

M-Government Services Initiatives in Oman

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Abstract

Information technology and communications have now become the main elements that move forward and help Oman in its national development process. Internet penetration in most developing countries like Oman is still low as oppose to mobiles dissemination, despite the government plans and strategies to enhance internet diffusion. Internet subscribers comprised about 2.5% of the general population of Oman. In contrast, the number of mobile holders increased substantially since the launch of these services in 1996. Prepaid mobile services and SMS were introduced in 2001 and both are currently popular with subscribers. Such fine appeal influenced many government organizations to go mobile with their services. This paper reviewed the ICT sector and the current m-government initiatives in Oman setting up the mobile services and aimed to understand the key factors to adoption and diffusion of these services.

Keywords: Oman, e-government, m-government, technology adoption, success factors

Introduction

Mobile devices are now becoming part of our daily and business life. At the end of year 2001, approximately 14% of the world population – 850 Million people – were mobile phone users. This growth has been spectacular especially in Europe after the telecom industry de-regulation and adoption of Global System for Mobile (GSM) communications (Sadeh, 2002). Now, mobile phones are no longer used only for voice communication but are a convenient way of connecting to the Internet and are used for transferring data, exchanging e-mails, and doing small scale business transactions (Sadeh, 2002). Mobile phone penetration is well above the home PCs usage in Europe and it seems that the trend will continue (Varshney, 2000). Mobile or wireless devices are widely used not only by developed countries but also commonly used by many other developing nations of the world and Oman is not an exception.

Mobiles technologies with the introduction of internet enabled mobile phones, PDA's, WiFi and wireless networks have offered their users to enjoy all the benefits of telephones, information accessing, text messaging such as SMS (Clark, 2001; Donegan, 2000; May, 2001). A recent estimate indicated that over half of the Omani populations have mobile devices, while the mobile

infrastructure in Oman is currently covering 95% of the country (Ministry of National Economy, 2007). The volume of penetration of mobile devices in the country is paving the path for more offering of m-government services accessible from anywhere and at any time. This lead to mobile government activities reaching a larger base in a more convenient manner.

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Thus, several organizations in Oman have started to utilize this to open mobile channels with their clients. Muscat Municipality developed an m-parking system which enables motorists to pay parking fees via SMS. In addition, higher secondary school students can now retrieve their end of semester grades (via SMS) by messaging their student seat numbers to a phone number designated by ministry of education. Many other organizations are now sending bulk SMS messages to citizens to inform them about different activities. Despite its early stage, m-government seems to have a substantial influence on the current m-government services initiatives in Oman, which are further needed to be explored.

Purpose of the study: In this paper, an attempt is made to review the current m-government services initiatives in Oman and to understand the key factors to its adoption and diffusion.

Background to the Study

The Sultanate of Oman is a developing country, which is located on the south east of the Arabian Peninsula. Oman occupies an area of 309,500 square kilometers (Ministry of Information – Oman, 2008b). It shares borders with United Arab Emirates to the north-west, the Kingdom of Saudi Arabia to the west, the Republic of Yemen to the south and the Arabian Sea lies eastwards. Oman is divided into five regions i.e. Ad-Dakhliyah, Adh-Dhahirah, Al-Batinah, Al-Wusta and Ash-Sharqiyah and four governorates i.e. Al Buraymi, Dhofar, Musandam and Muscat. The total adult literacy in Oman is 81% which is very high in the region and per capita income reaching to US\$ 9070. Oman's real renaissance began with the accession of His Majesty; Sultan Qaboos bin Said Al Said to the throne on 23 July 1970 (Ministry of Information – Oman, 2008a). Oman's government system is monarchy (Ministry of Information – Oman, 2008a).

