

# Enhancing the Use of Government Mobile Applications: The Perspective of Citizen-initiated Contacts Theory

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**Keywords:** Government Mobile Applications, Citizen-initiated Contacts Theory, Use Behaviour, Perceived Needs, Awareness, Perceived Security, Socioeconomic Characteristics.


**Abstract:** The ubiquity of the Internet and mobile technologies has increased the adoption rate of e-government services in Malaysia. The focus of Malaysian e-government initiatives is now shifting to mobile applications. Selected visits done on portals of government mobile applications indicate a low level of use, which suggests the need to identify factors that affect the use and non-use of government mobile applications. The citizen-initiated contacts theory can be useful in explaining active usage behaviours and making citizens to initiate contacts with the governments. Extensive studies have been done on citizens' needs for government services and their awareness of the availability of various methods of contacting the government such as through government office visits, telephone calls, and government websites and portals. Unfortunately, similar studies on the use of government mobile applications by citizens are relatively scarce. Studies on the needs for government services and awareness of citizens of government mobile applications will enable us to understand factors contributing to increasing the adoption rate of the mobile applications. This study is timely as it aims at identifying the profile of users and non-users in terms of their socioeconomic characteristics and examining potential influences of perceived needs, perceived security, and awareness on the use of government mobile applications. Using quota sampling technique, primary data will be collected from 400 citizens (200 users and 200 non-users of government mobile applications) in Malaysia via a questionnaire survey. It is hoped that this research will contribute to e-government and m-government literature, from the perspective of citizen-initiated contacts theory, and provide useful implications for government policy in enhancing the use of government mobile applications.


## 1 INTRODUCTION


### 1.1 Background of the Study


The ubiquity of the Internet and mobile technologies has increased the adoption rate of e-government services in Malaysia. The focus of Malaysian e-government initiatives is now shifting to smart phone applications which have the potentials to enhance public service delivery and increase the level of citizen participation in government initiatives. Selected visits done on portals of government mobile

applications indicate a low level of use, in terms of total downloads, which suggests the need to examine potential factors that affect the rate of using of government mobile applications. The citizen-initiated contacts theory can be useful in explaining active usage behaviours, such as downloading and installing mobile applications, searching for information, and performing online transactions from making citizens' initiated contacts with their governments. Extensive studies have been done on citizens' need for government services and their awareness of the availability of various methods of contacting the government such as through government office visits,

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telephone calls, and government websites and portals. Unfortunately, similar studies on the use of government mobile applications by citizens are relatively scarce. Studies on the needs for government services and awareness of citizens of mobile applications will enable us to understand factors contributing to increasing the adoption rate of government mobile applications. On the other hand, various negative reviews posted by mobile applications users on the relevant web-sites also indicate an urgent need to examine the users' expectations of the government mobile applications in terms of the functionality, quality, and performance.

## 1.2 Research Objectives

Therefore, this study aims to:

- identify the characteristics of users and non-users of government mobile applications,
- examine the users' expectations of the government mobile applications,
- determine the factors contributing to the use and non-use of government mobile applications, and
- examine the moderating effect of socioeconomic characteristics of citizens on the relationship between the antecedents and the use of government mobile applications.

## 1.3 Significance of the Study

From the theoretical perspective, the findings of this research have the potentials to provide theoretical contributions to e-government literature from the perspective of Citizen-initiated Contacts Theory. Specifically, the research identifies and examines the level of citizen engagement with the government resulting from their perceived need, perceived security, and level of awareness of government mobile applications.

From the practical and managerial perspective - mobile applications providers and government organizations, may benefit from the findings of this research to reinforce the functionality, quality, security features and performance of mobile applications to meet users' expectation. The information is crucial in the development of new or upgrade of the existing government mobile applications to enhance the use of government mobile applications among the citizens in Malaysia.

This paper is structured as follows: next section defines some basic terminologies and reviews the past empirical studies concerning adoption of e-government and m-government services, specifically

in Malaysia. Research method is discussed next in terms of sample and sampling procedures, data collection methods, survey instrument, and data analysis techniques. Last section provides concluding remarks by highlighting the potential implications of this research for theory and practice.

## 2 LITERATURE REVIEW

### 2.1 Electronic Government in Malaysia

Electronic government (e-government) can be defined as the use of the Internet and ICT to electronically empower governments to provide information and services to a diverse range of stakeholders (Chugh & Grandhi, 2013). Electronic devices and applications can be in the form of kiosks, personal computers, websites/portals, and mobile applications. In 1997, the government of Malaysia launched the Multimedia Super Corridor with seven flagship projects: Generic Office Environment (GOE), Electronic Procurement (EP), Human Resource Management Information System (HRMIS), Project Monitoring System (PMS), Electronic Services Delivery (EServices), Electronic Labor Exchange (ELX), and E-Syariah. The first e-government initiative was launched on 24 February 2004 to enhance the delivery of public services through the Internet and World Wide Web technology. According to the Economic Intelligence Unit – an organisation based in the USA, Malaysia was, in 2011, ranked 29th out of 62 countries, in terms of the Government E-Payment Adoption Rate (GEAR), with an overall performance score of 69.3%. The United Nations E-Government Survey 2014 Report indicates that Malaysia occupied position 52 out of 193 in the E-Government Development Index, and 59 in the E-Participation Index, and that was the lowest ranking Malaysia was in, since the Index was first introduced in 2003. The Malaysia Digital Economy Corporation (previously known as Multimedia Development Corporation, MDEC) has been conducting annual assessment of e-government portals and websites since 2005. The assessment criteria MDEC used include content, usability, security, participation and services. In 2013, it published an assessment report, which acknowledged that the quality of Malaysian e-government portals and websites have improved, that is with over 90% of portals and websites achieved a 3-Star or better rating.

