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BARRIERS TO E-GOVERNMENT IMPLEMENTATION
IN THE REPUBLIC OF ARMENIA

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Introduction

Many governmental leaders around the world attempt to transform the public sector to increase the benefits for their constituents through reforming public administration and make it more "efficient, transparent and especially more service oriented." (E-government Survey 2008) In this context, E-government is playing an increasingly vital role and contributes significantly to the process of transformation of the government towards a more cost-effective government through facilitating communication and improving the coordination of authorities at different layers of government, within organizations and even at the departmental level. Government enabled by information-communication technology (ICT) is promising to provide efficient government management of information to the citizen, enhance the service delivery and empowerment of the people through access to information and participation in public policy decision-making.

Literature Review

E-government Background

The literature on "IT in government" can be traced back to the 1975. Nevertheless, the real research into the field of electronic government began to emerge in 1999. The phenomenon of E-government itself is almost a dozen years old, since official governmental sites began to appear on the World Wide Web in the mid- 1990s. (Coursey and Norris 2008)

According to Gore (1993), the E-government was born out of the Internet boom. However, E-government refers to not only Internet use or public access systems for direct use by customers or citizens, but also to the use of ICT by government agencies to enhance relations with citizens and businesses. The resulting benefits of ICT-enabled government can

be "less corruption, increased transparency, greater convenience, revenue growth, and or cost reductions." (World Bank 2004)

It is important to start from the definition of the term "electronic government", as well as other concepts describing this scope of ICT application, since the level of understanding depends on the completeness of definition. E-government has been defined by different specialists based on various principles. Some authors prefer descriptive definitions – which transformations take place in public and its particular structures due to electronic government emergence. Others study technical aspects of E-government and list different tools of their implementation. Also, there are economic definitions based on the means for economic development and public management efficiency.

Drucker (2001) defined the concept of an E-government system as the use of ICT to ease the processes of government and public administration. Moreover, E-government makes it possible for citizens to choose the way in which they want to interact with the government.

E-government is a newly emerged concept of government organization offering the public information networks and services easily and transparently accessed through a "single online point of access." (Gordon 2002, Al-Sebie 2003)

Each definition can be considered as a particular aspect of electronic government performance. Given the diversity of concepts of E-government, the general definition of electronic government can become very difficult. Thus, taking into consideration all the above mentioned aspects, the electronic government can be defined as follows:

- organization of public management based on technology implementation to deliver services to the public through electronic channels;
- Transaction processes and the transformation of E-government services;
- Transformed concepts of electronic business for state organizations, where the government appears as a corporate consumer of information technologies.

Each of these definitions may present the electronic government as another application (add-on) and modernization of current structures and relations, not as an independent concept of complex transformation of public management organization. Nevertheless, as a number of countries did (e.g. USA and Great Britain), the electronic government should be considered as a separate concept dealing with making the public activity in general more effective. (Fang 2002)

In particular, many western countries perceive electronic government as a "continuous optimization" of service delivery through transformation of internal and external relationships with the help of technology, Internet and media. This includes four basic modules: G2C (Government to Citizen), G2E (Government to Employee), G2B (Government to Business), and G2G (Government to Government).

Nowadays, many governments initiate electronic implementation of government services in order to give a large spectrum of opportunities. This will improve the business of any government, but a number of serious obstacles such as citizen awareness of electronic services and infromation, the 'digital divide' and lack of skilled workers still remain to be overcome. Moreover, complexity and multiplicity of channels of projects and initiatives results in different challenges and barriers to E-government implementation and management.

In this regard it is important to differentiate two concepts: E-government and e-governance. E-government actually deals with the development of online services to the citizen, where *e* can be considered as an add-on to particular public services, such as *e*-pension, *e*-health, *e*-taxation, etc. Contrary to that, e-governance has broader concept definging and assessing the impact of ICT on the administration of governments. E-governance implements a number of necessary steps for organizations and agencies (public and private) to efficiently develop and administer different types of services to the public in

general. (Sheridan, Riley 2006)Therefore it is very essential that these two distinct terms are not used interchangeably.

Current Situation

Today, in the Republic of Armenia, the notion of "electronic government" firmly entered the political and academic discourse; however, it still remains a blurred and unclear concept. The governmental levels interaction model with regard to E-government still resides in development stage. Primarily, it relates to the project management uncertainty at the national level.

