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Challenges Towards Successful E-Government: Case study of Sultanate of Oman

Muatasim Al Salmi, Norlena Hasnan, Shahimi Mohtar
School of Technology, Management and Logistics (STML), Universiti Utara Malaysia (UUM), 06010 UUM Sintok, Kedah Darul Aman, Malaysia.

Abstract
E-Government is presenting an innovative approach in addressing traditional governmental services problems utilizing internet as platform. With unprecedented breadth in information technology field, the world moved from normal old industrial age into the information age. The manifestations of such transformation and the emergence of this transition terms and concepts have become a significant part of daily lives, in the field of public sector like e-government. This paper presents three e-government main perspectives citizens, businesses and government in order to advance enabling the transformation to e-Government. The required successful e-Government skills are introduced and discussed along with challenges that need to be considered in order to facilitate the complex relationships between government and its constituencies for enabling interaction, transaction and government services delivery. The Sultanate of Oman example of available e-Government is presented. The practical challenges facing this implementation and recommendations in order to overcome them achieving successful e-Government are introduced.

Keywords: G2C, G2G, G2B, G2E, ICT, EGDI

1. Introduction

Electronic Government or in short e-government can be defined as set of processes and government supporting and interaction systems which allow and activate citizen interaction to access to the available offered services. The extra-ordinary speed of development of ICT and great efficient and business effectiveness exhibited a strong impact in variety of day to day work and interaction between citizens, companies and economic activities. However, considering technology as a way to reduce cost and increase efficiency is not a good practice since it should interact and respond to client's needs (Deloitte Research, 2000) [11]. Gene, Bruce and Karin (2005, p.1) [13] stated that "*The role of government has changed from leading innovation to regulating corporations that often have better equipment and more technical expertise*. *The Internet and related technologies have contributed to globalization by increasing both the amount of information present in the environment and the speed of information flo*w".

E-government's concept is an innovative idea that allow country's government to control and manage services. Variety of definitions is currently available and broadcasted for e-government due to its multi-faceted phenomenon, which includes many areas of study and different scholars from different areas. Hence, this diversity make creating a workable e-government definition is very difficult. Although e-government is widely accepted as a concept around the world, but the acceptance is with different levels of applicability.

E-government has many synonym terms like electronic government, digital government and online government. Usually, it refers to different digital interactions between different sides. Scholars differ in their categorizations of e-government but most of them consider the following four categories

- Government-to-Government (G2G)
- Government-to-Business (G2B)
- Government-to-Citizens (G2C)
- Government-to-Employees (G2E)

Shuiqing *et al*. (2012) [22] gave e-government a specific definition which is: e-government is the employment of internet and World Wide Web for government service information and transmission to citizens. For the purpose of improvement of effectiveness and efficiency of delivery of services for citizens, e-government's concept depends on ICT and IT various communication and telecommunication technologies. Thus, e-government's services, operation, delivery and speed are in an improved manner. This illustration is matching Heeks (2002) [14] statement which is: old e-government use internet for processing data while the new approach is by using ICT.

Reffat (2003) [21] argued that for developing a successful e-government it should follow these benefits:

- **Delivery of electronic and integrated public services:** not only offering e-services, ministries can provide more special value-added and integrated services rather than visiting several different agencies, offices or several different Web sites only to obtain a government permit,
- **Bridge good digital divide:** Governments can assist to make access to new technology for less fortunate in society and provide computer literacy education.
- **Achieve lifelong learning:** It can be realized and promoted that the concept that education does not end and finish when a person finishes school by the e-learning widespread.
- **Build government-citizens relationship:** Governments can use new technology for treating citizens as individuals and provide personalized services. Citizen-centricity aspect put citizens in more in charge of their

relationship with government for re-gaining trust and confidence in the public sector.

- **Foster economic development:** Governments can assist businesses for moving online and to use online tools.

- **Create a more government participative form:** E-government can lead to direct democracy. Local level municipalities can give more support in online debates, discussion forums and Internet voting for informing the decision-making processes.

Oman still need to put considerable efforts in order to become accessible websites and to review the accessibility related to policies that will accelerate the transition to accessible e-Government. Moreover, it should take into consideration that these services and system must serve all kinds of citizens. Hence, it should be citizen-centricity system specified for citizens desire and upon to their needs. On the other hand, IT infrastructure is essential in developing websites and complete system approach with the service delivery which force the government to invest more in this subject (Omari, 2013).

