

**REVIEW OF MOBILE GOVERNMENT AT DEVELOPING COUNTRIES:
BENEFITS AND CHALLENGES**

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Abstract

The researchers agreed on the potential of the mobile government as a new channel of communication between the government and citizens if the mobile government eliminates the traditional organizational structure of government, thus changing the way information is exchanged between them, and provide government services in a transparent manner at anytime and anywhere. Therefore, this research seeks to present the literature review of m-government including benefits, challenges and most important success criteria of m-government. using different research methods in different countries, and trying to classify these factors from the perspective of the government and citizens. The methodology used in this research is to review the literature on the success of mobile government, in order to determine the success benefits, challenges and factors adopted by each study, and then categorize the success factors according to the degree of their impact on the successful implementation of the mobile government.

Keywords: Mobile government, success, success factors

Introduction

The government services evolved in levels started from traditional services until the use of electronic devices in government job to increase reliability and reduce the time and effort. Today, the developed countries that have electronic governments find a simple way to convey information to citizen and get a feedback as soon as possible, and today technology is the best way the government use because it has proved its ability in government job. Electronic government (e-government) is a well-known service in all over the world. E-government is the use of information technology by public sector organizations to reach out to its citizens in a modern, fast and effective way. With the growing of technology and the numbers of mobile users, the mobile-government began to appear and the new technology was used in government job and became an aspiration for many countries or governments. Mobile devices have become the most common means of communication around the whole world. According to the latest statistics produced by the Central Intelligence agency (CIA), there were 5.3 billion mobile subscriptions worldwide in 2010 out of a world population of about 7 billion people (World Fact Book 2011). With mobile devices being easy to use almost anywhere in the world and at any time, several governments have started looking to offer their services via these devices in order to provide effective and efficient service delivery. Mobile government is a new delivery channel of electronic government that provides unique opportunities to use mobile technology to receive government services and information from any place, at any time, and through a variety of

wireless networks (Rossel, and Misuraca 2006). The global spread of mobile phones has been faster than any other information technology in history, By end 2015, there are more than 7 billion mobile cellular subscriptions, corresponding to a penetration rate of 97%, up from 738 million in 2000. Developing countries are trying to reach out to their citizens because mobile government brings lots of opportunities to these countries (International Telecommunications Union, 2015). Globally 3.2 billion people are using the internet of which 2 billion are from developing countries. Most of this growth has come from developing countries, which accounted for more than 80% of the new mobile subscriptions added in 2011 (International Telecommunications Union, 2015). Developing countries have a higher mobile penetration rate than the fixed-line Internet rates, whereas the number of mobile-broadband subscriptions continues to grow at double digit rates, reaching a penetration rate of close to 41%. The total number of mobile- broadband subscriptions is expected to reach 3.6 billion by end 2016, which presents opportunities for these countries to bridge the digital gap and gain a better reach through m-Government (International Telecommunications Union, 2016).

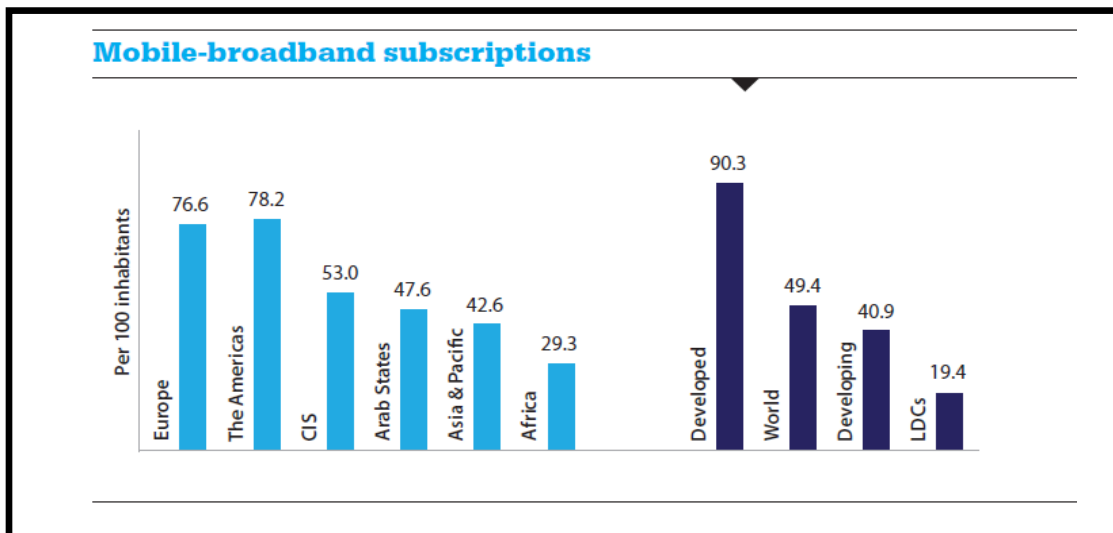


Figure 0 : mobile-broadband subscriptions
Source: (International Telecommunications Union, 2016)

Advances in mobile and wireless communication infrastructures are pushing governments to think seriously about utilizing this technology to improve the delivery of their services and provide more constituent satisfaction. Governments that utilize these advances effectively are the prime movers of the next stage of e-government adding benefits to those governments (such as cost reductions and greater work efficiency and effectiveness), and to their citizens (such as faster access to public services anytime, anywhere) (Al-Khamayseh and Lawrence, 2006).