In this regard, the IT Development Department of the Ministry of Economy initiated a primary research in the context of Armenian reality in summer, 2008 - to collect data on existing information systems in each governmental agency to find out the exact information-communication technology (ICT) level in government system of RA. The purpose of the research was to focus on electronic government, to interpret this term in respect to the specific Armenian conditions, and to determine the exact ICT implementation level in the public management system of the Republic of Armenia.

Preliminary research showed that E-government process develops extremely uneven due to the main barrier - poor ICT implementation level by many governmental agencies. Moreover, most part of state departments sufficiently lags behind the pilot ministries in ICT implementation. Projects implemented by pilot state departments in the sphere of electronic governments, as a rule, correlate with the trend defined by World Bank.

Currently, there is no exhaustive analysis of E-government development in Armenian regions, since such research will need inclusiveness of all the regions and more careful study. Rather, in the research initiated by the Ministry of Economy, the question was to consider initial approximation to sectoral analysis of governmental agencies in identifying general

tendencies. This research was explorative and related to a greater extent to the technical barriers that the governmental agencies face today in Armenia.

At that, it can be assumed that a lot of attention has been given to the technical factors assessment. Nevertheless there are other non-technical barriers to E-government implementation that exist in Armenia, like political desire, vision, financial and legal issues, management capacity, etc. Many researchers find that future development of E-government relates more to the organizational, political and other barriers than just technological factor, since E-government itself cannot solve such problems like upgrading the efficiency of state administration, or corruption reduction. E-government must become an element of a large-scale reforms aimed at modification of government philosophy, more client-oriented governmental services. (Colemn and Norris 2005)

Today, Armenian government is eager to embrace E-government and meet the above mentioned aims. Moreover, there is a draft project on national E-government strategy in the Republic of Armenia aimed at creating integrated E-government which will respond to citizens and business demand and will consolidate the society through Information Technology. And the expected outcome is to transform the present government towards a more cost-effective one through facilitating communication and improving the coordination of authorities at different layers of government, within organizations and even at the departmental level (G2G). Further, E-government may provide efficient government management of information to the citizen and businesses (G2C, G2B) better service delivery and empowerment of the people through access to information and participation in public policy decision-making.

Artyom Shamtsyan (personal communication) - Managing Director of the INTESYS Group, Consultant of the Government of the Republic of Kazakhstan, during the interview gave his assessment of current situation on E-government and e-services projects:

- "More of a "let a hundred flowers bloom" model, where we see a large number of small-to-medium scale projects implemented, which inevitably moves the whole idea of E-government to a number of disparate and redundant components"

- "No unified, shared strategy on IT and E-government. Strategy should be at least for 3 years period of time, with precise set of deliverables, budget forecast/calculations and a set of indicators specifically tied to projects implementation and rollout phases."

Since the topic of the present project is "Barriers to E-government Development in the Republic of Armenia", it will try to identify the existing obstacles and the capacity for implementation of e-governemnt. In the present research *E-government* relates to the electronic delivery of government information and services to the citizens of the Republic of Armenia.

To fullfill the purpose of the present project the questions will be as follows:

1. What are the main perceived critical factors to the development of E-government in the Republic of Armenia?

2. How these perceptions vary among officials occupying managerial and technical positions?

It is important to know the government officials perception, since they are entrusted with the implementation of the E-government project. It will help to understand the prioritization of the factors' importance and give some recommendations that may bring into attention for E-government implementation in the Republic of Armenia.

Methodology

This project has no capacity to consider all the aspects of electronic government development in the Republic of Armenia. The main subject of this project was the electronic

government without the consideration of general context of ICT development readiness and involvement level of the citizens.

The main methodological tool applied in the present project was semi-structured interviews with the government officials of the ministries of the Republic of Armenia.

For the purposes of this study, 42 respondents (21 holding a managerial position and 21 employed in IT sphere) were selected from the 17 RA ministries and 4 adjunct bodies. A total of 35 interviews were conducted in September-November 2008. Almost all executive branch was covered (19 out of 21). The questionnaire design of the interview was replicated from the Factor Model from EU study "Breaking Barriers to E-government: Overcoming Obstacles to Improving European Public Services." The primary focus of EU survey was for participants to rate 30 barriers to E-government in terms of their significance in blocking the developments of E-government. The online survey was advertised widely via email lists and adverts on appropriate websites and e-newsletters during May - June 2006. Particularly, the identified respondents (chief of staff and ICT specialist from each ministry/adjunct body) were asked to rate the importance of 18 barriers to E-government development in RA grouped in four general themes:

- technical and design-related;

- organizational and administrative;

- privacy;

- access, skill and usage.