1.1 UN survey analysis

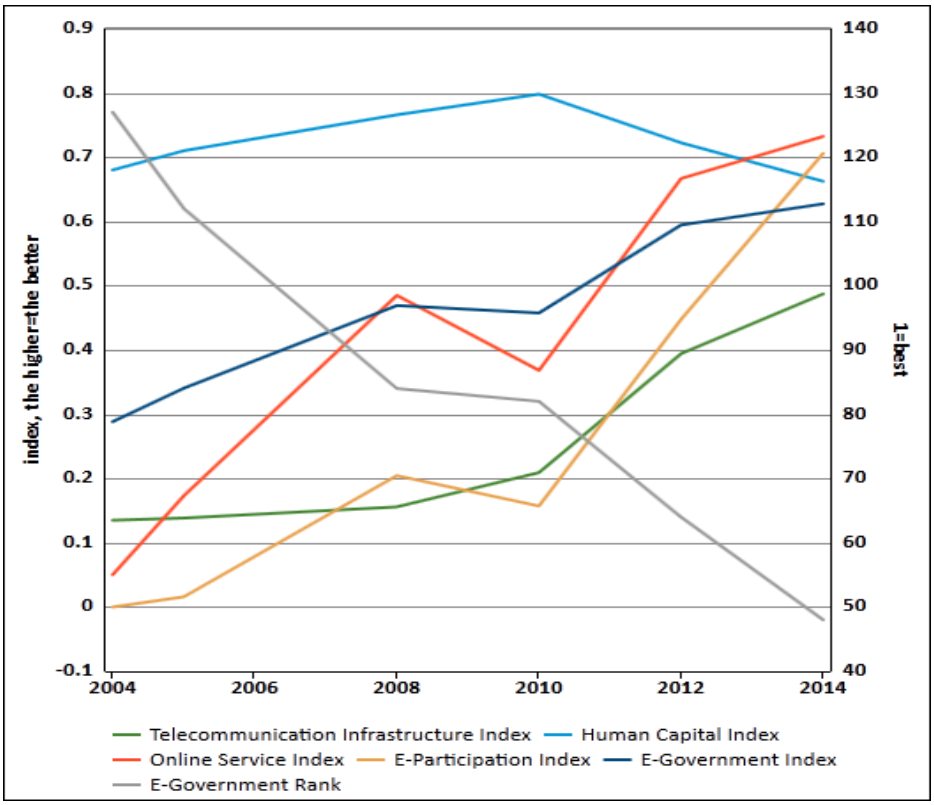

Fig 1: UN Factor Analysis 2010, 2012 and 2014

Although Sultanate of Oman has invested heavily in development and diffusion of e-Government over the last years but adoption has been still not up to the desired level due to some aspects like: limited internet access and low ownership of computers. Hence, other means need to be found in order to achieve successful e-Government in the Sultanate (Al-Hadidi, 2010). Various studies and analyses conducted by United Nations regarding worldwide e-Government readiness and development. Table 1 shows various readiness indices of Oman during 2010 to 2014 according to UN Survey Results.in the table it is noticed that e-Government ranking of Oman raised dramatically throughout this studied period. Oman's ranking raised 24 ranks in only 4 years, 18 ranks from 2010 to 2012 and 16 ranks from 2012 till 2014 with scoring HIGH EGDI index throughout the period (0.5-0.75). Moreover, GNI score was high and reached 25250 with high level of income among citizens. However, Human capital faced a slight decrease from 2012 to 2014 but it didn't affect the dramatic enhancement in e-Government progress in the country.

Table 1: UN factor analysis 2010, 2012 and 2014

No	Factor	2010	2012	2014
1	Total No. of Countries analyzed	192	192	192
2	Oman Position	82	64	48
3	Oman EGDI	0.458	0.594	0.627
4	Online index	0.368	0.667	0.732
5	Telecomm index	0.213	0.391	0.487
6	Human Cap index	0.80	0.722	0.662
7	E-Participation index	0.157	0.447	0.706

1. Three Perspectives of a successful e-Government

There are primarily three main perspectives including citizens, businesses and government that need to be taken in consideration in order to develop a successful e-Government (Reynolds and Regio, 2001).

2.1 Citizen Perspective

Although that the e-government is for the benefit of the country and the government improvement but citizens are the targeted customers and they are the main influencer and reason to make such services. In addition to that, citizens are the part who will evaluate the project if it is successful or unsuccessful and this will be evaluated by the participation of citizens as well because without their participation and enrollment the project will be completely disappointed and unsuccessful and it can be categorized under the waste of money and time project (Al-adawi, Yousafzai and Pallister, 2005) [3]. White (2007) [12] gave an example to G2C in official web portal in the U.S., but argued that many governments have implemented their G2C model around the developed world. White (2007) [12] also observed that G2C can play a role in both in the state level and local level not indicated only for federal government. Therefore, Bose (2004) said that the design and implementation of G2C should be a very easy operation so that citizens will not face difficulties to obtain their required information or documents and while submitting or applying for specified service.

