TOWARD THE UTILIZATION OF M-GOVERNMENT SERVICES IN DEVELOPING COUNTRIES: A QUALITATIVE INVESTIGATION

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Abstract

Recent advances in wireless and mobile communications infrastructure are enabling governments to deliver and manage services to citizen efficiently and economically. Governments that utilize these advances effectively are the prime movers of the next generation of e-government services. A major area of interest in e-government is the management of data collection, transmission and storage, security and access, and management of location-based events and indicators, by advancing digital government through the adoption and use of mobile wireless network technologies and by implementing government best practice in sharing data, information, and knowledge. In this context, however, m-government services implementation is still in its very early stages and have not been utilized to full extent or potential in most of the Arab counties including Jordan. Therefore, this paper explores the major issues faced by government toward fully realized these services. This qualitative study gathered issues from semi-structured interviews with key e-government officials in Jordan. The data was analyzed using qualitative content analysis technique. Results indicated that the main issues are trust, public awareness, cost, infrastructural constraints, and the lack of an enabling legal framework.

Keywords: E-government, M-government, Technology adoption, Developing countries, Jordan

1. INTRODUCTION

The next-generation e-government service development, which is sometimes referred to m-government (or mobile government), has the potential of delivering real-time location-based information on demand, performing transactions, and most importantly use extant mobile network to reach citizens and provide new customized services (Kuscu et al., 2008). M-government is considered as a subset of e-government comprising another channel to provide governmental information and services (El Kiki et al., 2005; Ntaliani et al., 2007). Fortunately, m-government service development can be greatly benefited from the recent advancements of the networks infrastructure and mobile computing techniques. M-government has been exploited over the past few years as a means to provide an additional flow of information and public services to citizens beside the conventional e-service delivery channels, such as internet, kiosks, and call centers. For example, governments can utilize m-government in the contexts of unexpected emergencies and natural disaster (e.g. drinking water quality, temperature, air pollution, river water level etc) responses, where governments need to coordinate emergency and disaster management activities, collect, and share and disseminate real-time information to different jurisdictions dispersed in a wide local region.

In the case of the rapid onset disasters and emergencies, governments are responsible for disseminating real-time disaster information and early disaster warning to its citizens for disaster preparedness and evacuation, by using all available broadcasting media such as radio, TV, and mobile services. Mobile services such as short messages (SMS) have the advantage of immediate and reliable access when land-based telecommunication is disrupted during crisis (Aloudat and Michael, 2011; Aloudat et al., 2009). In addition, through m-government, governmental organizations can deliver other information and services to public such as information on civil affairs, small financial transaction, and electronic identification (Kim et al., 2004).

Over the past few years, many developed countries around the world are offering m-government services to improve interactions with public, taking advantage of an advanced, stable, and well-developed wireless infrastructure that has been installed by governmental and private mobile operators. M-government exploits the high penetration rate of mobile phone among citizens to achieve the goal of e-government. In this sense, Susanto and Goodwin (2010) argued that SMS-based e-government should become a priority system for delivering e-government services in developing countries.

However, while there has been an increasing interest in implementing m-government initiatives in developed countries, issues related to opportunities for mobile government deployment in the Arab counties including Jordan are not widely studied. In addition, the e-government literature indicated that the failure of e-government projects is high in developing countries (Dada, 2006; Heeks, 2003). Heeks (2003) reported that 35 per cent of e-government projects in developing countries were totally failed and 50 per cent were partially failed. Only 15 per cent were considered as successful projects. Therefore, the overarching objective this paper is to investigate the key factors that influence the successful adoption of m-government in the Arab countries, specifically Jordan.

2. MOBILE GOVERNMENT –BACKGROUND

Governments around the world have long been exploring the utilization of different channels, including proprietary solutions and private infrastructures, for the purpose of delivering information and services to public. In this context, recent advances in wireless and mobile communications infrastructure are enabling governments to deliver information and services to citizen efficiently and economically. The International Telecommunications Union (ITU) (http://www.itu.int) estimated that there are around 6 billion mobile cellular subscriptions worldwide in 2011. Therefore, many developed countries such as USA, Sweden, Canada, Korea and Australia have taken the advantage of the widespread of mobile technology and have succeeded in establishing m-government initiatives (Kim et al., 2004). In developing countries where wireless communication penetration is high and already surpassed the internet penetration rates, m-government also becomes a good option (Ghyasi and Kushchu, 2004).