Mobile-government refers to the use of all kinds of wireless and mobile technologies, applications and devices (e.g. internet-enabled mobile phones, PDAs, mobile applications, etc.) in government (Kushchu and Kuscu 2003; Song 2005). It is designed as innovative ICT

applications which allow broader information and services available to a wider audience; assure mobility and flexibility in delivering information and services, and offer more accessible, real-time, and transparent public information and services for citizens, businesses, and government institutions (Moon 2004; Macintosh 2004; Amailef & Lu 2008) .M-government may provide convenient and personalized access to information that can help advance e-government adoption (Kim et al., 2004). With these benefits' mobile-government is expected to improve citizen participation in governmental activities and strengthen the government-citizens relationship which. Due to the existence of e-government and the high mobile phone penetration, there is a great opportunity to utilize mobile technologies to improve the delivery of e-government services. Mobile phones offer many opportunities for increasing the efficiency and effectiveness of e-government services, and many countries have already taken advantage of wireless technologies and implemented new mobile government services. Meanwhile, the mobile-broadband up take remains the fastest growing market segment in developing countries, while fixed-broadband growth rate is slowing down, Thus, government is then faced with new challenges and opportunities on how to reshape the government activities in this "always-on" society that the conventional e-government fails to deliver so far, to more closely involve citizens and to improve the fundamental functions of government in more innovative ways, which then opens up a new direction of m-government (Kushchu and Kuscu 2003; Alrazooqi and De Silva 2010). (Galvez and Youngblood, 2014) noted that mobile services offered the ability to increase citizen participation in the government, increase government efficiency. They argued strongly that policy makers take a forward-looking approach and “get ready to embrace these developments and participate in ways to enhance e-government activities through m-government. The m-government is an extension or a supplementary form of government. according to (Lee et.al., 2006), mobile government is the strategy and the mobile devices are its implementing arm for providing information and services to government employees, citizens, businesses, and other organizations. According to (Mengistu, and Rho, 2009, Mengistu et.al. 2009) M-government provides the additional features for the integration and exchange data communication, especially for the countries that have made a lot of investment in e-government implementation. The synergy between both of them may become a new method for the interaction and communication between governments and citizens. M-government has the ability to connect previously unconnected areas, information, and services from the government. In addition, the relatively lower cost of mobile phone technology versus internet technology has drastically lowered the entry barriers for citizens in developing countries to be connected to government services. Mobile phones allow citizens to get access to government services virtually in any place covered by a mobile network. Mobile devices are also easier to learn and to use by the elderly (Georgescu, 2011). This paper aims to investigate the literature of the critical factors that enable m-government success in developing countries.

M-government as an emerging phenomenon

This section defines m-government and lists its classification themes, required drivers, benefits, limitations and existing m-government services.

Mobile and wireless terminology

In order to understand mobile government, firstly we have to identify the term “mobile” and how mobile devices differ from wireless ones, because the two terms are quite often confused in the world of mobility, and in many cases they are used interchangeably, even though they mean two different things. Mobile means capable of moving or being moved. A mobile device is one that is portable and can be carried by an individual while satisfying communication needs (Lee et.al., 2006). In contrast, a wireless device is a device without wires, even if it is a desktop computer connected to the Internet through a wireless router.

Based on that, it is clear that almost all mobile devices are wireless, but wireless devices may not always be mobile (Roggenkamp, 2007). In mobile government, the term “mobile” refers to two components: the mobility of users and the mobility of technologies, such as mobile and handheld wireless devices (Hassan et.al, 2009).

Mobile technology and mobile device types and wireless networks

This section introduces mobile technology, mobile devices, wireless networks and clarifies types and functions for both technologies.

A. Mobile technology option

Mobile technology has a variety of services and options that help in performing government services. It facilitates the work of the government and the delivery of information to the farthest extent quickly and accurately, the main technology option or main services the mobile can provide are (Boyle and Greer, 2013) (Susan to and Goodwin, 2010):

1. **Voice XML:** It is the main service for which mobile was made in 1971 by Martin Cooper, voice service is a familiar and reliable service and does not require high education and experience where it is possible to easily evolve and develop their systems in multiple languages, whether local or global. This service has been developed to make recent voice mail stores the voice messages in addition to the user-specific voice tag to increase the reliability and security.
2. **SMS:** SMS means the Short Messaging Service, despite the simplicity of this service; it is especially popular among the mobile phone users, where it became an integral part of daily life after service overcome e-mail and instant messaging and fax. SMS services is used very actively in the notice of the citizens, telling them news and weather updates directly to add support for business and alerts in situations of emergency .
3. **MMS:** MMS means the multimedia messaging services, it is comparable to the SMS service, but the service has the characteristics of extra work that it allows sending and receiving voice, photo and video from and to mobile devices with the help of the Internet. MMS also have the characteristic of economically sending messages whose large size cannot be sent by SMS service. This service is widely used in communication between the public and social media.

4. USSD: USSD means Unstructured Supplementary Service Data; it is created specifically for standard GSM devices. This service is different from MMS messaging service in that it is transferred via a wireless data connection. USSD is free, logical, simple, inexpensive and accessible, with great potential for mobile banking, accessing news services, submission services, feedback, directories and voting. USSD is fast and allows for mass usage. However, messages cannot be saved or forwarded, the codes may be difficult to remember, and usage is not always reliable due to session-based timeouts.
5. WAP: WAP means wireless application protocol; it is a protocol designed for mobile phones that enables them to communicate with wireless devices to easily access the information and services safely and directly. The features of this service are that it has reduced costs and increased mobile phone feature.

