Theoretical Framework Formation for e-government Services Evaluation: Case Study of Federal Republic of Nigeria

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Abstract

Objectives: Throughout the e-government services adoption and evaluation several frameworks have been developed; however, there is a need to go further into combining several model and theories in creating these frameworks. Methods/Statistical Analysis: The research aims to develop an effective framework that will be best use in the nation to effectively evaluate the e-government services. In addition to that the research model is hereby created, the importance of this is to have the generate systematic and comprehensive approach with regards to e-government services frameworks by looking in to some multiple parameters which will be used to reduces the gap in this field. Findings: This paper investigated few key element of the e-government services evaluation theoretical framework development, based on the federal republic of Nigeria’s scenario. This research goes deep in to the theoretical framework formation and e-government services and its evaluations especially in the developed countries. Application/Improvements: Considering the progress in this research, much have been done to formulate the theoretical framework for evaluating the e-government services in the Federal Republic of Nigeria, this can be used widely in the African nations considering a minimum customization.

Keywords: Acceptance, e-government, Evaluation, Framework, Model, Services, Technology, Theoretical

1. Introduction

The public sector has invested heavily in developing various information and communication technologies and processes to ensure more effective communication channels with the various stakeholders. Government functions and processes are gradually evolving from laborious paper based processes to online functions which contribute to efficiency and effectiveness, ensuring greater satisfaction within the general population and businesses that have to deal regularly with the Government machinery. E-government services are minimally affected by aspects and limitations of time and distance, and enable stakeholders to retrieve required information regarding policies and associated regulations towards enabling them to efficiently fulfil day-to-day functions. Besides, e-government initiatives also contribute to greater transparency, making government functionaries more accountable for their actions.

Individual acknowledgement of technology was previously examined by researchers by considering intention and/or application as the main dependent variables. Prior to the research, a decision has to made as it will have a practical impact on “the behaviour” that is going to be measured in this study.

A research study by proposed effort prospect social influence, and performance expectancy are the key to predict behavioral intention on the acceptance of the technology. In addition to that this research has highlighted that user behavior in technological acceptance is simply

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predicted by the behavioral intention and facilitating condition. Furthermore, the author considered using the meta-analysis as well as almost 40 different empirical studies selected so as to complement essential empirical evidence. As for the outcome in this study, the author advocate that relationship between social influence, behavioral intention, and effort expectation. Similar to this the research make it clear that user behavior and behavioral intention are week as well while the relationship among behavioral intention and performance expectancy is very strong.

The public acceptance of e-Government services regulated factors are pinpointed base on 16,17 study, the study focus on the electronic tax and payment filing system to which the author make uses of the theory of planned behavior. The main purpose of the study is to identification of the determinants for the acceptance, examining the casual relations between the key variable in the acceptance behavior and exploring the significant contributions of each determinant, all these for the electronic tax and payment filing system. This study resulted with over 70 % explanation on the behavioral intention variable, the variables considered in the study are behavioral intention, ease of use, perceived usefulness, perceived risk, compatibility, user trust, interpersonal influence, external influences, facilitating condition, and self-efficacy 16,17.

Another study concerned with technology acceptance model in the respect of e-government services by 18–21 initiated user acceptance of e-government factors, in addition to the partial interaction by the means of theoretical model which is also based on the technology acceptance model. The study resulted in the ease of use, compatibility, perceived usefulness, subjective norms, intention to use, attitude, external influence, facilitating conditions, interpersonal influence, perceived behavioral control, and self-efficacy.

Similar study by 22,23 which is titled “User-centered E-Government in practice: A comprehensive model for measuring user satisfaction” have explore the key variable in modeling use satisfaction in this regards, while 24 have conducted research with title “User acceptance of intergovernmental services: An example of electronic document management system”, the study looked in deep with the regards of intergovernmental services. Considering the view of 24 which centered on the user acceptance technology on web personalization, it is kind of empirical investigation of e-government services. Furthermore, 25,26 studied the additional variable in user acceptance between Malaysian urbanites, its mission on new media.

Subsequently, 27 investigate the success in which e-government initiative by validating and integration of information system success model, while 28 put together e-government services as well as the citizen personnel acceptance, which focused on empirical analysis. Another study by 29 conducted an evaluating based on e-government systems in Turkey as a nation. Meanwhile all the above have brought the essential and key determinants for the e-governance use, adoption, and evaluations.

