groups for these actors to introduce the e-service. The more useful e-services in a State Portal, that make the life of citizens easier, the more they start to use it (TNS Emor, 2011; TNS Emor, 2013).

Governmental portal is the single access point for citizens and businesses to the governmental and municipal electronic services. Public e-services in State Portal should be well-structured and well understandable, in order to meet the perspectives and needs of users (Wimmer & Tambouris, 2002).

The primary delivery models of e-government can be divided into (Palvia & Sharma, 2007; Galindo, Marco, & Calleja, 2009):

1. Government-to-Citizen or Government-to-Consumer (G2C) - relationships between public administrations and citizens based on ICTs, the aim of which is to provide

citizens with permanent on-line access to administrative information and services and to citizen participation channels;

2. Government-to-Business (G2B) - relationships between public administrations and companies based on ICTs.

3. Government-to-Government (G2G) - relationships between public administrations based on ICTs to facilitate collaboration between different levels of government so central, regional and local administrations provide citizens with services as effectively as possible;

4. Government-to-Employees (G2E) - relationships between public administrations and public-sector employees based on ICTs;

Within each of these interaction domains, four kinds of activities take place (Palvia & Sharma, 2007):

• Pushing information over the Internet, e.g.: regulatory services, general holidays, public hearing schedules, issue briefs, notifications, etc.

• Two-way communications between the agency and the citizen, a business, or another government agency. In this model, users can engage in dialogue with agencies and post problems, comments, or requests to the agency.

• Conducting transactions, e.g.: lodging tax returns, applying for services and grants.

• governance, e.g.: To enable the citizen transition from passive information access to active citizen participation by:

1. Informing the citizen.

2. Representing the citizen.

3. Encouraging the citizen to vote.

4. Consulting the citizen.

5. Involving the citizen.

To maximize the benefits of e-government, service delivery and administration must be integrated across all branches of government, so called One-Stop-Shop e-Government Model.

Its main features according to (Pavel, 2013) are:

1. The citizens can manage all their interactions with the government from one personal account on the Web.

2. The government reuses client's existing information to accomplish future tasks.

3. This improves the efficiency of government operations and saves time for the users.

4. Changes appear in the Web interface but mainly they happen behind the scenes where new pathways are created to enable effective data sharing.

Estonia was the first of the countries who implemented the One-Stop-Shop e-government Model in practice. In Estonia, it is common for people to go online to vote, pay taxes, establish businesses, apply for social benefits, register cars, apply for schools, receive prescriptions or apply for building permits. Citizens and permanent residents have access to a personal Internet account where they can choose from hundreds of e-services. According to the Universal Record Database, Estonia is holding a world record. The fastest establishing of an enterprise via Internet made world Record, using the e-Business Register. E-Business Register is a single point of contact for entrepreneurs to communicate with the government. It enables to register a new company over the internet, change data in the business register, file annual reports, administrate members list of political parties and make detailed inquiries about other companies. It is a secure and fast tool for administrating your company in e-government. Administrative costs and "red-tape" has been reduced significantly, so that a world record in registering a new legal entity within 18 minutes became possible. E-business register accepts foreign digital signatures, which have increased the number of potential users up to 20 million (RIK, 2010).

Example of good practice: "Estonia's portal gateway"

"Estonia has developed a portal gateway that integrates various key enablers and improves customer experience. The Estonian state portal www.eesti.ee is a secure Internet environment through which Estonian residents can easily access the state's (more than 100) e-services and information. Users can log in using ID-cards and enter a personal, user-based environment. It allows to create documents digitally sign these and send to other for signature. The services provided through the portal withdraw information from various databases and registries, enabling pre-filling of information and consequently reducing the burden for its users. The aim of the portal is to have citizens, business, public administrations and society benefit."(European Commission, 2013).

Many public administrations in Georgia already have, or are in the process of developing, frameworks addressing interoperability issues at national, regional or local level. The scope of these frameworks is restricted to the jurisdictions within which they have been developed. However, Georgian public administrations must be ready to work together to deliver Georgian public services to meet the needs of businesses and citizens.

It is important that interoperability frameworks used by public administrations, both national (NIFs) and Georgian (GIF), are aligned as regards how to achieve interoperability so that Member States can agree on the concrete implementation of the GIF recommendations when establishing Georgian public services.

By their nature, NIFs are, in general, more detailed and often prescriptive than the GIF, which operates at a higher level of abstraction, as a 'meta-framework' and, in line with the subsidiarity principle, does not impose specific choices or obligations on the Member States.[1]

As the GIF and the NIFs are complementary, the Georgian Commission supports a National Interoperability Framework Observatory (NIFO), whose main objective is to provide information about national interoperability frameworks to allow public administrations to share experiences and knowledge.

Interoperability, as covered by the GIF, comes into play in a number of interaction scenarios. Georgian public services covered by the GIF can be subdivided into cross-border interaction types. (Reichstädter, Höchtl, Zwattendorfer(2004).

2.1 General Overview

Electronic Government refers to the simplification and the transaction of business processes by the use of information and communication technology (ICT) in the context of governance and public administration.

"Electronic Government (E-Government) is the use of information and communication technologies in public administrations - combined with organizational change and new skills - to improve public services and democratic processes and to strengthen support to public policies." (Electronic Government, Definition by the EU)

There are several definitions of e-Government meaning almost the same but having a slightly different view on it.

The main approach on e-Government can be described as follows: With the internet, e-government can be used to work on and to solve political and social issues

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[1]The principle of subsidiarity applies not just to the EU vis-à-vis Member States, but also in some cases within Member States themselves, at federal/national level or at other levels (e.g. regional, provincial, county and municipality).

increasingly local: close to the point of origin. Therefore, e-government creates a more effective and a more citizen-orientated government with less cost for the administration.

E-Government is understood as the execution of administrative tasks and processes with the help of technical tools and media.

One definition on e-governments covers everything that is related to administrative and democratic processes. In this approach, e-Government splits up into e-Administration and e-Democracy.

The understanding of e-Administration is related to research on raising efficiency, development, and reorganization of administrative processes. The meaning of e-Democracy is related to research, development and deploying of possibilities for citizens to participate in democratic processes.

E-governance is closely linked to e-government, but have different nuance - e-governance is a set of guiding principles to e-government and can be defined as the group of norms and processes that have an influence on the exercise of power, particularly from the point of participation, openness and responsibility (Galindo, Marco, & Calleja, 2009; Pavel, 2013). According to UNESCO e-governance is the use of ICT by different actors of the society with the aim to improve their access to information and to build their capacities.

E-democracy builds on e-governance, focuses on the actions and innovations enabled by ICTs combined with higher levels of democratic motivation and intent, and is the way in which the government provides the access to the information opportunities for participation in democratic processes for people (Galindo, Marco, & Calleja, 2009). The concept of electronic governance chosen by the Council of Europe covers the use of electronic technologies in three areas of public action; relations between the public authorities and civil society; functioning of the public authorities at all stages of the democratic process (electronic democracy); the provision of public services (electronic public services). E-governance is defined as the

"... the application of electronic means in the interaction between government and citizens and government and businesses, as well as in internal government operations to simplify and improve democratically, government and business aspects of Governance." (Palvia& Sharma, E-Government, and E-Governance: Definitions/Domain Framework and Status around the World, 2007, p. 3).

2.2 Legislative Framework

The Georgian information security legal environment is under development. Various laws are being undertaken consideration in correspondence with European Union regulations and standards.

Each public administration contributing to the provision of a Georgian public service works within its own national legal framework.

Sometimes, incompatibilities between legislation in the different Member States make working together more complex or even impossible, even where such legislation is the result of transposing Georgian directives into national law. Legal initiatives may be needed to remedy such situations.

When information is exchanged between the Member States to provide Georgian public services, the legal validity of such information must be maintained across borders and data protection legislation in both originating and receiving countries must be respected.

3 Research Methodology

This chapter gives an overview of the methods of the research conducted on exploring more what should be considered when developing e-government portals and evaluating the outcomes of the Estonian and Georgia.

In this thesis, we will consider the methods and research tools that will help in understanding how e-government services work in Estonia and in Georgia.The research efforts were exploratory and limited, with the expectation of pursuing the findings in a larger-scale and comprehensive study. However, research efforts used multiple methodologies, including interviews with state and local government agency personnel responsible for various E-Government initiatives, a survey of E-Local Government developers, interviews with users actively engaged in E-Government services and resources.

Once a suitable solution is almost impossible to develop. This approach is suitable for the study of an introduced social processes and its diffusion over time. The action research approach highlights a line of "social inquiry"(Baskerville (1999), a proposed framework through the e-LocGov model in a bounded social, which sets rather than undertakes the research from a more positive perspective. The difference between the objectives of positivistic science and action research could also be compared. (Susman & Evered (1978).

In this research, the author will use case study method and action design research method. The author will take Estonia to analyze and compare Georgian issues. The author will select exact cases of the centric problem; the author will collect documents, data, and necessary information to find the best solution. In addition, it will help the author take all conclusions and then look how to do it more efficient in a practical way in action design method. Bellow in Figure 1 you can see clearly which research methods was used.
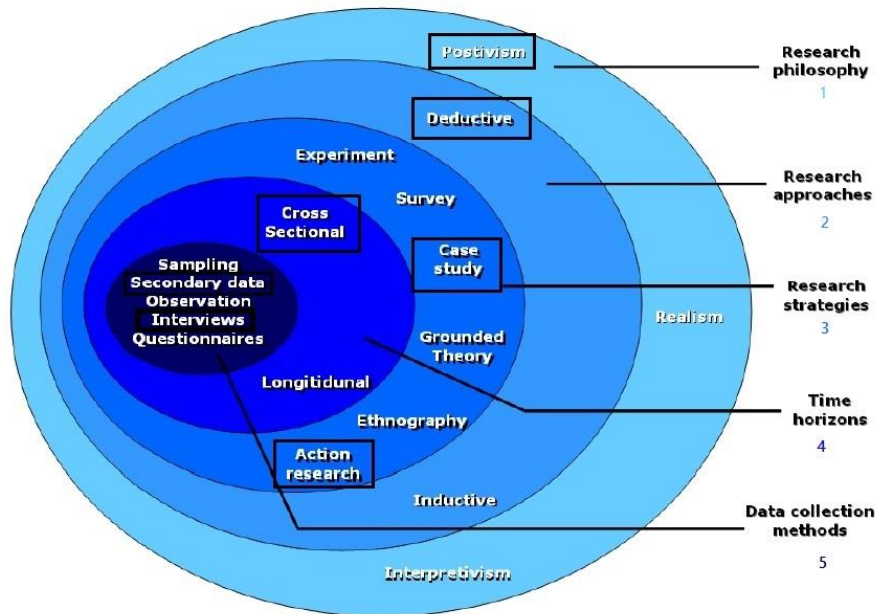
Figure 1. The Research Onion – Ukkesseis.com

1. Research Philosophy– Positivism – The goal is to create a real knowledge based on experience. The author brings other researchers opinions and analyses.

2. Research Approaches – Deductive – The theory-driven hypothesis, analyzing with questions. Where an author gives three main research questions for analyzing situation and propose a solution.

3. Research Strategies – Case Study– Multiple sources of data, it includes almost every kind of qualitative data. Action Design – Allows being author and participant at the same time. In this research, we can make some changes to improve the present situation. As the qualitative techniques are not related to the study of the object of measurement, the object doesn't establish quantitative parameters for different scale through.

4. Time Horizons – Cross-Sectional – Type of data collected by observing many subjects at the same point of time.

5. Data Collection Methods – Secondary Data –The published data, which has been collected by other researchers. Interviews –Helps author to talk about various issues in a specific problem, to set the goals and make solution.