B. Mobile devices

A mobile device is one that is portable and can be carried by an individual while satisfying communication needs (Lee et.al. 2006). The following devices are mobile devices (Sheng and Trimi, 2008; Salkute, and Veedhi, 2011):

1. Tablet PC: a tablet PC is similar to a laptop computer because it often carries a wireless network card, adequate hard drive and memory. Tablet PC is a single screen where the consumer uses a stylus to write on the tablet instead of the traditional keyboards used in laptops.
2. Personal digital assistant: a personal digital assistant (PDA) is a small handheld device that functions much like a laptop computer or tablet PC. PDA devices usually have the following features: calendars, to-do lists, Wi-Fi, GPS, and the ability to download additional applications.
3. Smartphone: a smart phone is a combination of a cellular phone and a PDA which combines standard phone features with computer functionality. Smart phones usually have the following features: Wi-Fi access, email, calendars, camera, voice dialling and GPS. Typical modern smart phones also allow the user to download additional applications and personalize the device. Many smart phones have the capability to act as a modem for a laptop computer, providing a high-speed Internet connection.
4. Laptop computers: a laptop computer is the most common type of mobile computer device. a laptop computer is a one-piece device that is capable of handling any task normally carried by a desktop computer.
5. Notebook computers: notebook computers function much like laptops but are smaller and sleeker, and functionality limited to basic computer programs and internet browsing.

C. Wireless networks

Wireless network refers to any type of computer network that is not connected by cables of any kind and implemented and administered using a transmission system called radio waves. The following networks are wireless networks (Sheng and Trimi, 2008; Salkute and Veedhi, 2011) :

1. Wireless internet: This network has a global coverage and it services both consumers and businesses. With the existence of 3G and 4G wireless networks this network will allow transmitting content-rich information at a higher speed.
2. Wireless personal area networks (WPAN): wireless network that interconnects devices within a relatively small area that is generally within a person's reach. The primary standard for this network is Bluetooth.
3. A wireless local area network (WLAN): a wireless network that links two or more devices using a wireless distribution method, providing a connection to the wider Internet through an access point that have limited connectivity of about 20-30 feet. Wi-Fi is a type of wireless LAN.
4. Wireless metropolitan area networks (WMAN): wireless networks that connect several wireless LANs. WiMAX is a type of wireless MAN which can connect users directly to the internet from anywhere within a major metropolitan area.
5. Wireless wide area networks (WWAN): wireless networks that typically cover large areas such as neighbouring towns and cities and employ the same technologies used for mobile phones.

Mobility

Mobility is the key enabler of mobile government. Mobile devices enable the public to access services and information ubiquitously, while enabling government and field employees to have access to government databases and update records instantly (Salkute, and Veedhi, 2011). According to (Roggencamp ,2007), mobility is the key component of mobile government and there are three perspectives on mobility: technological, economical and sociological.

The author presents four basic concepts of mobility: device mobility, user mobility, service mobility and session mobility. Device and user mobility deals with the continuous access to the service while being moved from one physical location to another. Furthermore, service mobility concept introduces the idea of service delivery anytime, anywhere and anyhow, which includes service delivery regardless of user settings and mobile device type. Moreover, session mobility is the capability of starting, pausing and resuming a user session when switching between services and/or devices which does not exist at any of the currently available applications (Roggencamp, 2007).

The concept of mobile government

In M-government, the term 'mobile' points to two main elements: the mobility of individual, and the mobility of technology, like the mobile and handled wireless devices.

To differentiate between these two terminologies, let us define each term and determine what kind of relationship (if any) exists between them. E-government "refers to government's use of information technology to exchange information and services with citizens, businesses, and other arms of government" (Kumar and O. P. Sinha, 2007). E-government uses various information and communication technologies to improve the efficiency of the government in many different ways. For example, it can use the Internet to allow citizens to vote online.

Therefore, the main target of using the information and communications technology is to provide citizens and other parties, like the private sector, better service.

M-government is defined as “the use of mobile devices by the government to deliver services and information to citizens” (Keoduangsine and Goodwin, 2009). These days, mobile devices are becoming an essential part of most people’s life.

The use of mobiles is not targeted only at making calls, but is also becoming an important tool for managing businesses; thus, governments have also realized this and have started to provide their services to citizens via mobile devices. The relationship between these two terminologies is that the m- government is a revolution for the next step, following the introduction of e-government. Therefore, the objective is the same (to deliver services to the public) however, this delivery is via the use of mobile devices. In other words, the government uses the mobile as a new channel in order to offer services for citizens and business sectors, due to the ubiquitous and mobile nature of mobile devices (Alrowili et al., 2015).

With regard to mobile government (or simply m-government), it is an even more recent concept, and therefore there is not yet a real theoretical discussion in relation to this phenomenon. It can be defined as ‘a strategy and its implementation involving the utilization of all kinds of wireless and mobile ICTs, services, applications and devices for improving benefits to the parties involved in e-government’ (Gianluca and Misuraca ,2009). It is mainly referred to as ‘the extension of e-government to mobile platforms’, as well as the ‘strategic use of government services and applications which are only possible using mobile technologies (mobile telephone, Personal Digital Assistant (PDA) ,laptop and wireless internet infrastructure)’(Antovsky and Gusev ,2003).

