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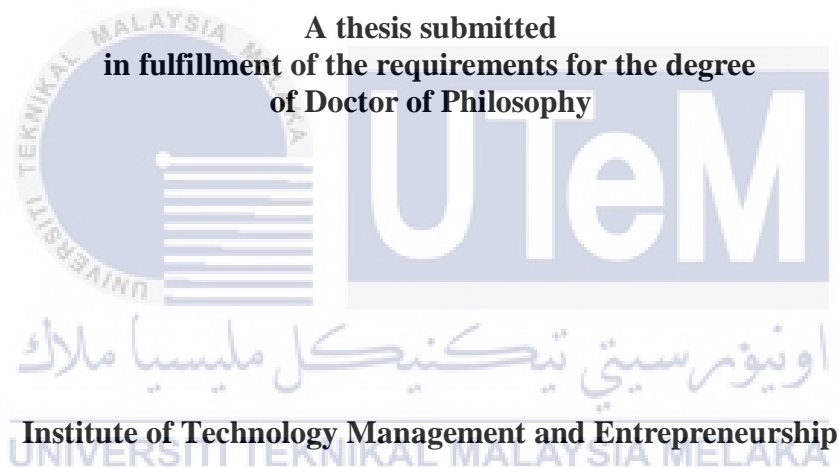
Khalid Husain Mohamed Shareef Abdulla Alkhoori

Doctor of Philosophy

2023

A NEW USER CENTRED DESIGN MODEL TOWARDS USER SATISFACTION USING ONLINE INFORMATION OF SMART GOVERNMENT

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**A thesis submitted
in fulfillment of the requirements for the degree
of Doctor of Philosophy**

Institute of Technology Management and Entrepreneurship

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2023

DECLARATION

I declare that this thesis entitled "A New User Centred Design Model Towards User Satisfaction Using Online Information of Smart Government" is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature   :   ....

Name   :   Khalid Husain Mohamed Shareef Abdulla Alkhoori

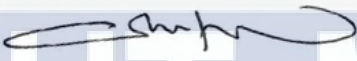Date   :   26 May 2023

APPROVAL

I hereby declare that I have read this thesis and in my opinion this thesis is sufficient in terms of scope and quality for the award of Doctor of Philosophy.

Signature   :

Supervisor Name   :   Gs. Dr. Othman Mohd

Date   :   12th June, 2023

DEDICATION

I would like to dedicate my highest acknowledgement to my beloved; parents, my wife,
and also my precious siblings for always being with me through all the hardship of my
study by giving consistently support and encouragement.

ABSTRACT

The information online of smart government is important to enhance the smoothness of the governance in one country. It is one of the ways that can improve citizen-government engagement through online media. Unfortunately, there are a some of attributes need to be identified in order to solve the problem that will give bad experience to the user when using online information of smart government. Bad user experience will lead to lack of trust to use and minds capping need to be done. Smart government is open, transparent, and collaborative and community engaged. Therefore, to build user centred design is often the primary objective of the smart government to gain public's experience. However, the smart government security often impinges on the public experience. The research provides a framework that is not enforce a particular user experience on anybody but more to on allowing the online information of smart government acceptable, when citizen as a user can make a choice and make every effort to make their experience as frictionless as possible. However, up to this date, there is no specific study about the framework or model on user centered design towards user satisfaction in using online information of smart government. Hence, this study aims to user satisfaction in using online information of smart government. There are three objectives of this study. First, is to analyse the factors of user centred design to enhance user experience using online information of smart government. Second, is to design a new user centred design model to enhance user experience using online information of smart government. Third, is to validate the proposed model in in improving user experience using online information of smart government. The study opted for an exploratory study using systematic literature study to identify the significant factors of user centred design towards user experience using online information of smart government. The research study is conducted in UAE with the estimated sample size is 323 respondents. To develop user centered design model towards positive user experience when using online information of smart government, data were analyzed based on regression model to test the 6 hypotheses. The results derived show significant values on emotion, behaviour, trust, time consume, and ergonomic factors which recorded P-Values of 0.027, 0.050, 0.050, 0.050 and 0.050 respectively that implies significant relationship with influence on enhance user experience are accepted, while the hypothesis related to flexibility factor is rejected. Based on hypothesis testing and analysis, there is a strong relationship between the factors of significant factors of user centred design to enhance user experience using online information of smart government with significant R-value which validated the propose model. Overall, the implementation user centered model in enhancing the user experience when using online information of smart government developed can be used by government agencies that have been tasked with accessing user-centered design models as helpful resources while adopting smart government of information online.

