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The Role of Collaboration on Acceptance of E-Government in Tanzania

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Abstract: - E-government is the process of delivering government services through electronic media or platforms. It provides alternative options for offering services with minimal need for physical contact. The acceptance of E-government practices and tools is influenced by factors as explained by prominent models such as TAM, UTAUT and TRA. This research involves empirical evidence from the Tanzanian context to examine the influence of collaboration on citizens' intention to use e-government systems. The conceptual framework was formulated by extending TAM with collaboration. The research employs a survey of 203 respondents followed by analysis using Smart PLS 4. The conceptual framework was developed by extending the Technology Acceptance Model with E-government collaboration before testing it in a survey. The results show that the collaboration has a significant influence on perceived usefulness. Among others, this research provides theoretical underpinnings to the acceptance of technologies and areas for future research and policy implications.

Keywords: E-Government, E-government collaboration, TAM, UTAUT, TRA, Smart PLS 4.

I. INTRODUCTION

Numerous incidents involving human lives have demonstrated how technology is advancing. It has impacted the way government agencies and residents operate in many ways. Researchers found that government agencies and information technology (IT) providers needed to collaborate in order to ensure that the changes brought about by the E-business revolution also affected the delivery of government services to the general people [1].

"E-government" describes the use of information technology, especially e-commerce, to make government data and services more easily accessible to businesses and citizens. Additionally, it describes the supply of governmental services to clients, vendors, business partners, and employees of the public sector [2].

Examples of e-government systems and practices include the political arena, where paper ballots have been replaced by electronic voting; the health sector, where multiple automations are used to deliver services; and various improvements noted in transportation, agriculture, entertainment, and other government services [2].

Among the main factors that typically affect the implementation of e-government services are policies, strategies, legislation, and even accessibility difficulties. Owusu and colleagues [2]; [1]. In order to guarantee appropriate and efficient utilization of technology in that particular situation, the nations must be prepared for electronic governance [3]. The sophistication that results from enhanced computer service delivery has also fundamentally altered the way that technologies are incorporated into user settings. Evaluating whether the e-government operating environment is prepared to embrace the technology is crucial.

The use of the government Electronic Payment Gateway (GePG) and the integration of various public sectors, including the Business Registration and Licensing Agency (BRELA), National Identification Authority (NIDA), and Tanzania Revenue Authority (TRA), have been made possible by recent developments in Tanzania's e-government systems.

While e-government continues to receive funding, little work is done to determine what obstacles exist for its implementation in the current circumstances. Making judgments regarding the best ways to adopt and use

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e-government in Tanzania and other comparable contexts will probably be simpler if the obstacles are recognized. Any nation's e-government goals can only be realized through a thorough investigation of the issues that affect citizen acceptability. A few things are preventing its acceptance. [4].

The benefits of electronic government were acknowledged in Tanzania's National ICT Policy (2003), which was later changed in the National ICT Policy, 2016 [5] individuals to invest in e-government by increasing their willingness, confidence, and trust, the nation's national e-government strategy was subsequently developed in 2009. The creation of an e-government organization to supervise and control all e-government projects in Tanzania was one of the supplementary initiatives [4].

An e-government plan was developed by the agency and implemented from 2013 to 2018 after a situational analysis and assessment of government operations. Examples of Tanzania's e-government accomplishments include the creation of an improved tax collecting system, a government employment portal, and a citizen National Identity (ID) system [4]. This organization recently underwent a transition, becoming an Authority (E-government Authority) tasked with overseeing ICT administration and compliance in Tanzanian public sectors.

The main objective of this research is to assess the relationship between key factors influencing the acceptance of e-government through a survey with a special attention to collaboration between users of the e-government systems in Tanzania.

The next sections of this article are organized as follows: Section two discusses the e-government followed by section three which discusses the formulation of study hypotheses and conceptual framework. Section four discusses the methodology while section five presents the results and discussions. Section six provides a critical discussion before conclusions and future works in the seventh section.

