THE EVALUATION FRAMEWORK FOR MALAYSIAN SERVICES SUCCESS IN MOBILE-GOVERNMENT ENVIRONMENT

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2019

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THESIS SUBMITTED IN FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

FACULTY OF ART, COMPUTING & CREATIVE INDUSTRY
SULTAN IDRIS EDUCATION UNIVERSITY

2019

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ACKNOWLEDGMENT

"In the name of Allah, the Most Gracious and the Most Merciful"

Alhamdulillah, first and foremost, praise be Allah, the Cherisher and Sustainer of the World and to the Prophet Muhammad (Peace and Blessings of Allah Be Upon Him) who was sent by Allah to be a great teacher to the mankind.

My praise is fully directed to Allah for enlightening me and giving me the knowledge and strength to complete this research proposal. I am very grateful to my supervisor Dr. Muhammad Modi Lakulu for guiding me during my work on this research. I would like to express my sincere thanks and gratitude to him for his continuous guidance, support and patience.

I extend my love and appreciation to my dear husband Mohammed for his continuous support and encouragement. I am also very grateful to my family for their support blessing, patience, love, and encouragement since my childhood. Finally, I would like to extend my appreciation to those who involved and give a helpful hand in ensuring the success of this research.

This research would not have come to fruition without all your help and supports.
Thank you. Allah blesses you

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ABSTRACT

The purpose of this study was to develop the M-government service success evaluation framework (M-GSEF) to evaluate mobile-government (M-government) service success from the perspective of citizens. The development of the evaluation framework was carried out by exploring the dimensions and factors of M-government service success and adapting DeLone and McLean's IS success model. A number of dimensions and associated factors within each dimension of the M-GSEF were identified. System quality, information quality, and service quality were the dimensions adopted from the DeLone and McLean's model, whereas intention to use and user satisfaction were the dimensions re-specified in the proposed framework as citizen's use/usefulness and citizen's satisfaction, respectively. Meanwhile, citizen's trust, perceived M-government service quality and perceived effectiveness were incorporated as new dimensions in the proposed framework. The design of the present study is based on descriptive research method. This study used a quantitative approach involving the Fuzzy Delphi technique and structural equation modeling to evaluate and validate the proposed framework, respectively. Questionnaires were used to collect the data from a sample size of 380 people from Kuala Lumpur, Perak and Selangor in Malaysia. The findings demonstrated strong positive correlation relationships as a following significant values between perceived M-government service quality with system quality was 0.25; information quality was 0.20, service quality was 0.16 and citizen's satisfaction was 0.13. In addition, citizen's trust exhibited direct relationships with perceived M-government service quality and perceived effectiveness of M-government services as their critical ratios (0.19 and 0.30). Thus, as the major contribution of the proposed study is to (1) develop evaluation framework for m-government success through (2) the identified new dimensions, namely, perceived M-government service quality, citizen's trust and perceived effectiveness, and (3) respecified dimensions, namely, citizen's use/usefulness and citizen's satisfaction, have major significance in the success of the M-government myGov service in the context of Malaysian citizens' perspective. Surely, the study has a major implication on the current practice in that the proposed framework (M-GSEF) can provide the Malaysian government's agencies with appropriate indicators to evaluate the success of M- government services