In Jordan, the number of subscribers of mobile phone services is more than six million subscribers and penetration rate of 107% compared to around 1.75 million (27.2%) internet users (ITU, 2011). This statistics show that the number of cellular subscriptions in Jordan exceeds the number of population. In addition, the results of a survey conducted by the Department of Statistics (DoS) in Jordan indicated that 22.4% of citizens who wish to use e-government services prefer to use the SMS or the mobile Internet to obtain the e-government information and services compared to 12.5% who prefer the internet channel (DoS, 2010). Therefore, the e-government program in Jordan is now considering wireless devices for the future waves of its public service delivery on a multi-channel platform (Abu-Samaha and Abdel Samad, 2007). In terms of achievements, although m-government implementation in Jordan is still in its very early stages, the increasing use of the mobile phones and mobile internet together with the advances in wireless technology has motivated the Jordanian government to lunch the SMS gateway as a starting point for improving communication with citizens.

According to the official site of the Jordanian e-government (Jordan.gov.jo), citizens can inquire about a number of services provided by some government entities connected to the SMS Gateway including inquiries about property tax, vehicle licensing, taxes for individuals, vehicles violation fees, posting complaints, car customs fees and, job seekers competitive ranking. Using this channel, citizens can obtain information easily and quickly. Yet, it can be noted that m-government in Jordan is still informational and at low level of maturity. In fact, m-government initiatives in developing countries still facing serious challenges in moving to a higher level of maturity and impact (Al Thunibat et al., 2011). Among these challenges, infrastructure development, privacy and security, legal issues, accessibility (Kuscu et al., 2008), lack of public awareness, high cost of mobile access/ services and inconvenience in using the mobile device (Al Thunibat et al., 2011).

3. METHODOLOGY

3.1 CASE STUDY

Yin (1994, p.13) defined the case study as "an empirical inquiry that investigates a real-life phenomenon within its real life context, especially when the boundaries between phenomenon and context are not clearly evident". This study concentrates on a specific context, i.e. the Ministry of Information and Communications Technology (MoICT) in Jordan, making the case study method most appropriate. This type of approach is closely linked with qualitative research, which also frequently uses semi- structured interviews (Bryman and Bell, 2007). As they are the people who are responsible for e-government planning, development and management in Jordan; five officials from the e-government Program Management Office (PMO) at MoICT in Jordan, and one official from the Telecommunication Regulatory Commission (TRC) were interviewed to explore important issues of m-government adoption in Jordan from a managerial perspective. The officials were in charge of different aspects of e-government such as e-services development, strategic planning, change management, quality assurance, and security issues.

Interviews were arranged and conducted through formal means with these people in the period between 15/2/2011 and 29/3/2011. Interviewees were asked about the major issues faced by government toward fully realized m-government services in Jordan. The interviews were recorded, transcribed, edited, and qualitatively analyzed.

3.2 CASE BACKGROUND

MoICT was established in 2002. The main aim of MoICT is to guide Jordan's transformation into a knowledge based economy that contributes to the socio-economic development. MoICT is the policy maker of ICT in Jordan. MoICT was also assigned to take the lead role in implementing the e-government program in Jordan. Therefore, PMO was established to manage, facilitate and co-implement e-government (http://www.MoICT.gov.jo). Figure 1 illustrates the organisation charts for MoICT, including the e-government program. It also shows the positions of the e-government officials who were interviewed.

