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Investigating Factors Affecting Adoption and Implementation of m-Government in the South African Department of Home Affairs: An on-going Research

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ABSTRACT

Traditional ways of communication fail many times to provide the platform to allow satisfying service delivery to citizens. The fast growing penetration of mobile technology can be used to improve the quality of life of citizens by providing innovative mobile government services. Mobile government is the use of technologies within the government administration to deliver public services to citizens and firms. It is quickly emerging as the new frontier of service delivery and transforms governments by making public service delivery more accessible to citizens. Governments in developing countries including South Africa are increasingly making efforts to provide more access to information and services to citizens, businesses, and civil servants through wireless devices. Therefore, the purpose of this research is to investigate the factors affecting adoption and implementation of m-government, and also to investigate the challenges and opportunities of implementing m-government using the Department of Home Affairs as the case study. The study will contribute to literature on m-government and will be a good instrument in the hand of planners in South Africa.

Keywords

Traditional communication, Mobile technology, Mobile government, Public service delivery, Wireless devices.

1. INTRODUCTION

Advances in Electronic Government (e-government) oriented technologies and services are taking place with a considerable speed globally. E-government efforts aim to benefit from the use of most innovative forms of information technologies, particularly web-based internet applications, in improving government fundamental functions. These functions are now spreading the use of mobile and wireless technologies and creating a new direction: mobile government (m-government). m-government is defined *"as the strategy and its implementation involving the utilization of various wireless and mobile technology, services, applications and devices for improving benefits to the parties involved in e-government including citizens, businesses and all government units"* [7].

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The effectiveness and benefits of mobile phone technologies in this era appeared more than expected. During the recent decade, mobile usage has improved from telephone call to a remote control, transfer messages and financial transactions. M-government uses information and communication technology to present ubiquities government services for people [6].

Access to the internet and government networks through mobile phones and other wireless devices in completion of the e-government, but separation of electronic government and mobile government is possible. M-government is rather considered as independent phenomena. Obviously, if an organization has e-government information model of platform, its ability to implement m-government projects enhances using e-government infrastructure [9].

The purpose of this research is to investigate the factors affecting adoption and implementation of m-government, and also to investigate the challenges and opportunities of implementing m-government using the Department of Home Affairs as the case study.

2. PROBLEM STATEMENT

The current situation at the Department of Home Affairs is devastating as citizens and foreigners queue for a long time before they are assisted. Some people travel a long distance to get to Home Affairs and unfortunately sometimes they go back unattended to. Therefore, with the implementation of m-government, service delivery will improve at Home Affairs.

3. GOAL

To determine the factors that affect adoption and implementation of m-government in a developing country, South Africa.

4. RESEARCH OBJECTIVES

i. To investigate factors that affect m-government adoption and implementation
ii. To investigate how government can incorporate the use of mobile technologies in the provision of government service delivery
iii. To investigate challenges and opportunities facing the implementation of m-government

5. RESEARCH QUESTION

What are the factors that affect adoption and implementation of m-government in a developing country, South Africa?

In order to be able to answer the main research question, the following sub-questions must be studied:

   i.   Will mobile technology make a difference to the way government offers its service?
   ii.   Will mobile technology optimize government services?
   iii. What are the benefits of implementing m-government?
   iv. How will m-government improve service delivery?
   v.   What are the barriers of implementing m-government?

6.   REVIEW OF LITERATURE

This section will discuss literature reviewed on the following topics:

   i.   From e-government to m-government
   ii.   M-Government purpose
   iii. What is special about m-government
   iv. Benefits and barriers of m-government

6.1. From E-government to M-government in South Africa

E-government services and technologies have a rapid growth utilizing the innovative Information Technologies, especially web-based applications to improve the basic and primary activity of governments in the object of extending the related activities to the e-government. Nowadays developments of mobile technologies and seamless technologies have created a new direction in e-government which is called m-government [7]. 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 and m-government [12].