RANGKA KERJA PENILAIAN UNTUK PERKHIDMATAN MALAYSIA KEJAYAAN DALAM PERSEKITARAN BERGERAK-KERAJAAN

ABSTRAK

Matlamat Kajian ini adalah untuk membangunkan satu Rangka Kerja Penilaian Kejayaan Perkhidmatan M-kerajaan atau (M-GSEF) bagi menilai kejayaan perkhidmatan M-kerajaan dari perspektif rakyat. Pembangunan rangka kerja ini dijalankan dengan meneroka dimensi-dimensi dan faktor-faktor kejayaan perkhidmatan M-kerajaan dan dengan mengolah model kejayaan IS hasil kerja DeLone dan McLean. Beberapa dimensi dan faktor-faktor yang berkaitan dengan setiap dimensi M-GSEF telah dikenalpasti. Dimensi kualiti sistem, kualiti maklumat, dan kualiti perkhidmatan telah diolah dari model DeLone dan McLean; manakala, dimensi hasrat untuk mengguna dan kepuasan pengguna telah diolah dalam rangka kerja sebagai penggunaan oleh rakyat/kerbergunaan dan kepuasan rakyat. Sementara itu, keyakinan rakyat, persepsi kualiti perkhidmatan M-kerajaan dan persepsi keberkesanan telah dirangkumkan sebagai dimensi-dimensi baharu dalam cadangan rangka kerja. Reka bentuk kajian ini berdasarkan kaedah penyelidikan deskriptif. Kajian ini telah menggunakan pendekatan kuantitatif, kaedah Fuzzy Delphi bagi menilai cadangan rangka kerja, dan pemodelan persamaan struktur bagi mengesahkan cadangan rangka kerja. Borang soal selidik digunakan bagi mengumpul data dari sampel seramai 380 peserta dari Kuala Lumpur, Perak, dan Selangor di Malaysia. Dapatan kajian menunjukkan bahawa terdapat hubungan rapat di antara persepsi kualiti perkhidmatan M-kerajaan dengan kualiti sistem 0.25, kualiti maklumat 0.20, kualiti perkhidmatan 0.16, dan kepuasan rakyat 0.13. Selain itu, kepercayaan rakyat menunjukkan hubungan langsung dengan kualiti perkhidmatan M-kerajaan dan persepsi keberkesanan perkhidmatan M-kerajaan dilihat sebagai nisbah kritikal mereka (0.19 dan 0.30). Justeru, sebagai sumbangan terpenting cadangan kajian ini, (1) membangunkan rangka kerja penilaian untuk kejayaan m-kerajaan (2) dimensi-dimensi baharu yang telah dikenalpasti iaitu persepsi kualiti perkhidmatan M-kerajaan, keyakinan rakyat, (3) persepsi keberkesanan serta dimensi-dimensi yang telah ditetapkan semula iaitu penggunaan oleh rakyat/kebergunaan dan kepuasan rakyat telah menunjukkan pengaruh yang besar ke atas kejayaan perkhidmatan M-kerajaan dari perspektif warga Malaysia. Dari segi implikasi kajian, cadangan rangka kerja ini menyediakan penunjuk-penunjuk yang wajar untuk agensi-agensi kerajaan di Malaysia menilai kejayaan perkhidmatan M-kerajaan. Penilaian berterusan ke atas perkhidmatan bergerak kerajaan harus dipertimbangkan.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

M-government	Mobile government
M-service	Mobile service
IS	Information system
IT	Information Technology
ISA	Information Systems Assessment
M-GSEF	Mobile Government Services Success Evaluation Framework
myGov Mobile	The Malaysian Government's Official Portal For Mobile Services
G2C	Government to Citizen
G2G	Government-to-Government
G2E	Government to Employee
G2B	Government to Business
E-Government	Electronic government
M-Banking	Mobile Banking
M-Commerce	Mobile Commerce
WOS	Web of Science
COBIT	Control Objectives for Information and Related Technology
SMS	Short Message Service
AMOS	Analysis of Moment Structures software
SEM	Structural equation modeling
EFA	Exploratory factor analysis
CFA	Confirmatory factor analysis
RMSEA	Root Mean Square Error Approximation
GFI	Goodness of Fit Index
CFI	Comparative Fit Indexes
TLI	Tucker–Lewis Index
NFI	Normal Fit Index
AGFI	Adjusted goodness of fit

CPD	Property Management Division
MBMB	Council Melaka HisTorical City
MPSJ	Subang Jaya Municipal Council
AVE	Average Variance Extracted
C.R.	Critical Ratio

APPENDICES LIST

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter introduces the research topic, problem statement, and research objectives. It also presents and explains the experimental and technical scopes of this research. Section 1.2 presents a brief background of the research components. Section 1.3 identifies and introduces the problem statement, on which the direction of the research is based. Section 1.4 presents research questions. Section 1.5 research objectives. Section 1.6 explain link among the research questions and research objectives. Section 1.7 discusses scope of the study. Section 1.8 present importance's of research. Section 1.9 gives overview of research methodology. Section 1.10

explains operational definitions of main terms. Section 1.11 briefly outlines the main structure of the thesis. Finally section 1.12 summarizes this chapter.

1.2 Background of the study

Information technology and the number of mobile device users have both experienced rapid growth, brining convenience among users anywhere in the world at any time (Karadimas, Papatzelou, & Papantoniou). Past studies (Amailef & Lu, 2008; Firoozy-Najafabadi & Pashazadeh, 2011; Sabarish & Shaji, 2014) have attributed such growth to the emergence of mobile devices that are easily available at reasonable prices and the low price of internet connection through mobile devices. Other studies (Almiani, Al Dmour, Razaque, & Ieee, 2015; J. E. Mtingwi & Ieee, 2015) noted that the use of the m-government has led to greater conveniences for users with regards reduced time and cost for many services and functions.