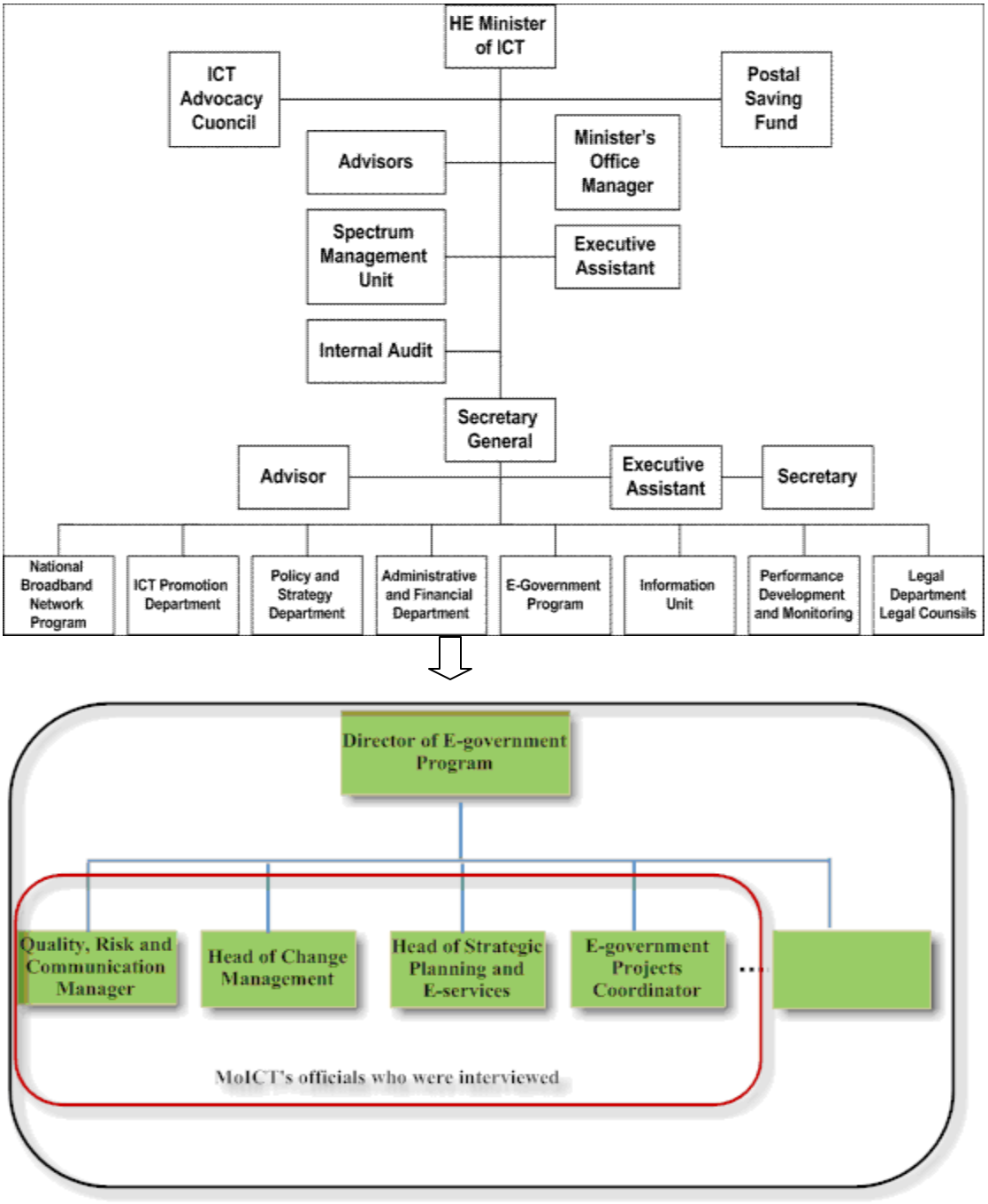

Fig 1. Organisation chart of MoICT and PMO. Source: adopted from (http://www.MoICT.gov.jo)

The Telecommunication Regulatory Commission (TRC) was also established in 1995 as independent jurisdictional body. TRC is the executive authority for regulating the telecommunications and information technology sectors in Jordan. For this reason, one TRC official was interviewed.

3.3 THE QUALITATIVE ANALYSIS STRATEGY

Qualitative data analysis refers to a "process which entails an effort to formally identify themes and to construct hypotheses (ideas) as they are suggested by data and an attempt to demonstrate support for those themes and hypotheses" (Bogdan and Taylor, 1975, cited in Tesch, 1990, p.113). Miles and Huberman (1994) viewed data analysis as an existence of three concurrent flows of activity: data reduction, data display and conclusion drawing.

Having the interviews transcripts ready in hand, the QSR NVivo 7.0 software was then used and the researcher proceeded through the coding processes. Using software for qualitative data analysis is not only the researcher's personal preference, but is also a profoundly debated topic among qualitative researchers (Charmaz, 2000; Miles and Weitzman, 1994) since it is believed to improve the efficiency and accuracy of the qualitative analysis in comparison to the manual methods. NVivo is a Computer Assisted Qualitative Data Analysis Package (CAQDAP), developed by QSR International (Bazeley and Richards, 2000). It provides functions which support the coding and retrieval of text, and also provides functions for researchers to write down their research memos during the analysis process (Gibbs, 2002).

