

## Mobile-Government: Challenges and Opportunities Jordan as Case study

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### Abstract

*The e-government program aims to provide government services to citizens through different channels. One of these channels is mobile government that develops on the basis of traditional e-government. Mobile government affords a new method to improve government effectiveness and economy of public services. In the context of Jordan, mobile service is the most prevalent among the various segments of the society and powerful way for the deployment of government services with ease. Therefore, there is a real need for the transformation from e-government to mobile government services. This paper will review mobile government application in Jordan which includes; the concept of mobile government, challenges of mobile government implementation, advantages of mobile government, and provide different cases of m-government applications applied in the globe scale.*

**Keywords:** E-government, M-government, Telecommunication Regulatory Commission, Mobile government applications.

### 1. Introduction

An Information and Communications Technology sector become a strategic sector and energy to all other economic sectors, increasing its contribution and its impact on output GDP to 14.3%, while the contribution other sectors 27% (MOICT 2013). Until the end of last year, where the percentage contribution of the sector in the gross local up to 6.1% in 1999, with regard to the use of the number of cell phone subscriptions.

Millions of channels and the number of Internet users reached 2 million users, while the total number of fixed telephone subscriptions half a million subscription. According to Telecommunication Regulatory Commission (TRC.2013) from here emerged strongly the concept of m- government as an effective way to deployment of services via communication companies (zain, orange, and umniah).

In addition, according to TRC (2013) the m-government interacted with the citizens from the beginning of 2008 to 2011 more than 32 million messages, In 2012 Jordanian received 17 million Messages from the m-government includes information and services, and work is progressing as to add new application will be processed in the next stage so that it complies with all mobile devices including smart devices by downloading the application (program) on the phone (smart phone). The Number of government departments benefiting from these services is 77 departments, and the number of services provided 40 services and work is underway to add other departments ([www.Jordan.gov.jo](http://www.Jordan.gov.jo)). Finally, Jordan has lunched m-government program 4 years ago, nevertheless Jordanians can't touch the benefits and challenge of m-government on their daily activities. This paper aim to review of m-government applications in Jordan.

## 2. Literature Review

### 2.1 E-government overview and concepts

While the research is about m-government we need to know the definition of m-government, delivery models, benefit of m-government and challenges that face e-government to apply m-government.

There is not any universally accepted definition of the m-government. In order to cover the variety of uses and the nuances sufficiently, several definitions are presented below.

M-government it's a subset of e-government according to Singh and Sahu (2008) there is other methods to popularize e-government such as mobile government. According to Sheng and Trimi (2008) m-government defined as the use of mobile and wireless communication technology in providing government services.

Östberg (2003) indicated that M-government refers to "the use of mobile and wireless communication technology within the government administration and in its delivery of services and information to citizens and firms". While al\_hujran( 2012) m-government is 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. The next-generation e-government service development, which is sometimes referred to m-government (or mobile government).Which also makes it a critical channel to deliver e-services . Based on all definitions we found that there is a group of similarities between all definitions such as (mobile usage, government services, using ICT).

### 2.2 Vision and strategy of m-government & e-government program in Jordan:

The vision of Jordan e-government program is broadly dedicated to complement economic and social development by providing access to government e-services and information for everyone in the Kingdom irrespective of location, economic status, IT skills and educational level (Elsheikh & Cullen & Hobbs, 2008). Until this point each government agency still has the charge to have its own digital transformation toward more customer centric approach in delivering services while more recently than ever 95 percent of the government agencies in Jordan operate their government web sites (Elsheikh & Cullen & Hobbs, 2008).

The vision of Jordan m-government program is anytime access to information and basic service to increase productivity (MOCIT.2012) .Strategy for mobile government, both for government services and for citizen-facing applications and deploy application include Different services provided by the government using mobile technologies include many areas. Table 3 shows some of the common uses of mobile activities in the public sector (MOICT 2013).

### 2.3 M-government readiness in Jordan

Jordan has been scored a development at mobile technology penetration is has been moved from 57% in 2005 to 120% in 2012 with 8.984 million accounts distributed between four service providers. (TRC, 2012)

**Table 1:** e-readiness in Jordan to apply e-government and m-government

Indicator	2005	2012
Number of landline telephone lines per 100 inhabitants	11.6	6.8
Number of mobile telephone lines per 100 inhabitant	57	120
Home internet penetration per 100 inhabitant (users)	13.2	50.5
Mobile operator and technology	Zain, Orange	Zain Orange umniah

**Source:** Telecommunication Regulatory Commission (TRC), 2012

In 2006 Jordan has considered as one of the highest mobile penetration rate in the region reaching 57% (MOICT, 2006), While in 2011 130% of the Jordanian families are using mobile phones and some users may have more than one line. Based on telecommunication regulatory commission in Jordan (MOICT.2011) report shows that mobile users rate reached 8 million in other words 130% of Jordanian citizens have mobile phones comparing this with only 50.5% of Jordanian families who have Internet in their homes (MOICT, 2011), the Internet penetration in Jordan is still behind the desired level and needs to be alleviated substantially.