Therefore the m-government is no longer an option but a necessity for countries that aim to better manage related services (El-Kassas, Abdullah, Yousef, & Wahba, 2017). In relation to this, many governments have begun to exert significant efforts and resources to push m-government initiatives in order to provide better services through mobile devices (Faisal & Talib, 2016).

The concept of the "M-Government" redefines the relationship between the government and its citizens (Saxena, 2017) by allowing access to government services through mobile devices instead of traditional methods that require effort and time

(Ibrahim Almarashdeh & Alsmadi, 2017; Althunibat, Alrawashdeh, & Muhairat, 2014; Inalo, Sarfarazi, & Khalili, 2012; X. J. Li, Guan, & Fan, 2009).

The benefits of m-government include opening new channels to serve citizens conveniently and reliably by providing real-time information and increasing interaction with citizens (Hossain, Samakovitis, Bacon, & Mackinnon, 2015). M-government also provides customised service, which provides information according to the specific requirements of the public (i.e. individuals and corporations) (Almiani et al., 2015; Firoozy-Najafabadi & Pashazadeh, 2011; Ghazali, Razali, & Ieee, 2014; Su & Jing, 2010; Su & Pei, 2010). Both (Alalwan, Dwivedi, & Rana, 2017; Faisal & Talib, 2016) have mentioned that m-government is the most reliable bridge in solving the digital divide by providing accessibility for the citizens (Ahmad & Khalid, 2017; Misuraca, 2009) regardless of social and economic status (Joshi & Pathak, 2011).

Some challenges, however, have hindered the success of m-government despite its advantages and the benefits of service delivery. The failure of some m-government services is mainly a reflection of the low level of backstage reengineering and inter-department cooperation in public organisations (Ogunleye et al., 2011) to meet the needs and requirements of the user (Saxena, 2017). M-government is more than a technological phenomenon; it is transformative in nature (R. Gupta, Gupta, & Rajamanickam, 2017). It comprises a broad spectrum of activities that are processed using ICT (Changlin Wang, 2014) and affects the management of humans, technological changes, organisational resources (Ogunleye et al., 2011) and their

coherent integration (Fayu & Hua, 2010; Karantjias, Papastergiou, Polemi, & Ieee, 2007).

The obvious problems are taking citizens for granted, believing that they will accept and use a new service provided by the government (El-Kiki & Lawrence, 2008; I. Zamzami & M. Mahmud, 2012), resulting in the possible failure of m-government. Other factors also exist, such as income, education, age and gender (Ahmad & Khalid, 2017; Alrowili, Alotaibi, Alharbi, & Ieee, 2015; Khan, 2016) as well as the language barrier and attitude towards m-government constrain initiatives (M. A. Shareef, Dwivedi, Laumer, & Archer, 2016). These factors and constraints challenge the success of m-government (A. Al-Hadidi & Rezgui, 2010).

The quality of government service is an important issue that contributes to the success of m-government. Focusing on improving quality is important in improving government services (Olatokun & Ojo, 2016). The quality of mobile service can play an important role in improving m-government efficiency and increasing citizen satisfaction (Sukarna, 2015).

One of the difficulties that prevent the successful implementation of m-government is the link between citizen satisfaction (i.e. expectations and perceptions) and m-government services (Salameh, Hassan, & Alekam). A study found that the success of m-government depends on the cost and citizen satisfaction on the services offered (Norfizah Mat, Mukhtar, & Yahya, 2011). Moreover, there are challenges inherent in the provision of m-government services, namely, citizen satisfaction and

patronage. The process of dealing with the perceptions, expectations, explanations and perceptions of citizens is complex, dynamic and controversial, because m-government services will be used by all citizens (Shafinah, Sahari, Sulaiman, Yusoff, & Ikram, 2013; M. A. Shareef, Dwivedi, Stamati, & Williams, 2014).

M-government should focus on identifying services that benefit citizens, in line with their actual requirements to achieve approval and success (I. Almarashdeh, Alsmadi, & Ieee, 2016; Georgiadis & Stiakakis, 2010; Shafinah et al., 2013). Past studies (H. S. Al-Hubaishi, Ahmad, & Hussain, 2017; M. A. Shareef et al., 2014) explained that citizens are reluctant to request m-government services, which is consistent with the findings of (El-Kiki & Lawrence, 2008; I. Zamzami & M. Mahmud, 2012), which indicated that users are still disappointed with the multiple aspects of m-government services. According to (N. S. A. Bakar, Rahman, & Hamed, 2016), until now the m-Government services in Malaysia percentage of utilization of the mobile government services in Malaysia is very low. Therefore, there is a need to explore the public's level of acceptance of the mobile government. This is a very important step to identify user requirements and system problems for the purpose of system optimization (N. S. A. Bakar et al., 2016).