II. E-GOVERNMENT

E-government was created as a result of pressure to reconsider how best to serve citizens through the development of services via the Internet, e-commerce, and e-business in the private sector. (Twizeyimana & Andersson, 2019). It is challenging for government agencies and individuals to stay up to date with the rapid pace of technological changes in order to ensure that ICT tools and applications are successfully deployed to facilitate smooth transactions. Citizens are therefore seen as clients of governments from an e-government standpoint; governments need to empower individuals rather than just provide for them [2], [6].

Residents and their governments interact through tax payments, electricity and water bill payments, permit renewals, and benefit applications. While the government-to-government (G2G) sector serves as an e-government hub for communication between various governments sectors, the government-to-citizen (G2C) sector promotes civilian engagement with the government.

Providing reliable services to citizens can provide a number of difficulties for governments. Cultural differences, a lack of leadership and management support, ignorance of the e-government program, inadequate IT infrastructure, a lack of qualified staff and training programs, a lack of policies and regulations for e-use, resistance to changing to e-systems, a lack of strategic plans, and a lack of funding are a few of the major obstacles or challenges mentioned in the literature [3], [5], [7].

III. HYPOTHESES FORMULATION AND CONCEPTUAL FRAMEWORK

The Technology Acceptance Model (TAM), which contends that people's decisions about when and how to utilize technology are influenced by a range of circumstances, is expanded upon in this study [5], [8]. The basis of TAM consists of the two main variables, perceived utility (PU) and perceived ease of use (PEU). Davis [8] defines PEU as the extent to which the system will reduce users' effort, and PU as the extent to which the technology will

enhance or increase the user's performance on the job. The TAM has proven to be one of the most stable and consistent models in the literature, and as such, many technological acceptance models have found success with it as an extension.

Since PEU indirectly affects adoption intentions and, finally, technological usage, it has a significant impact on PU. A person's behavioural intention is defined as their willingness to engage in a particular behaviour [8]. Users' intentions to use a certain technology in the near future are typically influenced by a wide range of factors.[5], [9].

Since this study adopts to expand TAM, the correlations that were evaluated using TAM in prior research that is comparable to this one are also adopted. In the context of e-government services, perceived ease of use refers to an internal conviction that the platforms enable smooth and unimpeded submission of complaints and feedback. If citizens are able to obtain and apply important data via several websites and platforms, they will perceive e-government as beneficial and time-saving. It implies that a positive correlation between perceived usefulness and perceived ease of use is expected [10], [11].

Citizens will soon be able to participate in e-government services without having to visit government offices by communicating and posting comments on official websites, saving them money and time [3]. Thus, people's perception of the use of e-government systems may have a big influence on their participation in them (Nguyen et al., 2023). In light of the reasons that have been explored, the following theories are proposed:

H1a: Perceived Ease of Use (PEU) of e-government systems will positively influence the citizens' Behaviour Intention (BI)

H1b: Perceived Ease of Use (PEU) of e-government systems will positively influence the citizens' Perceived Usefulness (PU)

H1c: Perceived Usefulness (PU) of e-government systems will positively influence the citizens' Behaviour Intention (BI)

Collaboration is among the important aspects on technology acceptance as it show how users can work together comfortably. If the users believe that they collaborate effectively using a technology will likely to perceive that the technology is useful on performing their activities at work, this study therefore hypothesise that:

H2a: The E-government Collaboration (COL) will positively influence the Perceived Usefulness (PU) of E-government.

The illustration of the formulated hypotheses is seen in the Conceptual Framework in Figure 1.