Ashrafi and Murtaza (2011) conducted a study about the knowledge of services and benefits that government is providing using ICT (e-government) and the results show that only few number of the sample have knowledge about it. Hence, this show that there is a huge gap in marketing services and in the delivery of services. Moreover, Al-Azri, Al-Salti and Al-Karaghouli (2010) [2] conducted a qualitative research by conducting many interviews in Sultanate of Oman. Most of the interviewees stated that the E-government initiative services have to be marketed aggressively to end users. On the other hand, the accessibility of web along with the integration and connectivity of various government agencies is considered as one of the major factors that affect the e-government development in the Sultanate (Al-Busaid and Weerakkody, 2011; Sarrayrih and Sriram, 2014).

2.2 Business Perspective

Private sectors other than the government which should enhance and influence the service provided to the public. Earlier, some scholars ignored this category because they believe was that the relation should be mainly between government to citizens and whatever part which should enhance this relation only. However, most of the scholars evaluate it as main part of the e-government project because in order to give citizens a fully automated service the government need to participate with the bank for example to activate credit transfer or credit payment and it needs to participate with phone agencies to activate the SMS notices to citizens and all of these are categorized under G2B category. Another example is the website of the e-government which is a very important part of it. Zhiyuan (2002) [24], G2B represents business-focused applications that divert the old evolution approach of government from a bureaucratic nature to enterprising and productivity orientation.

2.3 Government Perspective

Government should manage departments and sectors internally and externally before introducing the e-government to the public. Since, citizens should not move the service documents manually from department to department or even from government sector to another. Heeks (2002) [15], stated that G2G model represents communication among internal government departments, external government agencies, and different external institutions by integrating information via the Internet or any telecommunication method. Indeed, G2G model enhance information sharing, improve efficiency, lower transaction costs and enhance information and knowledge management. The e-government should be fully automated to give the best services which state that there should be a strong interaction and relation in the G2G category to obtain such service.

The current e-government situation in Oman is that some of the ministries and government agencies have their own websites that allow citizens to check for the required information and to download or upload forms and requests. However, the service flow internally within the ministry and externally from this ministry to other ministries is not indicated or observed. This keep citizens reach the ministry frequently in order to check the service request situation and also to take it to the other agency or ministry – if required – to finish the progress their till the service completed. Janssen *et. al* (2011) illustrated that the majority of citizens and businesses in different countries which are using e-government still unfortunately have to deal with multiple different public organizations. Therefore, these organizations need to collaborate with each other and cannot operate in isolation anymore. Moreover, Governments should provide coherence between various administrative government units and agencies so that they work to complement and complete each other in one combined connected system (Al-Khouri, 2012).

2. Maturity of E-Government

Although most of governments begin to provide information across direct on-line method but public require quick services. Tamara and Amer (2010) argued that e-government progress has six stages but not all governments will reach all of them and there will be diversity within a government with different agencies at different stage. The stages are:

- Using internal network and setting up email system
- Enabling inter-organizational and public access to different information
- Allowing 2-way communication
- Allowing value exchange
- Digital democracy
-
- Joined-up government.

On the other hand, implementing E-government is a continuous process and conceptualized in stages. Layne and Lee (2001) suggested that e-government initiatives should be implemented and derived assuming four e-government growth model as shown in Figure 2:

- **Cataloguing:** it involves increased convenience for citizens and businesses to reduced government workload, established government functions departmental presence and citizens' learning tool processes and procedures.

- **Transaction:** it involves citizens' empowering through availability, paper work, travel, improving efficiency and increased savings.

- **Vertical integration:** it involves allowing citizens to access a state or federal service from portal emerging into G2G interaction for data consistency and accuracy, availability of knowledge to all government level and continued improved efficiencies.
- **Horizontal integration:** it involves that citizens have on-line access to ubiquitous government services with government levels and functional walls inside transparent government to them. Moreover, it recognizes the full IT potential from citizen's perspective.