One of the main theorists and proponents of m-government argues that ‘As e-business evolves towards m-business, e-government seems to follow the trend with a few but significant mobile government applications’ (Kushchu and Kushchu, 2003).

Mobile government on the other hand, is the extension of e -government to mobile platforms, as well as the strategic use of government services and applications which are only possible using cellular/mobile telephones, laptop computers, personal digital assistants and wireless internet infrastructure (Onashoga et al., 2016).

According to the working system view of (Alter, 2008), m-government can be considered as an information system, which defined as organizations and individuals providing their customers with products or services using wireless network and portable devices. Compared with e-government, m-government provide users with timely and personalized information and services in a more convenient and easier way, which satisfies users’ multi-level information needs, and helps users improve work efficiency and complete tasks in anytime and anywhere (Yuan and Zheng, 2010). In addition, because of the enhanced level of customization and personalization mobile devices, they are handy and easily adopted. Thereby, m-government can obviously add benefit to users and greatly enhance users value (Wang, 2014).

Mobile government can be understood as “a subset of e-government that stands for the use of mobile and wireless communication technology within the government administration and in its delivery of services and information to citizens and firms” (Amailef and Lu, 2011). The characteristic feature of m-government is the flexibility of time and location in the provision of

government services to citizens (Liu et al., 2014). M-government should be considered as complementing the existing e-government models and should not be viewed as an alternative to e-government. Broadly, m-government can be regarded as the development of policies and managing the operational aspects of the processes that facilitate access to government information and provision of services using a mobile device (Mohd and Faisal, 2016).

From e-government to m-government

While e-government is the conventional government services made available for citizens through electronic means such as internet connected computers and other devices (Cao and Luee, 2007). The (OECD, 2011) defines e-government as using information and communications technology, particularly the Internet, to improve government service provision. E-government goals include automation of internal functions and processes and improvements to business processes within public organizations. The OECD argues e-government improves government efficiency, service quality, policy effectiveness and citizen engagement.

E-government has the greatest opportunity to improve the interaction between citizens and their government in terms of information accessibility, improving efficiency, and bringing citizens close to government officials. The term e-government is defined as the use of ICT, in particular Internet, to provide access to the government information and services (Amailef and Lu, 2008).

Further recent advances in internet technologies and services have allowed governments to provide a new way to deal with citizens and businesses through mobile platforms. In other words, the demand for better, more efficient and more effective government services will put serious pressure on the government towards m-government (i.e. transparency, access, affordability, and participation) (Rossel, & Misuraca, 2006).

M-government can be seen as ‘a subset of e-government. It stands for the use of mobile and wireless communication technology within the government administration and in its delivery of services and information to citizens and firms’ (Lallana ,2004 ;El-Kiki and Lawrence, 2006), as shown in figure 2

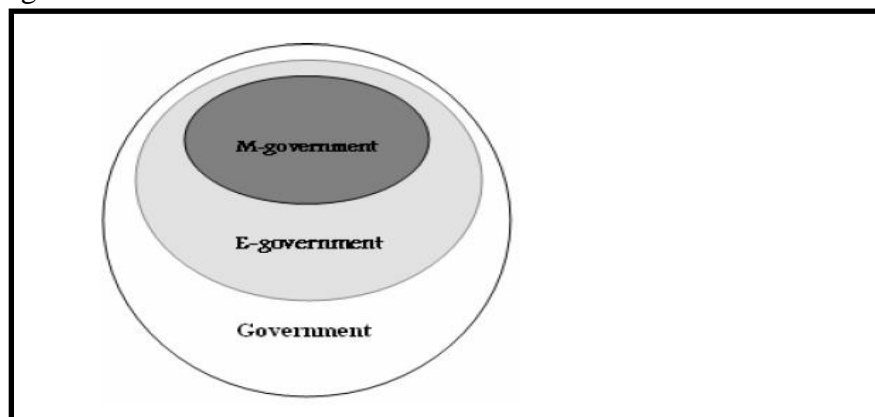


Figure 0: m-government and e- government

Source: (El-Kiki and Lawrence, 2006)

E-government services and technologies have a rapid growth. Utilizing the innovative ITs, specially web-based applications, to improve the basic and primary activity of governments is the object of extending the related activities to the e-government. Nowadays, development of mobile technologies and seamless technologies has created a new direction in e-government which called m-government (Kushchu and Kuscu, 2003). Although e-government is transit to m-government, m-government is in its first stage of implementation and it has implemented completely in nowhere. Different factors such as technical infrastructure, information infrastructure, mobile telephone penetration rate, social conditions, security situations, and political decisions should be considered for transition from e-government to m-government (Welch and Wong, 2001).

M-government can be an enabler for e-government to simplify the service delivery to citizens through different tools. Also m-government is the use of mobile and wireless communication technology in government for service and information delivery to citizens and organizations; e-government service improvement is the goal of the m-government (Nava and Dvila,2005).

E-government and m-government are not two separated subjects, but m-government is a better choice for general information and services presentation to the citizens because in m-government, accessing to the information and services in any time and any place is possible through connected wireless tools to the internet (Ghyasi and Kushchu,2004).

There is an important question that is m-government a substitute for e-government? However m-government implementation is more important for country development, it is not supersede for e-government. M-government is a complementary for e-government activity.