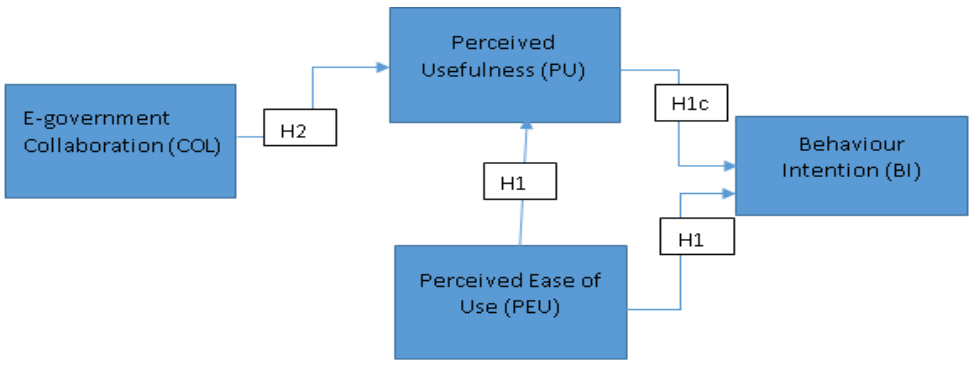

Figure 1: The conceptual framework of the research (author)

IV. DATA COLLECTION AND METHODOLOGY

A sample of 203 Tanzanian respondents with prior experience using or accessing e-government websites participated in this study. Given that Kiswahili is Tanzania's official language, linguistic experts translated the questionnaires from English to Kiswahili to ensure translation accuracy. A second linguistic expert then translated the Kiswahili version back to English to determine whether the original and final English versions shared the same meaning. The gathering of data took about 24 days. There were 210 questionnaires given in all, but only 203 of them were completed, meaning that the response rate was 96.7%. Respondents filled out three incomplete questionnaires and three inaccurately. There were 98 females and 105 males in the sample.

Because most Tanzanians currently use e-government services in various situations, the majority of respondents were qualified to produce accurate results, hence a random sample technique was employed. A portion of the questionnaires were distributed electronically to the participants, while the remaining ones were completed by hand. In several cases, further attempts were made to persuade respondents to set aside time to complete the surveys.

The Smart PLS 4 was opted in this research over AMOS because the main target was primarily to predict the indicators utilizing the components [12]. Constructs were subject to measurements with the use of the Likert scale, as suggested from related prior research (where 1 denotes‘Strongly Disagree’ and 5 denotes ‘Strongly Agree). As all survey respondents were Swahili speakers, survey forms had to be accurately translated from the English into Swahili dialect. Back translations were therefore performed, an approach that is broadly applied in various cross-cultural surveys [13].

Regarding data analysis, the approach was based on the Structural Equation Modelling-Variance Based (SEM-CB) method using Partial Least Squares (PLS) to examine the research models of this study [14]. The analysis consisted of two phases of analysis which involve evaluations of current measurement models and evaluations of current structural models after carrying out descriptive analyses. This two-stage analytical approach comprising a measurement model and a structural model evaluation is better than a one-step evaluation [15]. The measurement models describe the measurements of constructs and structural models define the relationships among constructs in structural models [15].

This study employed Structured Equation Modelling (SEM) and the analysis was performed using Partial Lease Square (PLS 4) [16]. The questionnaire was tested for reliability by using Cronbach alpha where the acceptable levels of alpha are 0.8, and higher is considered good, any value above 0.7 is satisfactory, and it is unacceptable if it is less than 0.5 [12]. Unidimensionality was assessed using criteria proposed by Awang [16] which asserts that it is achieved when each of the items has a factor loading of value greater than 0.5. The Construct reliability was assessed using Cronbach’s alpha [17].

V. RESULTS AND DISCUSSIONS

The structural model consisting of five constructs and 21 measurement items was modelled in Smart PLS 4 as seen in Figure 2. It was then tested for reliability and validity before proceeding to further steps of analysis. It can be seen that all the factor loadings are greater than 0.5 indicating that the model has attained a unidimensionality condition.

The model's construct validity and reliability parameters are shown in Table 1. As can be observed, the model is legitimate and reliable to give results for path analysis because all Cronbach Alpha values are above 0.8 and the Composite reliability (rho_c) values are above 0.7.

Validity Assessments are shown in Table 2. Because each construct in the PLS path model has the strongest connections with its indicators, the results demonstrate that all values are less than 0.9, indicating that the model is reliable [14]. The results of the Heterotrait-Monotrait Ratio of Correlations (HTMT)-based Discriminant are seen in Table 3. It can be seen that all values of less than 0.9 indicating that the model has attained satisfactory discriminant validity.