4. CASE ANALYSIS RESULTS AND DISCUSSIONS

This section covers factors affecting the implementation of m-government services in Jordan derived from the analyses of the empirical data. It summarizes the outcomes of the case study reflecting the perspectives of e-government officials regarding the adoption of m-government services in Jordan. These factors can be classified as the following:

4.1 PUBLIC AWARENESS

Public awareness about the availability of the e-government services is considered as a significant success factor to the adoption of such services (Al-Khamayseh and Lawrence, 2006; Choudrie and Dwivedi, 2005). Understanding citizen adoption is essential because the expected benefits of using e-services, such as gains in efficiency, effectiveness, cost saving, and public value, cannot be realised if citizens do not use them. Despite all its promise though, m-government has no effect unless potential users utilize it to acquire public services (Hu et al., 2011). In this study, interviewees stressed the significance role of public awareness for the success of m-government initiative. However, although most of the interviewees agreed on the potential benefits of this channel, they pointed out that the number of m-government services in Jordan is very limited and the utilization level of these services is very low. To increase the low utilization level, the head of e-services and strategic planning stated:

> "This could be done by good marketing of e-services and creating awareness among citizens. Yet, in Jordan, e-services marketing efforts still not enough".

The results of a recent survey conducted in Jordan by MoICT and department of statistics also revealed that only 38% of participants have had heard about e-government services (MoICT, 2010). Interestingly, however, 66% of those reported that they heard about it through their mobile devices (MoICT, 2010).

4.2 TRUST

A review of the e-government adoption literature conducted by Titah and Barki (2006) showed that trust is among the most significant factors affecting e-government adoption. People usually have concerns about privacy, security and misuse of their personal information when this information is shared over the internet (Bélanger and Carter, 2008). Given the uncertain environment of the wireless communications, security and privacy concerns were also found as a key challenges facing the implementation of m-government services (Abu-Samaha and Abdel Samad, 2007; Al Thunibat et al., 2011; El Kiki & Lawrence, 2007; Kuscu et al., 2008). In this study, all interviewees agreed on the importance of trust, security and privacy as main factors that affect the adoption of m-government services. The lack of trust, according to interviewees, is considered as one of the main barriers to the adoption of m-government as well as services offered by the private mobile operators in Jordan as citizens prefer face-to-face visits rather than remotely solve issues. In this regard, an e-government official stated:

> "....many citizens do not fully trust the new digital services supplied by [private] operators specially those that are directly related to monetary issues such as bill payments, paying taxes, money transfer, declaration of permits, online forms and applications, online reservations…etc. Therefore, people would prefer to solve them by directly contacting the concerned department"

4.3 COST

From the perspective of m-government constituents, the cost of owning the access devices should be affordable and the cost of accessing services should be low (Ghyasi and Kushchu, 2004). Mobile service cost is one of the major factors that influence citizens to use m-government services (El Kiki & Lawrence, 2007). In this regard, interviewees indicated that the high cost of accessing the wireless Internet is perceived as a major constraint on the proliferation of m-government services in Jordan. Interviewees asserted that both MoICT and TRC are currently working together to implement some initiatives and ideas to increase internet penetration rate in Jordan. In this context, the e-government projects coordinator pointed out the importance of liberalisation of the telecommunication market, and the implementation of competition law in this sector. Whenever there is competition, this definitely causes prices to be down and service quality to be up.

4.4 INFRASTRUCTURAL CONSTRAINTS

According to interviewees, the lack of advanced and secure technical infrastructure remains one of the main reasons why most individuals and organizations in Jordan refrain from using m-government services. Issues such as systems integration, inadequacy of bandwidth, mobile device capabilities (screen, keyboard, power and memory limitations) are major challenges for offering m-government services.

4.5 LEGAL FRAMEWORK

Despite some progress, still there is a lack in laws and regulations for legalizing e-government services in Jordan (Abu-Samaha and Abdel Samad, 2007). Therefore, there is an urgent need for legal framework to regulate electronic transactions. Regulations on electronic crimes, electronic stamps, electronic signatures and data protection still need to be addressed. Interviewees from MoICT and TRC indicted that there is a number of draft regulations and laws, especially policies, regulations and laws related to e-transactions, e-crimes, privacy and security, waiting for the final approval from the relevant entities. This issue is considered as a real challenge for them as it takes a long time, and needs the involvement of different parties.

5 CONCLUSION

This paper presented the results of a qualitative study into the issues surrounding the utilization of m-government in Jordan as articulated by the key e-government officials. Despite all its promise though, m-government in Jordan still in its very early stages and needs more research to improve the effectiveness of m-services development and to attain wide public acceptance. However, A careful review of the e-government and m-government research shows that a large portion of the published research was conducted in developed countries. In consequence, little is written about the m-government deployment in developing countries. Therefore, filling this gap in the literature is one of the main objectives for conducting this study in a country such as Jordan, with different cultures and values. The outcome of this research revealed that trust, public awareness, access cost, infrastructural constraints, and the lack of an enabling legal framework remain the main challenges facing the implementation of m-government in Jordan. Our next step involves conducting a large-scale survey which will explore m-government adoption barriers from the end users' perspective.

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