While the performance of e-government initiatives was mostly published by government

agency, the scholarly literature about e-government services, on the other hand, is mostly about the factor affecting its adoption among citizens (Ooh et al., 2009; Mohd Suki & Ramayah, 2010). Ooh et al. (2009) used an integrated model consisting of technology acceptance model (TAM) and diffusion of innovation (DOI) theory, and found that trust, perceived usefulness, relative advantage and perceived image are positively related to intention to use e-government services. On the contrary, perceived complexity has an adverse effect. Perceived strength of online privacy and non-repudiation are found to be the predictors of citizen's trust to use e-government services. Mohd Suki and Ramayah (2010) who also used the TAM, and theory of planned behaviour (TPB) tested the acceptance of e-government services among the citizen. The study found similar results to Ooh et al.'s (2009), in which all antecedents of TAM were found to be significant predictors of attitude toward e-government services. Additionally, the results show that both social norms and attitude are positively related to intention to use e-government services. One of the few studies on m-government in Malaysia was conducted by Tunibat, Mat Zin, and Shahri (2011), who found that even though the awareness is high, the use of m-government services is still low in Malaysia.

## 2.2 Mobile Government in Malaysia

Mobile government (m-government) can be defined 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" (Kushchu & Kuscu, 2013, p. 2).

Before the ubiquitous use of smart phones, the Malaysian government has offered five types of m-government services to its citizens, including mySMS, myUSSD, myMMs, myAPP and myPay. MySMS connects the public to various government agencies through a unique code, 15888. These services become less relevant with the introduction of smartphone in 2007.

Currently, the Gallery of Malaysian Government Mobile Applications (GAMMA, 2019) website listed 198 mobile applications under 16 categories on three mobile platforms (i.e., Android, iOS, and Windows) that have been developed for use of citizens and businesses. The categories include medical, climate, shopping, community, local travel, transportation, news and media, among others.

One of the few empirical research on m-government services was conducted by Azeez and Lakulu (2018). Based on the relevant literature, they developed an evaluation framework of m-government services success from the perspective of service quality, system quality, information quality, trust, usefulness, and satisfaction. However, the model was only tested by 15 academics who act as the experts in m-government services. Further data validation from a larger pool of sample is needed to confirm the model. On the other hand, Abu Bakar and Abdul Rahman (2016) conducted a descriptive study to identify the use of m-government among citizens. They found that the most frequent use of m-government is related to lodging complaints, retrieving educational information, and checking status of various applications. Nevertheless, they did not develop a conceptual framework to examine the adoption decision of m-government services.

## 2.3 Underpinning Theory

Various theoretical and conceptual frameworks have been developed and empirically tested to explain individuals' acceptance behaviour of new technology and information systems. For instance, diffusion of innovations theory (Rogers, 2010), theory of planned behaviour (Ajzen, 1980), technology acceptance model (Davis, 1989, Davis, Bagozzi, & Warshaw, 1989), technology acceptance model 2 (Venkatesh & Davis, 2000), technology acceptance model 3 (Venkatesh & Bala, 2008), UTAUT (Venkatesh 2003). Nevertheless, the citizen-initiated contacts theory developed by Jones et al. (1977) could offer an alternative theoretical lens to investigate the acceptance of m-government by citizens.

Based on the traditional contacts with government, Jones et al. (1977) argue that the needs for government services determine the level of contact a citizen with the government. Citizens with higher needs for government services tend to have greater contact with the government in order to seek the services. On the other hand, Thomas (1982) explains that citizens' contact with government is dependent on their socioeconomic status. The higher the socioeconomic status a citizen possesses, the greater contacts and participation in government development and activities. After 20 years, Thomas and Streib (2003) found web interaction with government a new way for citizen-initiated contacts, especially for obtaining public information.

Sharp (1982) presents a parabolic model of citizen-initiated contacts with the government based on needs and awareness dimensions. In this theory,

citizens with a different level of socioeconomic status have varying needs for government services and level of awareness of government services, and thus initiate different degree of contacts with government. A citizen with a lower level of socioeconomic status may have greater needs for government services but lack of awareness. On the other hand, a citizen with a higher level of socioeconomic status may have lesser needs for government services even though with the higher level of awareness of government services. For a citizen to initiate the highest level of contacts with government, needs for services and awareness are at the highest point of the parabolic curve. This theory has been applied by Reddick and Anthopoulos (2014) and Reddick and Zheng (2017) in the context of m-government.