MODEL REKA BENTUK BERPUSATKAN PENGGUNA BAHARU KE ARAH KEPUASAN PENGGUNA DALAM MENGGUNAKAN MAKLUMAT DALAM TALIAN KERAJAAN PINTAR

ABSTRAK

Maklumat dalam talian mengenai kerajaan pintar adalah penting untuk meningkatkan kelancaran pemerintahan di sesebuah negara. Ini adalah salah satu cara yang dapat meningkatkan penglibatan warga negara terhadap kerajaan melalui media dalam talian. Malangnya, terdapat beberapa atribut yang perlu dikenal pasti untuk menyelesaikan masalah yang akan memberikan pengalaman buruk kepada pengguna ketika menggunakan maklumat dalam talian melalui kerajaan pintar. Walau bagaimanapun, keselamatan bagi sistem kerajaan pintar sering mempengaruhi pengalaman orang ramai untuk mendapatkan maklumat secara atas talian. Penyelidikan ini menyediakan kerangka kerja bagi meningkatkan tahap keluasan pengguna apabila mereka mendapatkan maklumat atas talian melalui platform kerajaan pintar. Namun, hingga saat ini, terdapat limitasi kajian khusus mengenai kerangka atau model pada kaedah untuk meningkatkan kepuasan pengguna yang menggunakan maklumat dalam talian melalui sistem kerajaan pintar. Oleh itu, kajian ini bertujuan untuk kepuasan pengguna dalam menggunakan maklumat dalam talian mengenai pemerintahan pintar. Terdapat tiga objektif dalam kajian ini. Pertama, untuk menganalisis faktor reka bentuk berpusatkan pengguna untuk meningkatkan pengalaman pengguna menggunakan maklumat dalam talian melalui kerajaan pintar. Kedua, merancang model reka bentuk berpusatkan pengguna baru untuk meningkatkan pengalaman pengguna menggunakan maklumat dalam talian melalui kerajaan pintar. Ketiga, untuk mengesahkan model yang dicadangkan dalam meningkatkan pengalaman pengguna menggunakan maklumat dalam talian dari kerajaan pintar. Kajian ini memilih kajian eksploratif menggunakan kajian literatur sistematik untuk mengenal pasti faktor penting reka bentuk berpusatkan pengguna untuk meningkatkan pengalaman pengguna menggunakan maklumat dalam talian dari pemerintah pintar sekolah rendah. Kajian ini mengadaptasi lakaran proses asas yang megandungi tiga fasa yang mana pertama adalah analisis, kedua adalah pembangunan model dan yang ketiga pengujian dan pengesahan model yang dibangunkan. Kajian ini dilaksanakan di UAE bersamaan anggaran sampel seramai 323 responden. Untuk mengembangkan model reka bentuk yang berpusat pada pengguna ke arah pengalaman pengguna yang positif ketika menggunakan maklumat dalam talian dari pemerintah pintar, data dianalisis berdasarkan model regresi untuk menguji 6 hipotesis. Hasil yang diperoleh menunjukkan nilai yang signifikan terhadap emosi, tingkah laku, kepercayaan, penggunaan masa, dan faktor ergonomik yang mencatatkan Nilai-P= 0,027, 0,050, 0,050, 0.050 dan 0.050 masing-masing yang menunjukkan hubungan yang signifikan dengan pengaruh pada peningkatan pengalaman pengguna diterima, sementara hipotesis yang berkaitan dengan faktor fleksibiliti ditolak. Berdasarkan ujian dan analisis hipotesis, terdapat hubungan yang kuat antara faktor-faktor penting reka bentuk berpusatkan pengguna untuk meningkatkan pengalaman pengguna menggunakan maklumat dalam talian kerajaan pintar dengan nilai R yang signifikan yang mengesahkan model cadangan. Secara keseluruhan, model pelaksanaan yang berpusat pada pengguna dalam meningkatkan pengalaman pengguna ketika menggunakan maklumat dalam talian dari pemerintah pintar yang dikembangkan dapat digunakan oleh agensi pemerintah yang telah ditugaskan untuk

mengakses model reka bentuk yang berpusat pada pengguna sebagai sumber yang berguna semasa menggunakan maklumat pintar dalam talian.

ACKNOWLEDGEMENTS

In The Name of Allah, The Most Gracious, The Most Merciful

I begin by thanking God for providing me with strength during my PhD studies. I am grateful to my family, instructors, and friends for their encouragement and support during this journey.

I wish to offer my heartfelt appreciation to my supervisor, Gs. Dr. Othman Mohd, for his unwavering support during my PhD studies and associated research, as well as his patience, inspiration, and vast knowledge. He offered his research knowledge and directed me in the proper route. He also urged me to keep writing and not to give up. His advice was invaluable during the research and writing of this thesis. I could not have asked for a finer supervisor and mentors for my PhD research.