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4 Requirements for Creating the Effective Work Environment

Paperless management lends transparency to the decision-making process and transition into e-services. The consumption of services and communications should be allowed to start from the common web space (Citizen portal, local government websites, etc.) As regards information technology, the general infrastructure enables local governments to successfully switch to e-services because the used methods of authentication include an ID card, mobile-ID, and digital signature. During the digitalization of certain services, the achievable efficiency is significant. For the provision of certain e-services, the time consumption can be measured in minutes. This fact makes the whole service process agreeable for both parties. However, upon the digitalization of certain services, the resource saving might not be large enough. It is sensible to combine the ways of service provision so that neither a citizen nor an authority will be a losing position.

Linking the development of e-services with the work processes of EDRMS has been a logical step, as according to the public Information Act all state authorities and local government have to maintain their documents registries electronically. In recent years, EDRMS has become more important as an information environment that concentrates the activities and decisions of an organization. Service provision goes hand in hand with legal decision-making at the local government level and requires appropriate previous agreements. In the past, decision-making process as regards the possibility of service provision of specific applications was carried out outside EDRMS, which only received a confirmation of the decision - a specific legal act, e.g. a building permit. Today, the decision-making process can be initiated and completed.

This communication process returns the appropriate information about the decision made to the citizen via a digital channel and performs further acts if required. Technologically, it is conceivable to perform several services simply within the electronic environment, but in practice, various obstacles hinder this possibility. The main obstacle so far has been the insufficient readiness of both the organization and the citizen due to a lack of technological knowledge and legal restrictions. The difference options for citizens of using services must be taken into account, as many target groups are unable to only use the services electronically. Not all target groups are able to communicate with local governments through an electronic channel. For them, the communication, information

transmission, and service provision have to be ensured in the traditional way. Additionally, the ability of local government to transform their services into e-services can also be delayed due to a lack of competence on the part of the officials.

With the emerging of ICT also, developing different public electronic services is rapidly growing. The states and governments see a need to serve the citizens in a faster and innovative way. Electronic government (e-Government) is a growing framework, for countries all over the world, for adopting the benefits of ICT and deliver government services via the internet. Also, it aims is to make the work of government more accessible and transparent to its citizens.

Over the past decade, The Internet has changed the way business could and would be done. The new technology has changed the way firms can interact with the customers. The role of customer service evolved from transactional approach to a relationship approach and with the technology, there is a new segment called electronic service (e-service). E-service can be defined as a service, which is, mediated trough any technology application, for example, the Internet.(Fisk, Russell-Bennett & Harris (2013) According to Rust and Kannan (2002, 4) this kind of e-Services include the service provider and goods manufacturers whose success vitally depends on the quality of the service organization work – this is a customer-centric concept. The organization interacts with its customers in the downstream channels and with suppliers in upstream channels. In downstream channels essential concepts are for example customer relationship management (CRM), customer care, customer marketing, therefore upstream routes can include supply chain functionalities, just-in- time inventory and e-procurement.

E-Services main idea is to focus on the customer and meeting their needs. When traditional service meets the customer needs by a face-to-face meeting, telephone or e-mail, but e-services usually use the Internet or a kiosk to meet the demands electronically. Traditional services are available only when the service reprehensive is available, but e-services are usable whenever the customer has a demand, so based on the fact e-services are efficient and effective to serve more customers. (Fisk, Russell-Bennett & Harris (2013).

Due the fast growing of ICT and Internet, the private sector has driven business into the digital world – with applying e-business and e-Services. Significant reform has been the revolutionizing the supply chain management and value change management through the application of e-Technologies. The cause of the fact that public sector works with complex networks and supply chain systems; they have recognized also a need of

improvement of business processes, citizens' access to information and productive relationship with the private sector and agencies. (Asgarkhani (2005) Therefore many public sector agencies and local, state and even federal governments all over the world are using e-service in innovation way as a solution to meet the change. (Fisk, Russell-Bennett & Harris (2013).

This new area of e-services is also known as e-government where governments act like businesses and want to serve the needs of their stakeholders and citizens in an effective manner. (Fisk, Russell-Bennett & Harris (2013) E-government can be defined as a use of ICT in public administrations that combine the organizational change and new skills for improve public services and democratic processes. Through the thoughtful use of technology, governments have been able to remove superfluous bureaucracy. Customers are now able to interact and use the services whenever the desire and a need arise. (Fisk, Russell-Bennett & Harris (2013).

In a broader view, e-government offers the improvement of the overall services of the government and making the work more transparent for the citizens and to the private sector, by offering a wider access to information and facilitating transactions with and within the government. When using this kind of description e-government can be divided into five major categories:

-Government-to-citizens (G2C).

- Government-to-business (G2B).

- Government-to-government (G2G).

- Internal efficiency and effectiveness (IEE).

- Government-to-employees (G2E) (Juurikas (2015).

The government-to-citizens category includes the interactions done electronically that involve the government and citizens. The purpose is that the citizens are able to connect with the government whenever they are or want. G2C e-government objectives also are to meet the high public demand for information, improve the value of government to citizens and make obtaining financial assistance from the government easier, cheaper, quicker and more comprehensible. Government services are provided to the citizens via citizen portal and typical services include: payment of taxes, receiving different payments and documents. G2B usually includes interaction between the government and businesses; where the government is selling to businesses and provides them with services and businesses are selling their products and services to the government. This categories performance objective is to make transactions to business quicker and easier. For

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example, companies can find fast needed rules and regulations, online tax and export form filling. G2G consist of activities between units of the government; its objectives include among others cutting the operating costs, automation the internal processes, share information more quickly and convenient between different units. G2E an e-government category that includes activities and services provided by the government to their employees. These kinds of applications are useful in enabling communication, for example with those workers who are situated in a different geographical location. Internal Efficiency and Effectiveness initiatives provide tools to improve the government operations and the processes implanted in government units. The purpose of this category is to reduce time with processing clearance forms, increase the availability of training programs for government employees and reduce the time for citizens to find a federal job. For example improving homeland security can be considered as an IEE activity. (Turban, King & Lang (2011).

E-services and e-businesses have transformed the way of logistic and supply chain processes are managed with the public sector. Nevertheless, providing quality e-services remains a challenge to the public sector agencies. Governments must maximize the benefits that are offered but at the same time avoid the pitfalls that can come with the new technology. Still many studies have shown that the governmental organizations are putting too much emphasis only on the technological aspect of electronic services. The electronic technologies can be beneficial when they are a part of and supported by the social, cultural and political environment. Also, some performances measures are needed in order to assess the progress and check if the developed e-services are matching with the reality. (Asgarkhani (2005).

Asgarkhani (2005) has reviewed different case studies about e-services and e-government and suggest that local governments when introducing electronic services should concentrate on:

- Prompt, accurate service.
- Improved quality of service.
- Removing barriers and tackling social exclusions.
- Local access points.

The service quality can be represented in two dimensions: technical and functional quality. Technical quality refers how the service is delivered and functional quality to what the customer are receiving. There are no generally accepted theoretical concepts yet for the consumer evaluation of e-services, with that a major concern is that the quality of

the medium is confused with the quality of the content that the application or website is offering. When defining the quality of electronic services both of these factors should be considered. In the public sector, the services evaluation is even more complicated because it interacts with direct, indirect and other stakeholders (such as different firms, agencies, and organizations). (Ancarani (2005)When focusing on the functionality aspect in public electronic services usability is the main characteristic to evaluate the quality of a service. According to International Organization for Standardization, usability can be defined as a measurement of the effectiveness, efficiency and satisfaction the users can achieve when using the needed services. Parameters, which can be used when assessing the quality of e-services can be classified into three different categories: usability, service and implementation related aspects. When evaluating the level of usability four components are taken into consideration: understandability, learn an ability, compliance, and attractiveness. These factors are very important to notice to get the positive feedback from the users. In the service aspect, some features that should be considered by the government are multicausality, trustworthiness, internationalization, originality, accessibility, and adaptability. In the implementation aspect, the parameters can be divided roughly into two: behavioral and infrastructural criterions. In the first group should be noticed the interoperability, integrity, security and flexibility of the services. Infrastructural parameters are availability, performance, scalability, scheduling, and reliability. All these parameters are linked with the offering of information and interacting with the users. These above-mentioned features should be taken into notice when developing or measuring the quality of a public electronic service. They help to strengthen the whole e-government field and push it toward maturity. (Corradini, Polzonetti, Re & Tesei (2008).

While many countries are improving their infrastructure, broadband speed and develop their digital world, there are those that don't have the same resources. This is called the digital divide. (De Kare-Silver (2011) Media started to focus on the subject of unequal access and use of the new media in the second half of the 1990s; before that general concept like information inequality and knowledge gap were used. (Van Dijk (2006).

Digital divide is a very complex and dynamic concept. Various researchers define it often very differently. Early researches on the phenomena focused only on a binary classification of physical access, but more and more researchers have recognized limitation and point out that more attention should be paid to social, psychological and

culture backgrounds. (Van Dijk (2006) Norris (2001) has stated that the term can be shared into three dimensions: global, social and democratic divide. Where global divide is the gap between the use of Internet access in the industrialized and non-industrialized countries; the social divide is the gap without the access to information and democratic divide is the difference between those who use Internet resources to engage the public life and those who are not.

The scale of the country's digitalization state reflects of its economy. ICT has become increasing economic and social importance to the majority in advanced and developing economies. (De Kare-Silver (2011) The main arguments behind the global digital divide is the worry about the fact that the developed industrialised nations are in the position to take the full advantage of the information age, while the developing countries are not. With the ICT, the industrialized countries can further enhance their elevated positions even more over the developing nations. The current trends show that internet access is growing much faster in the developing countries; however the number of persons getting access to the Internet is still very small in these countries and is far overweighed by the real number growth in the advanced economies. (Miller (2011).

4.1 AS IS Model

AS IS Model Structure – current model starts with Choosing Region, one from 10 regions in Tbilisi. Then it goes to Choose Kindergarten, every region has at least 15 kindergartens, it gives kindergartens list with enumeration, the user can select the one she/he wants to, or according to from kindergarten's availability return in the list and choose available one. Afterward needs to Choose the Group, each kindergarten has separate groups, few groups for concrete age. After selection of all those three choices, there is an obligation to write: Personal information about the kid, such as name; surname; ID number, date of birth. Personal information about parents: Mother's and father's names, mother's and father's surnames, mother's and father's ID numbers. Contact Information, Email and Phone Number. Moreover, each of this information after choosing kindergarten and group should be written in a column separately. Then you send Registry Request and system receives Registry Request, it approves Registry and user gets approval.
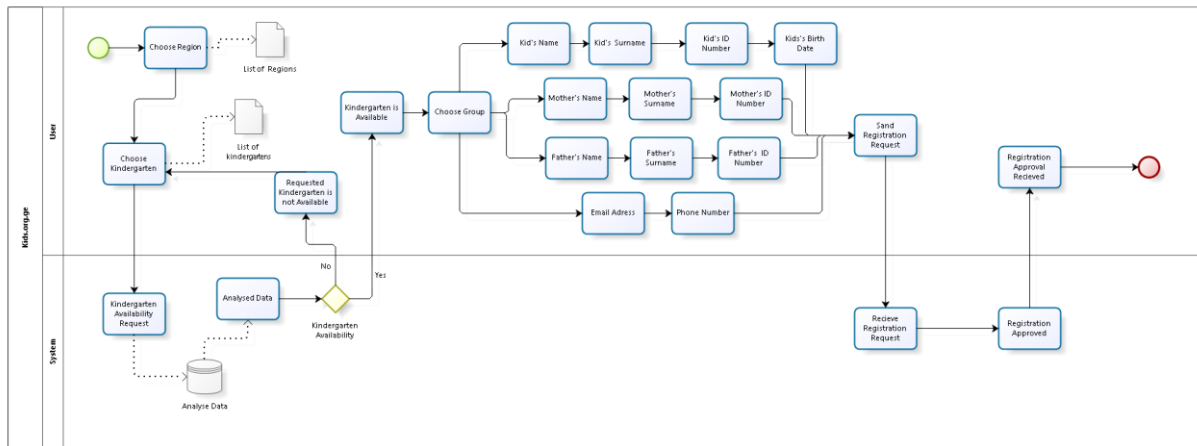
Figure 2. AS IS Bizagi model of registration for Kindergarten