2. Theoretical Framework Basic Concept

The core concept that forms the foundation of the user acceptance model of the research adapted from 30–32 suggests that the individual's inclination to utilize e-government applications will have an impact on the actual usage of the e-government services, and this would have an impact on the intentions to utilize the technology demonstrated in Figure 1. It is likely that the research model, following a few tests and adaptations (if needed), may provide explanations on usage behaviour and help in predicting future usage in line with the user's intention to utilize e-government services.

Studies suggest that there are factors that affect citizens’ behavioural intention and adoption behaviour towards the use of government e-services. Low patronage of e-Government has become an issue in developing nations. Therefore, this paper proposes an integration of trust dimensions and risk taken propensity to the UTAUT model. The survey instrument items were carefully selected from previously validated constructs. Structural Equation Modeling (SEM) was used to examine the relationship between the constructs. The study showed that Performance Expectation, Peer Influence, Trust belief and Risk taken propensity are significant in predicting behavioural intention to adopt e-government. Furthermore, implications for practice and further research were also discussed.
A theoretical model is a combination of theories presented in the literature that encourage a positivistic study. It essentially refers to a conceptual framework of methods that is hypothesized by the research or generates a logical link between various factors that are considered to be critical for the issue at hand. When such a conceptual model is developed, it aids in making presumptions or hypothesizing and testing certain relationships. This helps in improving the overall understanding of the situation. The theoretical model essentially discusses the relationships of one of the variables believed to be crucial in the research. Gaining an understanding of a flexible means and the different variables is critical. The theoretical framework is continuously being improved, following which testable hypothesis could be established to determine if the theory is applicable or not.

2.1 Research Model

The research model, which is the conceptual framework, suggested comprises of three significant types of variables shown in Figure 2:

- The five main constructs (independent variables) include: perceived ease of use (PEOU), perceived usefulness (PU), social influence (SI), self-efficacy/perceived ability (SE) and facilitating conditions (FC). These key variables are needed to facilitate usage behaviour in society (SOCIE) in addition to other factors (OFACT).

- Usage behaviour in society (SOCIE) as well as other factor (OFACT) and behaviour intention in society (BITSOCIE) as well as other factor (BIFACT) are the two dependent variables. It is expected that the usage behaviours in society along with other factor would have an impact on behaviour intention both in factors.

- There are two significant groups that include seven moderating variables. The first group pertains to individual attributes: age, education, gender, position and experience, while the second group pertains to certain cultural features like reading, writing and language. These moderations are needed so that the way key constructs affect usage behaviour is influenced, and also the way usage behaviour affects behaviour intention.

2.2 Research Hypothesis

On the basis of the research model suggested, various hypotheses are going to be evaluated:

- If these determinants (i.e. PU, PEOU, SI, FC, and SE) significantly affect usage behaviour (SOCIE and OFACT).

- If usage behaviour (SOCIE and OFACT) significantly affect behaviour intent (BITSOCIE and BIFACT).

- If these moderators have a significant effect on the impact of these determinants (PU, PEOU, SI, FC, and SE) with respect to usage behaviour (SOCIE and OFACT).

- If these moderators significantly affect the impact of user behaviour with respect to behaviour intention.

2.3 Direct Determinants

The past studies provide several determinants pertaining to user acceptance. It has been found that in the previous studies, there were inconsistencies in utilizing the most important constructs (determinants) in the theories/models.

In this research, the key determinants that have been included in the suggested research framework include Perceived Usefulness (PU), Social Influence (SI), perceived ease of use (PEOU), Self-Efficacy/perceived ability (SE) and Facilitating Conditions (FC).

2.3.1 Perceived Usefulness

Perceived Usefulness (PU) in TAM, TAM2, Augmented TAM or Combined TAM and TPB called (C-TAM-TPB) Taylor was hypothesized in the form of a direct determinant (a key construct) of behaviour intent; however, it had been found that perceived usefulness existed in the form of a direct determinant of usage behaviour.
2.3.2 Perceived Ease of Use
It appears that perceived ease of use (PEOU) was theorized as the direct determinant of behaviour intention in several theories and frameworks such as TAM, TAM2, and C-TAM-TPB. Furthermore, it had been demonstrated with the help of clear proofs that perceived ease of use (PEOU) was present as a direct determinant of usage behaviour31,36,39,42,46–51.