Findings

Almost whole executive branch of the Armenian government was covered. 20 (57.1%) respondents are of managerial positions, and 15 (42.9) respondents – IT experts. The frequency tables are presented in Annex 1.

<u>Other Responses</u>

This section presents the answers acquired during the interviews with participants where they were asked to comment on and mention other barriers to E-government and 25 responses were received and grouped as follows:

1. Human resource personnel lacks appropriate trainings and educational program in order the public administration employees gain all the necessary skills to use the ICT appliances. There is a necessity of an ongoing personnel development;

2. Lack of computer technology of high quality and high-quality Internet connection;

3. There is no appropriate "e-environment" in the Republic of Armenia;

4. Lack of motivation and "strong desire" to be involved in this project;

5. Lack of official standards and legal provisions ("organizational and technical interoperability specifications") on E-government interoperability between governmental bodies at all levels;

6. The complex system for "Internet providers" certification processes and access issues due to the lack of broadband in remote areas of the RA. This is the main reason, why people from lower socio-economic groups are not concerned about the benefits of E-government;

7. The rigid mentality that is "hard to break" and the lack of "consolidated ideology." This can be considered as a cultural barrier. Here many respondents mentioned the lack of desire to change the administrative processes. Changed bureaucracy will require from workers more creativity at their work places, rather than just fulfilling their day-to-day tasks in order not to lose their jobs. People inside the public agencies do not find it urgent to change the already working system, since they do not compete with other organizations;

8. Lack of security which, for example, considerably hampers the e-document workflow process;

9. Lack of trust towards E-government which significantly constrains this project, since, as one of the officials said "only in Armenia you will see a person calling to his friend to make sure that the *sms* he has sent him two minutes before did reach his mobile phone;"

10. Insufficiently "*conscious*" political support: some governmental officials mentioned that there are only a couple of governmental officials who understand this process and can afford time and commitment to quickly implement this E-government plan;

11. People, especially most of governmental officials have no "even distant idea" of E-government and e-governance: most of E-governmental officials poorly understand the E-government phenomenon, moreover, many of them do not use computer technology on a daily basis to have clear idea about the opportunities that E-government may offer;

12. Lack of vision, professional and integrated project group with "appropriate and distinct liabilities": this results in poor strategy, since in case of information technology, decisions must be made much faster;

13. Lack of professional PR action to raise the awareness, change the perception of citizens and governmental officials and "inspire them" before implementing the project on E-government itself: the government fails to apply enough effort to explain and convince people about the benefits that the effective E-government may bring. Moreover, many people are not aware about the existing services that the government already offers online. There are no promotional events showing the citizens the advantages in costs, time and quality in using electronic government tools; lack of appropriate and positive branding on E-government;

14. Lack of enthusiasm;

15. The complex hierarchy in governmental system that also will hamper the implementation of E-government project.

<u>Relationship between managerial and technical positions and perceptions of barriers</u>

This section explores how the perceptions of E-government barriers vary across individual's position and experiences.

As statistical data shows (Annex 1), there are four main perceived critical factors to the success of E-government development in Armenia, and these perceptions significantly vary across the officials of managerial and technical positions.

- Resistance to change by government officials.