The cooperation of m-government and e-government is important especially for countries that have not heavy investment on e-government implementation. Nowadays, m-government is unavoidable. Influence of wireless tools and wireless network enable the developing countries to activate the employees of governments more through preparing the real time and up to date information. In addition, m-government increases the interaction of citizens with governments. Newfound services as location-based services, services that are related to the location of users, are motivation for m-government which increase the value added of presented services (Fasanghari and Samimi, 2009).

Generations of services

The different generations of services and their respective characteristics are tabulated in figure 3 (Mengistu et.al. 2009).

M-government services

Several researchers (Amailef and Lu, 2008; Kiki and Lawrence, 2006; Ozok et.al. 2009) have identified four main domains of m-government in the public sector as illustrated in figure 4

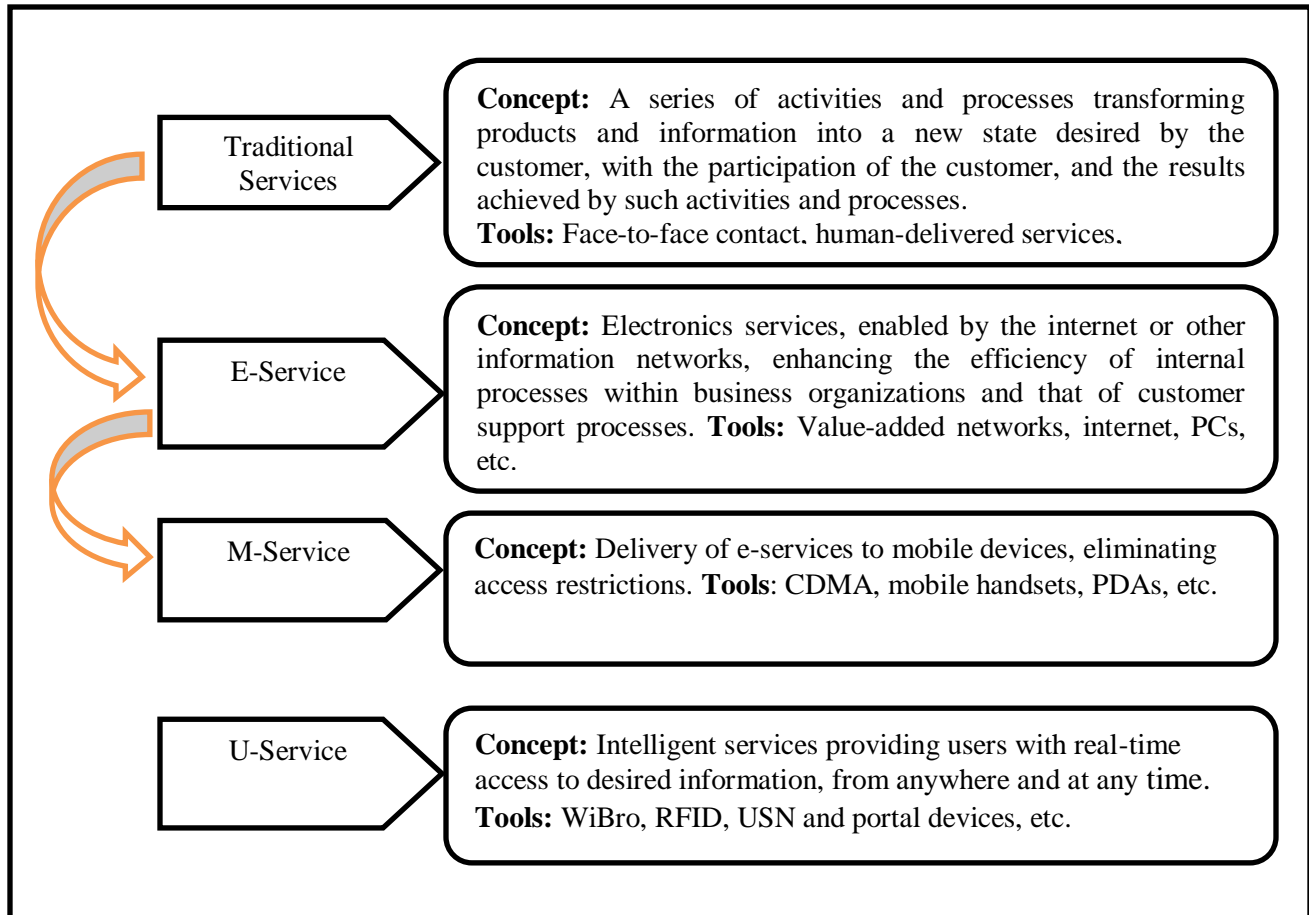


Figure 3: generations of services

Source: (Mengistu et.al. 2009)