Studies have shown that user trust is one of the most important factors that can have a considerable effect on the success of m-government services (Alrowili et al., 2015; Faisal & Talib, 2016). This result is consistent with the fact that trust is the core of m-government. Therefore, the government must seek to meet the trust required by the citizens (R. Alotaibi, Houghton, & Sandhu, 2017). If users do not trust in the m-

government, then they will refrain from using the service and this will eventually lead to its failure (Alalwan et al., 2017; Anas Aloudat, Michael, Chen, & Al-Debei, 2014; Mohamedpour, Faal, & Fasanghari, 2009).

Several works (Dlodlo, 2014; El-Kiki & Lawrence, 2008; Salameh et al.) highlighted the necessity of evaluating m-government services, specifically considering the citizen's perspectives and expectations (Georgiadis & Stiakakis, 2010). Meanwhile, another study noted the great importance of assessing the success of m-government due to the failure of some services to meet the needs and requirements of the users (Saxena, 2017).

The m-government evaluation process faces several challenges because it is still in the development stage (Júnior, Trevisan, Tavares, & Nogueira, 2011; Mengistu, Zo, & Rho, 2009). The absence of theories and evaluation indicators is a reason to emphasise the innovation of these techniques proposed (Zhiqiang, Xueyu, Dongning, & Yongquan, 2010). Thus far, no comprehensive models have been proposed to measure m-government success, and most of the previous works have focused on only one or two aspects of m-government success. The evaluation of the success of m-government has only been based on accessibility by the researchers (Balaji & Kuppusamy, 2016; Serra, Carvalho, Ferreira, Vaz, & Freire, 2015). Some studies also examined the factors influencing the satisfaction on m-government services (W. W. Li & Pan, 2014; Norfizah Mat et al., 2011), whereas another study focused on assessing user satisfaction (W. W. Li & Pan, 2014). Other studies (El-Kiki

& Lawrence, 2008; El-Kiki, Lawrence, & Culjak, 2007) examined the factors influencing the effectiveness of m-government services.

On the part of the government, researchers evaluated m-government experts and mobile technology (El-Kiki, Lawrence, & Culjak, 2007). Another study (Osman & Osman, 2013a) focused the quality of the system through usability and user acceptance factors. Furthermore, other studies investigated the assessment of the m-government performance (Fasanghari & Samimi, 2009), the quality of information in the mobile environment (I. Zamzami & M. Mahmud, 2012; Zhiqiang et al., 2010), and the need for an integrated and verified m-government evaluation framework (Du, Lu, Liu, & Wu, 2010). The finding highlights the gap and the need for a comprehensive framework to evaluate the success of m-government.

The important dimensions of the success of m-government must be defined, in order to build the framework for evaluation. This observation is supported by past studies (H. S. Al-Hubaishi et al., 2017; Saadi, Ahmad, & Hussain, 2017) identifying the need to understand the variables and their interdependence, which affect the success of m-government. Other studies mentioned the importance of assessing the success of m-government from a user's perspective to determine the dimensions they need to focus on to attain satisfaction (W. W. Li & Pan, 2014; M. A. Shareef et al., 2014). This is in line with a recent finding (Ogunleye et al., 2011), which indicate that some of the proposed models fail to assess the m-government from the point of view of users, because these models focus either on one side or two aspects only and neglected the other aspects of interest to the user.

Some studies (Júnior et al., 2011; W. W. Li & Pan, 2014) argued that the impact of user expectations should be considered when conducting an evaluation. In addition, the evaluation should include all aspects of user satisfaction. Therefore, this study proposes a framework for evaluating the success of m-government services based on the citizen's perspective.

1.3 Problem Statement

The perceived benefits of m-government prompted several developed and developing countries to allocate substantial resources to implement m-government services (El-Kassas et al., 2017; Faisal & Talib, 2016; Inalo et al., 2012). However, attaining these benefits remains controversial (Almiani et al., 2015). Although most m-government researchers expressed optimistic views regarding the importance of m-government (Firoozy-Najafabadi & Pashazadeh, 2011; Su & Jing, 2010), it is still in the development stage (Júnior et al., 2011; Mengistu et al., 2009) and has yet to achieved the expected outcomes (Firoozy-Najafabadi & Pashazadeh, 2011; Zhiqiang et al., 2010).