I'd want to take this moment to thank my family for their support during this trip. I am also grateful to my mother for her unwavering support and encouragement. I'd want to convey my heartfelt gratitude and particular thanks to my wife for her patience, tolerance, and support throughout my PhD studies. I would not have been able to complete my research assignment without her assistance. Finally, I thank Allah for the wonderful health and well-being that allowed me to write my dissertation.

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LIST OF ABBREVIATIONS

PICOC   -   Population, Intervention, Comparison, Outcomes, And Context Criteria

SLR   -   Systematic Literature Review

IoT   -   Internet Of Things

KMO   -   Kaiser-Meyer-Olkin

AVE   -   Average Variance Extracted (AVE)

ICT   -   Information And Communication Technology

PLS   -   Partial Least Squares

UAE   -   United Arab Emirates

MVC   -   Model View Controller

DDos   -   Distributed Denial Of Service

SPSS   -   Statistical Package for Social Sciences

ACC   -   Adaptive Cruise Control

FCW   -   Foward Collision Warning

SDM   -   Shared Decision Making

UCD   -   User Centered Design..

UX   -   User Experience

HCD   -   Human Centered Design

PPD   -   Public-Private Partnership

VIF   -   Variance Inflator Factor

LIST OF APPENDICES

LIST OF PUBLICATIONS

1. Alkhoori K. H. M. S. A., Mohd O., Akmal S., Suhaimin N., Hakimi H., Alhosni F. I. A. K., 2023. Critical Success Factors for Effective User-Centric Online Information System for Smart Government in UAE. *Journal of Applied Technology and Innovation,* 7(4), pp. 46-51.

2. Alkhoori K. H. M. S. A., Mohd O., Akmal S., Suhaimin N., Hakimi H., 2023. User Centred Design Model Towards User Satisfaction in Using Online Information of Smart Government. *Springer,* pp. 114-127.

3. Alhosni F. I. A. K., Basari A. S. H,., Akmal S., Suhaimin N., Hakimi H., Alkhoori K. H. M. S. A., 2023. Exploring Citizen's Expectation of Smart Government Services in United Arab Emirates. *Journal of Applied Technology and Innovation,* 7(4), pp. 32-38.

CHAPTER 1

INTRODUCTION

1.1   Introduction

Information online is finding their way into the adaption of public administration which implies for better governance. Today, there are numerous initiatives in the public sector, promising a new model for the public services: smart government. In this research, we seek to identify success factors for smart government initiatives to enhance user experiences in using online information. It is important to have a review on the motivations, goals, and processes behind smart government so as to provide a conceptual and analytical basis for the analysis.

Smart government is identified by in which the government is said to be advanced and people are given opportunity to use, participate and communicate anytime, anywhere with the government through the convergence and integration of smart IT and government services. It led the information for being utilized to improve the society and shorten the decision-making process as a results of information technology integration. In their findings the society is expected to transform into a value-oriented society in which humans are put first as the purposeful being

When the information online and smart government emerged, it actually will enhance the smoothness of the governance in one country. It is one of the ways that can improve citizen-government engagement through online media. Using friendly features of online information in smart government plugins like social share buttons, social logins and social comments allows government to blend media experiences with the citizen.

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1.2 Problem Statement

Smart government needs to provide effective and efficiency online information infrastructure and environment to increase public experience. Online information in smart government is one of the most important branding weapons in order to ensure citizen will receive well all the info and the policies which is essential for good governance. Online information in smart government actually got unlimited potential and we can see that quite a number of countries already implement this strategy that revolves around their online information alone. It is the pivot for information delivery and nation building efforts. Unfortunately, there are a some of attributes need to be identified in order to solve the problem that will give bad experience to the user when using online information of smart government. Bad user experience will lead to lack of trust to use and minds capping need to be done.

In this era, considered as disruptive technology, the most challenging task for smart government is to gain public experience in information sharing in smart government. Mind scaping is a process of convincing public to accept a change. Here it is a process of changing mindset of the people and administrator to commit in the migration from e-government to smart government. Smart government is open, transparent, and collaborative and community engaged. Therefore, to build user centred design is often the primary objective of the smart government to gain public's experience. However, the smart government security often impinges on the public experience. Smart government is the platform or space where public officials have total control over how their city or country is portrayed in a digital sense, and a usable smart government creates a great first impression for citizens, visitors and businesses. Secondly, a bad smart government will declinine the user trust in government and preventing users to efficiently get the information they need and complete their tasks online. When users cannot find what they want or need on their government's website, they

will resort to calling or visiting the office to conduct business. This ultimately raises the cost of government by making all transactions more expensive.