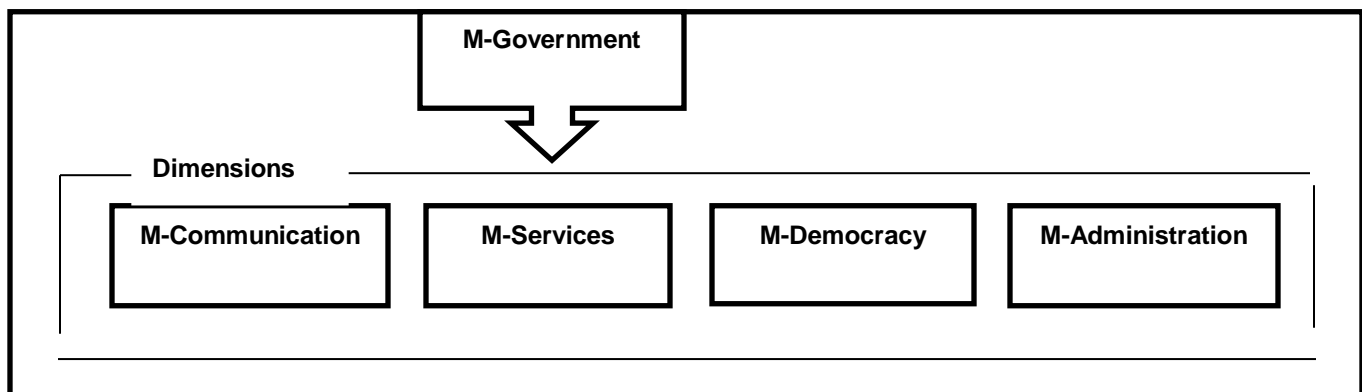


Figure4: m-government dimensions

Source: (Amailef and Lu, 2008)

1. M-communication: providing information to the public is not a trivial activity. It is the foundation of citizen empowerment. Without relevant information citizens are unable to form intelligent opinions and, thereby, are unable to act on the issues before them meaningfully.
2. M-services: providing a channel of communication between citizens and government via SMS, and enable G2C transactions as well. Some examples of existing m-Services include m-parking, m-Teacher: m-library and crisis communication.
3. M-democracy: m-voting and the use of SMS and mobile devices for citizen input to political decision-making is an m-government application with tremendous potential to enhance democratic participation.
4. M-administration: m-Government also provides opportunities to improve the internal operation of public agencies. The MERS proposed in this study is as one of the important new m-Services under m-Government platform, and aiming to provide a new function and service of m-government.

M-government interactions

M-government systems are a subset of e-government systems (Hanumanthappa and Reddy, 2008). M-government systems therefore can be divided into four levels of interactions similar to e- government systems, namely government-to-government (G2G), Government-to-Employee (G2E), Government-to- Business (G2B) and Government-to-Citizens (G2C) (Sandy and McMillan, 2005) , G2E and G2C are services for individuals, whereas G2G and G2B concern services for organizations. Currently, G2C services are the most active being developed (Lallana,2004).

Figure 5 shows four type of m-government interactions which includes (Ntaliani et.al. 2008; Fir oozy and Pashazadeh, 2011):

1. Government to Government (G2G): referring to interagency relationships and the interaction between governmental agencies.
2. Government to Employee (G2E): concerning the interaction between government and its employees.
3. Government to Business (G2B): describing the interaction of government with businesses.
4. Government to Citizen (G2C): refers to the interactions between government and citizens.

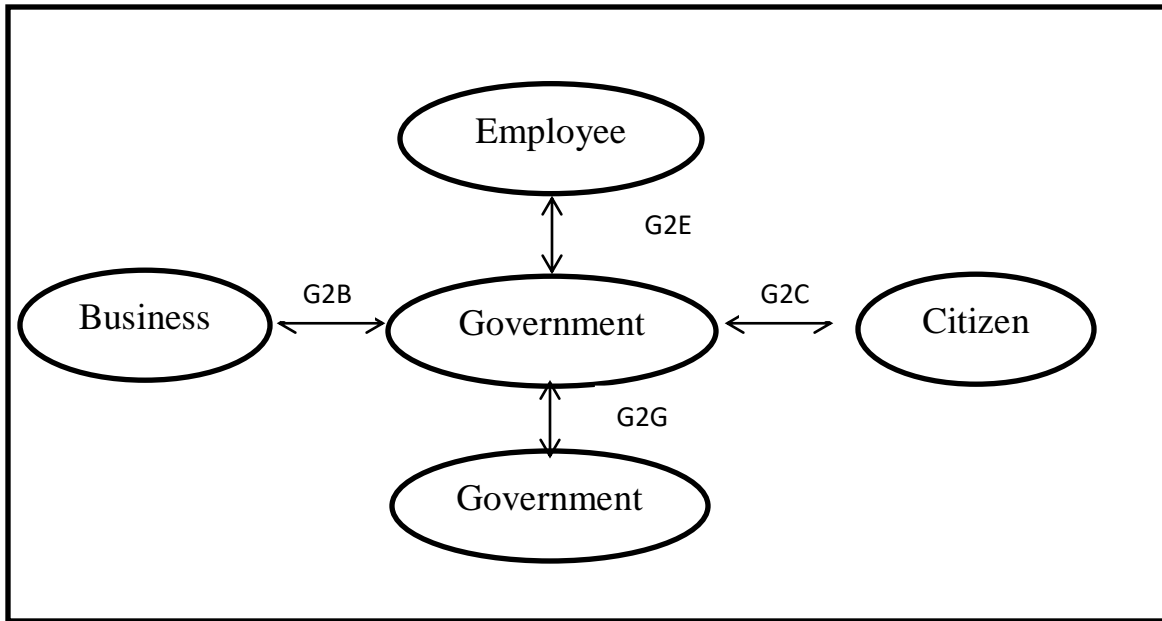


Figure 5 : M-Government Interactions
Source: (Firoozy and Pashazadeh,2011)

M-government benefits

Below are some of benefits of adopting mobile technologies for government service delivery (Ogunleye and Belle, 2014; Maddena et.al. 2013):

1. Increases the efficiency of governmental activities.
2. Effectiveness of governmental organizations.
3. Expansion and improvement of e-services.
4. Reducing the expenditures in organizations and increment democracy in society.
5. Accessing of many people to the government services due to higher penetration of mobile phone.
6. Use of mobile tools is easy and low cost.
7. Access to services ubiquitously at different levels of society.
8. In situ service delivery.
9. Increasing of interaction service channels.
10. Update of information and data in everywhere.
11. Increasing productivity of public services.
12. Providing specific services for users, especially in the field of mobile positioning.