6.2. M-Government Purpose

According to [14], m-government exists to be applied to four main purposes in the public sector:

1. M-Communication – improving communication between government and citizens (G2C, C2G). Providing information to the public is the foundation of citizen empowerment to form intelligent opinions and act upon confronting issues meaningfully. Information is also needed not only to promote transparency but also accountability [14].

2. mService – mobile devices not only provide a channel of communication between citizens and government, they also enable

government to citizen transactions in the form of mTransactions and mPayments [14].

3. mDemocracy – mVoting and the use of mobile devices for citizen input to political decision making is an mGovernment application with tremendous potential to enable democratic participation and involvement [14].

4. mAdministration – m-government also provides opportunities to improve the internal operation of public agencies through improving internal public sector operations [14].

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 [10].

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, access to the information and services in anytime and anyplace is possible through connected wireless tools to the internet [5].

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 complementary for e-government activity. The value of m-government is supporting of movement of citizens, businesses and governments. As an example, m-government support patrolman to control online information such as crimes, accidents and other general instances [7].

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. New found services such as location-based services, services that are related to the location of user, are motivation for m-government which increase the value added of presented services [11]. In the case of South Africa as a country, most people live in remote areas and the potential of m-government to reach those areas can provide an opportunity to take the advantage of this useful technology. However, the challenges that the country could face in implementing m-government will be minimal as compared to deploying e-government. The

penetration of mobile phones will have a positive impact in making m-government a success.

6.3. What is special about m-government?

M-government involves a strategy and implementation of government services through a mobile platform to provide its users, both citizens and civil servants, the benefit of getting services and information from anywhere at any time [2],[7],[14]. The use of mobile technologies and applications differentiates m-government from any other developments in the public sector using new technologies, including e-government. Based on various studies of mobile government application [13], and their use in practice [3], a number of differentiating factors can be identified in terms of better precision and personalization in targeting users and in delivering content, more convenient accessibility and availability, and a larger and wider user base.

a. *More convenient accessibility and availability (Power of Pull):*
  i. M-government enhances the adoption of online government services by citizens through the improved convenience it offers. Citizens can use the online governmental services not "anytime but also anywhere" [13], [3].
  ii. Mobile devices are always on. This is different from personal computers where mobile devices are always switched on. Usually, these devices stay at an in active state, but applications can "wake up" the devices. This is very different from e-government applications [13], [3].
  iii. Mobile devices are designed to be carried around by the user; applications can be designed to provide instant information to the users. An example is to send out warnings during emergencies. [13], [3].

b. **Better precision and personalization in targeting users and delivering content (Power of Push)**
  i. A computer can be shared among different users, but mobile devices are designed to be used by a single user. This means that personalizes information can reach the same user at any time through that one specific device [13], [3].
  ii. M-government increases the acceptance, adoption and the usage of online governmental services by reaching the citizens through a more personal, familiar and friendly device [13], [3].

iii.   *Larger and wider user base (Power of reach):*
iv.   M-government reaches a larger number of people through mobile devices, which often fat exceeds the wired internet community [13], [3].
v.   M-government reaches a variety of audiences, including people who have no training or experience with computers and the internet, but are active users of mobile communication [13], [3].

However, service delivery by South African government especially the department of Home Affairs has been the issues of concern to many citizens. Therefore the above mentioned factors will improve government services delivery as is an essential and urgent matter that must be given attention.

6.4. Benefits and Barriers of M-government

Every progress has challenges. Implementing m-government will also bring a series of challenges. Some of the typical challenges for e-government are naturally shared by the m-government efforts. [8] states some of these challenges. Among them are infrastructure development, privacy and security, legal issues, accessibility and compatibility.