Table 1. Differences between AS IS and TO BE model in registering for Kindergarten (made by author)

AS IS ACTIONS	TO BE ACTIONS
1. Choose Region 2. Choose Kindergarten	1. Choose Region 2. Choose Kindergarten and Group
Fill child's personal information 3. Name, 4. Surname, 5. ID Number	Fill child's personal information 3. ID number
Fill mother's personal information 6. Name, 7. Surname, 8. ID Number	Give contact information 4. E-mail 5. Mobile number
Fill father's personal information 9. Name, 10. Surname, 11. ID Number	6. Get approval for the place
Give contact information 12. E-mail, 13. Mobile number	
14. Get approval for the place	

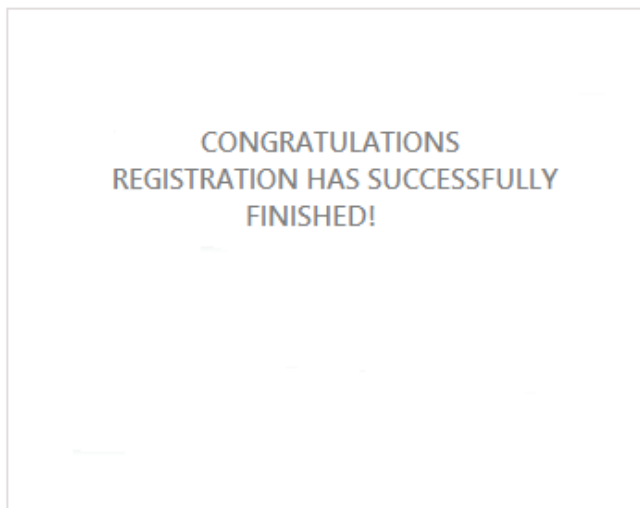Figure 3. AS IS Registration Form – Kids.org.ge

Figure 4. AS IS Registration Confirmation – Kids.org.ge

4.2 TO BE Model

While working on the dissertation has been conducted some research in Tbilisi to local municipal governments. It was a survey in the municipalities and questions were raised which today are the most important in Tbilisi.

In this chapter, the author gives an overview of the answers which gave the Local Administrative Bodies of few Regions from ten in Tbilisi. Those are Saburtalo District Municipalities, Local Administrative Body of Vake District, Local Administrative Body of Mtathsminda District, Didube District Municipalities. The interview questions that we research in this thesis are:

1. Is it easier whether work with local municipalities after switched to e-government?

The purpose to find out how easy it was to work after the municipalities have switched to electronic services.

Because the study was conducted in Tbilisi, where the most of the residents have computers connected to the Internet, the answer from all the municipalities was positive.

2. Did it become easier for citizens to communicate with government services and get the right information?

Based on the fact that electronic systems are a news for the citizens of Georgia, where the Internet and computerization have not yet spread throughout the country, it is very important to know how comfortable to use e-services.

For young people who are well aware of new technologies, the creation of the e-state was very important and interesting. According to figures supplied by municipal authorities, the majority of users of e-government services are young people. It should be noted that government websites give little information, and often to find the information you need to come in person and make a request that creates some inconvenience for citizens.

3. How accessible is e-government for citizens?

Interested to know how well e-government sites are working, how often they are updated. As we already mentioned above, in Tbilisi, the majority of residents have access to the Internet, and so it is necessary to emphasize that government websites work online very well. Daily checked and updated sites that make them interesting and readable. Because it is very important to the citizens on time could learn the news in public institutions.

4. How often are citizens using e-services?

This question is most interested in analyzing today's situation. Moreover, the answer to this question was definitely simple and the local "Every day!" As the information is updated every day, and the demand for news is large.

5. What are the problems citizens are facing during the registering on government websites?

As in any system, Georgian government websites can also have problems. The author was interested to know what problems occur most often and when.

To register on the sites is very easy, but there are two sites where register children with schools and kindergartens in a child. During registration, many people want to make a request and it is very difficult to check, due to overflowing requests of a site often the system hangs and disconnects. It only happens a few times a year but creates a very big problem. This is the only problem, which is created during the work of government websites.

The main aspect of this question gained overall conclusion to the work. How to solve this problem, with the help of ICT, the case of kindergarten registration. http://kids.org.ge/

6. What needs to be improved in this system and what should be done to make e-government work better?

This issue summarizes the whole of the thesis; the study of this question will answer the most important questions raised in the thesis.

The telecommunications infrastructure in Georgia is still weak, and users may experience disconnections from the international internet up to two or three times per month, allowing them to access only Georgian websites. In general, the connection speed for accessing content hosted in Georgia is greater than for international content. There are many factors influencing this, including the major underground fiber-optic cable that is often threatened by landslides, heavy rain, or construction works along the road. There are two nationwide fixed network providers and several local ISPs. Government censorship is not a major hindrance to internet freedom in Georgia. Users can freely visit any website around the world, upload or download any content, and contact other users via forums, social-networking sites, and instant messaging applications. Civil rights, including the right to access information and freedom of expression, are guaranteed by the Georgian constitution and are generally respected in practice.

5 Connection Between DA and Public Services

In this chapter will be examined the connection between DA and public services and will find out how can DA be linked to public services. The possibilities arising from the development of ICT in public administration activities facilitate the exchange of data among public administrations and the providing of services to users. This important phenomenon is known as e-Government that is a technical-organizational innovation process in public administration, aimed at facilitating "the integration of production procedures and providing services both inside and outside the public administration".

In order to realize the needed integration of these procedures, working methods must be defined that exchange data and services among the various administrations. In addition, it should be pointed out that, save rare cases, an administrative procedure involves several administrations, with the requirement that common working regulations in the administrations involved be defined.

The term governance is intended to refer to the application of public action models in the context of participation and transparency in public management decisions. In brief, this is an organizational model of the policy realized through negotiation mechanisms.

The governance models that are being used in our country are transforming the public decision-making system and especially the public administration decision-making system, from a process in which regulations, procedures, and attitudes cascade down through instruments of varying coercing powers, in a process in which the principles of participation, responsibility, effectiveness, and coherence are concretely applied. As has been correctly observed: "the evolution of the regulatory framework on the subject of e-Government must be considered within the context of an institutional system that ever more frequently involves several levels of government".(Notarmuzi., C., (2005).

E–Government Development Index used to be calculated with rather many marks:

• Online service index;

• E-participation index;

• Telecommunication infrastructure index;

• Human capital index.

In the opinion of the UN experts, there are four stages of development of electronic services:

Stage I

Government websites provide information on public policy, governance, laws, regulations, relevant documentation and government services provided. They have links to ministries, departments and other branches of government. Citizens are easily able to obtain information on what is new in the national government and ministries and have links to archived information;

Stage II

Government websites deliver enhanced one-way or simple two-way e-communication between government and citizen, such as downloadable forms for government services and applications. The sites have audio and video capabilities and are multi-lingual. This also includes some limited e-services where citizens can request non-electronic forms and request for personal information, which will be mailed to their house;

Stage III

Government sites engage in two-way communication with their citizens, including requesting and receiving inputs on government policies, programs, regulations, etc. In this stage, transactions require some form of electronic authentication of the citizen's identity to successfully complete the exchange. This stage also include the processing of non-financial transactions, including, for example, downloading and uploading of forms, or on-line completion of forms (such as electronic tax filing, application for certificates, licenses, permits, e-voting) and financial transactions for any of the above (i.e. where money is transferred on a secure network to the government);

Stage IV

Government sites have changed the way to communicate with their citizens and they are proactive in requesting information and opinions from the citizens using web 2.0 and other interactive tools. The e-services and e-solutions that are available cut across the departments and ministries in a seamless manner. Information, data, and knowledge are transferred from government agencies through integrated applications. (IDFI (2011).

It is also very important to review the development of electronic engagement (E-participation). The internet provides a new arena to politicians for electoral enhancement of their positions and approaches. At the same time, the internet creates an environment where all social groups including marginalized have an opportunity to express their own civil position and achieve a specific goal. Many governments have been trying to establish a feedback with population via their own webpage. Governments try to directly deliver

information to citizens, engage them in political processes and thus enhance their political platforms. In the UN expert opinion, E-participation encompasses three main components:

1. E-Information - This is a one-way communication from government to citizen and businesses. The government websites provide citizens with e-information concerning policies, laws, regulations, citizenship, budgets, services and solutions and other related issues provided by the government. It is concerned with the provision of information on the website concerning e-participation activities, e-participation policies or mission, participation in rural or isolated areas, and how often such information is updated. This information can be provided via newsletter, web forum, blogs, community networks, SMS, email, etc.

2. E-Consultation - This is a two-way e-communication between government and citizen, which is initiated from the government side. Governments engage with citizens and businesses seeking feedback and comments on issues concerning the welfare of citizens. Governments need to acknowledge the feedback from the citizens and respond to the citizens. E-consultation also involves governments reporting on the outcome of the dialogue with the citizens and announcing a way forward. The government uses online tools such as: polls, surveys, chat rooms, blogs, social networks, newsgroups and other interactive tools to support citizen engagement. E-consultation can also be initiated by the citizen through the use of interactive tools such as e-petitions. Citizens can use e-petitions to initiate a dialogue on issues concerning their welfare with government to change public policy;

3. E-Decision Making - This is also a two-way e-communication between citizen and government in which citizens are involved either partially or fully involved in the decision and policy-making process. Governments elicit feedback from citizens and businesses on government proposals, which will have a direct bearing on the decision-making process. Citizens themselves can also introduce issues that can amend, modify or create policies and in partnership with the government participate in the decision-making process. Citizens are thus empowered to be more involved in government policies and programs. (IDFI (2011).

5.1 Case of Georgia

Georgia has the lowest index in telecommunication infrastructure development and the population E-participation. While telecommunication infrastructure development requires significant financial expenses and solid capital investments from the government and the business sector, development of E-participation is first of all dependent upon the political will of the government and appropriate approach to state structures to the issue. A high index of human resources development confirms the readiness of the Georgian population to become actively involved in electronic projects initiated by the government. One important circumstance should also be mentioned. While in geographically large countries with a big population, E-participation of citizens brings results mainly at a local level, in a small country like Georgia E-participation can bring a real effect because the government has a direct access to its citizens and accordingly, their engagement in the decision-making process is facilitated. Information resources (official webpages) monitoring of public authorities of Georgia carried out by the Institute for Development of Freedom of Information (hereafter IDFI) has shown that public institutions (Ministries and Legal Entities of Public Law) dedicate less attention to the establishment of interaction with the viewers of their webpages. Almost no official webpage operates a forum or a blog, special sections where it would be possible to hold public discussions or consider initiatives, online interviews, web 2.0 social network applications etc. Online consultation functions, information dissemination software in social networks, options of receiving informational services on mobile phones are rarely present on websites. The attitude of state structures regarding the participation of users in the decision-making process is, in fact, analogous to the "Question-Answer" section of webpages where official agencies ask questions and reply to these questions all by themselves. We think that the public campaign "The Government's Reporting to People" initiated by the President of Georgia several years ago would have been more efficient if it had turned into a real mechanism from a permanent initiative. The simplest and the most acceptable form of realizing this idea would have been the development of the government's electronic resources because web space is considered to be the modern and effective platform of accountability.