Despite the government's growing investment in mobile services, m-government services do not always meet the expectations of the citizens; as a result citizens are still using traditional way, e.g. in-person visits or employing agents than using online services provided by the government. A variety of reasons have been provided as to why citizens choose not to access m-services (W. W. Li & Pan, 2014;

Norfizah Mat et al., 2011). For example, citizens frequently report usability problems like not being able to find the needed services and information, difficulty in using m-services, the lack of a better guide or "help" regarding the services on the portal, the understandability of language use and so on (El-Kassas et al., 2017; Su & Jing, 2010).

According to a study (I. Almarashdeh et al., 2016; Georgiadis & Stiakakis, 2010; Shafinah et al., 2013), the focus should be on identifying services that benefit citizens and in line with their actual requirements to achieve approval and success. Studies also (H. S. Al-Hubaishi et al., 2017; M. A. Shareef et al., 2014) showed that citizens are often reluctant to request m-government services, which is consistent with another study (El-Kiki & Lawrence, 2008; I. Zamzami & M. Mahmud, 2012) indicating that users are still not satisfied with m-government services.

In Malaysia, the use of these services is not popular despite its initiative to open a new channel to communicate with citizens through the Malaysian m-government portal (N. S. A. Bakar et al., 2016). An investigation on citizens' responsiveness to m-government services is needed (N. S. A. Bakar et al., 2016).

User satisfaction is always employed as a tool to measure the success of m-government (Aloul, Zualkernan, Abu-Salma, Al-Ali, & Al-Merri, 2015; Porter, 2011). Thus, the influence of users' expectations should be considered when conducting an assessment. In addition, evaluation tools must consider all the aspects of user satisfaction. Moreover, trust in m-government services and trust in the reliability of the service delivery medium are key elements in the citizen's decision to utilize m-

government services (Fabito, Balahadia, & Cabatlao, 2016; Júnior et al., 2011; M. Markovic & Dordevic, 2010; B. Yang, Hao, Wang, & Hu, 2010).

Given the amount of time and money being spent today on m-government, it has become increasingly important for governments to identify measures of success so that they can regularly monitor and evaluate such success (Dlodlo, 2014; El-Kiki & Lawrence, 2008). M-government success evolution is considered an important component in studying the success of m-government initiatives as this would raise awareness, accurately describe m-government environment, and confirm the feasibility of the application of m-government services (Sukarna, 2015).

M-government success assessment would also provide a roadmap for politicians, economists, and other stakeholders to guide them (W. W. Li & Pan, 2014; M. A. Shareef et al., 2014). Assessing the importance of mobile devices on the back office of public organisations could reveal several aspects that may not be perceived otherwise (H. S. Al-Hubaishi et al., 2017). This is consistent with past findings (Georgiadis & Stiakakis, 2010; Ikhlas Fuad & Mahmud, 2011), which state that the measurement of the success of mobile services forms the basis of an improvement process. Thus, identifying effective measures of success can eventually result in the delivery of high-quality services to the citizens (Firoozy-Najafabadi & Pashazadeh, 2011; Khozooyi, Tahajod, & Khozooyi, 2009; Saadi et al., 2017).

However, there are several challenges involved in the process of evaluating the success of m-government services. previous studies argued that the process of

evaluating m-government is difficult for organisations, which provide services through mobile infrastructure, due to existing restrictions and the fact that its effects on organisations remain unclear (H. S. Al-Hubaishi et al., 2017; M. B. Alotaibi, 2016).

Likewise, past studies argued that the evaluation of m-government in both theory and practice has proven to be an important yet complex process (W. W. Li & Pan, 2014; Thunibat, Zin, & Ashaari, 2010). They also compared the complexity of measuring the success to "the multiple perspectives involved, the difficulties of quantifying benefits, and the social and technical context of use". Another study mentioned that "m-government is not a simple matter" (H. S. Al-Hubaishi et al., 2017).

Given that the use of m-government is still in the early stages (W. W. Li & Pan, 2014; Thunibat et al., 2010), there are no effective measures yet to evaluate its success (M. B. Alotaibi, 2016). This is confirmed by (Fasanghari & Samimi, 2009), which pointed out that the indicators and criteria used in the success evaluation process are ambiguous. This has to be further improved in order to give policymakers better evaluation criteria upon which they can base their decisions (Faisal & Talib, 2016).