Smart governments are focused in user satisfaction for a variety of reasons. Unsatisfied users of smart government make it more difficult for governments to keep their populations safe and happy by providing them with access to the services they require to live their lives, such as healthcare, transportation, and housing. The research tries to come out with a framework that T not enforce a particular user experience on anybody but more to on allowing the online information of smart government acceptable when citizen as a user can make a choice and make every effort to make their experience as frictionless as possible.

1.3 Research Question

In this study, the following research questions in has been formulated as below:

1. What are the factors of user centred design to enhance user experience using online information of smart government?

2. How to develop a new user centred design model to enhance user experience using online information of smart government design an leadership skill model to enhance the organizational management?

3. How to evaluate the proposed model in improving user experience using online information of smart government?

1.4 Research Objective

Basically, the research aimed to achieve the following objectives:

1. To identify the factors of user centred design to enhance user experience using online information of smart government.

2. To design a new user centred design model to enhance user experience using online information of smart government.

3. To validate the proposed model in in improving user experience using online information of smart government.

1.5   Scope of research

The primary focuses of this research are to explore user centered model as ability of smart government to prepare, use and take a benefit from the adoption of a new innovation such as e-business, e-government, e-procurement, e-learning and others-based citizen requirements. In other words, the research has the scope to explore how the citizen-centric design model should be designed at United Arab Emirates smart government. The fundamental goal of this research is to discover the dimensions that will be used to establish the user-centred model for using smart government's information online in the UAE, such as emotion, behaviour, trust, time consume, flexibility and ergonomic. These factors are derived from the literature review studies and will be studied quantitatively in the context of this research. The analysis based on these factors will contribute for model development in enhancing usage of smart government's information online in UAE.

1.6   Significant of Study

It is believe that this research will provide positive results which will have significant contributions for government institutions and citizen to refer for smooth interaction of online information usage. With this new model, it is believed that the government institutions can improve their role to implement online information that lead to high usage among the citizen.

Realizing the UAE government aims to designed to build a modern effective government that efficiently adapts to surrounding changes, is part of the UAE vision for the

future, it is contained in the National Plan for Smart Government Goals. "Innovation, research, science, and technology will constitute the foundations of a knowledge-based, highly productive, and competitive economy, driven by entrepreneurs in a business-friendly environment where public and private sectors build successful collaborations," according to the UAE's 2021 vision. The UAE government has made significant efforts to change its economy into one based on information and innovation. As a consequence of investments in science, technology, research, and development throughout the UAE economy, productivity and competitiveness will challenge the best in the world."

It is hoped that this study can provide awareness to citizen as the smart government users and also the government agencies about the importance of user satisfaction and their effects when not emphasized in an existing smart government system today. For the development and design of smart government or other government website interface after this, customer satisfaction elements must be considered to guarantee that information is used to enhance society and shorten decision-making processes as a consequence of information technology integration. As online information and smart government arise, it will really improve the smoothness of administration in one country. Furthermore, post pandemic effect also provide significance for the smart government to be enhance for citizen satisfaction as it is a good platform for the government to help their citizen who are in trouble.

1.7   Thesis Outline

The content of each chapter is briefly explained as follows:

Chapter 1 (Introduction):

In this chapter which is cover on the introduction, problem statement, research question, research objectives, scope of the research, significance of the study and the organisation of

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the thesis. Basically, this chapter give a briefly information regarding the current issues of resistance heating that drive the research motivation.

Chapter 2 (Literature Review):

This literature review explores four major subjects: (i) Online Information, (ii) Smart Government, (iii) User Experience, (iv) User Centred Design It shows a thorough analysis in determining the research gaps of these subjects. As for this section, the significant factors of RH effectiveness are also discussed which eventually be used in chapter 3. Results of the literature review support the need for fulfilling the research objectives.

Chapter 3 (Research Methodology):

This chapter discusses the research methodology of this study. Details of sample size and population are described in this chapter. The procedure undertaken to construct the conceptual model of this study is explained in Chapter 2. Finally, a detailed explanation of the appropriate statistical method used for data analysis in this study is included.

Chapter 4 (Result and Discussion):

This section presents a complete account of the results of the literature analysis and the experiments conducted. All of the results, including graphs, tables and figures are presented in this single chapter; it is divided into appropriate subsections to include the analyses and presentation of data. The results are duly interpreted, but extensive references to other relevant works are not included. This section also bridges the data presented or described in the preceding section, and contains the analyses or interpretations of the results obtained from the regression analysis, framework development, validation process and the conclusions drawn. These results are then discussed in relation to the hypotheses (if