This barrier is typically perceived by respondents as a very important one (54.3%), nevertheless only 26.7% of officials of managerial positions considered resistance to change by governmental officials as an important barrier, while 75% of IT experts considered it as one of the most important barriers. (Chart 1)
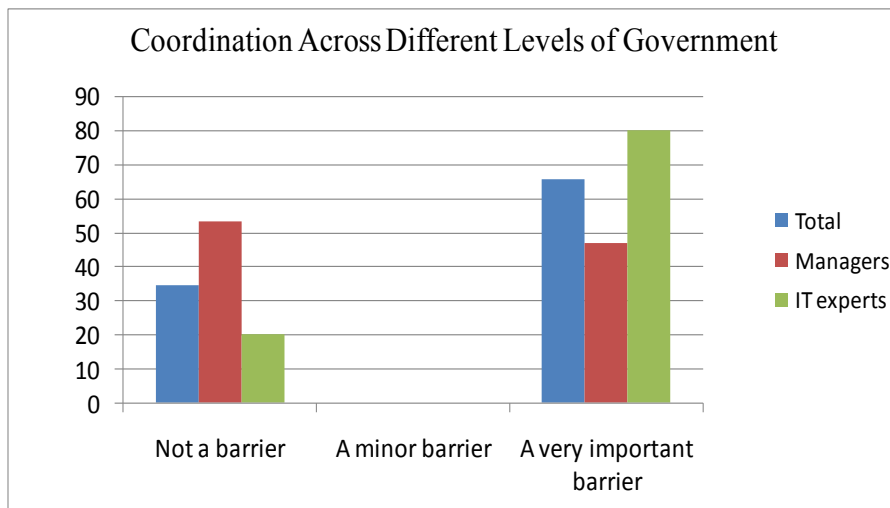
Chart 1
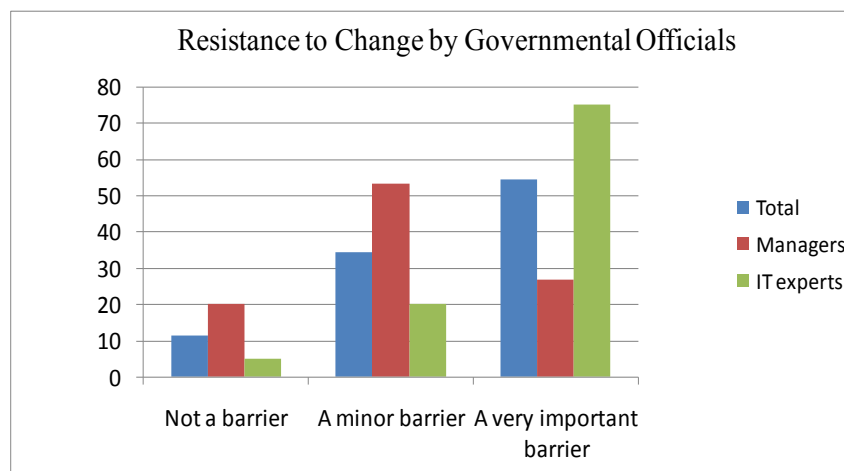
- Co-ordination across different levels of government.

This barrier is typically perceived by respondents as a very important one (65.7%), nevertheless only 46.7% of officials of managerial positions considered co-ordination across different levels of government as an important barrier, while 80% of IT experts considered it as one of the most important barriers. (Chart 2)

Chart 2.

Coordination Across Different Levels of Government

- ICT skills among citizens.

This barrier is typically perceived by respondents as a very important one (60%), nevertheless only 33.3% of officials of managerial positions considered ICT skills among citizens as an important barrier, while 80% of IT experts considered it as one of the most important barriers.(Chart 3)

Chart 3

ICT Skills Among Citizens
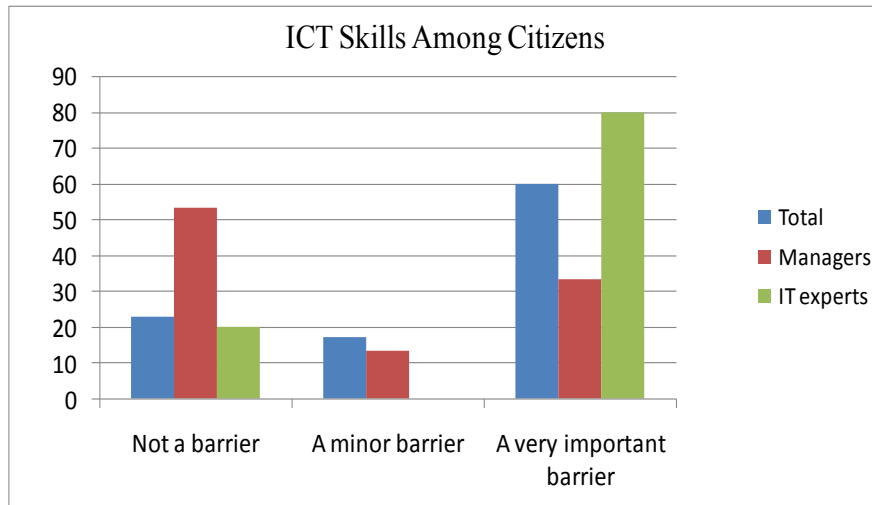
- Low level of Internet use among certain groups (e.g. relating to age, literacy, education, etc.)

