

Factors Affecting Continuance Intention of Mobile Government Services

(Work in Progress)

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ABSTRACT

There are potentially substantial benefits of mobile government (m-government). From a government perspective, m-government can help in increasing efficiency and effectiveness as well as reducing government spending; from the citizens' perspective, m-government can help in providing real-time information access and personalized services. However, the low level of usage prevented both governments and citizens from realizing the potential benefits of m-government. As a result, researchers have studied the factors affecting the acceptance of m-government. However, to date, none have considered the factors that affect the continued use of m-government. We argue that investigating these factors will provide a greater insight on why the potential benefits have not been realized. The theoretical foundation of the proposed model builds on the Expectation-Confirmation Model (ECM) and Information System (IS) Success Model. This research-in-progress paper reports on research methodology and expected contributions.

Keywords: mobile government, continuance intentions, satisfaction, confirmation, trust.

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INTRODUCTION

Recent years have seen the implementation and launch of more and more m-government services. These services aim to deliver both information and services to the public. They include, but are not limited to, citizens receiving notifications via Short Message Services (SMSs) about their children vaccinations (Bushar et al., 2017) and paying for public transport using their mobile phones (El-kiki et al., 2005). M-government can benefit both governments seeking high efficiency and effectiveness as well as low government spending (Al-Khamayseh & Lawrence, 2006) and citizens looking for real-time information access and personalized services (Althunibat & Sahari, 2011). As the uptake of m-government services by citizens is below expectations in many countries such as Greece (Karatzika et al., 2012), India (Saxena, 2017), and Tanzania (Mandari et al., 2017), these benefits are far from being realized. This phenomenon has led researchers to investigate factors that hinder the diffusion of m-government (Saxena, 2017). Most of these studies have focused on identifying the factors that affect the initial acceptance decision, assuming that initial acceptance automatically leads to continuance use. However, others argued that initial acceptance does not necessarily create the anticipated outcome without adopters moving beyond first-time use and becoming continued users (Wangpipatwong et al., 2009). Bhattacharjee (2001) also pointed out that the eventual success of an information system (IS) is determined by continuance use rather than first-time use. Furthermore, the importance of investigating factors affecting the continued users over initial adopters is mentioned in a common rule in the business; retaining a customer is five times cheaper than acquiring a new customer (Tsao, 2013; Tsao et al., 2012). We argue that factors affecting continuance use differ from those, which affect acceptance and investigating the former will provide a greater insight on why the potential benefits have not been realized. Therefore, this research aims to bridge the gap by investigating the factors that affect continuance use of m-government.

This study applies, the ECM, which has not yet been tested in the context of m-government, as well as IS Success Model and attempts to answer the following research question:

What are the factors that affect the continuance intention to use m-government?

RESEARCH BACKGROUND

Definition of M-government

The term m-government has several definitions. Kushchu & Kuscu (2003) defined m-government as "a strategy and its implementation involving the utilization of all kinds of 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." Interestingly, they add that although m-government is significant, it can only be seen as a subset of e-government. Then m-government has been defined by Antovski et al. (2005) as "getting public sector IT systems geared to interoperability with citizen's mobile devices". Misra (2009) stated that "m-government is public service delivery including transactions on mobile devices like mobile phones, pagers and personal digital assistants (PDAs)." Zefferer (2011) reported that, although researchers provide slightly different definitions for m-government, they almost all agree on the fact that m-government utilizes mobile technologies for the provision of public services.

M-government Acceptance Models

Over the past few decades, a number of theories and models have been established in the acceptance of new information technologies. Many of these models have been used to examine the acceptance of m-governments (Ajzen, 1991; Davis, 1989). The most commonly used in the context of m-government are Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), Theory of Planned Behaviour (TPB) (Ajzen, 1991), Technology Acceptance Model (TAM) (Davis, 1989), Diffusion of Innovations (DOI) (Rogers, 1995) and Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003). Different models focus on different factors such as social influence, usefulness and compatibility. Table 1 presents each model with its factors and an example of a study that employed the model to investigate the acceptance of m-government.

Table 1: Most common models, their factors and citation of studies adapted these models.

Model	Factors	Studies
TRA	Attitude, Subjective norm	(Althunibat & Sahari, 2011)
TPB	Attitude, Subjective norm, Perceived behavioral control	(Susanto & Goodwin, 2013)
TAM	Perceived usefulness, Perceived ease of use	(Almarashdeh & Alsmadi, 2017)
DOI	Relative advantage, Compatibility, Complexity, Trialability, Observability	(Abdelghaffar & Magdy, 2012)
UTAUT	Performance expectancy, Efforts expectancy, Social influence, Facilitating conditions	(Baabdullah et al., 2017)

Most m-government acceptance studies employed one or more models from Table 1. These studies implicitly assume that acceptance automatically leads to continuance of use. However, many researchers criticized these models for not being able to explain discontinuance of use after the initial acceptance (Karahanna et al., 1999). Bhattacharjee (2001) argues that these models ignore the fact that perceptions change after initial use and over the time. Tornatzky et al. (1983) added that although acceptance is one of the pre-requisites of continuance use, aspects that influence acceptance may have no influence on continuance use. For example, social influence can affect the acceptance decision. However, social influence effect decreases after using the system, especially if a user is dissatisfied (Triandis, 1971). Another good example is that ease of use can affect the decision to accept a new system. However, after the first use and after gaining experience with the system, ease of use influence decreases (Karahanna et al., 1999). As a result, to gain deeper understanding on the factors that affect continuance use, it is essential to employ models that are more relevant to post-acceptance stage. These models are discussed in the following sections.