The higher rates of mobile penetration in Jordan and the existing infrastructure for M-government, encourages the Jordanian government to start providing some of its services via mobile phones. Providing such service via mobiles has started in 2008.

The project name was SMS gateway and aims to increase the effectiveness of communication channels between government and citizens. The services are provided through SMS which is considered to be an effective way for reaching all the citizens and communicate with them (MOICT, 2011).

#### 2.4 Mobile government in Jordan

E-government program launched SMS Gateway in 2008. In this table 2 Listed some of the expected benefits from the gate SMS for the citizen and the (ministries, department) as a Initial phase.

**Table 2:** the expected benefits for the citizen and the (ministries, department)

For the (citizen)	For the (ministries ,department)
A. to obtain important information relating to transactions and governmental actions in anywhere, anytime and on the clock.	A. Make it easier for citizens to obtain information quickly and easily.
B. to reminder payment of fees and taxes to avoid such irregularities and fines tax license car and residences.	B. Interaction and communication with citizens and customers at any time and any place.
C. to stay abreast and know permanent in all matters relating to work of the ministries and various government departments.	C. Improve the mechanism and the level of collection for all fees and taxes.
D. Service was quick and easy to use.	D. Raise the level of services provided to citizens.

**Source:** [www.jordan.gov.jo](http://www.jordan.gov.jo)

Providing the services is done through two distinct environments:

- Pull messages: These services are requested by the citizen when sending a message requesting for a piece of information or service through the number 94444 and then the citizen receive message related information or services that inquire about the relevant department. (MOICT.2011).
- Push messages (toward users): the messages that are sent by the government to citizens without their request, such as reminders, awareness campaigns, information on the status of the transaction, and provide citizens with information about the governmental departments and services. (MOICT.2011).

##### 2.4.1 use the service Pull Messages(MOICT 2007).

Pull services are accessed by sending an empty message to the number 94444, and the customer will receive a message with the available services. The citizen then sends back the number of his request in another message to the same number. The Citizens are free to query or subscribe to the service to receive short messages a periodic from the relevant department as available to all subscribers of the service provider companies contact cell in Jordan (Zain, Orange and Umniah) use the same number for these services. And you can also use the mobile portal as an alternative to this method by downloading mobile portal on your cell phone (third phases) Now e-government program is working to deploy this application on the phones of citizens. The cost of a service request or query information for once is a will pay JD0.07, and the Cost of service request or query for information to reach the user periodic will pay JD0.05. When receiving the final message which has the service or the information that he asks for. Jordan e-government provide group of pull message services through the government's website which described as follows:

Table 3 shows some of the common uses of mobile activities in the public sector .

Ministry or department	Service Name	Service Code
Greater Amman Municipality	1 vehicles irregularities	41
	2 complaints	42
	3Tax of buildings & lands	43
	4 bidding	44
	5 professions license Information	45
Jordan Customs	Inquire about the car customs	31
	Balances temporary entry / customs	32
	Member ID / Customs	33
	Guarantees transit / Customs	34
	Case custom transaction	36
Civil Service Bureau	Competitive ranking: Provided by sending the number of the service and the Social Number of the citizen and he will get his ranking	71
Royal Jordanian	Royal flights arrival	231
	flights depart Royal	232
	flight status	233

SOURCE FROM (MOICT, 2011) and ([www.jordan.gov.jo](http://www.jordan.gov.jo)).

#### 2.4.2 Limitations of mobile government in Jordan:

In general there are many limitations that face mobile government such as mobile devices themselves are crucial as devices used may be of low memory and size. Also, there are no widely accepted standard for wireless applications as developing software for wireless devices is challenging. The mobile technology itself still evolves to improve the services without disconnections. Finally, cooperation between the government and local mobile network operators could raise problems due to security restrictions for sensitive information.

According to telecommunication regulation commission (2008) and MOICT (2007) mobile government in Jordan faces these limitations:

- Citizens can have multiple mobile lines (i.e. one or more from Orange, Umniah and Zain). The user of the line may not be the same as the one who registered and furthermore large numbers of youngsters use mobile phones where the lines are not registered in their names.
- The cost for the final message to get the service may not be feasible for Jordanian citizens, since the cost of the message is JD0.09, which gives the citizen 9 minutes of calling, so from citizens' perspective it may be more feasible not to use it.
- When you request the M-government services through 94444, the menu sent is in Arabic, so if you are not Arabian then you can't understand the message.
- Some services provided are exclusive in Amman due to the pilot project conducted in M-government, so if you are not in Amman you can't be served.
- The process to get your information or service is tedious and boring in some cases.