As for the development of electronic services in Georgia, positive tendencies are observed in this direction in 2010. Two institutions of the Executive Government appear to be leaders in this sector - Ministries of Finance and Justice. Many electronic services

are accumulated on the official website of the Ministry of Finance of Georgia (www.mof.gov.ge). Calculation of the cost of vehicle customs clearance, an online system of calculation of property tax rates and coefficients, activation of completed registration forms by web camera, the option of online completion and sending of the declaration, completion of a public institution declaration, electronic customs clearance of mail, online auction, and online payments. Besides, important data are available on the webpage: electronic budget, information on entrepreneurs, charity, and cash register records, etc. For more interaction, audio/video explanations are integrated on the website. Launch of a separate web-portal of electronic services by the Ministry of Finance Revenue Service should be also mentioned (www.rs.ge) which will significantly facilitate taxpayer's activities.

The Finance-Analytical Service of the Ministry of Finance implements significant electronic projects in G2G and G2E directions. State Treasury Electronic Service System (eTreasury), Records Management Electronic System (eDocument), State Budget Planning Electronic System (eBudget), integration into a unified information system of financial management of the state sector electronic systems, integration into a unified system of state financial management of all electronic systems.(www.fas.ge).

Electronic services have been introduced in the system of Ministry of Justice of Georgia as well. After implementation of the new initiative, it became possible to notarize any consents, statements, letter of attorney online by using Skype. It is also possible to receive legal advice on the Notary Chamber webpage (www. notary.ge). The electronic database integrated with regional offices of the National Agency of Public Registry have increased the level of electronic availability of public information to the population. Electronic registries of debtors of the National Bureau of Enforcement and enforcement record management operate (www.nbe.gov.ge). Statutory acts electronically published on the webpage of the Legislative Herald (www.matsne.gov.ge) have become legally valid. The Georgian citizens who are abroad have been enabled to obtain a passport by means of electronic service of the Civil Registry Agency. The Agency is planning to introduce a rather important innovation - electronic identity document (eID). This document will be a plastic card-like and will bear the owner's electronic signature. eID card will have functions of social payments, travel cards, insurance policy etc. An electronic signature will enable a citizen to carry out various online financial transactions and receive existing electronic services. Any electronic document signed by the card will be officially valid. In early 2010 a new LEPL was established under the Ministry of Justice - Data Exchange

Agency whose tasks are to establish data exchange infrastructure and information security development. For the purpose of facilitation of access to electronic services by users, the Agency created a webpage www.e-government.ge to accumulate all electronic services existing in Georgia.

At the same time, the Agency plans to implement the E-Georgia Project under EU partnership. According to the official statement the project serves further development of e-Governance in Georgia and is divided into three stages: 1) Implementation of the best models of EU-adopted practice in the Georgian reality; 2) Introduction of relevant regulations and standards; 3) Ensurance of functioning of informational security systems by means of a strong institutional mechanism - Computer Emergency Response Teams (CERT). By means of the project the Agency plans to create a state interagency network, share the best experience of the EU countries and introduce a reliable mechanism of data protection.(http://e-government.ge/news-169-1.html)

A number of positive tendencies are observed in Georgia in e-Transparency direction. First of all, the introduction of a Unified Electronic System of State Procurement in late 2010 should be mentioned. Creation of electronic resource of state tenders is a part of the approved National Anticorruption Strategy of Georgia. The web-portal ensures an open, transparent and competitive environment for any person participating in procurement procedures. Such electronic system facilitates administrative procedures, ensures receiving information about procurement and makes the tender process transparent (www.procurement. gov.ge).

One more important project directed at improvement of accountability and transparency quality is implemented in public management sector. The Civil Service Bureau has made the declarations of property completed by public officials electronically available (www.csb.gov.ge). The same Bureau administers a specially created webpage (www.jobs.gov.ge) which facilitates the increase of awareness level among seekers of employment in public sector.

We have already mentioned that rather important databases are placed on websites of public authorities included in systems of the Ministry of Finance and the Ministry of Justice. Electronic availability of public information is one of the necessary components for e-Transparency development. State authorities possess significant public information about various social, economic and financial issues. Often it is problematic to issue this public information, mainly because of wrong management or limited resources. That's why leading democratic countries actively introduce standards of electronic availability

of data in practice. For example, in the USA electronic public database is considered to be the most important e-Transparency project www.data.gov). The same electronic database is operated in the Great Britain (www.data.gov.uk). Unfortunately, the open data proactive publication policy does not bear an institutional or a unified legislative character in Georgia yet.

6 Creating and Designing Good E-Services

In this chapter will be examined how business processes are influencing service provision. In order to do that, the author studies the problem of e-business in General terms and mainly in Georgia. In addition, the service design will be analyzed in the following areas: process design for e-government service departments, organizational designing of e-government services, defining primary processes, optimize processes, knowledge management, controlling mechanisms, basic infrastructure for joint use in e-Business and e-Government in Georgia.

6.1 Process Design for E-Government Service Departments

Every municipality wants to develop its business, to improve the performance of its daily operational work and the quality of its service delivery. Business processes are the operational activities that provide, produce and deliver its services, with or without an "e" (electronic/digital support). Every organization consists of professional employees who perform business operations, using a variety of different resources and with different levels of information technology (IT) support.

E-services are the collection of administrative processes that enable governments and municipalities to provide services for their customers (citizens, visitors, companies and other government agencies) through websites. E-services allow customers to interact with municipalities via the internet; they can ask questions, receive answers and updates on government regulations, obtain official government documents, file applications, pay taxes and bills, and receive payments, to list just a few of the e-services that are commonly delivered by European municipalities.

Governments have placed a lot of emphasis on e-services as a way to improve service delivery. But business development requires a much broader view that goes beyond the front end website; it is essential to consider all the 'behind-the-scenes' business processes and what goes on in the back office. It is important to review all the business processes that affect the performance of a service in order to improve daily life for both employees and customers.(Smart Cities, 4).

During the past decade, we have seen that more and more governments in the world are providing their services via information and communication technology (ICT).

Governments wish to improve the services they provide to citizens and companies by using the options offered by ICT. In this paper, we use the following definition for Electronic government (e-government) services:

"Government activities that take place by digital processes over a computer network, usually the Internet, between the government and members of the public and parties in the private sector, in particular, governmental organizations. These activities generally involve the electronic exchange of information to acquire or provide products or services, to place or receive orders, to provide or obtain information, or to complete financial transactions" (MoMS 2004).

E-government services reduce operating costs and provide direct communications between citizens, companies, and governmental organizations. To provide these ICT services new governmental departments are being set up. They are responsible for the communication between governmental organizations and both citizens and companies in a secure way. These departments have a portal function. They are providing digital signatures to citizens for authentication and they set up VPN connections between companies and governmental systems to enable exchanging information in a secure way.

DeGSD is such an e-government service department that supports and promotes electronic communication. It can be described as an electronic mail office for consumers that provide the ICT infrastructure to communicate with the government. The goal is to reduce administrative activities for both the government and consumers.

Ever since the start of the business process reengineering movement (Davenport and Short 1990; Hammer and Champy 2001) the success has been debated (Zairi 1997; Teng, Jeong and Grover 1998). Many implementation methods or principles have been proposed (Harrington 1995; Armistead 1996; Burlton 2001; Chang 2006) in which the essence stays the same (Kettinger, Teng and Guha 1997). All proposed methodologies have an envision phase in which management should acknowledge the need for change. This is followed by the initiation of a project that starts with diagnosing or analyzing the existing processes after which suggestions for redesign are made. Finally, the changed processes should be implemented and evaluated against a set of performance measurements. So to help solve the problems facing the e-government service department DeGSD in the implementation phase of their e-strategy a new approach was developed consisting of the following six phases:

- Map the EIA the department by using Enterprise Architecture Modelling (EAM);

- Choose a strategy discipline;

- Define the primary processes of the department by using business process modeling (Primary processes have to be in line with the chosen strategy discipline);

- Optimize processes;

- Choose a knowledge management strategy and implement a tool and procedures that are in line with the chosen strategy;

- Define and implement controlling mechanisms for all departments that are involved.(Aydinli, O.F, Brinkkemper, S, and Ravesteyn, P. 2009, p.124)

6.2 Organizational Designing of E-Government Services

Decisions made by managers have an important effect on the communication processes between citizens and the government. Wrong decisions can have a big impact on the functioning of the government. Regulations and security issues are also very important.

To provide proper information to politicians and managers who are responsible for the e-government services, enterprise information architecture is a useful tool, because the main benefit of enterprise information architecture lies in its holistic approach to all aspects of the enterprise. (Koning, Bos and Brinkkemper 2008) This includes the ICT infrastructure and procedures, the business related issues, like business process or business excellence and the internal and external information exchanges. EIA deals with the documentation, communication, legal aspects and decision making of the complete information infrastructure of an enterprise.

With regard to this subject, the information which is the most critical for managers to decide includes 1) Mission, vision and strategy 2) Enterprise context 3) Enterprise functions 4) Information and communication systems and 5) IT infrastructure (Koning, Bos and Brinkkemper 2008). EAM is a method for creating enterprise information architectures. The process of creating an information architecture by using the EAM modeling technique consists of the following steps: (Koning, Bos and Brinkkemper 2008)

- Create a supply chain diagram (SCD);

- Create an enterprise function diagram (EFD);

- Create application and scenario overlays;

- Create a system infrastructure diagram.

6.3 Defining primary processes

BPM is the discipline of defining and outlining business practices, processes, information flows, data stores and systems. (Sparx 2007) BPM is an important part of understanding and (re-)structuring the activities and information flows within an organization. The emphasis of BPM is on how the work is done within an organization. It is an important tool in understanding the activities an organization undertakes and the kind of information it needs to successfully engage in those activities (Sparx 2007). There is numerous business process modeling techniques developed in the last decade. Some examples of these techniques are Petri Nets, Event-driven Process Chains, Workflow Nets, Unified Modeling Language (UML) and Business Process Modeling Notation (Weske 2007). These techniques are based on different views on processes. Some aim at modeling processes from an IT perspective (such as UML), while others are based on a business perspective. In the project, we used elements from both UML and Testbed (Telematica Institute) to satisfy both the IT and business stakeholders involved in this project. One of the main goals of modeling the business processes is to create transparency in how the work is currently done (as-is situation) within an organization. This is also the basis for the process analysis in the optimization phase.

Based on the analysis the e-government service department can define a set of standard processes that describes how to perform the departments' services in the future (to-be situation). These standard processes are used to establish consistency across the organization. The chosen value discipline is an important factor when (re-)designing the primary processes. For example, if an organization chooses product leadership instead of the operational excellence discipline there will probably be more quality control mechanisms required in the primary processes.

6.4 Optimize processes

Optimization is the use of specific techniques to determine the most cost-effective and efficient solution to a problem or a process. Process optimization is the practice of making changes or adjustments to a process to get better results. (Ranjit 2001). Although

process optimization is part of BPM and has therefore received much attention in industrial engineering and management literature, there is not much known on how to use these concepts in the public sector. Gulledge and Sommer (2002) have done research on how to implement BPM in the public sector and state that among the most important activities are documenting the existing processes, managing the process (measuring and optimizing performance) and improving the process to optimize the product/service quality. This is also in accordance with the 'streamlining the processes and 'continuous improvement' phases of the Process Breakthrough Methodology that are developed by Harrington (1995). In these phases processes are continuously optimized by redesigning them, for this purpose it is important to benchmark processes, perform risk analysis and measure improvements in terms of costs and time.

The main goal of process optimization is to resolve complex challenges and improve product, service, process, Bhatt, and Troutt (2005), who have found that business process improvement initiatives directly affect customer responsiveness and product/service innovation, support business performance and this.

E-Government services that choose the operational excellence value discipline have to optimize their processes to serve customers in an efficient and cost-effective way. In order to achieve the major goals of business process improvement, managers need to fully understand the cost, time, and quality of activities performed by employees throughout an entire organization. A method for understanding the costs structure of processes is Activity Based Costing (ABC). After defining the primary processes, the most costly parts can be identified by the ABC method. Then these parts can be improved by eliminating redundant or irrelevant activities or automation.(Aydinli, O.F, Brinkkemper, S, and Ravesteyn, P. 2009, p.126).