According to the latest estimates (Ministry of National Economy – Oman, 2007), in 2006 Oman had a population of 2.677 million people. However, nearly 693,000 residents, 25.9 per cent of the population, were expatriates. Oman's currency is the Rial (OMR) which is about USA \$2.60 per unit. The country's main revenue comes from oil and natural gas. According to the Ministry of National Economy – Oman (April 2008), Oman's 2006 GDP reached OMR 13,737 million (provisional), compared to OMR 104 million in 1970. The country's economic status was substantially enhanced by rising oil prices. The United Nations Economic and Social Commission for Western Asia (ESCWA, 2007) estimated Oman's GDP in 2005 to be US\$30,834 millions.

ICT Sector

The Information and Communications Technology (ICT) sector in Oman is at an early stage of development, but it is quickly gaining momentum. The government is currently undertaking a comprehensive planning and development program for the sector. The National Committee for Information Technology was established in 1998 to address issues in Oman's information and communications sector. The Committee is chaired by the Minister of National Economy (ESCWA, 2007).

In April 2000, the Committee formed the 'Information Technology Task Force' (ITTF) (AlEsmali, 2002) to develop an IT vision for Oman. The Task Force's deliberations produced the following statement: "*The leveraging of Information Technology & communications in providing collaborative services to public & private sectors and citizens through electronic means as being the driving force to move forward the Sultanate to the Knowledge Based Economy and achieve sustainable development*" (National Committee for Information Technology – Oman, 2003). Later on an Information Technology Authority (ITA) was established by the Royal Decree No. 52/2006 to oversee Oman's ICT sector and Digital Oman strategy of which e-government is a subset (ESCWA, 2007). Oman had OmanTel as the only service provider for both mobile and fixed tele-

communication services until 2004, when Nawras became a second provider, though it offered mobile services only.

The adoption rate among the key ICT services varies in Oman. According to Ministry of National Economy Oman (2008), the number of internet subscribers and mobile subscribers are increasing, while the number of fixed phone subscribers is reducing. There is a 6% reduction of fixed phone subscribers in 2007 in comparison to year 2006 as shown in Figure 1. During the same period, there is a sharp rise 40.4% of mobile phone prepaid subscribers and 19.3% rise in postpaid services as shown in Figure 2.

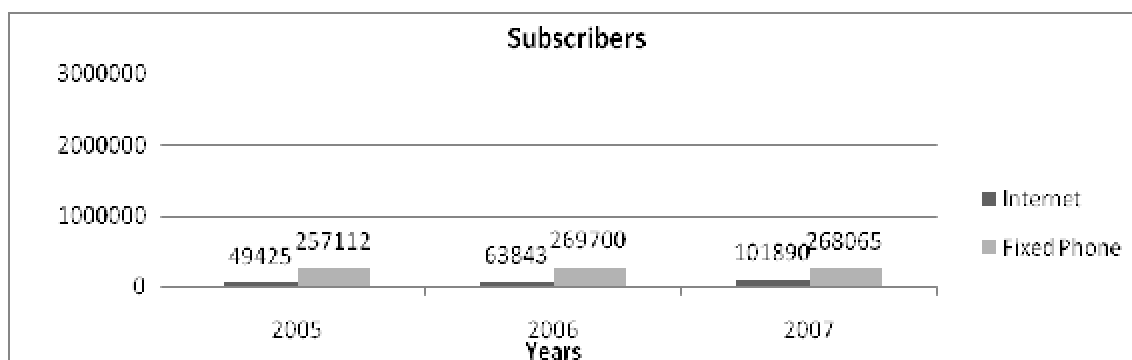


Figure 1: Subscribers of Internet and Fixed Phones



Figure 2: Subscribers of Mobile Post and Prepaid

In addition, multimedia message services (MMS), general packet radio service (GPRS) and wireless application protocol (WAP) were introduced at the end of 2004 (ESCWA, 2005) while the third generation (3G) mobile services have been launched by Nawras at the end of 2007 (Nawras, 2008).