Besides, this study includes an additional antecedent – perceived security, to the use of government mobile applications. Perceived security is referred to as the degree to which the citizen believes that conducting a transaction on mobile government application is safe in a manner consistent with the citizen’s confident expectation (Hartono et al., 2014). Perceived security has been found to be an important predictor to the adoption of new technology such as e-business, e-banking, and e-government in the literature (Liao & Cheung, 2002; Munyoka & Maharaj, 2019; Shalhoub, 2006).

### 2.3 Research Hypotheses

- H1: Perceived need for government services relates positively to the use of government mobile applications.
- H2: Awareness of government mobile applications relates positively to the use of government mobile applications.
- H3: Perceived security of government mobile applications relates positively to the use of government mobile applications.
- H4: The socioeconomic characteristics of citizens moderate the relationship between the three antecedents and the use of government mobile applications.

The proposed conceptual framework is presented in Figure 1 below.

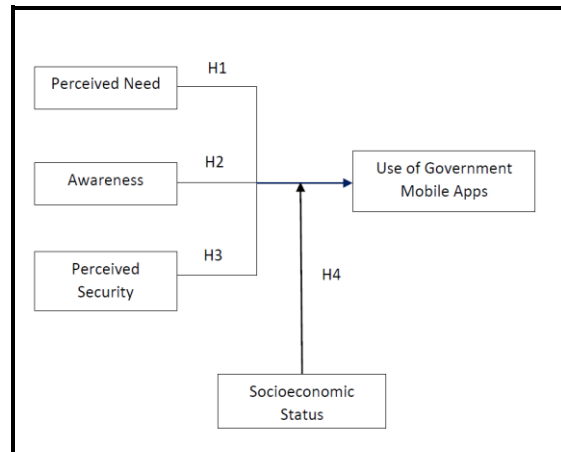


Figure 1: Proposed Conceptual Model.

## 3 METHOD

### 3.1 Sample and Sampling Procedures

Data will be collected from primary sources based on the research objectives set forth in the introduction section. Specifically, the research will involve data collection using a questionnaire survey to identify the users and non-users profiles of government mobile applications and their perception of two government mobile applications selected from GAMMA, one receiving highest rating and most download, and another one receiving lowest rating and least download. The applications must also have been introduced for a minimum of 6 months from the date of data collection.

The sample of this study will be the individual users and non-users of government mobile applications in Malaysia who are 18 years old and above. Using the quota sampling procedures, 40 users and 40 non-users from each of the five major geographical regions in Malaysia - Kuala Lumpur (Central Peninsular), Penang (Northern Peninsular), Johor Bahru (Southern Peninsular), Kuching (Sarawak), and Kota Kinabalu (Sabah) will be selected to participate in the questionnaire survey. The final sample consists of 200 users and 200 non-users of government mobile applications in Malaysia.

### 3.2 Research Instrument

The research instrument is adopted from the existing literature. Each variables and measurement are presented as follows:

**Perceived Needs** for government services is adapted from Ooh et al. (2009) and measured by 4 items -



needs for information, needs for transactions, needs for participation, and needs for collaboration, along a 5-point scale of 1 – ‘to a small extent’ to 5 – ‘to a large extent’.

**Awareness** of government mobile applications is measured by the level of awareness of the types of government services available on mobile applications, along a 5-point scale of 1 – ‘very low’ to 5 – ‘very high’.

**Perceived Security** is measured by 4 items - authorized access, information confidentiality, restriction on high value transactions, and strong commitment to security measures. These four items are adopted from Liao and Cheung (2002) and measured along a 5-point scale of 1 – ‘not important at all’ to 5 – ‘very important’.

**Use of Government Mobile Applications** is measured by 4 items on frequency of using government mobile applications for contacting government departments/agencies, searching for information, performing online transactions, and participating in government initiatives over the last three months based on the two selected government mobile applications.

**Socioeconomic Characteristics** are measured by 3 items - occupation, income level and highest educational level. All three items are measured by categorical data.

### 3.3 Data Analysis Techniques

Data collected will be analysed using partial least squares path modelling (PLS-PM) technique in R platform (Sanchez, 2013). PLS-PM is a multivariate statistical technique that requires less stringent assumptions as compared with co-variance based structural equation modelling. PLS-PM involves two stages of analysis – evaluation of measurement model and structural model. The measurement model evaluates the reliability and validity of items and constructs while the structural model evaluates effect size, direction, and significance of the hypothesised relationships.

## 4 CONCLUDING REMARKS

The results of this research, including the identified the level of government mobile applications use among citizens, the profile of users and non-users of mobile applications, and factors contributing to their use/non-use are expected to provide important implications for public policy makers. Public policy makers such as those in the Malaysian Administrative

Modernization and Management Planning Unit (MAMPU) could use the relevant information to develop appropriate measures for increasing the rate of mobile applications, by enhancing the existing functionality and quality of mobile applications, and to identify areas for further improvement. For practice, mobile applications developers may benefit from the research findings by reaching out to the general public for socio-economic development and integration. This research may also provide a reference for similar studies for other e-government services in Malaysia, and other countries.

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