6.5 Knowledge management

Michael JD Sutton (2003) defined a list of reasons why an organization should implement knowledge management to gain an advantage. Stan Garfield (2006) described a set of goals and benefits in order to create added value with knowledge management. Some examples of these benefits are:

- Avoid redundant effort by using knowledge management systems.

- Make it easy for employees to find the necessary information and resources to do their jobs.

- Communicate important information widely and quickly in the organization.

- Capture key information on all work performed so that everyone will know what others have done and who to contact for further details.

- Provide and create methods, tools, templates, examples and data to streamline business and services.

In these sections, we described the business processes where knowledge creation takes place. By identifying these business processes and understanding them, we can describe information architectures, business process models, and working procedures. It also enables us to describe the roles and functions of the employees including the knowledge and experience needed to execute these. This knowledge and experience have to be shared and (re-)applied within the organization to provide services in an efficient and controlled way. Furthermore, the knowledge and experience has to be evaluated periodically and adapted if necessary. Knowledge management is a continuous process (Weggeman 1997) that needs to be managed. This can be done via a knowledge management strategy (KMS). There are two types of KMS described by Jashapara (2004). First, there is codification, which is based on technology and uses databases to codify and store knowledge. It is heavily based on codifying explicit knowledge. Second is personalization, which is less about technology and more about people. It is heavily based on tacit knowledge.

6.6 Controlling mechanisms

In organizations, management control is one of the most critical functions; it involves managers taking steps to help ensure that the employees do their work according to the best interests of the organization. "Management controls are necessary to guard against the possibilities that people will do something the organization does not want them to do or fail to do something they should do" (Merchant and van der Stede 2003). Besides this, the management control issue has also become more important because of various scandals like Enron, WorldCom, and Ahold. These scandals triggered governments and institutions to create laws and rules concerning corporate governance.

The laws and rules that have been designed and implemented require organizations to improve the alignment between governance, risk management and compliance (Brown and Nasuti 2005; Drew 2007; Elgar 2006).

This aspect is very important for e-government service departments. Mistakes made by employees during execution of processes or activities can have a large impact on the reliable functioning of the government. Therefore, e-government service departments have to minimize the chances that mistakes can occur. There are three types of control described by Merchant and van der Stede (2003). The first is result control; this involves rewarding individuals for generating good results while bad results are penalized. Result control influences the actions of employees because they motivate employees to be concerned about the consequences of the activities they perform. "The organization does not dictate to employees what actions they should take; instead, employees are empowered to take those actions of which they believe that it will produce the desired result" (Merchant and van der Stede 2003).

Results should be measured precisely and objectively in order to be able to control and improve activities and actions of employees. The second type of control is action control. This "control ensures that employees perform (or do not perform) certain actions known to be beneficial (or harmful) to the organization. It is important to define what actions are acceptable or unacceptable, to communicate those definitions to employees and to observe or otherwise track what happens and reward good actions and punish those that deviate from the standard set" (Merchant and van der Stede 2003). The last control is personal control, which builds on employee's natural expectancy to be controlled and motivated in an organizational environment. Three major methods of implementing personnel controls are selection and placement of employees, training, and job design.

6.7 Basic infrastructure for joint use in e-Business and e-Government in Georgia

To enable e-Business, a number of basic infrastructure services to promote digital interaction are required, such as digital identification, digital signature, online payment, secure and trustworthy transport infrastructures, secure online delivery services, as well as Internet access for all and everywhere even in remote rural areas (fixed lines or mobile), etc. Private as well as public sector actors need these basic infrastructure services.

To speed up the diffusion of Internet and to reach out to far rural areas, concepts of public-private partnerships need to be investigated. Options for exploiting synergies among public and private sector have to be assessed and discussed among relevant actors. Especially in times of tight budgets and high load of investments by the public sector, investments in the private sector in public-private partnership co-operations provide alternatives to reach minimal targets of universal infrastructure services all over the country.

Particular measurements in this regards are for example:

- Promoting the availability of basic communication infrastructures such fixed and/or biting mobile access in the regions and Internet access in every household by 2018.

- Promoting the private sector to provide and/or share universal services in the regions (e.g. strengthen logistics and delivery of online orders through physical transport means to complement currently weak transport services; improve Postal services in Georgia to provide good service delivery also in rural areas; introduce a tracking systems for delivery of goods online and offline; improve postal service quality and reliability to increase trust in Georgian post (introduction of minimum quality of service from Georgian postal service); sharing of network infrastructures, cloud services etc. among big companies and SMEs; Internet exchange points provided through third (non-profit) intermediate parties; etc.) or promoting partnerships among private and public sector actors to provide universal services (including cloud services) in regions (establishing partnership models to create win-win on both sides).

- Developing fast and secure online payment standards and solutions therewith ensuring that these are compatible with international standards.

- Integrating online payment with e-Services provision.

- Supporting business continuity (ensuring service level agreements on basic and critical infrastructure and key e-Service provision in certain areas, e.g. with Governments or with Banks).

Online payment – current situation: PayPal is available, online banking too from some banks. Yet it is not accessible for all and everywhere. Cash transfer over Georgian post is not trusted and hence not carried out. Payments by credit cards are currently only usable with Georgian credit cards for Georgian local online services. Payments can only be done in Georgian Lari.

Logistics and delivery of products and goods by Georgian post (as a common good) is not transparent and is poor in Georgia. In consequence, postal services are not trusted and not used intensely.

The provision of fixed and mobile access all over Georgia has contributed to the rural economic development and to higher use of online trade and of e-Services offered by the public sector. A key part of high take-up is the diffusion of trustworthy, secure and reliable basic infrastructures services such as digital identification, digital signature, online payment, online transport, and delivery. The introduction of these basic services was driven by governments, yet was possible only through partnerships with the private sector. Through a specifically defined and agreed standard collaboration model for the diffusion of such basic infrastructure services, a win-win situation has emerged for public and private sector actors. The civic sector benefits from low prices and trustworthy online trading and public e-Services provision.

Through the diffusion of reliable, secure and trustworthy infrastructure services (including through cloud services, entrepreneurship in ICT developments and ICT services have emerged also in rural areas hence contributing to more jobs and economic growth. With a proactive e-Skills development campaign, this has, in turn, contributed to making Georgia attractive to foreign companies to invest in the country.

Performance targets

- The number of online transactions in online trade increased by 15 %

- Basic infrastructure services (universal services) are available by 98 % coverage in the country and at an affordable price.

- 60 % of coverage of the Internet availability for all and everywhere

- 5 private and public clouds exist providing 60 cloud services for Georgian public, private and civic users. (Krabina (2013).

7 Development of E-Service Environment in Public Sector

A great challenge for the global society is to figure out how to harness the power of computer-based information and communication technologies (ICT) to raise the ability for governments in developing countries to govern, serve its citizenry and, ultimately, improve the human development conditions for its people. The World Summit on the Information Society (WSIS) declares: "Our challenge is to harness the potential of information and communication technology to promote the development goals of the Millennium Declaration, namely the eradication of extreme poverty and hunger; achievement of universal primary education; promotion of gender equality and empowerment of women; reduction of child mortality; improvement of maternal health; to combat HIV/AIDS, malaria and other diseases; ensuring environmental sustainability; and development of global partnerships for development for the attainment of a more peaceful, just and prosperous world". (Notarmuzi (2005).

Under the right conditions, ICTs offer governments in developing countries an effective resource to serve citizens and other stakeholders through electronic government ("e-Government") strategies in very exciting ways. Governments worldwide are integrating computer-based technologies into the centerfold of public administrative reforms to digitize the delivery of services and the process of governing. E-Government relies on ICTs to automate the processes to serve citizens, businesses, governments, and other constituents particularly through the Internet and the World Wide Web. The World Summit on the Information Society declared in the Geneva 2003 Plan of Action that all countries should aim "to connect all local and central government departments and establish websites and email addresses".(WSIS (2005) E-Government is more than just putting in new computer systems. Rather, e-Government also involves complementary changes to administrative practices and business processes. (National Research Council (2002).

The terms digital government, electronic government (e-Government) and electronic governance (governance) are used widely to represent the use of information and communication technologies in public sector organizations. The terms are very closely related, which causes confusion. Governments serve multiple roles – they provide services; they govern (e.g. set, monitor, and enforce standards within systems); and, they

serve the public by governing. Because of this, the terms are often used interchangeably. For this report, the three terms are distinguished in the following way:

1. Digital government refers to the "umbrella term that comprises all uses of information and telecommunication technologies in the public sector".(Garson (2006).

2. E-Government is one aspect of digital government. E-Government refers to the provision of governmental services by ICTs, particularly over the Internet.

3. E-Governance refers to the use of ICTs for the organization of political activity within and beyond nation states. E-governance "is one of a wide range of competing terms pertaining to the use of new communications technologies, such as the Internet and mobile telephony, for political and governmental purposes. Other widely used terms that have overlapping meaning include: electronic democracy (e-democracy), online democracy, cyber-democracy, virtual democracy, online governance, teledemocracy, e-participation, and e-deliberation".(Chen (2008).

Various examples show the great potential of e-Government in developing countries to help people develop their full potential and lead productive and creative lives in accord with their needs and interests. E-Government is being used to make it easier for people to lead healthy lives, experience life-long learning, and access resources to sustain a reasonable standard of living. E-Government also facilitates the ability for individuals to participate in the life of their society, government, and community. For example, rural farmers in India can get fair prices for their crops with instant access to prices through kiosks, school age children in Kazakhstan expand learning options by connecting to instructors in the urban centers through distance learning, and rural villagers in Rwanda can access government services through the eRwanda initiative.(Electronic Government for Developing Countries (2008)

Many countries are in the process of transitioning from primarily paper-based administrative systems to digital systems through the application of information and communication technology (ICTs) as part of e-Government initiatives.

The regulatory framework at the dawn of the third millennium was sufficiently advanced with respect to administrative "paperwork" procedures and, with reference to the application of computer technologies to administrative procedures, developed only with respect to single aspects of said procedures.

Providing computerized administrative procedures with a central role in the regulatory system constitutes a fundamental step in order to proceed with the computerization of public administration activities.

An instrument such as the Code made it possible, according to a systematic order, to collect the existing regulations on the use of technology in public administrations, integrating them with ulterior provisions necessary to define the regulatory framework needed to perform administrative activities utilizing digital and communication technologies.

The possibilities arising from the development of ICT in public administration activities facilitate the exchange of data among public administrations and the providing of services to users. This important phenomenon is known as e-Government that is a technical-organizational innovation process in public administration, aimed at facilitating "the integration of production procedures and providing services both inside and outside the public administration".(Notarmuzi (2005).

In order to realize the needed integration of these procedures, working methods must be defined that exchange data and services among the various administrations. In addition, it should be pointed out that, save rare cases, an administrative procedure involves several administrations, with the requirement that common working regulations in the administrations involved be defined.

The government in Estonia started with the development of a functional architecture which mainly contains the X-road system (a data exchange layer which enables governmental databases to communicate), the ID card and the public key infrastructure (PKI). The above technical infrastructure serves as a basis for the elaboration of new services. (Randver (2006).

The basic policy documents concerning the national government in Estonia are the Principles of the Estonian Information Policy, approved in May 1998, and the Principles of the Estonian Information Policy 2004–2006, approved in spring 2004. In 2007, the Estonian Information Society Strategy 2013 entered into force setting thus the objectives for the ICT use in the period 2007–2013. In 2005, a nationwide information security policy was launched aiming to create a safe Estonian information society for business and consumers. (ePractice editorial team (2010).

The legal foundations for realization of e-government in Estonia were laid down in 1996–2001, with the following Acts adopted by the Estonian Parliament:

- the Personal Data Protection Act which entered into force in 1996: the Act protects the personal rights in terms of personal data processing;

- the Digital Signatures Act which entered into force in 2000: the Act defines the legal validity of electronic vs. handwritten signatures; and

- the Public Information Act which entered into force in 2000: the Act aims to establish an Administration System where all databases and information systems should be registered.

