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Review of E-Government Implementation

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***Abstract*— Electronic services have become a vital part in the implementation of electronic government. Government electronic services are significant tools for effective cooperation in any country between government, authorities, citizens, organizations, and so on. In order to implement these services it is necessary to know possible barriers and obstacles – factors, which can influence on the implementation process. Study in this field of research showed that a well-structured list of the factors that can influence on this implementation process is absent now. The purpose of this research is to identify and collect, analyses and structure different factors that can influence the implementation process of electronic government services. The collected list of factors have studied in the case of Nepal.**

***Keywords*: E-Government, ICT roles, Implementation.**

I. INTRODUCTION

The advances in information and communication technology (ICT) have made many electronic services possible. The services are often referred to with the prefix "e", for example e-Commerce for electronic commerce services, e-Banking for electronic banking services, e-Learning for distance learning services, and e-Government for electronic government services. The concept of e-government has been given many definitions depending on the perspective and background of the interpreter. Brawn and Brudney [2001], Busu [2004], Mean and Schneider [2000], UN [2008], and the WorldBank [2002] all define e-government in different ways. In this paper, the WorldBank [2002, p.2] definition is chosen because it gives a wider and broader purpose about e-government. e-Government is the "government-owned or operated systems of information and communication technologies that transform relations with citizens (C), the private sector (B) and/or other government agencies (G) so as to promote citizens' empowerment, improve government efficiency and service delivery, strengthen accountability and increase transparency". Further, the definition2 implies that e-government promote services integration and availability 24/7, improves overall governance and active participation of citizens in public decision-making processes, and reduces un-necessary travel and service costs. Also, e-government is said to reduce corruption, and minimize the use of paper based procedures, thus improving socio-economic development [Baum et al, 2000; Brudney et al, 2001; UN, 2008; WorldBank, 2001, 2002].

In this regard, e-government services have become one of the most important and efficient means by which governments (G) can interact with citizens (C) and businesses (B). Additionally, based on the nature of e-government inter-relationships, they are categorized into internal and external. The former refers to Government to Government (G2G), Business to Business (B2B), and Citizen to Citizen (C2C). The latter refers to Government to Business (G2B), Government to Citizen (G2C), and Business to Citizen (B2C) [Mean et al, 2000; WorldBank, 2001, 2002]. To guide and benchmark e-government implementation and service delivery, international organizations, consulting firms, academia and individual researchers have proposed various types of e-government implementation models, which are generally referred to as e-Government maturity models (eGMMs). These models outline different maturity stages that a government can follow in order to offer the best and most efficient e-government services.

To bridge the e-government services gap between the regions, developing countries are heavily investing into the adoption8 and use of more sophisticated e-government services. In doing so they face a number of challenges related to technological, as well as non-technological issues. Some of the technological related issues were existence of un-favourable environmental conditions, context between systems designers and the environment in which the systems are implemented, poor broadband internet access, limited access and late adoption to new technologies, and lack of knowledgeable and skilled IT personnel to support the services. Other issues were security related issues, technical and non-technical9. Contrary to developing countries, implementation of egovernment services in the developed countries started gradually to give room for consideration of mitigating many of the challenging aspects, including IT security related issues. Also for developing countries, some of the non-technological related issues were lack of adequate resources for building a nation-wide ICT support infrastructure, inadequate training of personnel for supporting e-government initiatives, and lack of proper legal framework to protect electronic data.

II. RELATED WORK

Research on factors, which influence the implementation process of E-Government services, have already been studied in a number of works performed in different countries: Nepal, Bangladesh, Bosnia and Herzegovina, USA, and so on (Alam and Hassan, 2011; Bajramovic, 2011; Hossan, Habib and Kushchu, 2006; Deepak, 2011; and so on). In addition, some discussions are presented in previous research without a connection to a specific country (Wang, 2012; Iqbal and Bagga, 2010; Schwester, 2009; and so on). Nevertheless, one significant issue has united all these researches – in each of these works always presented the factors, which were not listed in other researches.

So the main problem that can cause these works, when in some researches emerge problems, which absolutely absent in others papers. Of course, some of discussed factors in these works are similar. For instance, almost in all papers technical aspects in implementing E-Government are identified, like the 'Lack of ICT infrastructure' (Alam and Hassan, 2011; Hwang, Li and Chu, 2004; Coursey and Norris, 2008). This technical aspect,

for example, is absent in Ramo´n Gil-Garcı´a, Theresa and Pardo (2005). Moreover, Iqbal and Bagga (2010) describe the factor 'Trust' as an important factor that is absent in other works.