i.   **Infrastructure development** – the information technology infrastructure must be at a satisfactory level. The physical infrastructure refers to the technology, equipment and network required for implementation of m-government.
ii.   **Mobile Payments infrastructure** – are essential for the success of m-government. A very first obstacle for consumers to buy online is a feeling of mistrust in sending their credit card information over the mobile phone or the internet. Several solutions for m-payment even offer a greater security than the wired system [1].
iii.   **Privacy and security** – citizens have a great concern about the privacy and security in m-government. The general issue is the convincement that their mobile phone numbers might be traced, when they send their opinions and enquiries to the government.
iv.   **User friendly** - the success of mobile government will depend on largely the number of its users, the citizens. Governments need to offer easy access to m-government information in alternative forms, possibly, using video and voice communications, in order to increase citizen participation and provide citizen-oriented services [7].
v.   **Legal Issues** – it is a barrier that is facing m-government implementation and adoption. The reason for this is because many countries are yet to adopt the Law of Fair Information Practice,

which states the rights of data subjects and the responsibilities of data holders [4].

vi. **Compatibility and Interoperability** – one of the technical difficulties might arise from compatibility of the mobile systems with existing e-government systems. This may get even more serious in the cases of government offices having legacy systems which may not be easy to integrate.

However, researches conducted on m-government focuses on the technical part of challenges such as security, privacy and infrastructure, not taking into consideration the adoption and acceptance of m-government by stakeholders.

7. THEORETICAL FRAMEWORK UNDERPINNING THIS RESEARCH

The Unified Theory of Acceptance and Use of Technology (UTAUT) aims to explain user intentions to use an IS and subsequent usage behavior. The theory holds that four key constructs (performance expectancy, effort expectancy, social influence and facilitating conditions) are direct determinants of usage intention and behavior, mentions [15]. In this study, the adoption of m-government will be examined by utilizing Unified Theory of Acceptance and Use of Technology (UTAUT) that provides an integrative view of user acceptance. The most important contribution for Unified Theory of Acceptance and Use of Technology to this study is that it will help in integrating the social influence and cultural factors to understanding the adoption. The key constructs are explained in the following section.
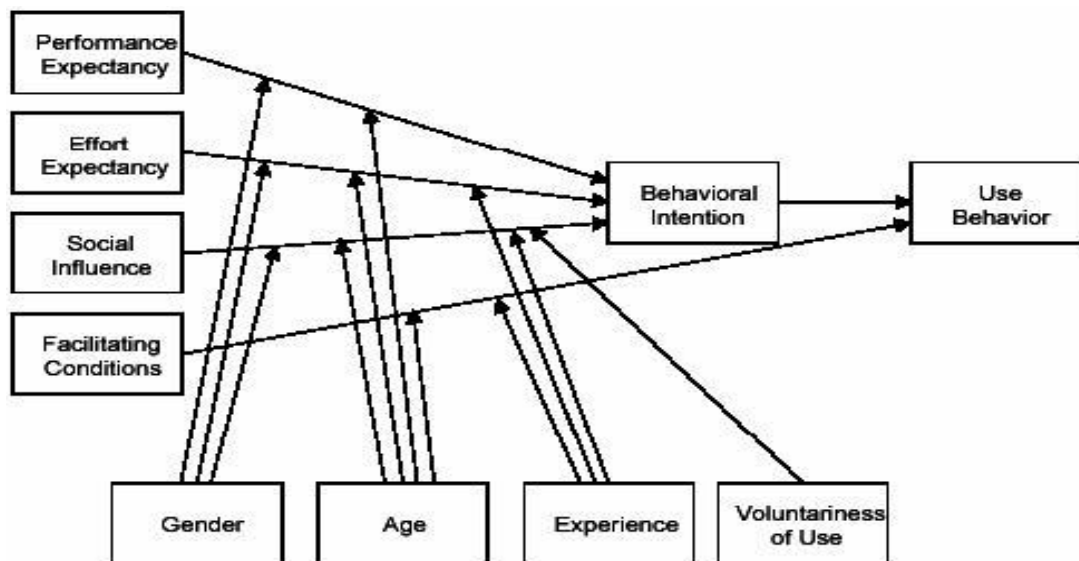
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Figure 1: Technology Acceptance Model (Source: [15])

7.1. Four Important Constructs

Within the heated debate about factors that have influenced adoption, [15] picked out seven constructs from the eight models as important facilitation reason for which a person will accept a cutting-edge technology. Finally, they have been summarized into four constructs: performance expectancy, effort expectancy, social influence and facilitating conditions. Performance expectancy, effort expectancy and social influence are direct determinant of behavioral intention, while facilitating conditions are direct determinants of user behavior.