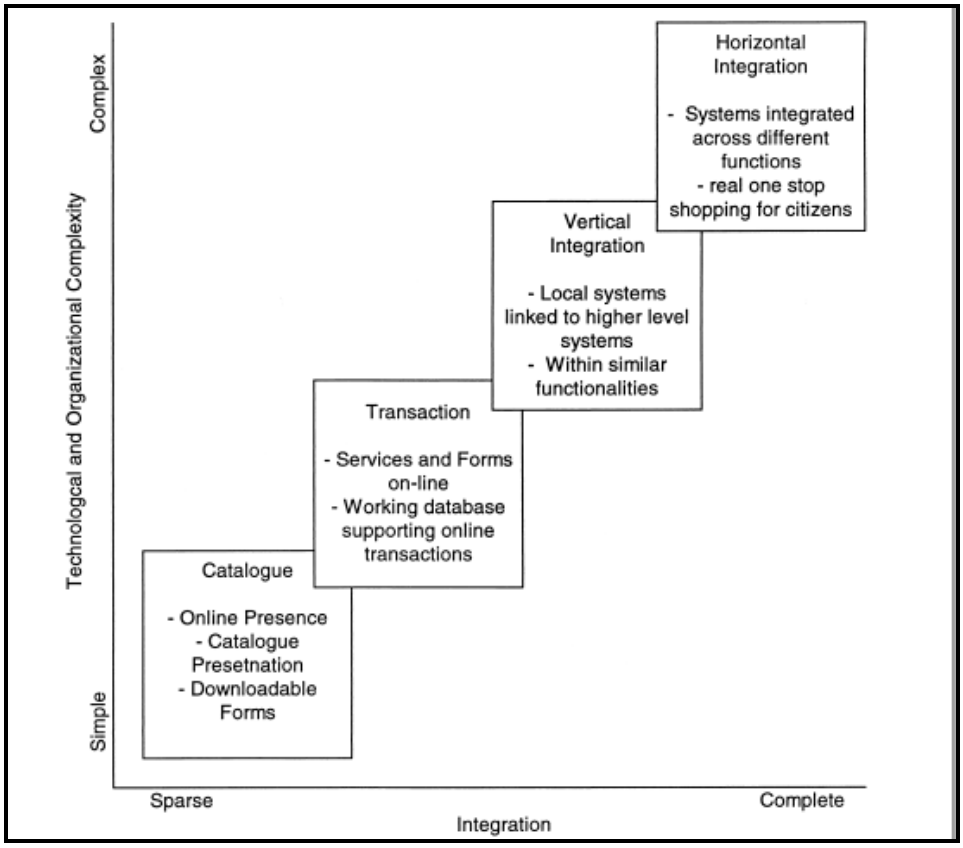

Fig 2: Layne and Lee (2001) e-Government model

3. Challenges and Opportunities of e-Government in Sultanate of Oman

For implementing a successful e-Government program, policymakers and decision makers should develop specific and reasonably attainable goals to understand available resources required to achieve desired goals. Since, formulating a plan that can be implemented in full will require these information of resources or lack of them. Once governments decided and commit to strategies transforming their governance processes, many significant challenges and opportunities will flagged up and arise during the implementation. The most pertinent challenges expected to be encountered during e-Government implementation (Info Dev, 2002) [16], refined and presented in Table 2 below. Moreover, set of recommendations for each part are provided in order to assist in overcoming each challenge for developing a successful e-Government.

Table 2: Challenges and Opportunities of e-Government in Sultanate of Oman

Challenges	Recommendations
1. Infrastructure Development Develop a basic e-government infrastructure is a struggling issue to all countries. Many developing countries like Sultanate of Oman, do not have the necessary infrastructure	• Develop projects compatible with the country's telecom infrastructure. • Use mobile centers if telecommunication density is low. • Introduce telecom competition and regulations on digital technologies • Learn from past successes and failures and Ensure sustainability • Allow rational and coordinated investment effort.
2. Law and Public Policy ICT application may encounter policy barriers. Hence, legislatures must ensure laws are updated.	• Consult with stakeholders to refurbish existing laws • Give legal status to e government information - publication.