In 1998, the Government of Estonia adopted the principles of the Estonian Information Society as well as the Information Policy Action Plan – the country's first Information Society strategy documents. (ePractice editorial team (2010).

Since 2001, the ID-card has been used as a compulsory identity document. In 2002 Estonia started issuing ID cards fulfilling thus the requirements of the national Digital Signature Act; the identification document contains both visually and electronically accessible information.

The main body for the development and implementation of the state information policy in Estonia is the Ministry of Economic Affairs and Communications, and especially the Department of State Information Systems (RISO) (http://www.riso.ee/en/node/22). Moreover, the Estonian Informatics Centre (RIA) (https://www.ria.ee/ee/index.html), develops the main governmental infrastructure components.

The following components can be mentioned as examples of the Estonian e-Government infrastructure:

1. The national e-Government portal, launched in 2003;
2. EEBone; (https://www.mkm.ee/en)
3. Public Procurement State Register;
4. X-road middleware; and
5. Health Information System.

7.1 X-Road

The X-Road was launched in 2001. The data exchange layer X-Road is a technical and organizational environment, which enables secure Internet-based data exchange between the state's information systems.

The X-Road is not only a technical solution — pursuant to the Public Information Act, the exchange of data with the databases belonging to the state information system and between the databases belonging to the state information system shall be carried out through the data exchange layer of the state information system. The X-Road allows

institutions/people to securely exchange data as well as to ensure people's access to the data maintained and processed in state databases.

Public and private sector enterprises and institutions can connect their information system with the X-Road. This enables them to use X-Road services in their own electronic environment or offer their e-services via the X-Road. Joining the X-Road enables institutions to save resources, since the data exchange layer already exists. This makes data exchange more effective inside both the state institutions as well as regarding the communication between a citizen and the state.

Additionally, the X-Road enables public inquiries, e.g. forwarding insurance data to the Estonian Health Insurance Fund. In order to use the services, the end users must first authenticate themselves with an ID card or via an Internet bank. The entrepreneur's right of representation is authenticated on the basis of the data of the Commercial Register.

In the case of citizens, the X-Road enables using the services of the X-Road via different portals. That includes making inquiries from state databases and to control the information related to the person himself/herself.

Officials can use the services intended for them (for instance document exchange center) in the information systems of their own institutions. This facilitates the officials' work since it avoids the labor consuming processing of paper documents, large-scale data entry, and data verification. Communication with other officials, entrepreneurs and citizens are faster and more accurate.

X-Road is the backbone of e-Estonia, launched in 2001. It's the invisible yet crucial environment that allows the nation's various e-services databases, both in the public and private sector, to link up and operate in harmony.

One of the key elements of e-Estonia is that its databases are decentralized, which means:

- There is no single owner or controller.
- Every government agency or business can choose the product that is right for them.
- Services can be added one at a time, as they are ready.

X-Road is the all-important connection between these databases, the tool that allows them to work together for maximum impact. All of the Estonian e-solutions that use multiple databases use X-Road.

Originally X-Road was a system used for making queries to the different databases. Now it has developed into a tool that can also write to multiple databases, transmit large data sets and perform searches across several databases.

X-Road was designed with growth in mind, so can be scaled up as new e-services, with their various platforms, come online.

Currently, there are more than 900 organizations (E-Estonia.com), public registers and databases connected to the X-Road and this number is increasing.
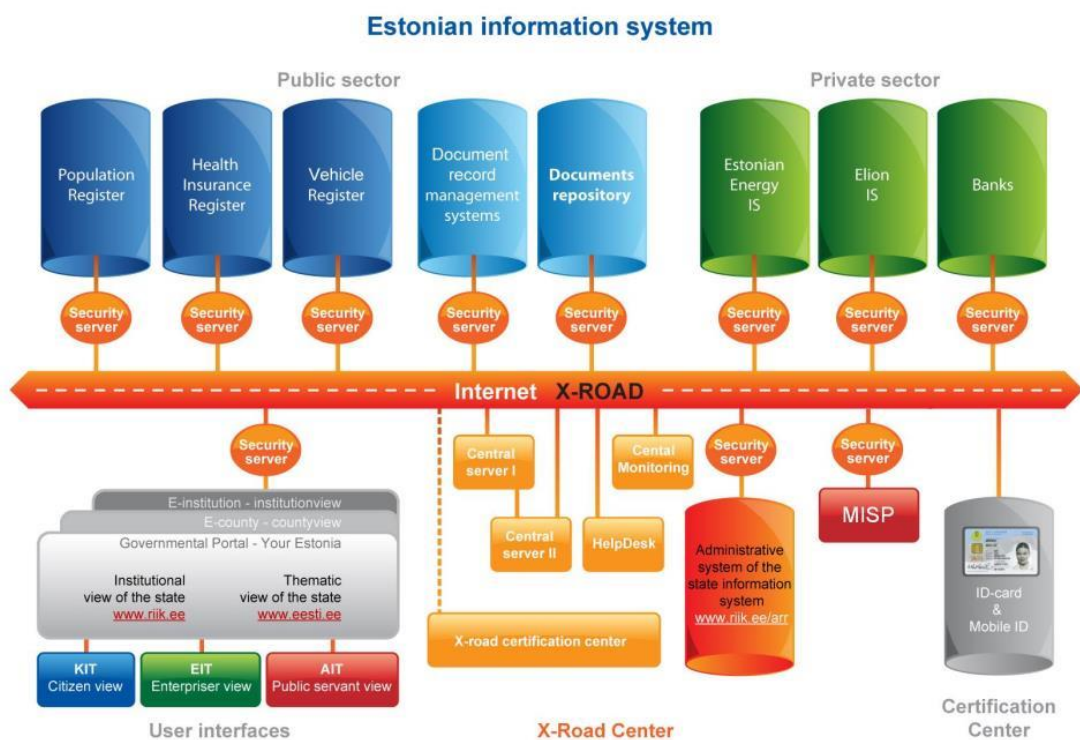

Figure 5. X-road- e-estonia.com

7.2 Data Exchange Systems in Georgia

An x-road system that works very well in Estonia unfortunately not yet developed in Georgia. In Georgia, the system looks like this:
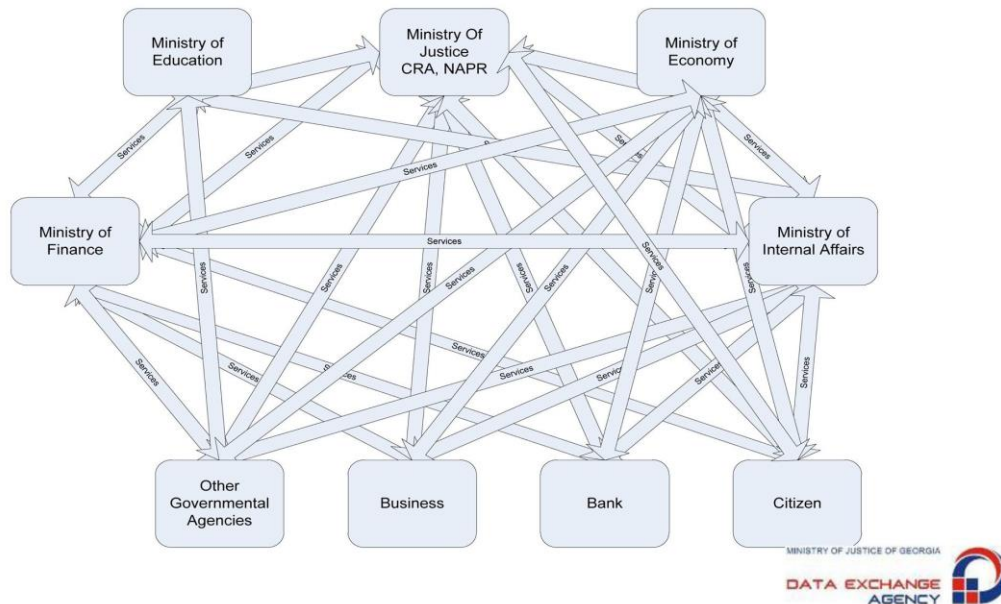
Figure 6. Data Exchange System in Georgia- Dea.gov.ge

The conceptual model for public services proposes a conceptual model for public services in Georgia to suggest the ways to organize the creation and operation of these services.

The model is derived from a survey of the implementation of public services in the Member States and brings together the common aspects and best practices observed. As a blueprint for future implementations of Georgian public services, the model helps develop a common vocabulary and understanding across the Member States about the main elements of a public service and how they come together.

The model emphasizes a building-block approach to setting up Georgian public services, allowing for the interconnection and reusability of service components when building new services.

The model is generic by nature, so not every existing or future public service will exactly fit into it. However, it is generic enough to be applicable at any level of government providing public services, from the local level all the way up to the EU level,

and it illustrates the fact that any level of government can be a provider of both basic and aggregate public services. In this sense, the model clarifies and rationalizes the relationships among entities that work together to deliver public services.

The aim of the model is to bring practical benefits to establishing Georgian public services. For example, splitting functionalities into basic public services with well-defined interfaces, designed to be reused, will simplify and streamline the implementation of aggregate services and the reuse of service components, avoiding duplication of work.

The model promotes the reuse of information, concepts, patterns, solutions, and specifications in the Member States and at Georgian level, recognizing that Georgian public services:

• Are based on information from various sources located at different levels of administration, in the different Member States, and

• Combine basic public services constructed independently by public administrations in the different Member States.

Therefore, the model highlights the need for modular, loosely coupled service components[1] interconnected through infrastructure and for working together to deliver Georgian public services.

It explicitly calls for the EU-wide adoption of a service orientation to designing and developing systems, and an ICT ecosystem comprising consistent, and in some cases jointly developed, service components. Its particular service orientation is a specific way of creating and using business processes, packaged as services, throughout their lifecycle.

Public administrations will need to agree on a common scheme on how to interconnect service components.

There are well-known and widely used technical solutions, e.g. web services, to do this, but implementing them at EU level will require concerted efforts by public administrations, including investment in common infrastructure.

The basic elements of the conceptual model are depicted in the diagram below:

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[1] Service Oriented Architecture (SOA) is an implementation of that concept.
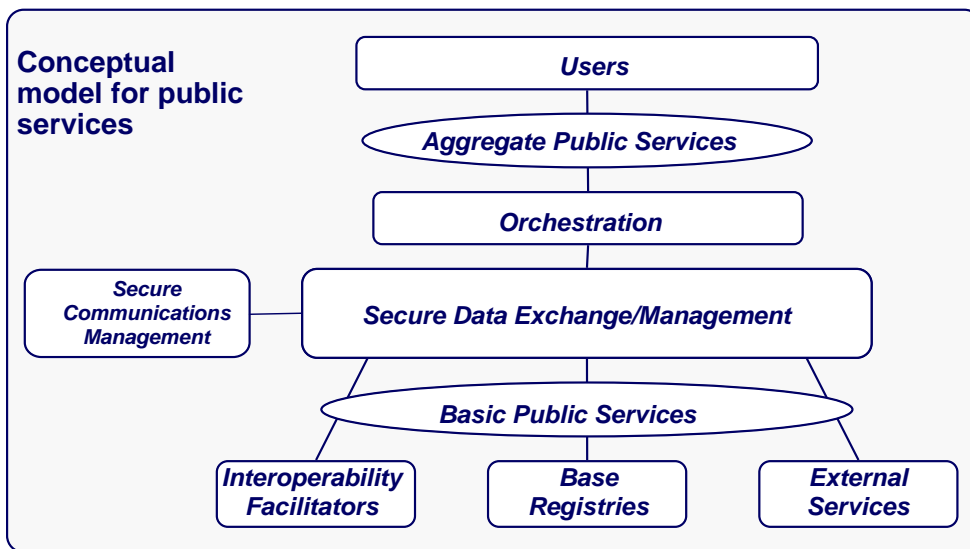
Figure 7. Conceptual Model For public Service Provision – Joinup.ec.europa.eu

In order to understand this model, it is useful to subdivide it into three layers: basic public services, secure data exchange, and aggregate public services, which are detailed in the following sections.