That is, there is a lack of well-structured or good picture of all the factors that influence the implementation of E-Government services. One of the main ideas of E-Government services are the awareness of citizens about the government`s activities, interaction with it, and increasing of democracy in a country. Nowadays it is one of the main issues in Ukraine in the view of a difficult political situation when the democracy in a country is reducing (BBC, 2012; Donnelly, 2012; Interfax-Ukraine, 2013). So have been passing 11 years as in Ukraine started the implementation process of E-Government elements. Nevertheless, formally, its concept is still does not exists. The key elements of electronic interaction are still developing at all levels, both within institutions, organisations, citizens and between them.

Chen (2002), who has created the staged development model, argued that E-Government delivers its content and services through the continuum of the four levels of interaction:

- by enabling an information search by citizens via the internet;
- by implementing of the two-way communication services, such a simple groupware functionality like web forms, e-mails and bulletin boards;
- by facilitating the transaction services for businesses and citizens;
- by transforming the practices and services from government to agents and community (e.g. e-voting or opinion poll).

Based on these stages, the research setting Ukraine is at the first stage, when governments merely act as information providers (moreover at a low level), for instance, about activities of the authorities. At the same time only some authorities use, for instance, electronic documents change system: State Tax Administration, Pension Fund, Ministry of Interior, License Chamber, State Standard, Ministry of Education, the State Customs Service and a few others (Demkova, 2007). However, a low functionality level, often close to zero, the characteristic of already implemented systems of internal documents in separate subdivisions of government. Public Internet resources are mainly the presentation projects. Only a few official sites of regional administrations and government institutions you can more or less reliably call 'business-resources', that are still better than the aimless presentation (Golobutsky, 2008).

Moreover, this situation is not changing. About the distinct services, organization of information resources access, about targeting the needs of citizens - still no more or less significant steps.

Due to the existing conditions the following questions emerge: What stops the progress? What factors are influence on implementation of E-Government services? However, without full list of factors this question is hiding the danger, when some of factors can be missed during the browsing of some research papers for some case.

III. Previous Studies

Internet with millions web sites is now commonly available for millions of people around the globe. In turn, E-Government does not mean availability of services when government just has a web site. Moreover, it should give online services and information that will encourage mass-participation for making decision, transparency of authorities, especially relating public interests, their accountability, and so on. (Alam and Hassan, 2011, p.13). For online services, different countries can focus on different social groups. USA, for instance, focuses more on the business client at the federal level, whereas Canada focuses on key services for both citizens and individuals in a more decentralized way compared to USA (Iqbal and Bagga, 2010). Nonetheless, as mentioned a number of authors (see e.g. Alam and Hassan, 2011; Shafi Homoud Al-Shafi, 2009; Hwang, Li and Chu, 2004; and so on.) the delivery of E-Government service may provide democracy in countries and may decrease corruption.

E-Government initially has been envisioned as a tool for the improving intra-governmental communications via an intranet system (Moon, 2002). Based on that, Cloete (2003) spoke about necessity of the usage of technological innovations for an effective government. So, the notion of E-Government has expanded to include web-based information dissemination and service delivery applications. From this point we can speak about E-Government services. To the fundamental services relate posting policy, possibility to access to regulatory information online, possibility to download government forms and ability to request municipal information via an e-mail or an electronic request forms (Schwester, 2009, p.113). The possibility of citizens to pay online municipal taxes, utilities, and fines, report violations or submit service delivery complaints via the government websites - it is all about fulfilling of day-to-day needs via the Internet (Carrizales, et al., 2006). However, before organise and implement E-Government online services in any country it is always necessary to solve the implementation issues and to destroy different barriers, which can have different aspects: technical, sociological, political, and so on. In number of works different authors considered these factors (or, in other concepts, problems, obstacles, barriers), which influence during the implementation of E-Government services. Without taking into account not all of factors, their priorities and relationships are possible to formulate a scientifically grounded state policy and perform the public administration process in implementation of E-Government services and information society development in any country. In the biggest part of works, data for the research were collected through face-to-face interviews, semi-structured questionnaires, surveys [12].

In number of works considered the implementation of E-Government in the case of different countries: Bangladesh, United Kingdom, India, USA, Canada, and so on. For instance, Rajon and Zaman (2008) did an analysis on the present Bangladesh government architecture. These researchers have focused on the necessary issues of E-Government from different sectors and how, by using E-Government, Bangladesh can reduce a corruption. The factors, critical for the success and failure of any E-Government projects in Bangladesh, Hossan, Habib and Kushchu (2006) a lot of focus concentrated on the technical factors, for instance, like the 'technical readiness assessment'. About technical issues also wrote Gonçalves and Sapateiro (2008), but in addition they spoke about some aspects from the organizational perspective, which also can lead to poor system implementation. Alam, Ahmed and Islam (2007) were discussing issues about infrastructural obstacles, as well as poor ICT policies.