#### 2.4.3 Benefits of mobile government:

Ntaliani and Costopoulou and Karetos (2008) claims that m-government has many advantages such as:

- Mobility and ubiquity: it is a major advantage of mobile government that the government can provide its services and can be reached by citizens anywhere and anytime. This way of receiving services is very efficient for people who are working in the agriculture sector due to the nature of their work, where they spend most of their times in the fields and at selling points.
- Provision of location-based government services: where the user can access the service based on his physical location, such as in the agriculture sector the citizen can benefit from knowing the demand services, potential buyers and information about the market based on certain region.
- Time saving: the use of mobile government can save time and money due to decreasing the levels of bureaucracy.
- On-time information delivery: M-government provides real time connection and fast access to the desired information.

- Ease of use: based upon the customization and personalization of services the users can access the information more efficiently take in mind the youth are familiar with mobile technologies.
- Improving emergency management: mobile government can be used to increase the efficiency of accessing certain information and gives more and better opportunities to know in advance, (e.g. in case of crises happening).

#### **2.4.4 E-Government mobile portal features(MOICT.2011)**

List of available government services.

1. Governmental directory.
2. Easy to use application.
3. Time saving mean to gain access to the requested information.
4. Easy download on mobile phones.

### **3. Case study from other countries**

Many countries have already estimated the potential of mobile phones in providing thee-government and they have already taken steps for providing mobile government (m-government) to citizens. Some of the case studies of m-governments include:

- India: Air Cargo Complex (Customs Department) Mumbai has already launched short messaging system (SMS)-based enquiry system from June 2003. This system enables the users to ascertain the status of their bills of entry (import declaration) and shipping bills(export declaration) by using SMS facility in their mobile/cell phone working on the GSM Standard via 4 digit access number (Air Cargo Custom, 2006). In yet another example the Delhi Traffic Police started India6767 (Delhi Police, 2005) service where the citizen can send their complaint against any Auto-rickshaws (Taxi) from their mobile phones at number 6767 for harassment, overcharging, refusal to ply, or for misbehavior. The passengers also have the option to complain via e-mail, fax, or by dialing the Delhi Police helpline phone number. (Singh & Sahu, 2008)
- UK: Sheffield City Council, launched Web site On April 23, 2002, to allow voters to select their Councilor that the year 2003 who spends more than one billion pounds a year. The Web site inform the citizen for they can vote by using the Internet, phone, SMS text message, and public access kiosks, or vote traditionally at polling stations (Sheffield Election, 2003). The site explains step by step in a user-friendly way how to vote electronically. (Singh & Sahu, 2008)
- Ireland: Dublin City Council launched its new M-Park service in January 2003 that lets users pay for parking with a mobile phone. Mobile enabled Parking Machines are available in the high tariff yellow zone. The total operation can be completed within half a minute. (Singh & Sahu, 2008).
- Canada: The project allows the citizen to obtain through his mobile phone the information and services such as searching for an MP's and government employees' phone number, e-mail, or mailing address using your postal code or find up-to-date border wait times, economic indicators, exchange rates, currency converter, and news. (Singh & Sahu, 2008)
- Malta: The government of Malta is providing a number of e-government services under the category of m-government. The service enables the citizen to receive acknowledgment via SMS, notification of acknowledgments, and status change of customer complaints, information of the court deferment, notifications via SMS for license renewal to the holders of licenses, examination results, and notification for Direct Credit Payments from the Department of Social Security. The public will also be able to get many other services like getting birth, marriage, or death certificates from the Public Registry, pay for them via the mobile telephone, and have them delivered at home; ascertain bus schedule availability via SMS, get notification of job opportunities to individuals who have selected specific areas of employment; report incidents or relevant information to the police force or receive notification of social security credit advice. (Singh & Sahu, 2008)

### **4. Major m-Government Applications in Turkey**

The m-Government applications in Turkey can be classified with different methodologies, either according to the parties involved (Government to Government – G2G, Government to consumers - G2C, and government to Business - G2B), or according to the coverage (national or local). In this article, classification with coverage will be used. National Coverage Mobese.

One of the major applications of m-Government in Turkey is in the law enforcement area, a project called Mobese (Mobil Elektronik Sistem Entegrasyon – Mobile Electronic System Integration) (4,7) The Mobese project is mainly an infrastructure which aims to maximize the efficiency and effectiveness of the law enforcement units.