Benchmarking m-government initiatives has been developed and studied for some serves (El-Kiki & Lawrence, 2008; Saadi et al., 2017), but such initiatives may not provide a comprehensive and unifying framework (Júnior et al., 2011) that can

help assess, classify, and compare different m-government services (W. W. Li & Pan, 2014). In the last two decades, m-service quality has been discussed and researched extensively in the private sector for measuring the performance of the offered services. Other researchers developed service quality measurement models; however, these models have been developed for assessing a private organization's service performance (Akter, D'Ambra, & Ray, 2010; Lu, Zhang, & Wang, 2009). In the literature, service quality measurement in the public sector has been rarely considered, and the introduction of service quality measurement in the public sector is a recent development.

Comprehensive frameworks to establish the complex mechanisms on how to measure the m-government services success are lacking (H. S. Al-Hubaishi et al., 2017). This finding is consistent with a previous report (I. Almarashdeh et al., 2016), which calls for an integrated and verified m-government evaluation framework. This finding highlights the gap and the need for a comprehensive framework to evaluate the success of m-government. The important dimensions of m-government success must be defined to build the framework for evaluation. The aim of this study is to fill gaps in the evolution of m-government service success from the citizen's perspective.

Based on the above, the m-government evaluation has been carried out using just a few dimensions. The key issue within the context of m-services is delivery, which is the process of making available the use of services for citizens in a successful, efficient, and convenient manner. Therefore, there exists a need to identify more m-government service evaluation dimensions, which can be used to evaluate m-

governmental services effectively in order to meet the citizens' satisfaction requirements and build citizens' trust. Hence, developing a comprehensive success evaluation framework is essential in assessing m-government services.

To illustrate the problem of the study, the following question is presented: ***What is the framework that can best evaluate the success of m-government services from the citizens' perspective?***

1.4 Research Questions

The main research question is: *What is the framework that can best evaluate the success of m-government services in Malaysia*? The research questions include the following:

a. Are there any approaches to evaluate the success of m-government services?
b. How can determine the appropriate dimensions and factors for evaluating the success of m-government services based on the citizens' perspective?
c. How can develop a framework be for evaluation the m-government services success for Malaysia?
d. Is the proposed framework valid in the Malaysian environment?

1.5 Research Objectives

The ultimate purpose of this study is to develop a comprehensive framework in evaluating the success of m-government services in Malaysia based on the citizens' perspective. The present study identifies the criteria for an effective and adaptable assessment of the success of m-government services in Malaysia from the citizen's perspective. Embracing such a criteria would positively contribute in enhancing the Malaysian government's understanding of the factors that influence the success of m-government services by their citizens. In this way, the Malaysian government will also be able to find information that can help improve m-government services and gain the citizen's trust. The proposed framework, M-GSEF, will fill the research gap and evaluate the success of m-government services from the citizens' perspective.

To achieve this aim, the following objectives are set:

1. To investigate the concepts of m-government and develop methods to evaluate the citizens' perspectives.
2. To identify the dimensions and factors used to assess the success of m-government services.
3. To develop a framework for evaluating the success of m-government services in Malaysia.
4. To evaluate the framework using the Fuzzy Delphi method.
5. To validate of the evaluation framework via a case study of Malaysia's m-government "myGov mobile services".

1.6 Link among the research questions and research objectives

This section shows that the research questions that were previously developed will be answered through the research objectives and as shown in the Table 1.1.

Table 1.1

Link Among the Research Questions and Research Objectives

Research questions	Research objectives
What are the existing approaches to evaluate the success of m-government services?	To investigate the concepts of m-government and develop methods to evaluate the citizens' perspectives.
What are the important dimensions and factors in evaluating the success of m-government services based on the citizens' perspective?	To identify the dimensions and factors used to assess the success of m-government services.
How can a framework be developed to evaluate the success of m-government in Malaysia?	To develop a framework for evaluating the success of m-government services in Malaysia.
Is the proposed framework suitable in the Malaysian environment?	To evaluate the framework using the Fuzzy Delphi method.
How can the framework be validated in the Malaysian environment?	The validation of the evaluation framework via a case study of Malaysia's m-government, myGov mobile services, is also performed.

1.7 Scope of the Study

This research will focus on government myGov services in Malaysia and aim is to identify the factors that can assessment the successful of m-government myGov services, after that a framework will be developed to assess the success of mobile government services in Malaysia based on the citizen perspective.

MyGov services filing system is a type of government-to-citizen mobile service which provides an opportunity of availing provides m-government services to citizens through mobile platforms. Thus, this research is limited to evaluating m-service as a part of m-government domain. Data collection is done using set of questionnaires of Malaysian citizens in (Kuala Lumpur, Perak and Selangor)who have awareness and knowledge of using m-government services. So their opinion will play a significant role in judging the present status of m-government services and to which extent improvements are desired, can be determined. Quantitative data analysis is done for validating the framework M-GSEF.