In addition, results of the previous researches the authors presented with different approach. Works by Vanka, Sriram, Agarwal (2007) and Iqbal with Bagga (2010) contain just

general review of different aspects. In the same time, another part of works have a number of the factors without any classifications, just lists of factors (Schwester, 2009; Alam and Hassan, 2011; Hajed Al-Rashidi, 2010). Some authors concentrated on some directions. For example, Alam and Hassan (2011) in the 'Problems when implementing e-Governance systems in developing countries: a quantitative investigation of implementation problems in Bangladesh' worked in direction like 'Lack of…', so almost all factors begin from these words: Lack of ICT infrastructure, Lack of computer and internet facilities, Lack of policy, Lack of e-banking facility, and so on. At the same time in the "Examining the Barriers to E-Government Adoption" by Schwester (2009) did not concentrate on some directions, just list of factors, like: Lack of staff; Lack of knowledge; Difficulty justifying ROI; Staff resistance; Privacy issues; Security issues; Lack of support elected officials and so on.

Another part of the research papers contain factors with classification, but types of classification in these works are different (Hwang, Li and Chu, 2004; Shafi Homoud Al-Shafi, 2009; Coursey and Norris, 2008; Deepak, 2011; Ramo´n Gil-Garcı´a, Theresa and Pardo, 2005; Ebrahim and Irani, 2005). For instance, Ebrahim and Irani (2005) classified E-Government factors on IT infrastructure, Security and privacy, IT skills, Organisational and Operational cost. At the same time Hwang, Li and Chu (2004) demonstrated challenges and obstacles from four aspects: technical, political, cultural and legal aspects. A United Nations research divided obstacles into five categories: local environment, funding arrangements, human resources, institutional weakness, and technology issues (United Nations Division for Public Economics and Public Administration, 2002). Therefore, as we can see, the common classifications method or structure approach for the big amount of factors is absent.

So as a result, there are a lot of works, that made the investigation of problems and factors in the implementation of E-Government services from different perspectives, or, in some researches, different directions (Al-Shafi, 2009; Coursey and Norris, 2008; Ebrahim and Irani, 2005). Nevertheless, in some researches the authors have often repeated some of the factors. One of the most repeated factors are the privacy and security issues. These two factors have added almost all researchers to their factors list. Here is the other frequently repeated factors:

- Lack of IT skilled personnel and training programmes;
- Fund and cost resources;
- Problems with planning;
- Staff resistance.

A frequent appearance of these factors in previous works can be easily explained in view that these issues are common problems in the implementation of any new (especially big) information system (IS). In addition, some factors are pretty wide concepts (e.g. the security issues), and when all services are posted online and citizen has started to use them through the Internet - these wide factors begin to narrow down. Awasthi (2010) in his work wrote about the differences generated due to a religion, region and many other aspects, which are responsible for this society dividing. This means that the wide factors, for instance, as problems with planning, can be divided in depth for better understanding of this specific issue. The research of particular wide factors can be provided in depth within the scope of another research in view that in previous works are already presented many factors, which need to be organised and classified.

Those different visions of researches, their directions and points of view on the factors, which are influencing on the implementation of E-Government services, are quite spread. In addition, we have another significant issue, when almost in all researches are presented different factors.

This means that some of the factors (which can have a significant influence) were considered only in some papers. At the same time, in other researches, a specific factor did not considered at all. Therefore, as a result, this one significant factor can change the particular research (or strategy of some implementation process), and this research will need to do again, anew (lists of factors from different works by different authors represented in subsequent chapter 2.3). For example, Shafi Homoud Al-Shafi (2009) wrote about the 'Organisational culture', and Hwang, Li and Chu (2004) about the 'Authority and responsibility recognizing'. These specific factors have not been considered by any other researchers. However, these factors are quite important, and researchers or implementation managers can very easily forget about them.

So, as we saw, the problems of the implementation of E-Government services were discussed in different researches, articles, thesis works, and so on. Of course, in those works researchers have different research settings, different countries and different political systems. Nevertheless, this research is not about the concentrating on particular country or on a political system. Through this research I have tried to find and classify factors, which can influence on the implementation process of government E-Services as a whole, without concentrating on a country and its political context [19].

The understudiedness of some issues, separated data and information from different sources - all of these points shows the need for a comprehensive approach, which will help to study the issues and challenges in the implementation E-Government services.

IV. Collecting Factors from Literature Review

In the literature review chapter were highlighted areas, where the previous results have limitations. The authors have found a number of obstacles and factors in the implementation process. However, these factors are different in different researches. 19

Below in this chapter is described results of previous works which helped to investigate and get a wider picture of questions, factors, obstacles and problem situations in the implementation of E-Government. This data cover a lot of aspects and factors. within the area of the implementation of such big and complex E-Government systems with different E-Services.