OmanTel is developing and upgrading its services to provide better and efficient services to its telephone and internet subscribers. As Oman is participation in a Falcon submarine cable venture, a high-capacity loop cable system that extends from the Middle East and Egypt through India to China, with Muscat as one of the hub cities. Flag Telecom, a leading global network services provider, funded the project together with India's Reliance Infocomm (AME Info, 2004; & Alwatan, 2004). This extra capacity was instrumental in increasing the number of Omani internet subscribers.

M-government Services

As mentioned earlier, over half of the Omani population has mobile devices. Thus, several organizations in Oman have started to utilize this to open mobile channels with their clients. This section outlines the major m-government services in Oman categorized in two groups; push and

pull services. Push services are passive in nature where clients or end-users usually receive notifications about certain activities or events. On the contrary, Pull services ask users to play more active role in either initiating the service or responding to queries via mobile devices.

Push services

Muscat Securities Market has developed a paid service that enables investors to receive regular updates on market and stock alerts via SMS (Oman Mobile, 2007b). The service also enables users to get an SMS every 30 minutes on market movers - top winners, losers and most active companies (Oman Mobile, 2007c).

The Civil Aviation and Meteorology in cooperation with Oman Mobile has introduced a weather forecast service for most towns in Oman that allows users to receive weather reports on their mobiles (Oman Mobile, 2007d).

Other public organizations have also started to send bulk messages to citizens informing them about certain activities and events. For example, the Public Authority for Social Insurance has currently begun a public campaign to publicize its services and their perceived benefits to clients. One of the means used was to send advertising SMS to all residents in Oman. Another example is in Oman Tender Board and Ministry of Manpower where they now send notification messages to clients about their transactions and/or other different issues such as new tenders and job vacancies etc.

Pull services

Muscat Municipality developed an m-parking system which enables motorists to pay parking fees via SMS (Muscat Municipality, 2007). Drivers can now SMS details of their vehicle plate number to a short code number '90091' and get a confirmation message with allocated time. Five minutes before the allocated time expires, the municipality sends a reminding message to motorists asking them either to move their vehicles or renew their parking.

The Royal Oman Police (ROP) initiated a mobile service allowing drivers to inquire and receive information about their traffic offences. Motorists are required to send a message of their ID and vehicle details to '3004' and will receive information on the number of traffic offences and amount payable. ROP plans to enable the system to notify drivers of their offences as soon as they happen, which will be useful to parents of their sons and daughters driving activities and business owners can keep monitoring of their company's drivers violations on time which can help in reducing the traffic offences.

The Ministry of Education now sends the final general certificate results to students via SMS. Alternatively, students can inquire about their results by messaging their seats numbers to '92020' and receive their final marks (Oman Mobile, 2007a). In addition, the Higher Education Admission Center now informs students of their admission status in different institutions via SMS allowing them to accept or reject the offer by messaging back their choice.

Methods and Discussions

To collect information, on the issue of m-government services initiatives in Oman and to understand the success and failure factors, interviews were conducted with key staffs in several government organizations. These organizations were chosen according to their respective experiences in m-government and only the active adopters were chosen and their key staffs were interviewed. Key staffs were chosen according to their job titles and responsibilities. The purpose of these interviews was to collect the data on issues related to ICT sector and m-government initiatives in Oman. The data analyses were done using the SWOT (Strengths, Weaknesses, Opportunities and

Threats) analysis method and the results on the issues related to m-government services adoption and diffusion in Oman presented in the following Table 1.