This barrier is typically perceived by respondents as a very important one (48.6%), nevertheless only 20% of officials of managerial positions considered low level of Internet use among certain groups as an important barrier, while 70% of IT experts considered it as one of the most important barriers. (Chart 4)
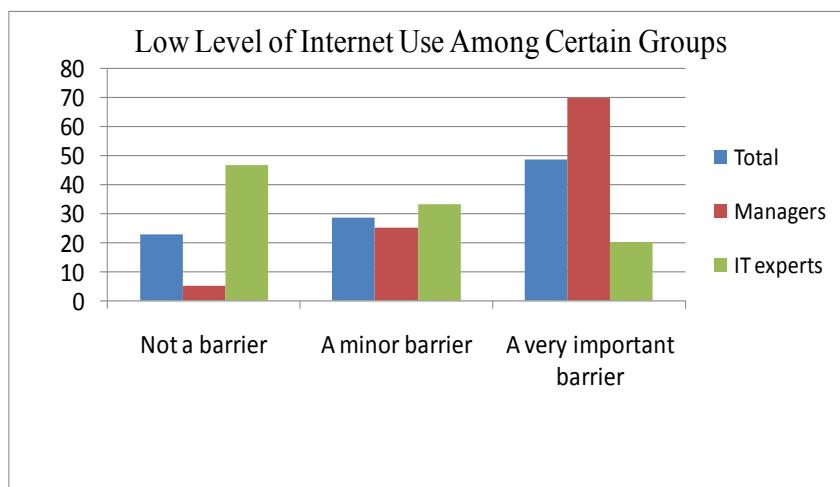
Chart 4

Low Level of Internet Use Among Certain Groups

Analysis and Conclusion

Within the limits of this project it was not possible to assess the perception and participation level of citizens. According to expert opinion on the developing project of E-government, state departments available on-line are not sufficiently oriented to citizens. The current system presupposes conversion of all internal documents (as well as all filed complaints and appeals of citizens) in electronic format and registration. Meantime, this system is oriented to internal use and can be considered only as a management tool. However, if a part of the information from this system will be available online, this management tool will be transformed and will allow to solve more serious and large-scale issues associated with the promotion of state bodies transparency, participation of different layers of society, and, even, reduction in corruption. The OPEN system implemented in Seoul, South Korea, may serve an example of such positive impact. Its scope and capacity may be used in further research on E-government project implementation in Armenia.

In summary, the interaction model between RA governmental levels in terms of electronic government still resides in development stage. Primarily, this relates to the uncertainty of management of consolidated E-government project development at the national government level. This may suspend general E-government project development and result in realization of current various and disperse e-governance projects implemented independently. This may eventually result in discrepancy of generally accepted standards.

Divergence between perceptions of managers and IT experts

Probably, this divergence between managers and IT experts is mostly based on a distinction between their experiences that shaped their views on E-government. One interpretation of this finding is that IT experts are more confident about Information Technologies critical ingredients. Another suggestion is that this divergence between

managers and IT experts is mostly based on a distinction between their experiences that shaped their views on E-government. For example, almost all officials of managerial positions mentioned experience and trainings abroad (EU, Finland, Japan, Egypt), and no engagement in E-government initiatives on their work places. Contrary to that, IT experts claimed to have practical knowledge how to plan and design user interfaces, boost trust and other user-related issues that could help to solve the issue of digital divide obstacles (but they never traveled abroad).

<u>The most critical barrier in the E-government implementation process</u>

The difficulty in demonstrating the long-term cost-benefits of E-government initiatives (justifying return on investment) - *cost barrier* - was considered as the most critical barrier in the E-government implementation process. Respondents typically perceived this factor as the most important one (76.7%), where both officials of managerial positions (72.7%) and IT experts (78.9%) had almost the same perception on this barrier.

Here, it can be suggested that this is a result of conscious attitude of the public administration not to make risk-laden investments in E-government program implementation: in order to avoid possible financial losses due to the lack of distinct and easily defined policy of central administration.