The lowest layer of the model deals with the most basic service components from which Georgian public services can be built. It groups three types of components, namely interoperability facilitators, services based on base registries, and external services, together called basic public services.
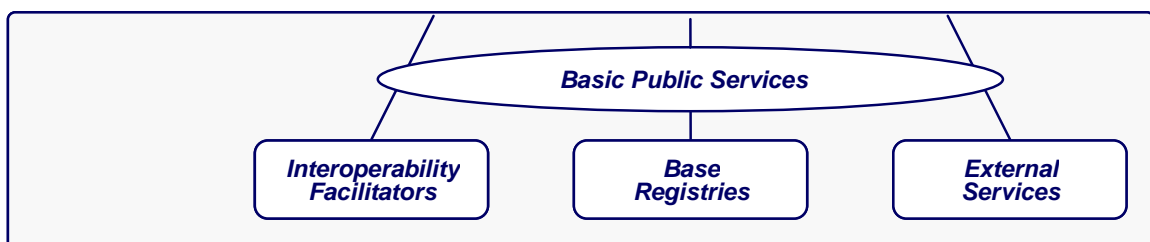

Figure 8. Conceptual Model For public Service Provision – Joinup.ec.europa.eu

Some basic public services have been developed primarily for direct use by the public administration that created them, or by their direct customers, i.e. businesses and citizens, but are made available for reuse elsewhere with a view to providing aggregate public services. Others are generic and/or infrastructural by nature while the remainder represents external services, i.e. services provided by third parties. The following sections describe in more detail each type of basic public service.

7.3 Findings According to Interviews

According to interviews, the answers, and previous process provision, we achieved to have a vision how to build TO BE model. For the future model, it is better to have fewer steps with helping databases to solve the problem. The user starts Choosing Region, and then it automatically goes to the system where database analyses free places. From this step, the user gets kindergartens with free places only and selects the one from free options. Then the user needs to write child's ID number, after system receiving it, information directly goes to birth registry database, which already has personal detailed information about the child and her/his, parents. Birth registry checks ID number if it is the wrong system asks to write correctly the ID number. If Id number is correct, it sends to website's system parents personal information. The user needs to write an email and phone number and gets approval for registration.
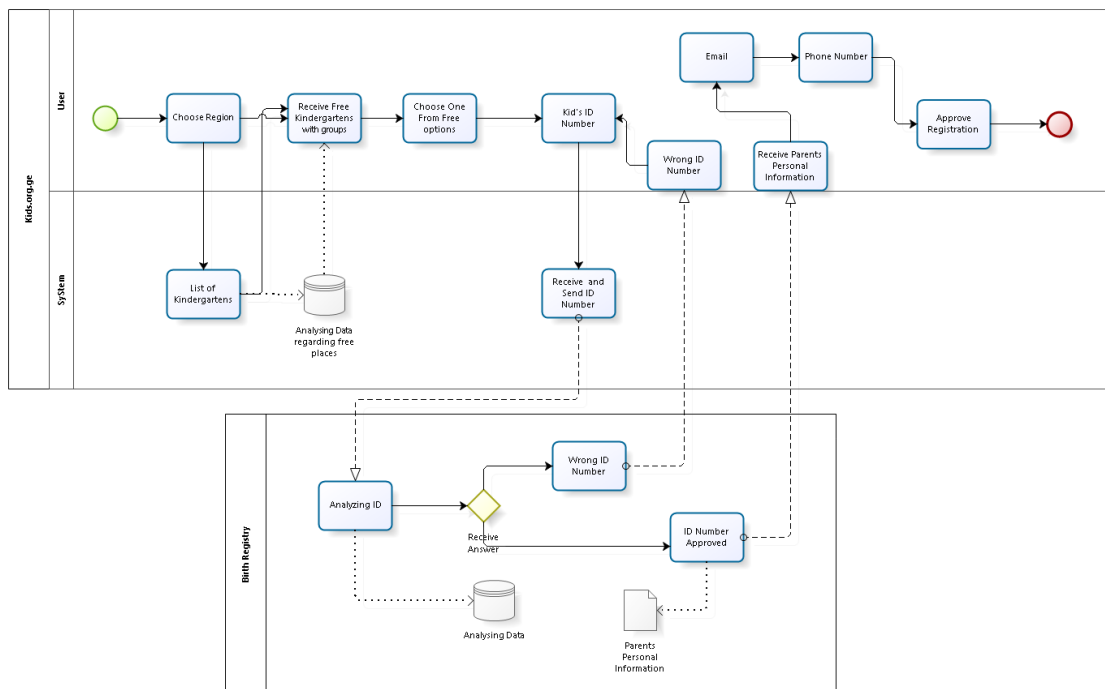

Figure 9. TO BE Bizagi Model of registration for Kindergarten

Figure 10. Registration Form (TO BE) for Kids.org.ge (made by author)

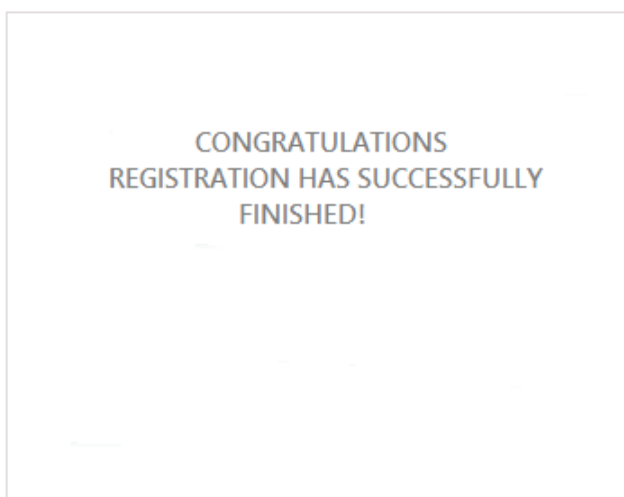
Figure 11. Registration Confirmation (TO BE) for Kids.org.ge

7.4 Open Government in Georgia

The Open Government Partnership (OGP) aims at enhancing transparency, accountability and efficiency of Governments across the globe. It was founded in 2011 upon the initiative of the Presidents of the USA and Brazil. Currently, it comprises 65 member states. Georgia joined OGP on 20 September 2011.

OGP is governed by the Steering Committee consisting of an equal number of Government and non-governmental organization representatives. In 2014, partner Governments elected Georgia as a member of the Steering Committee (SC). The Minister of Justice represents the Government of Georgia in the SC.

The member states of the initiative elaborate National Action Plans and prepare self-assessment reports on the implementation of Action Plans in close cooperation with the civil society.

In the framework of this commitment, the Public Service Halls (PSH) will offer to its consumer's new services; including those of the private sector. By visiting PSH, citizens will be able to apply for a passport and get insurance at the same time, in one place. Furthermore, the PSH takes commitment to implement a project, which will allow citizens to lease or purchase and register property in one place.

In the framework of this commitment, the PSH will launch a feedback system: Voice of the Consumer will allow citizens to directly participate in improving PSH service quality. The project aims at establishing direct communication with citizens and engaging them in the development of the PSH. The PSH aims to communicate to citizens about existing products and to provide information regarding ongoing processes.

Implement new consumer-oriented service - JUSTdrive – a new project of the PSH is another comfortable and innovative way to get desired services. JUSTdrive at the Tbilisi PSH will allow citizens to save time and get services without leaving their cars at the drive-through service window. Consumers will only be required to present an ID card to obtain the desired service.

To simplify services of the Ministry of Education and Science of Georgia (MoES) and deliver them in one space of the PSH, in the framework of this commitment, the competence of the MoES to verify documents will be transferred to the Public Service Development Agency. Verified/certified documents will be issued within the premises of PSH.

This change will significantly increase accessibility of the MoES services. The services will become available for citizens in all main regional centers through the PSH (currently, verification of educational documents is only possible in Tbilisi, at the National Center for Educational Quality Enhancement).

Develop citizens portal - www.my.gov.ge

Currently, up to 60 public services and 80 public utility bills are integrated into citizen's portal along with online business registration tool. The portal allows citizens to

interact with the Government by submitting a letter to public organizations, tracking the request - sending and receiving replies electronically. In the framework of this commitment, Data Exchange Agency (DEA) commits itself to improve the Portal by adding new services and improving existing ones. Moreover, municipal e-services will be incorporated in the Portal.

Strengthen local government capacity by introducing e-governance system.

Commitment implies the further development of the Community Centers (CC), equipped with modern, multi-functional infrastructure and the latest technology. Currently, carefully selected and trained local staff of CCs ensures provision of the central Government, municipal and private sector services through e-Governance. CCs offer free access to the internet, computers, and video conference equipment, together with ATM and Pay Boxes to the local population.

Currently, 12 Community Centers are fully operational in Georgia. Construction of 6 additional CCs is planned throughout 2014. CCs will provide the local population with the opportunity to receive up to 200 public services without the need to travel outside the village. Furthermore, the local self-governments will be involved in Electronic Municipal Service Management System. The municipalities will have access to the existing electronic databases, resulting in reduced time and human resources and decreasing related costs.

Digital signature and online authentication.

Development of identification services in Georgia comprises two major components of work: the introduction of Online Authentication System by means of electronic ID card with relevant integrated authentication mechanisms contained in it, and the introduction of Digital Signature and Stamp (e-Seal), aimed at the development of electronic document flow systems.

Development of identification services will simplify the internal procedures for organizations through reducing paper-based work. It will also improve service delivery for citizens, enabling them to sign relevant documents without leaving their homes. The implementation of the project will lead to improving public services by enabling citizens to receive relevant official documents (e.g. birth certificates, diplomas, etc.) in a digital format, thus, resulting in paper and printing cost savings and expedited services for the citizen.

Create open data portal - DATA.GOV.GE

This commitment implies the creation of the open data portal for publication of open data owned by Government institutions in the open formats enabling business, non-governmental and governmental organizations to use those data freely, create applications and e-services based on the data and get economic benefits.

7.5 Educational Program

The transfer of the Tiger Leap program from Estonia to Georgia started after the new government took office in Georgia after the Rose Revolution of 2004. The cooperation project with Georgia was one of the first projects for eGA, which was only founded in February 2003 and did not have a lot of real experience as a development organization, yet. The board of eGA consisted of the Estonian MFA, Estonian Ministry of Economy, OSF Estonia and UNDP. Right after the Rose Revolution at one of the board meetings, the feeling was expressed that eGA should look into possibilities to work with Georgia. As eGA had a strategy of establishing focal points in different regions, Georgia seemed to be a good choice for the Caucasus. It was decided that Mr. Ivar Tallo, a staff member of eGA would go on a fact-finding mission to Georgia in the spring of 2004 to meet with local stakeholders and to map potential areas for cooperation. The board members of eGA pooled their resources to establish contacts with partners in Georgia. In this regard, an important point of entrance was OSF Georgia, who was reached out to by OSF Estonia. The Estonian MFA helped eGA to establish contacts with Americans in Georgia.

While Tiger Leap and Deer Leap share many similarities, the Georgian program was not a copy-and-paste model of the Tiger Leap. At the start of the cooperation, Estonians presented their experience with the Tiger Leap, which had been running for four years. The vision of the program was written based on numerous consultations and was based on the SWOT analysis written after conducting a situation mapping and a strategy seminar in Georgia in September and November of 2004. After the analysis, a draft of the Master Plan for Deer Leap was written. Many people from Georgia were involved, but the most important leader from their side was Bela Tsipuria, deputy minister of the MoES. Nearly all stakeholders participated in the primary consultations and the mapping phase, including teachers, IT specialists and software developers. All together around 20 people, mostly Georgian, were involved in the program planning. eGA was the

main coordinator of the experts from the Estonian side and the Georgian MoES organized the stakeholders from their end. An interviewee from eGA explained that the primary goal of the first planning phase was to craft the structure and principles of the program in order to gain political support for the program.