1.8 Importance of Research

The different stages of the research process led to the development of a systematic approach to evaluate m-government services in m-government M-GSEF. Such aim definitely contributes to m-government as m-government is still immature field (Hung, Chang, & Kuo, 2013) lacking formal theory development and testing (Júnior et al., 2011; Salameh et al.), and in which many areas and prospects are still unexplored (Zhiqiang et al., 2010). There is still a lack of comprehensive frameworks to establish the complex mechanisms on how to measure the m-government serves success (H. S. Al-Hubaishi et al., 2017; Norfizah Mat et al., 2011).

The proposed framework M-GSEF is comprehensive in nature and includes the variety of constructs for the evaluation of the success of m-government services and

citizens‟ trust. The proposed framework inherits three constructs including system quality, information quality, and service quality from its base (DeLone and McLean, 2003) model and two constructs “intension to use and user satisfaction” specified as citizen’s use / usefulness and citizen’s satisfaction. It has an adaptable structure that can be extended as new construct emerges. The framework M-GSEF presented in this study may provide the m-government authorities a well-defined process to evaluation the m-government service success and citizen’s trust in offered m-services. In addition, the framework is easy to understand and can be used by people with managerial responsibility toward the m-government service evaluation.

The study developed framework M-GSEF for evaluation the success of m-government service and it is believed that this study will help Malaysian m-government, as well as other countries in similar context. This will also play an important role in the process of planning and implementing the success m-government services in their respective countries. This research is novel and demonstrates the following contributions to the knowledge:

1. Addition of new knowledge in the field of m-government through developing the framework M-GSEF.
2. The framework M-GSEF will assess m-government service success from the citizen’s perspective.
3. The framework M-GSEF will evaluation m-government service quality and citizen’s trust for evaluation the m-government service success.
4. Study will identify the significant factors which influence the success of m-government service as well as factors constituting the citizen’s trust in the m-

government. The results would help authorities to understand the key issues that influence citizen's requirements and their satisfaction with the m-services.

5. The new framework M-GSEF referred as a comprehensive success evaluation framework includes the technological (system quality, information quality, service quality, perceived m-government service quality, and perceived success of m- government service) and citizen's behavioral (citizen's use, citizen's satisfaction, and citizen's trust) dimensions. It can be used as a checklist for what was implemented and what is to be implemented in the future plan to offer quality m-services to their citizens and how to assess citizen's satisfaction in their offered m-services. Finally, it can be used as a strong awareness tool for government success to give them a holistic view of all effective performance evaluation aspects required in their organization.
6. Developed framework M-GSEF to evaluate the success of myGov mobile service of Malaysia as no such comprehensive framework is developed for Malaysian context. It will certainly help governmental agencies to assess their m-government initiatives. The framework M-GSEF can be utilized for assessing other m-services.

1.9 Overview of Research Methodology

Research methodology takes a major place in research development to ensure systematic and significant research into the phenomenon under examination (Hair, Black, Babin, Anderson, & Tatham, 2010). The articulated research objectives in the previous section directed the researcher to embrace appropriate step by step approach

in order to reach them. These objectives were achieved through applying an appropriate research methodology. The current study is classified under the quantitative empirical approach which involves developing hypotheses based on theoretical statements and measures the variables. This research approach falls within the deductive positivist approach (Creswell & Creswell, 2017).

This section gives a brief overview of the main stages of the methodology used for development and validation of a framework M-GSEF. Detailed research methodology is discussed in Chapter three.

- Phase 1: preliminary study of the investigation into the areas of m-government and the current status of the current m-government services. In this study, a systematic review protocol of the government is examined. A critical analysis was then conducted to identify key gaps and challenges in providing m-government services through mobile devices. In addition, with a case study, the requirements for the provision of m-government services. For more information on this phase, go to chapter two, section 2.2 Systematic review protocol.

- Phase 2: **development phase**, after identifying the problem and the research gap. Based on literature review, dimensions and factors that have a significant impact on the success of m-government services were identified. The literature was then searched for common model of success. This phase ended with the proposal of a comprehensive initial model for the success of m-government services in Malaysian. Where it was classify the identified factors and combining them in an evaluation.

Framework M-GSEF under different categories. Translate the identified factors in to dependent and independent variables. Set hypotheses and create assumptions about the type of relations between the variables. For more information on this stage, go to chapter two section 2.9 theoretical development of framework M-GSEF.