Expectation-Confirmation Model

The Expectation-Confirmation Model (ECM) was developed by Bhattacharjee (2001) to investigate the factors affecting the continuance intention of ISs. A significant amount of research has empirically tested ECM, it was found that both confirmation and perceived usefulness determine satisfaction, which in turn influences IS continuance intentions. Although ECM is widely used and has been validated in a range of different contexts, like mobile banking (Jusuf et al., 2017) and social networking sites (Hur et al., 2017), no study to date has adapted the ECM in the context of m-government.

To increase the explanatory power of the ECM, we have extended it by incorporating another model—the IS Success Model—and the external factor of trust. This amendment is to answer a call by Hung (2012) to extend the ECM.

IS Success Model

The IS Success Model is a success-measurement framework widely used in the IS field (DeLone & McLean, 2003). Some researchers regard the model as a breakthrough in the IS field (Fang et al., 2011). The IS Success Model and ECM are similar in two aspects: first, they both provide deeper insights into system success and sustainability, rather than just initial acceptance, and second, they both emphasize the importance of users' satisfaction in determining users' behavior. The proposed model incorporates some constructs from the IS Success Model, namely information quality, service quality, and system quality. These constructs were tested in the IS field and were found to have a positive influence on users' satisfaction (Zheng et al., 2013; Yang et al., 2017).

RESEARCH MODEL

The proposed model for this research has been developed based on ECM. The theoretical model also incorporates some aspects of the IS Success Model—namely, information quality, service quality, and system quality. Trust is an external factor that has been incorporated in the model, as it has been proved to be an influencing factor regarding IS continuance (Zhang et al., 2018).

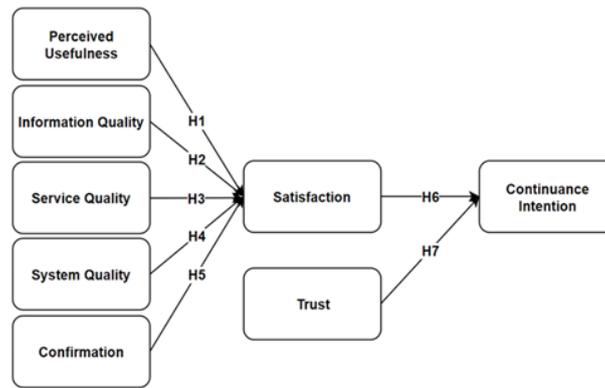


Figure 1: The proposed model of m-government continuance intentions.

Testing this model empirically should enhance our understanding of the low level of usage phenomenon.

RESEARCH HYPOTHESES

Table 2 defines the relevant factors and formulates the hypotheses of this research. The definitions were modified to fit purpose of this study.

Table 2. Factors, definitions, supporting studies, and hypotheses.

Factor	Perceived Usefulness
Definition	The degree to which users believe that using m-government would improve their performance (Davis, 1989).
Supporting studies	Online communities (Apostolou et al., 2017), digital textbooks (Joo et al., 2017), mobile payment (Park et al., 2017), and electronic learning (Ifinedo, 2017).
Hypotheses	H1: Perceived usefulness positively affects satisfaction.
Factor	Information Quality
Definition	The degree to which the information that m-government provides adequately meets users' requirements (Chang et al., 2005).
Supporting studies	Online communities (Apostolou et al., 2017), social networking sites (Dong et al., 2014), mobile banking (Chung & Kwon, 2009), and electronic learning (Lin, 2007).
Hypotheses	H2: Information quality positively affects satisfaction.
Factor	Service Quality
Definition	The degree to which the method of delivering a m-government service is excellent and superior (Parasuraman et al., 1985).
Supporting studies	Electronic learning (Lin, 2007) and mobile commerce (Kuo et al., 2009; Sensuse et al., 2017)
Hypotheses	H3: Service quality positively affects satisfaction.
Factor	System Quality
Definition	The degree to which m-government functionalities can be learned and utilized with as few errors as possible (Chen et al., 2015).
Supporting studies	Online communities (Apostolou et al., 2017), social networking sites (Dong et al., 2014), mobile banking (Chung & Kwon, 2009), electronic learning (Lin, 2007), and mobile commerce (Gao et al., 2015).
Hypotheses	H4: System quality positively affects satisfaction.
Factor	Confirmation
Definition	The degree to which a m-government service's performance meets users' expectations (Bhattacharjee, 2001).
Supporting studies	Mobile services (Chen et al., 2013) and electronic medical records (Mettler, 2012).
Hypotheses	H5: Confirmation positively affects satisfaction.
Factor	Satisfaction
Definition	The degree to which users have a positive affective orientation toward m-government; i.e., the degree to which they feel good about it (McLean, 1992).
Supporting studies	Online communities (Apostolou et al., 2017), mobile commerce (Gao et al., 2015; Sensuse et al., 2017), social networking sites (Dong et al., 2014), and electronic learning (Lin, 2007).
Hypotheses	H6: Satisfaction positively affects continuance intention.
Factor	Trust
Definition	The willingness to be vulnerable to an action that a trusted party takes according to feelings of confidence or assurance. (Mayer et al., 1995).
Supporting studies	Electronic health (Zhang et al., 2018).
Hypotheses	H7: Trust positively affects continuance intention.

RESEARCH METHODOLOGY AND EXPECTED CONTRIBUTIONS

The proposed model will be tested by collecting quantitative data using an online survey method. As this study aims to examine the factors affecting the continued use of m-government services, only people with experience in m-government will be included in the sample.

This research is expected to make valuable contributions. It proposes a model based on the ECM, which contributes to IS continuance by validating the ECM in a new context (m-government), and it extends the ECM by incorporating external constructs. Furthermore, this research is the first to investigate the factors affecting continuance use in the context of m-government.

The research is also expected to make practical contributions to policy makers through recommendations on how to improve their m-government services in order to increase the level of utilization by citizens and to realize the potential benefits of m-government.

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