The Master Plan for the reform declared the main aim of the program to be computerizing schools in Georgia to bring about the educational, economic and societal modernization of Georgia in line with the conclusions of the PRSP approved by the Georgian government. (Laanpere (2005)In the long term, it was expected that through these improvements it will be possible to also broaden the educational focus and promote new ways of learning. Broaden the social focus of school education by making more inclusionary, address national policy concerns regarding ethnic minorities, support regional development and community building, and increase the competitiveness of the Georgian youth on the global labor market. The specific expected outcomes were the following (ibid.):

- ICT infrastructure reaches all regions and communities through schools;
- ICT is integrated into the national curriculum;
- Educational software and services are developed;
- Project-based learning and other new teaching methods that involve ICT are introduced to students and teachers (professional development);
- Enhanced community involvement in education through ICT-based community education projects.

The goals of Deer Leap were largely the same as those of Tiger Leap, but the first four years of the Estonian program's achievements were modified to take place in Georgia in three years.

In Estonia, the Tiger Leap Foundation was a legal person under the private law. The Ministry of Education was among the 30 founding members of that foundation, which means that while the foundation was an independent legal person, the government still had an influence on the decision-making process of the foundation and it was one of the main funders of the organization. The foundation was accountable to the MoES, but was allowed to generate profit and had enough managerial independence. Stakeholders from other ministries, international organizations, universities, local well-established non-governmental organizations, associations of municipalities, and Georgian as well as international businesses were involved as founders to contribute financially and with

expertise in the strategies and actions of the program. The strategic decisions were made by a governing board and the management of the program was overseen by the director of the foundation.

Good cooperation between the two countries and also this program was stressed at the international level by both countries.

7.6 ICT Hub Georgia

The overall vision of the e-Georgia strategy to become a leading competitive and innovative business environment in the field of ICT in the Caucasus region demands excellence in ICT developments. Such an outstanding vision has to be carefully planned for successful implementation. Foremost, concentration on specific areas of ICT excellence is necessary – not all at once but step by step evolution will lead to sustainable success. Examples of areas that have good potential in the region are e.g. ICT-based business services with added value business intelligence and big data analytics, universal ICT services for security and e-Logistics, e-Tourism services, e-Culture services, e-Services for governments, smart cities solutions or similar. Decisions have to be made among the key actors as to which areas to select and with which priority to address them in a phased action plan.

When decisions are made, research and excellence centers with investment programs in research and development need to be installed to investigate newly emerging innovative technologies and solutions for the respective area. Initiatives and activities of this kind need to co-jointly involve actors of the public, private and civic sectors, and they need to align with international networks and centers of excellence.

Becoming excellent requires creating the necessary skills and know-how in the respective field. Excellence centers are the one side of the coin. The other side is to ensure the education and training in dedicated up-to-date aspects and concepts of e-Service delivery. Hence, an ICT-Hub Georgia requires reforms in skills development starting from school and higher education curricula, and ranging to professional training and vocational training offers in dedicated knowledge areas for software development, service design, infrastructure and security know-how and skills.

Seed funding and partnerships in international funding programs are among the instruments Georgia's innovation and investment actors need to reflect upon. An example

of furthering innovation is e.g. identified in the agricultural field, where part of the interests is funded by the government. A similar model could be introduced to spur private sector investments in ICT development.

To serve the region with excellence in particular ICT e-Services domains, appropriate mechanisms of awareness and networking for export need to be established. Evenly, to foster foreign investments in Georgia's ICT sector, according to steps are to be planned well ahead of time.

Currently, equity financing is provided in Georgia. Yet, the IT invest program is limited and potentially perceived as not being fairly distributed. Another initiative is innovation funder.

Stakeholder benefits:

- The financial and capacity investments in building excellence in ICT service delivery in Georgia has contributed to creating 40000 new jobs and 8 % increase in GDP. (Krabina (2013) Georgian ICT professionals have become a larger group with good job opportunities. Companies easily find experienced and skilled ICT professionals for their needs. Georgia has become known for its ICT innovation in the Caucasian region and beyond.

- The research centers in dedicated areas are well connected with academic institutions and with private and public sector agencies, thus meeting the needs of the different actors in spurring innovation and ICT developments.

- The financial support infrastructure has attracted international trade and investments of foreign companies in Georgia.

- Neighboring countries appreciate the excellence on dedicated ICT fields in Georgia and rely on them. They also have started to link up with the excellence centers in Georgia, which in turn has strengthened the position of the research centers as well as the public and private sector actors of Georgia in the whole Caucasian region. An important contribution thereby is the strong links of research centers to international knowledge centers and think-tanks that ensure alignment with the pace of ICT and social innovations worldwide.(Krabina (2013).

Unfortunately, today Georgia is in a slightly difficult situation, on the one hand, the government is trying to move forward and implement new technologies in everyday life, and on the other hand, there is a population that because of the old-fashioned reasons the Internet is associating with the devil that kills people. Of course, such judgments inherent in the villages where the Internet and new technologies have not yet reached.

Access to the Internet has to be fast, reliable, available, affordable and usable without restrictions in order to increase usage. Especially broadband access provisioning for enterprises, nearly all households especially also in the rural areas is prerequisite to achieve also quality in delivering e-Services. These aspects are taken into consideration by the ICT development index. Internet freedom is monitored by the Freedom House, an international NGO. Due to the extended usage of mobile devices, the coverage of 'fast internet' resources (3G, 4G, …) for Georgia is one of the main infrastructure priorities for the near future as well as the provisioning of high capacity solutions for rural areas.

The number of internet and mobile telephone users in Georgia is growing, but high prices for services and inadequate infrastructure remain obstacles to access, particularly for people in rural areas or with low incomes. 23% of Georgians access the internet every day while 56% of the population have never used the internet. Internet service providers (ISPs) offer dial-up, DSL broadband, fiber-optic, EVDO and CDMA connections. The average cost for an internet connection is US$20 per month, and the lowest price for a 1 Mbps DSL connection is approximate US$9. Many users complain about the quality of connections and suffer from frequent outages. Nevertheless, there were over 329,000 fixed-line (broadband) internet connections in 2011 for a broadband penetration rate of 7.6%, up from 0.6% in 2006. Mobile phone penetration is greater than that of the internet and has continued to grow from 38.4% in 2006 to 102.4% in 2011. Mobile phones significantly outnumber landlines, and reception is available throughout the country, including rural areas. The use of mobile devices to connect to the internet has been limited by high costs, but providers are offering new and somewhat less expensive services, including CDMA and EVDO technologies. (Freedom House 2012).

8 Conclusion

An important pillar of the e-Georgia strategy is to become excellent in ICT services and to provide specialist expertise in certain areas of ICT development and service provision. The ICT area of the private sector plays a key role thereby. To ensure adequate competencies and ICT skills that meet the needs of the private sector in dedicated areas. Such as ICT security, e-Services development and provision via fixed and mobile access, ICT infrastructure, big data analytics, e-Tourism, e-Logistics, e-Culture, smart cities and others, reforms and investments are needed in the educational offerings at schools, at higher education institutions as well as in institutions providing vocational training and skills development for life-long learning. Such programs need to particularly train in ICT programming and service development for areas as mentioned before. Foremost, education and training need to be congruent with the requirements of the public and private sector professionals.

8.1 Research Questions and Research Approaches

RQ 1.How digital administration (DA) makes work more effective?

1.Georgia has done great efforts in ICT in the last years. As the most important ICT indices showed Georgia jumped forward in the rankings year by year. The ICT Development Index conducted by ITU indicated Georgia to the ten most dynamic countries regarding in the world.

The e-Georgia strategy accelerates the speed to become a modern ICT driven nation. Derived from visions and mission eleven priority topics were described and for each topic and subtopic concrete projects and action items with timelines and KPIs are proposed, therefore detailed and measurable goals are defined.

A strategy is only valuable if it faces broad commitment from all involved stakeholders and reflects their opinions. Therefore, each organization involved in Georgia is encouraged to contribute to the strategy and to support the vision will become reality. (Krabina (2013).

RQ 2. How can DA linked to public services?

2 A strategy is an important step to finding a common view on the path, but it is only the first step. It is the architectural plan for building an ICT-driven nation. The

proposed measurements are waiting to be implemented and to become reality. Therefore, many stakeholders are appealed to contribute to achieving this goal. International experts are willing to give advice. Together, there will be discussions and exchanges of opinions but in the end of the day, the common vision will lead them to build up the wealthy nation Georgia.

RQ 3. How business processes are effecting service provision? How can we create good e-services based on those assumptions?

Georgia has started to equip pupils with notebooks or netbooks when they enter school. Schools are connected to the Internet all over the country. However, teachers at school not having all the necessary competencies to educate in e-Skills weaken current educational offerings. At universities, the bottleneck lies in lecturers not having up-to-date training and education on newly emerging technologies and concepts and the curricula not reflecting the demands of private and public sector professionals accordingly.

Stakeholder benefits:

- The reform of teacher education at schools for e-Skills has led to better education and skills on innovative ICTs in society. Hence, the younger generation has much better e-Skills, which provides an important ground for e-Services take-up as well as for engagement of private and civic sector actors in e-Services development. This has, in turn, contributed to more jobs in ICT professional areas and to sustainable economic growth.

- As the recent reform of university curricula in ICT skills reflects now up-to-date skills development and training based on private and public sector needs, more young ICT professionals are available for innovative ICT business developments.

- Educational and excellence institutions offer vocational training and skills development programs for ICT professionals and non-ICT professionals to acquire complementary competencies in newly emerging programming languages, in agile and systematic methods of software and system development and evaluation, in e-Services development for fixed Interned and mobile access, for apps development, etc. These training offers are affordable for people and contribute to innovative ICT developments for the market and for society.

Research. In this thesis was researched very important and key issues of e-government. Each outcome has contributed to the next step of the research. Even though this research was conducted using different approaches, the combination of them led to achieving results that facilitated utilizing the research in all aspects of real life. Hence, it should be acknowledged here that only employing a single approach could potentially limit the research. Therefore, instead of rigorously applying one method without alteration, a suitable selection of the principles from different approaches was used. (Pappel (2014)The author used business process modelling and literature overview because, it was the most appropriate way to get need answers for your goals and best solutions for this thesis.

This research has also observed the problems concomitant with the use of varied research strategies (including design and creation surveys and case studies) for different research activities. For instance, case studies use a wide range of data collection methods, which has given the opportunity to gain multiple perspectives. Thus, the valuable information for software development is gained and results for further study are obtained. (Pappel (2014).

Satisfying outcomes in this research were gained from case studies, which provided direct results and feedback from research activities. This approach presented the opportunity to act within a real-life context. By having several case studies, it was possible to focus on all the factors relating to local government issues, processes and relationships in order to explore them and gain knowledge are results for improving the work environment of local government. The best outputs in these case studies were achieved where state support was granted. (Pappel (2014).

8.2 Solution

In conclusion, TO BE model is achievable, for a future solution to improve e-service provision, its accessibility, and transparency in this thesis will be shown one example of reducing traffic and time, how to register in kindergartens. In the current registration form, the user has to fill information about parents and child in details. There is a possibility to change the way of the register for kindergartens. To avoid server overload

and do not spend more time on a portal - kids.org.ge, during registration, it needs to change registry form. As those processes are making big traffic during the registry period, which is only one week in a year, the new way should be time-consuming. With the help of birth registration database, it makes easier. In the case of using birth registry information, which should include child's personal information (such as name, surname and conferred ID number); parents personal information (such as name, surname, and ID number), register for kindergarten will be at least eight steps forward.

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