Vanka, Sriram and Agarwal (2007) in the 'Summary of Discussion of Critical Issues in E-Governance' wrote about E-Government project in United Kingdom. The UK government has commissioned a research to the 'Issues affecting the project life cycle of E-Government projects'. After the research they have published the "Common Causes of Project failure" in 2005. The analysts have defined seven classic causes of failure, based on this paper and other researches:

- Lack of strategic clarity (Lack of common view, with shared measures of success);
- Lack of sustained leadership at political and senior management level;
- Poor understanding and segmentation of user needs (failure to engage closely with users);

- Lack of effective engagement with stakeholders (users, suppliers, delivery partners elsewhere in the public, private and voluntary sector, politician and the media);
- Poor supplier management (strong partnership relationships with suppliers are essential);
- "Big Bang" implementation (many projects fail because they seek to deliver too much technological and organisational change at once).

Richard W. Schwester (2009, p.120) argued that E-Government adoption is a function of human, technical and financial resources, where a political support is a key determinant of municipal E-Government adoption. In addition, he wrote about the privacy and security issues and the lack of community interest (Schwester, 2009, p.117). Author highlights the next key factors, which influence on the implementation:

- Lack of staff;
- Lack of knowledge;
- Lack of support elected officials;
- Difficulty justifying ROI;
- Staff resistance;
- Privacy issues;
- Security issues;
- Technology needs;
- Lack of community interest.

Hajed Al-Rashidi (2010) investigated the 'Internal Challenges of E-Government Implementation and Organizational Change'. He has defined a holistic framework for the E-Government project implementation.

V. Significance of the Study

E-Government services can provide better services, democracy, and so on. These aspects are frequently on the agenda in different countries, especially during the last two eras. Rationalisation as a tool for saving public money still dominates (it was a key incentive in the Swedish e-government discourse of the 2000s, in country which holds the first places in economic ratings) the arguments to implement e-government (Ilshammar, Bjurström and Grönlund, 2005).

Implementation of E-Government services in Ukraine can create the same opportunities to provide a new level of government and society as a whole, reduce corruption by allowing citizens to solve their problems remotely, improve the interaction between public authorities and local governments, businesses, citizens and employees in governmental bodies.

E-Government services implementation in the sphere of state power, on the one hand, will improve its efficiency, and on the other those service will create a more open government service. The work in the mode of E-Government changes fundamentally the atmosphere in interactions between officials and residents. Every citizen can be able to track developments in the activities of public authorities, local governments, be aware of plans to work directly, interact with them without waiting and unnecessary bureaucracy. Therefore, the main practical advantages for citizens with the implementation of e-government is to receive services provided by governments across the network, access them via the Internet, and participate in the government work.

A qualitatively constructed system of government E-Services can positively influence on the overall progress and implications for further positive changes in the Ukrainian society, and the first of all on social and economic reforms. This features makes it possible to build a welfare state with influential institutions of civil society, especially in issues where great importance play the methods and forms of cooperation between local citizens, government and national non-governmental organizations.

Hence, the main object of this study, the government, is made up of a large number of organizations and many different kinds of processes, made up from little village to the biggest cities, from the process of road construction, social welfare, schools, railroads and military defence, and so on. (Grönlund, 2004). However, to succeed with the implementation of the policy development of E-Government depends on a number of factors from different spheres of country life, which can make significant adjustments in the process of implementing E-Government services and in pace of reform measures.

During the literature review has emerged a problem, when in different research papers exist different factors, which influence on implementing of E-Government services. Therefore, it is necessary to investigate problems that emerges in the implementation of E-Governments, for instance in the case of Ukraine. There does not exist a complete list of factors that influence a success or a failure of the implementation of government E-Services

VI. Conclusion

So an investigation of different factors and to create of well-structured list of factors can help for the future implementations of government E-Services, and of course, fill the gap in literature - "different articles = different factors". At the same time the employees, the authorities and the researchers, which work within the implementation process, will get knowledge of possible barriers and obstacles - factors that influence the introduction of E-Government services, what as consequence can help to build strategies that are more effective than existing. So this list of different factors can give indicators and can help to build more effective strategies in the introduction of government E-Services, especially in the case of Ukraine. Heeks (2006) the Onion Ring Model has been modified by adding interlayers and additional factors from the STEPLED analysis to the 'Environment' ring. The classification with the Onion Ring The model is giving a clear picture of studied factors by different researchers. Model helps to represent the factors from different perspectives. In addition, the analysis with this model creates possibility to investigate poor described aspects of government E-Services implementation process.

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