- Phase 3: the **evaluation phase**. Because the proposed initial framework was based on a literature review that included a variety of dimensions and factors, as well as differences between studies in terms of their objectives, environments and working conditions. As well as need to be sure that all important dimensions and metrics are included in the proposed initial framework. The reasoning Fuzzy Delphi method was used to evaluate the initial framework. The experts were chosen and the questionnaire was designed to collect expert opinions on the dimensions and factors of our proposed framework. The consensus of experts was obtained through the application of Fuzzy Delphi analysis. Based on the reasoning that will be addressed in the section of the current chapter, And at the end of this phase the final framework was obtained. For more information on this stage, go to chapter three section 3.5.3 Phase three: evaluation phase.

- Phase 4: **Validate phase**, validate the framework, which was reached from the previous phase, the questionnaire was distributed to a sample of Malaysian citizen using m-government services (myGov mobile).The questionnaire tool was developed based on the literature review and then presented to the experts. Conduct a preliminary study before the questionnaire is finally distributed to citizens Malaysians. For the purpose of data analysis, a set of procedures and steps have been

implemented if the data is initially formatted and coded and then examined to address the missing values and whether the data is under natural distribution or not. If the data does not follow the natural distribution, the rest of analyzes in the AMOS program cannot be Implemented. Exploratory factor analysis to detect patterns of multidimensional structures, which are subsequently used to develop measurement measures. For the purpose of using the SEM, Investigate the fitness of measurement model. through exclude factors that do not correspond to statistical indicators in SEM (AMOS) through Implemented (CFA for each construct) then (CFA with all constructs). Convergent validity to discovery of similar links of factors with other variables. Discriminant validity to discover the extent to which a construct is truly distinct from other constructs. Once the measurement properties of the constructs will be found to be reliable and valid, a structural model would be built to test the interrelationships between components of the framework. Then will be test the structural model and determine the significance of the structural paths among the constructs of the hypothesized model. For more information on this stage, go to chapter three sections 3.5.4 Phase four: validation phase.

1.10 Operational definitions of main terms

- **Mobile government** is defined as application of wireless communication and mobile computing technology in the government work, which provides service for public via wireless access technology like mobile phone, PDA, Wi-Fi Terminal, Bluetooth, mobile network.

- **E-government** is the conventional government services made available for citizens through electronic means such as internet connected computers and other devices .

- The terms **wireless and mobile** are used interchangeably in this research to refer to the same term. Mobile or wireless devices are information and communication devices that are not bound to a specific location and use wireless communication instead of fixed-line cables for communication. This study concentrates mainly on the pocket-sized mobile phones due to their high penetration.

- **System Quality** measures the desired functionality and effectiveness characteristics of a government system, interaction with the system are through the mobile platforms.

- **Information Quality**: measures the characteristics of the information provided through mobile platforms.

- **Service Quality** can be defined in a government context as the extent to which m-government portal facilitates efficient and effective delivery of public services including information, communication, interaction, contracting, and transactions to citizens.

1.11 Thesis Organization

This research is composed of five chapters. These chapters are briefly reviewed as follow:

Chapter One, provides the research background, research problem. Moreover, this chapter demonstrates the research objectives and research scope.

Chapter Two, reviews a systematic review protocol for the area of m-government, followed by an overview of; m-government success, the concept of success was reviewed, the success in information systems context, IS success models, and success in the context of m-government. The evaluation of m-government services and the most important problems and challenges associated with them were also reviewed. This chapter also examines the critical review and analysis previous studies related to the topic of study. This chapter is also devoted to a review for m-government in the Malaysian context, and clarify the most important m-government services available. This chapter ends with to propose an initial model for evaluate the success of m-government services. Provide a detailed description of the dimensions of the main framework and sub-factors, as well as provide hypotheses to illustrate the strength of the relationship between the dimensions of the framework.

Chapter Three, gives the full description of the research methodology, which consists of four phases, namely, preliminary phase, development phases, evaluation phase, and validation phase. Each phase corresponds and addresses to one or more research objectives.

Chapter Four presents the results based on the proposed methods. The results of the Delphi test were presented at the beginning of the chapter to assess the initial framework, and SEM results were then presented to validation the framework.

Chapter Five, to presents conclusions of the study. In this chapter, several section explain research aims and answering research questions in, contribution to knowledge, practical implications, how to use framework M-GSEF, research limitations, direction for future work.

1.12 Chapter Summery

This chapter laid the foundations for the study. Firstly, it began with an introduction to, and the motivation for, the research. Secondly, it highlighted the research problem and research questions to be addressed in the study. Then, the research was justified by stating its aim and objectives. This was followed by a brief description of research methodology. Finally, the context of the study, research contributions and the outline of the study were briefly described.