Table 1 A SWOT analysis results on Oman's ICT sector

Strengths	Weaknesses
<ul style="list-style-type: none"> • Sound economy and good international relations • Stable political system and peaceful society • High literacy rate • Strong leadership support • Comprehensive mobile coverage • Government support to private sector • Strategic geographic location • Majority of population aged 15-65 years – i.e. working age. 	<ul style="list-style-type: none"> • Low internet penetration rate • Incomplete ICT infrastructure • Low level of skilled IT staff • Government vision and achievements in ICT are under-marketed • Absence of legislation to support ICT development • Low level of awareness of technology benefits • Slow introduction of IT programs in country's educational system • Slow ICT application adoption among government or private organizations • Excessive bureaucratic work processes in government organizations
Opportunities	Threats
<ul style="list-style-type: none"> • B2C and B2B outputs are expected to expand swiftly • Support for ICT liberalization strategy is part of WTO agreement • Government support for privatization of ICT sector • Successful e-government and m-government projects in neighboring countries • High adoption rate of mobile telecommunications services in neighboring countries • Flexible society open to change 	<ul style="list-style-type: none"> • Lack of priority to integrate central e-government through all-government steering committees work • Government organizations have different rates of e-government adoption • Government organizations work and set plans in isolation from each other • Frequent structural changes within government organizations affect ICT implementation • ICT sector growth is mainly dependent on the public sector demands.

These analyses showed that Oman faces many critical issues that need to be addressed. Apparently, many of the issues (Weaknesses and Threats) are more cultural and country-specific than technical in nature. These factors act as inhibitors to adoption and growth in many instances. That is, they negatively influence users in their decision to use the technology and also restrict decision makers from implementing or taking initiatives to adopt m-government services. For example, the absence of e-legislation that governs online and mobile activities and the low level of m-government awareness and IT literacy limit the contributions and involvement of users in any m-government project. Subsequently, this will hold back development and growth in this domain that is primarily based upon users' needs and involvement.

The same issues might also prevent senior private-sector officials from embracing new technologies. Based on the analyses a list of factors critical to the successful implementation of m-government services in Oman is presented as follows:

Reliable mobile infrastructure: in the m-parking system described above, the municipality uses a PDA connected to the GPRS network to check if vehicles are legally parked. Obviously if the mobile network is temporary down, the mobile parking system will be affected too. Moreover, such incident may cause faulty ticketing to legally parked vehicles, which could negatively influence users trust and satisfaction, and degrade the system image.

3G Network: several officials declared that the absence of 3G network in Oman and the current high costs of MMS and WAP limit adopters and developers to certain kinds of mobile applications. Generally, SMS technology will only be utilized, which is limited to text and number of characters.

Solid marketing campaigns: justifying marketing costs among government organizations might be a dilemma. Despite this, users must be made aware of the initiatives and their perceived usefulness to them. They should also be informed on how to use the mobile services. More importantly, Omani citizens are seen to be prone to stereotyping, and hence, ensuring proper implementation of programs and successful experiences to users is a step that should precede advertising. There are very low chances that users will trust or keep trying any m-solution if it has shown to be faulty from the first few attempts.

Security and Privacy: Users' information and transactions should be kept confidential and solid security measures must be observed. Ministry of Education used to publish the results of the general certificate students on newspapers, which received many privacy concerns. The current mobile system ensures privacy by allowing students and their parents only to receive the results. On the other hand, the Higher Education Admission Center m-service described above lacked usability as students questioned its security standards.

Summary and Conclusion

The research on issues related to e-government, m-government adoption in Oman was not very much undertaken. This study reviewed the ICT sector and the current m-government initiatives in Oman and aimed to understand the key factors to adoption and its diffusion. The popularity of mobile devices, in the country, is on the rise in turn creating more opportunities for the m-services. There are clear potentials to these services in Oman and the government must consider more mobile applications in parallel with the current e-government projects for modernization of the public administration. The current m-government initiatives are popular with users, which emphasize the possibility of m-government to be a driving force for more e-government adoption and dissemination.

The coming age of m-government raises several interesting questions. Will m-government replace the e-government activities? Despite its significance m-government cannot be seen as replacing e-government and in many cases it will be complementary to e-government efforts. The conventional e-government efforts provide services through wired network with interactive and relatively intelligent web applications. The value of m-government comes from the capabilities of applications supporting mobility of the citizens, businesses and internal operations of the governments for example: crimes, accidents, safety and other public issues.

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Biographies



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