2.3.3 Social Influence
Several theories30,31 like the TRA, TPB, DTPB, TAM2, and C-TAM-TPB consider Social Influence (SI) as a subjective norm. In addition, it is suggested in these studies that social influence is present as a direct determinant of behaviour intent. There were several other studies that provide a similar suggestion.

2.3.4 Facilitating Conditions
In the DTPB theory, facilitating conditions were present in the form of a direct predecessor of behaviour intention and usage. It was likely in this study that the effects of facilitating conditions (including both resource facilitating conditions and technology facilitating conditions) would make the management vigilant regarding the potential impediments in its application38. It was found that the facilitating conditions determinant (FC) was not significant in showing the intention, but it was significant in determining usage30,31.

2.3.5 Self-Efficacy
Self-efficacy is considered to be the notion that one has with respect to the ability to perform a certain behaviour52–54; that is, it is associated with perceived ability.

2.4 User Behaviour
In this study, dependent variables include usage behaviour and behaviour intention. These variables will be studied to determine how usage behaviour significantly affects behaviour intention.

2.4.1 Usage Behaviour
A person's personal choice determines their use of e-government applications. This allows one to make the assertion that the basis of this research is going to be voluntary application (used willingly and not under coercion), which is consistent with most of the earlier studies.

An individual's given preference to perform the activities (like the behaviour intention) would have a meticulous relationship with how they act; hence, this presumption is true only when the behaviour falls under the individual's volitional control (freedom)31–37.

2.4.2 Behaviour Intention
It has been asserted in the TAM intention is actually the most relevant proxy that should be considered which predicts a user’s behaviour with respect to a certain technology or system. Similar findings have been obtained in various studies which demonstrate the significant association between behaviour intention (BI) and usage behaviour. In the TAM and TPB models, the shift from behaviour intention to behaviour is crucial. Normally, user behaviour is influenced by the Behaviour Intention (BI), hence a vital role is performed by BI in determine usage behaviour. However, it needs to be noted that BI is predictive to a higher extent of usage behaviour when individuals are well-informed about the technology38.

3. Findings and Results
As a result, in this research clear hypothesis are generated and are categorize in two groups (Direct path hypotheses and moderating hypothesis), while the proposed research model is being developed. Below is the research hypothesis and followed by the proposed research model.

3.1 Direct and Moderating Hypotheses
In this research, two groups of the hypotheses would be analyzed. The foremost group may include the hypotheses for direct paths for determining the significance of direct relationship between the main determinants and usage behaviour. The second group involves the moderating hypotheses for determining the way independent variables affect dependent variables and these are going to be regulated using moderating variables.

3.1.1 Direct Path Hypotheses
Three categories have been formed for the direct path hypotheses. The first category includes the hypotheses for determining the functional impact of determinants on usage behaviour in society and related factor (SOCIE). The second category involves the hypotheses for determining the functional impact of determinants on usage behaviour in other factors (OFACT) as has been explained.
Finally, the third category includes the hypotheses for determining the impact of usage behaviour on behaviour intention:

a) Determinants and Usage Behaviour in Society and Society Related Factor (SOCIE) 5 hypotheses.
b) Determinants and Usage Behaviour in Other Factor (OFACT) 5 hypotheses.
c) Usage Behaviour and Behaviour Intention 6 hypotheses.

3.1.2 Moderating Hypotheses

Two categories have been established for the hypotheses that are going to be evaluated for moderators (i.e. moderating hypotheses). These include: testing the impact of 5 determinants with respect to usage behaviour in society in addition to other activities regulated by moderators and investigating the impact of usage behaviour with respect to behaviour intention that these moderators regulate:

a) Determinants and Usage Behaviour 7 hypotheses.
b) Usage Behaviour and Behaviour Intention 7 hypotheses.

3.2 Findings on Research Model

From the five well known theories the are heavily utilized in this research, the study manages to produces the proposed model which is to be used in this research as a research model to be used for evaluating the e-government service in the case of federal republic of Nigeria. Below is the figure representing the proposed research model.

The Research Model Including moderators across direct paths between determinants and user behaviour, Inclusion of moderators across the paths in the middle of determinants and user behaviour

In the next section, determinants that constitute the suggested research model are discussed

4. Conclusion

After several considerations on both five well known theories & its elements and the environment, this study developed a useful model that could be used not only within the federation for Nigeria, but it could be extended to other part of the African nations. Both hypotheses and model generated from this study are perfectly suited to the environment. This investigated few key element of the e-government services evaluation which lead to the successful theoretical framework development in this paper while the research model is initiated.

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