The infrastructure is designed for both wired and mobile access. The police stations and related fixed units access the system via VPN. The mobile units are equipped with Tablet PCs with GPS and GPRS internet access. The system enables the following: Mobile units can do online queries regarding identification, record history etc. These queries increase the effectiveness and responsiveness of the mobile units. The system is being used by police and traffic police officers in various areas of Turkey. The central command unit has access to the location specifics of the mobile units. In case of an incident, the system effectively assigns the nearest unit to the incident. The system enables effective communication among the mobile units and the central command unit.

Since data transactions regarding law enforcement take place online, the central unit can do effective planning, simulation and management with the online data. TBS Another country wide mobile government application in Turkey is TBS (Trafik Bilgi Sistemi – Traffic Information System) 3. Similar to Mobese, TBS connects the mobile traffic enforcement units equipped with tablet-PCs to a central information system via GPRS (3,2). The system facilitates the following: Similar to Mobese, TBS aims to increase the effectiveness and the efficiency of communication between the mobile units and the command center. The command center and mobile users can communicate via real time messaging system, using custom or pre-designated messages.

The mobile units can conduct real time queries regarding drivers’ license information, vehicle registration, citizen identification and drivers’ point status. The online queries decrease the waiting time significantly increasing the effectiveness and the efficiency of the mobile units. The traffic penalties are conducted in an online manner, increasing efficiency, and transparency.

Countries	Opportunities	Challenges
Malta	<ul style="list-style-type: none"> <li>Wider reach –</li> <li>Mobility and ubiquity –</li> <li>More personalization of services</li> <li>Cost-effectiveness</li> <li>Faster information flow –</li> <li>Better management</li> <li>Increased democracy</li> <li>Enabled green government</li> <li>Convenience and access –</li> <li>Health and public safety</li> <li>Education</li> </ul>	<ul style="list-style-type: none"> <li>Governance and policy challenges</li> <li>3Technical challenges within and across levels of government with respect to sharing of information;</li> <li>Financial and economic challenges</li> <li>Cost –</li> <li>Service security</li> <li>Organizational and institutional challenges</li> <li>Co-operative behavior</li> <li>Train and educate employees –</li> <li>Legal and regulatory challenges</li> </ul>
Canada	<ul style="list-style-type: none"> <li>Bring the delivery of Government of Canada Programs and services together into a single service network.</li> <li>Collaborate with other federal departments and Levels of government.</li> <li>strengthen regional access to federal points of Services and relevance across the country.</li> <li>Realize significant savings in both operations And program spending.</li> <li>Improve accountability, transparency, effectiveness, and efficiency in service.9</li> </ul>	<ul style="list-style-type: none"> <li>.The challenge permeates the five core goals of service Canada:</li> <li>Deliver seamless citizen-centered service.</li> <li>Enhance the integrity of programs.</li> <li>work as a collaborative, networked government</li> <li>by building “whole of government” approaches</li> <li>to service that enables information sharing and integrated service delivery for the benefit of Canadians.</li> <li>demonstrate accountable and responsive Government.</li> <li>Build a service excellence Culture</li> </ul>
United Kingdom	<ul style="list-style-type: none"> <li>Jobseeker’s allowance</li> <li>Employment and support allowance</li> <li>Income support</li> <li>Elements of housing benefit</li> <li>Maternity allowance</li> <li>Sick pay, maternity pay, paternity pay, adoption pay</li> <li>Couple and lone parent elements of working tax credits and the child element of the child tax credit</li> </ul>	<ul style="list-style-type: none"> <li>Eliminate the use of plastic National Insurance cards up to £1m per year</li> <li>Centralize procurement of commonly used goods and services</li> <li>Stop sending weekly letters to say that Back to Work benefits or training provisions have been paid</li> <li>Update the way Job centre Plus measures performance</li> <li>Reduce the use of artificail lighting on the Ministry</li> </ul>
Turkey	<ul style="list-style-type: none"> <li>Trust and security</li> <li>Transparency regarding processes and philosophy</li> <li>Ease of use both from a technological and social perspective</li> <li>Real value added by perceived usefulness</li> </ul>	<ul style="list-style-type: none"> <li>Data overload</li> <li>Trust/security</li> <li>Mobile mindsets : mobile devices - cell phones particularly</li> <li>mDigital divide : as just noted, not everyone has a mobile</li> <li>Cost</li> </ul>

## 5. Conclusions

Based on the cases from other countries we find that the services and interaction between government and citizen is broader than what is available in Jordan because in Jordan mobile government designed just for inquiring about information not for applying transactions (pay fees, inquiring the status of their applications ...) so we need for more effort to support and enhance mobile government as better method for E-government development. M-Government in Jordan must perfecting m-Government relevant laws, regulations and standards and establishment of a system of information security m-Government and rebuilding and optimizing the management of business processes and enhance the evaluation of e-government citizen's needs and m-government are critical factors affects on success of e-government. As a result Jordan government and MOICT need to reconsider the different variables that affects on e-government before taking any more steps in e-government program.

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