Policy Recommendations

1. To launch consultation on the priorities for E-government policies and to bridge the gap between the understandings of the officials of managerial and technical positions it is necessary to integrate them and involve in an Intergovernmental Working Group. This endeavor will be aimed at managers, IT managers, experts and all others employed in central government agencies, whose activities are related to the

development of E-government in Armenia. Through such exchange of information and knowledge, the participants will try to create openness and a shared vision in the network. Bridging these two gaps (along with appropriate leadership skills and management) will enable faster E-government development, as it worked in the Republic of Bulgaria. (Progress Report 2003)

2. For this moment, as a number of governmental officials claim, the "center" does not have appropriate capacity and funding to provide common standards and distinct priorities in E-government project initiative, such as expert support, training of specialists in the appropriate field.

    In this regard, it can be recommended to launch a consultation process with an expert team that will take the leadership and will have to define common standards to E-government and make the rest of governmental agencies to develop a full-fledged E-government plan consistent with their activities and strategic development.

    Here, consideration should be given to learning from other governments' experiences and exploring the possibility of using innovative delivery models, including private sector in realization and expansion of E-government services (G2B model)[1]. Moreover, together with business representatives, the excellence center will review, prioritize, select and develop those e-services that match the needs of the business community to the neatest extent. Also, investments for E-government program can be considerably optimized: "private company may invest N amount for the development of e-tax system as an example, after the system is deployed, private company receives its pre-agreed revenue amount, and, subsequently, after completion

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[1] For the moment the Armenian government does not have enough potential and capacity to develop all the models (G2G, G2C, G2B) at once, since it will require the involvement of a number of dimensions such as strategy, finance, data, management, human resource, technology, marketing and culture. (Shahkooh and Abdollahi 2007)

of pre-agreed period (say 2 years), revenues from the e-tax system are started to accumulate at the state budget." (Shamtsyan 2008)

"Revenue" implies a cost of transaction ("2 dollars per tax report submission transaction") (Coursey and Norris 2008). As Shamtsyan noted during his interview– "before the implementation of the project, precise calculations on returns and efficiency metrics should be established with the implementing partner."

However, when providing transaction services online, only those services should be diverted electronically which are considered worthwhile and will raise clients satisfaction level, enhance service quality and result in greatest benefit by being online. For this process relevant measurement tools should be applied.

3. The following can be considered as general recommendations in response to a number of factors perceived by the respondents in this project as an important or a minor barrier, such as digital divides, lack of ICT skills among citizens and governmental officials, lack of *e*-environment, PR promotional events.

Skill force development.

- Develop an online repository to connect Armenian scientific groups with their research expertise with the international market (Shamtsyan 2008).

- Launch "e-education" project that will set up computer aided learning centers and provide curriculum-based learning in the form of multimedia packages.

- Establish access points using inexpensive and robust technology in rural areas where villagers can get information for social needs, have access to market prices, download various applications.

<u>Innovation development.</u>

- Participation in Armenia-as-a-brand promotion process. As Shamtsyan proposed, there can be initiated a close integration with Tourism vertical for a joint, "one-window" tourism gateway in Armenia that will integrate detailed and updated regional information with hotel/recreation/event/attractions booking and payment functionality.

- Develop a strategy for a country-wide innovation environment both for private companies and for individual specialists. Focus on high technology park and incubation initiatives development, with an aim to create a success story: an innovative concept that had grown up to an attractive business, preferably on international scale, which resides or resided at that technology park.

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Annex 1

Table 1.

Making E-government services easily accessible to the visually impaired and others with disabilities			
	Frequency	Percent	Valid Percent
Not a barrier	9	25.7	25.7
A minor barrier	13	37.1	37.1
A very important barrier	13	37.1	37.1
Total	35	100.0	100
Mean=2.11			

Table 2.

Lack of secure electronic identification and authentication			
	Frequency	Percent	Valid Percent
Not a barrier			
A minor barrier	14	40.0	40.0
A very important barrier	21	60.0	60.0
Total	35	100.0	100
Mean=2.60			

Table 3.