I. **Performance Expectancy** – refers to the estimate of adopter for the potential job benefit that the use of technology may bring. And this kind of estimate is composed of the perceived usefulness of the technology, extrinsic motivation to use technology, usefulness of the technology to job fit, relative advantages of the technology over others, and outcome expectancy. Therefore, performance expectancy will be employed in the study of usefulness of m-government to citizens.

II. **Effort Expectancy** – is similar to the notion of perceived usefulness of technology described in Technology Acceptance Model (TAM). It consists of three constructs: perceived ease of use, complexity, and ease of use, which derive from a previous study. The construct of perceived ease of use aims at testing the extent to which a user considers it spare effort to use a particular technology; the construct complexity defines a situation in which people think of the new system as a comparably more complex tool to understand and use; the construct ease of use is the degree to which using an innovation is perceived as being difficult to use. Effort expectancy construct plays a significant role in both voluntary and mandatory usage contexts, but never as important in a second round because the users who utilize the technology for a second time or further are familiar with the manipulation process already. In this study, citizens will use m-government technologies if they find them user-friendly.

III. **Social influence construct** – describes the situation in which an individual considers to adopt a particular technology because of other people's suggestion. It is a compound of subjective norm construct, social factor construct and image construct. Subjective norm construct refers to a situation in which a person's decision about whether to adopt an innovation depends on other people whose idea deemed to be important to him or her. Social factor construct defines that an individual makes a decision of adoption of technology under influence of the whole social situation.

IV. **Facilitating Condition** – discusses role that organizational and technical infrastructures play in the innovation adoption decision of an individual. It is made up of three different constructs, which are perceived behavioral control, facilitating conditions, and compatibility. Perceived behavioral control includes an individual's self-efficacy, resource facilitating conditions, and technology facilitating conditions. Facilitating conditions five more detailed information about the surrounding environment, including both technical aspect and rule aspect, this may enhance or regard innovation acceptance for individuals. Therefore, citizens will use m-government if they have the right resources and technical infrastructures.

8. METHODOLOGY

This study is a case study of the Department of Home Affairs, Pretoria, South Africa. The choice is based on the fact that this is the government department in the country that issue resident visas, national permits and country's Identity cards to foreigners and citizens, they use SMS to notify applicants about the status and collection of visa or National permits and whatever documents. The study will be majorly a quantitative study, even though interview and observations will be applied to support the quantitative data collected.

The Likert scale type of questionnaire will be adopted as data collection instrument; this will allow the researcher to elicit the more difficult quantifiable parameters. About 200 applicants, both foreigners and South African citizens who are using the Home Affairs Department will be randomly sampled to know their view about their interactions with government services using ICT while20 Home Affairs staff will also be sampled and interviewed to elicit data on issues about government services to the people using ICT. Data collected will be analyzed using the Statistical Package for Social Sciences (SPSS) software. For research ethical reasons, the participants will be considered as partners, not as research subjects. Names of participants will be kept anonymous and their views and comments will be confidential. The duration of the research will be within one and a half years only.

9. CONTRIBUTIONS

It is assumed that apart from contributing to literature on issues about m-government in South Africa, the result of the study will also be a reference to South African government on the state of m-government in the country.

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The success and challenges identified will be will be a valuable instrument in the hand of the planners.

10. CONCLUSION AND FURTHER STUDIES

The evolution of m-government is increasing rapidly. The government need interactive system with citizens and factors such as privacy and security needs to be considered. With m-government, access to the information anytime, anyplace is possible through connected wireless tools [5]. Many researchers have looked into the technical challenges of m-government implementation. While this study investigates on the adoption of m-government by stakeholders in the Department of Home Affairs, the study can also be extended further to other government services.

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