According to (Mengistu, 2009), m-government services can provide particular support and solutions for citizens, as follows:

1. Mobility and ubiquity: the major advantage of m-government is mobility, namely the ability to reach people anywhere and anytime. This characteristic creates the sense of

ubiquity of government. Citizens can have access to government information and services whenever it is convenient for them and not only during opening hours of the public agencies.

2. Provision of location-based government services: the ability to determine a person's exact physical location and provide location based services creates new opportunities.
3. On-time information delivery: specific benefits of mobile devices, such as real-time connection and fast access, can efficiently serve producers who need crucial and certified information.
4. Ease of use: due to the enhanced level of customization and personalization mobile devices, they are handy and therefore can be easily adopted.
5. Improving emergency management: mobile and wireless technology can be used to the transmission and propagation of crucial information timely.

M-government challenges

Despite bringing new possibilities, the introduction of mobility brings many challenges that must make a shift in the way the applications are , table 1 shows the most important challenges and differences between e - government and mobile government (Abramowicz et.al.,2006).

Table 1 : challenges and differences between e - government and m- government

E-government	M-government
1. User is tied up to the computer.	1. Mobility of the users—access anytime, anywhere.
2. Content distribution is easy.	2. Content distribution is limited due to limited device capabilities; need for personalization is crucial
3. Unified communication modalities.	3. Terminals vary in capabilities and supported modalities.
4. Unified terminal (browser) capabilities.	4. User can use many terminals with varying capabilities.
5. Non-proprietary, widely accepted standards.	5. Multiplicity of standards.
6. Cheap and widespread infrastructure.	6. Terminals with multimodal and rich capabilities sets are expensive; network access time is limited.

(Georgiadis and Stiakakis) Major challenges of m-government are actually inherited from e-government. An important issue is that the public sector is legacy-system driven, not process-oriented driven. Thus, in order to improve interoperability and integration, a radical reengineering of processes and information systems is required that demands many technical,

organizational and managerial changes. Another issue is that many governments are not very receptive to electronic service providers. Suggestions for innovative electronic service delivery are frequently not adopted because many governments lack necessary motivations to realize the full potential of it.

M-government also faces some challenges that are specific to mobile technologies. Security and privacy are considered to be the major obstacles for m-government applications. Being small and portable, mobile devices can be easily stolen or lost. Disclosing personal information makes citizens more concerned of privacy issues in m-government. Limited computational power and memory, short battery life, and poor display resolution are other limitations with regard to the use of mobile devices. It should also be noted, that wireless Internet access is still costly and the coverage area of existing wireless networks is limited.

Functions of m-government

Information services of m-government, and combines the mobile multimedia message function with the other three traditional mobile functions to categorize the functions of m-government systems into four dimensions: time-critical function, location-sensitive function, multimedia message service (MMS) function and personal control functions (Chen et.al. 2016).

1. Time-critical functions: On-time information delivery denotes the timely and voluntary delivery of current government information by m-government systems to related citizens. Response timeliness refers to the degree to which m-government systems offer timely responses to inquiries by citizens (Wixom and Todd, 2005).
2. Location-sensitive function: location-based service refers to the ability to identify and locate targets exactly, including location-tracking services and location-aware services. The former is defined as m-Government with the use of object and location identification technology providing information about users' whereabouts to entities (e.g., location of communal facilities, destinations and traffic) other than the user, while location-aware services supply the user (i.e., information requester) with personal data of location (Junglas et.al.,2008).
3. MMS function is a standard way to send messages with multimedia content to and from mobile phones. MMS enables m-government systems to convey information that combines text, pictures, voice recordings, animation and video clips (Hsu et.al. 2007). The communication device should be capable of delivering and receiving messages through a third generation (3G) network, since multimedia messages are usually large. Multimedia messaging service is an extension of the short messaging service (SMS) (Chen et.al. 2016).
4. Personal control functions: portability denotes that m-government service is ubiquitous. An m-government system enables people to contact public agencies and gives them access to government services, regardless of distance and location. Ease of use refers to the degree to which users believe that using m-government systems will be easy because of personalization of handy mobile devices and customization of m-government systems. Active control describes user ability to voluntarily participate in, and instrumentally

influence, two-way communication between governments and themselves by means of m-government systems (Ntaliani et.al. 2008).

Why m-government?

The followings are some of the attractive features that prompt shift towards m-Government: in developing countries (Mengistu et.al. 2009; Hossain et.al. 2015).