Lack of standards for electronic identification across the state agencies			
	Frequency	Percent	Valid Percent
Not a barrier			
A minor barrier	17	48.6	48.6
A very important barrier	18	51.4	51.4
Total	35	100.0	100.0
Mean=2.51			

Table 4

Lack of interoperability between IT systems			
	Frequency	Percent	Valid Percent
Not a barrier			
A minor barrier	18	51.4	58.1
A very important barrier	13	37.1	41.9
Total	31	88.6	100.0
Mean=2.42			

Table 5

Lack of laws and regulations			
	Frequency	Percent	Valid Percent
Not a barrier	13	37.1	38.2
A minor barrier	13	37.1	38.2
A very important barrier	8	22.9	23.5
Total	34	97.1	100.0
Mean=1.85			

Table 6

Absence of clear data protection guidelines for sharing of information			
	Frequency	Percent	Valid Percent
Not a barrier	4	11.4	11.4
A minor barrier	26	74.3	74.3
A very important barrier	5	14.3	14.3
Don't know/can't say	35	100.0	100.0
Total			
Mean=2.03			

Table 7

Copyright constraints on reuse of information			
	Frequency	Percent	Valid Percent
Not a barrier	4	11.4	11.4
A minor barrier	13	37.1	37.1
A very important barrier	18	51.4	51.4
Total	35	100.0	100.0
Mean=2.40			

Table 8

Wish to avoid changing services that already work well			
	Frequency	Percent	Valid Percent
Not a barrier			
A minor barrier	18	51.4	60.0
A very important barrier	12	34.3	40.0
Total	30	85.7	100.0
Mean=2.40			

Table 9

Resistance to change by government officials			
	Frequency	Percent	Valid Percent
Not a barrier	4	11.4	11.4
A minor barrier	12	34.3	34.3
A very important barrier	19	54.3	54.3
Total	35	100.0	100.0
Mean=2.43			

Table 10

Co-ordination across different levels of government			
	Frequency	Percent	Valid Percent
Not a barrier			
A minor barrier	12	34.3	34.3
A very important barrier	23	65.7	65.7
Total	35	100.0	100.0
Mean=2.66			

Table 11

Differences in administrative traditions and processes among state agencies			
	Frequency	Percent	Valid Percent
Not a barrier			
A minor barrier	21	60.0	61.8
A very important barrier	13	37.1	38.2
Total	34	97.1	100.0
Mean=2.38			

Table 12

Public concerns over potential for online theft and fraud			
	Frequency	Percent	Valid Percent
Not a barrier	9	25.7	29.0
A minor barrier	6	17.1	19.4
A very important barrier	16	45.7	51.6
Total	31	88.6	100.0
Mean=2.23			

Table 13

ICT skills among citizens			
	Frequency	Percent	Valid Percent
Not a barrier	8	22.9	22.9
A minor barrier	6	17.1	17.1
A very important barrier	21	60.0	60.0
Total	35	100.0	100.0
Mean=2.37			

Table 14

ICT skills among government officials			
	Frequency	Percent	Valid Percent
Not a barrier	8	22.9	22.9
A minor barrier	12	34.3	34.3
A very important barrier	15	42.9	42.9
Total	35	100.0	100.0
Mean=2.20			

Table 15

Low level of Internet use among certain groups (e.g. relating to age, literacy, education, etc.)			
	Frequency	Percent	Valid Percent
Not a barrier	8	22.9	22.9
A minor barrier	10	28.6	28.6
A very important barrier	17	48.6	48.6
Total	35	100.0	100.0
Mean=2.26			

Table 16

Cost of government of providing services through multiple channels (e.g. mail, digital TV, phone, SMS, email and Internet			
	Frequency	Percent	Valid Percent
Not a barrier	5	14.3	16.7
A minor barrier	25	71.4	83.3
A very important barrier			
Total	30	85.7	100.0
Mean=1.83			

Table 17

Increased costs for governments of meeting laws and regulations relating to E-government			
	Frequency	Percent	Valid Percent
Not a barrier	8	22.9	22.9
A minor barrier	23	65.7	65.7
A very important barrier	4	11.4	11.4
Total	35	100.0	100.0
Mean=1.89			

Table 18

Difficulty in demonstrating the long-term cost-benefits of E-government initiatives (justifying return on investment)			
	Frequency	Percent	Valid Percent
Not a barrier	4	11.4	13.3
A minor barrier	3	8.6	10.0
A very important barrier	23	65.7	76.7
Total	30	85.7	100.0
Mean=2.63			