	• Clarify laws and regulations to allow e-filings with government.
3. Digital Divide Gap between people accessing and not accessing internet. People without access cannot learn important computer skills, and share in the e-government benefits.	• Provide common access to public. • Illustrate access with proper training. • Provide motivations to private sector to donate equipment and training. • Use local language and content to different communities. • Use entrepreneurs to build access points in small communities.
4. E-Literacy Groups unable to use ICT due to lack in computer literate. It is very severe danger that the world may be divided into the "information rich" and the "information poor". Thus, e-government could equalize government access to its services	• Ensure that content is in local languages easy to use. • Develop applications with speech or pictures instead of, written text. • Include educational component. • Provide aides at access points to train citizens in basic computer skills. • Create programs with traditional media, to learn about E-government. • Special attention to groups difficult to integrate
5. Accessibility Governments must serve all society members irrespective of their physical capabilities.	• Design applications that accommodate disabled citizens. • Establish as a legal requirement to adopt technology for disabled. • Set different performance criteria and measure progress
6. Trust E-government projects must build trust within all stakeholders and within all ministries.	• Build a strategy to keep communications open lines. • Begin with short-term projects for early results and larger scale ventures • Strong leadership essential in building confidence in programs.
7. Privacy Governments must be responsible all personal information they hold from citizens through everyday transactions.	• Educate and train employees on the privacy importance. • Design applications with privacy protections. • Minimize personal information collection and retention. • Limit personally access to identifiable information
8. Security Security aspects is fundamental because it can shatter public trust in e-government. Without trust, citizens who may avoid using e-services while asking for detailed personal information.	• Designate a senior responsible official for computer security. • Continually assess systems for better implementation. • Backup regularly with store in a separate different locations. • Collection of minimum information without disclosure. • Provide computer security training to employees.
9. Transparency Citizens usually don't understand government decisions. This lack of transparency would prevent public from participating actively in government communication.	• Post government services online rules, regulations and requirements • make employees offices positive examples of openness. • Give citizens ability tracking their applications status. • Train citizens and provide them incentives. • Integrate transparency and process reform to regulations and procedures.
10. Interoperability Reliable e-government system requires a comprehensive legacy overhaul systems.	• Map and assess available record systems. • Identify and reform regulatory schemes • Use common standards and adopt a common IT infrastructure
11. Records Management Manage available data to boost deriving useful analysis enough for fast react in development	• Motivate data sharing and cooperation between departments. • Manage offline record for easy transformation to e-publication. • Creation and standardization of data is critical for data searches

12. Permanent availability and preservation ICT assist compact and convenient storage management for historical and old documents	• Design applications according to requirements. • Consider compatibility, usability, relevance, language and affordability. • Encourage cooperation between government with the private sector
13. Education and Marketing E-government is useful when citizens know about it. Hence, education and promotion are needed.	• Develop publicity and training to public in e-government initiatives. • Conduct research to ensure e-services respond to actual needs and implementation suits the target audience.
14. Public/Private competition/collaboration Identify government controls end and where private sector takes over in e-government efforts.	• Review laws and policies to impede public/private cooperation. • Ensure equitable and revisable agreements with partners. • Seek assistance and involvement from experienced organizations
15. Workforce issues Human resource should get well-trained and motivated workforce to e-government success.	• Make timeline for implementation in a milestone manner • Hold regular meetings between leaders and employees. • Apply motivations by rewarding individuals and agencies
16. Cost structures Governments should seek to invest properly in sustainable programs that can reduce cost and produce savings.	• Avoid fee-based services advertising. • Articulate functionalities clearly • Develop achievable projects with available resources. • Consider past successes and failures for current government's project.
17. Benchmarking Governments must evaluate e-government investments progress and effectiveness determining stated goals and objectives against appointed schedule	• Designate office for e-government implementation. • Fund the office and make it recognized by all relevant agencies • Conduct regular audits ensuring smooth progress • Review benchmarks regularly ensuring accurate measures • Create data collection system supporting program operations

4. Conclusion

Benefits gained from developing successful e-Government have been outlined along with various e-Government perspectives including citizens, businesses and government have been furnished. The Omani example that recognized the usage and importance of integrated e-Government has been illustrated. The most available pertinent challenges that might be encountered in implementing e-Government in Sultanate of Oman have been addressed along with efficient approaches for overcoming these challenges have been recommended.

Generally, e-Government is about changing and transforming the way government interacts with citizens and their services. The process is neither quick nor simple but it requires a coherent deep strategy beginning with nation's political examination of resources, regulatory environment and ability of public to make use of illustrated planned technologies to obtain services. The e-Government success requires fundamentally changing government works methodology and people view towards it. E-Government transformation Criticality is the deep understanding that e-Government is about the new processes creation and new relationships between governed and governor that is specifically government-citizen relationship. E-Government project requires strong political leadership to succeed. Thus, strong leadership would ensure long-term resources and expertise commitment along with the cooperation of disparate factions. Governments will need to give priorities to some programs over others in order to maximize available funds in view of tightly limited resources. This will necessitate clear objectives for programs and a clear route to those objectives requires. Governments will have to explore and create new relationships among government different agencies and ministries as well as partnerships with the private sector companies and organizations to ensure e-Government quality and accessibility. E-Government initiatives success depends on an engaged citizenry efforts to foster civic engagement are essential. In order to develop the visions of citizen, policymakers and decision makers should consider ordinary citizen when designing systems.

Finally, growing political interest in e-Government provokes great hopes. If the e-Government promise in modernizing government services to be kept, it requires including the full potential of flexibility and accountability offered by IT.

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