1. Number of mobile users and increasing penetration: more people than ever have ownership of mobile devices capable of accessing e-services and e-contents.
2. Mobiles connecting people to the internet:; urban users are using mobiles to receive an “internet experience” through wireless application protocol (WAP) services provided over General packet radio service (GPRS).
3. Mobility: enables people to access content wherever they are.
4. Inclusiveness and Remote area access: mobile phones, can reach those areas where the infrastructure necessary for Internet services or wired phone services is difficult to setup. In the developing countries mobile government applications may become a key method for reaching citizens in far and wide areas and promoting exchange of communications. In such countries with insufficient conventional telecom infrastructures and greater acceptance of mobile phones, the ability of reaching rural areas may be considered as an important feature of m- government. Mobile technologies increasing inclusion of the most marginalized people in society.
5. Low cost: mobile phones are a relatively low cost technology, which the common people can afford to have it as compared to Internet technology.
6. Ease of Learning: Usage of mobile devices is fairly simple thus making it easy for any common person to use it and to access information.
7. Easy infrastructure setup: due to the simple architecture of mobile telephony, new mobile phone networks can be easily installed in countries where infrastructure is an issue and less economic constraint.
8. Improvement on e-government effort: m-government is not a replacement to e-government but complementary to it. Also, it helps in expanding the scope of e governance in the areas like e-democracy, e- Participation, e-Voting and many other forms of communication between the citizen and the government.

Mobil governance in developing countries

Developed countries are already benefitting from mobile governance with the use of existing e-governance infrastructures. The mobile government systems allow citizens to access the government services more conveniently and reliably by opening a new channel. The systems also provide more localized services with the help of Smartphone and their functionality to use GPS (Zefferer, 2011).

Mobile or wireless networks seem a better choice for developing countries as the number of personal computers and fixed phone lines is very poor compared with possible access by mobile phones. As a result short message service (SMS), interactive voice response (IVR) or mobile

internet could be an alternative means of connecting to the network to access the electronic services.

It also may allow the governments of developing countries to reduce the need for heavy infrastructures that are required for the wired networks, thereby saving cost and time. The delivery of information is a key responsibility of government to make their citizens aware about what is happening around them, especially in the case of a critical situation when they need to make some decision.

Mobile networks could provide the means for a critical channel for governments to provide timely information which proves the accountability of the government towards the democracy of the country (Ghyasiand and Kushchu, 2004).

Critical success factors of M-Government

To ensure the successful implementation of mobile government services, it is important that success factors be identified from the government's point of view and work to ensure that their services are successful.

This is often a challenge. For this reason, an analysis of the documents was carried out in this paper, in order to give an initial picture of the factors of success for the government agencies.

This research is expected to provide a basic guidance for researchers to propose a more comprehensive and appropriate model for the successful implementation of government services from a government perspective. As shown in Table 2

Table 2 Success factors of the mobile government

Ref	Cost	re-engineering	Acceptance	Education	Accessibility	Technical	Organizational	Security	privacy	Social	Transparency	Infrastructure	User need	Quality	Standards	Awareness	Strategy	IT literacy	Portals	partnerships	legal issues	M-G	leadership	learning	Soft skills	Involvement	Centralization	Liability	Trust	
[1]	√	√	√	√	√			√																						
[2]			√			√	√	√																						
[3]						√	√			√	√																			
[4] a			√			√		√		√		√																		
[5] b	√		√		√			√	√			√	√	√	√	√	√	√	√	√	√	√								
[6]					√			√	√																					

[7]																							√	√	√	√	√			
[8]	√					√		√	√					√	√					√										
[9]						√					√				√															
[10]	√						√	√	√			√			√		√	√												
[11]					√		√	√				√																	√	
[12]	√	√	√	√	√			√																						
[13]	√					√		√	√						√														√	
[14]						√							√				√			√				√						
[15]								√		√	√	√																	√	
Total (15)	6	2	5	2	5	7	4	11	5	3	2	5	2	1	4	3	3	3	3	1	2	2	1	2	2	1	1	1	1	2
%	40	13	33	13	33	46	27	73	33	20	13	33	13	7	27	20	20	20	20	7	13	13	7	13	13	33	13	13	13	

According to Table 1, the factors considered the most common factors, and have been adopted by studies on the success of mobile government; the security factor reached the highest percentage of 73%, followed by the technical factor at 46%. The cost factor ranked third, with 40%. The following factors Acceptance, Access, privacy, and Infrastructure, they were equal in proportion to 33% each.

Some studies have focused on other factors to study the success of mobile government implementation. The percentage of regulatory factors, standards and Organizational was equal to 27% per worker. Social factors, awareness, strategy, and IT literacy were also equal to 20% per worker.

The factors that reached a percentage of 13% were: education, leadership, legal issues, partnerships, transparency, trust, user need, and learning. The remaining factors, it reached 7%, namely: centralization, involvement, M-G framework, portals, quality, soft skills, and usability.

Conclusion

This paper has identified and discussed the preliminary findings of the review of literature and studies that have been specialized in studying the the mobile government . From this review, nine key factors were identified for success, divided into two highly successful success factors: security, technology, and cost factors. And moderating factors acceptance, access, privacy, infrastructure, organizational, standards. The infrastructure requires an assessment of the suitability, quality, compatibility and cost of the equipment. Issues such as learning management through intermittent communication of enterprise learning management systems (LMSs), as well as maintaining independent delivery of devices, pose major obstacles to the implementation of education by telephone. It should also focus on accessibility, security, privacy and ethical concerns. In terms of application, problems of teachers' lack of confidence, training and technical difficulties with the devices used may affect their use and use negatively.

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