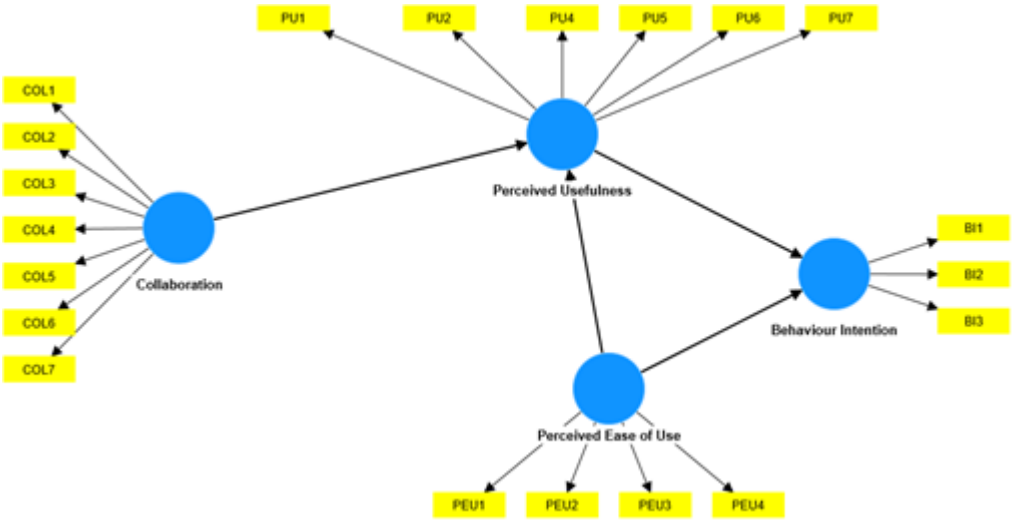

Figure 2: Structural Model of the study (author)

Table 1: Construct Reliability and Validity Parameters (Author)

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)
Behaviour Intention	0.88	0.884	0.881
Collaboration	0.891	0.898	0.889
Perceived Ease of Use	0.864	0.871	0.863
Perceived Usefulness	0.823	0.827	0.822

Table 2: Data Validity Assessments

	Behaviour Intention	E-government Collaboration	Perceived Ease of Use	Perceived Usefulness
Behaviour Intention				
E-government Collaboration	0.784			
Perceived Ease of Use	0.569	0.784		
Perceived Usefulness	0.76	0.87	0.864	

Table 3: Discriminant Validity (Author)

	Heterotrait-monotrait ratio (HTMT)
E-government Collaboration -> Behaviour Intention	0.784
Perceived Ease of Use -> Behaviour Intention	0.569
Perceived Ease of Use -> E-government Collaboration	0.784
Perceived Usefulness -> Behaviour Intention	0.76
Perceived Usefulness -> E-government Collaboration	0.87
Perceived Usefulness -> Perceived Ease of Use	0.864

The analysis of the model's power in testing hypotheses was performed using Q^2, and the results are shown in Table 4. The results show that all values are greater than zero, indicating that the model's strength allows it to forecast how the constructs relate to one another.

Table 4 shows the path analysis results, which include all hypotheses and their associated p-values. Figure 3 also depicts a snapshot of the final model.

Table 4: Q2 predictive relevance (Author)

	Q^2predict	RMSE	MAE
Behaviour Intention	0.395	0.803	0.598
Perceived Usefulness	0.637	0.615	0.44

Table 5: Path analysis results

Regression relationship	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
E-government Collaboration -> Perceived Usefulness	0.481	0.493	0.08	6.02	0
Perceived Ease of Use -> Behaviour Intention	0.063	0.047	0.131	0.484	0.629
Perceived Ease of Use -> Perceived Usefulness	0.403	0.399	0.08	5.019	0
Perceived Usefulness -> Behaviour Intention	0.602	0.622	0.11	5.482	0

S.E-Standard Error, ***P<0.05

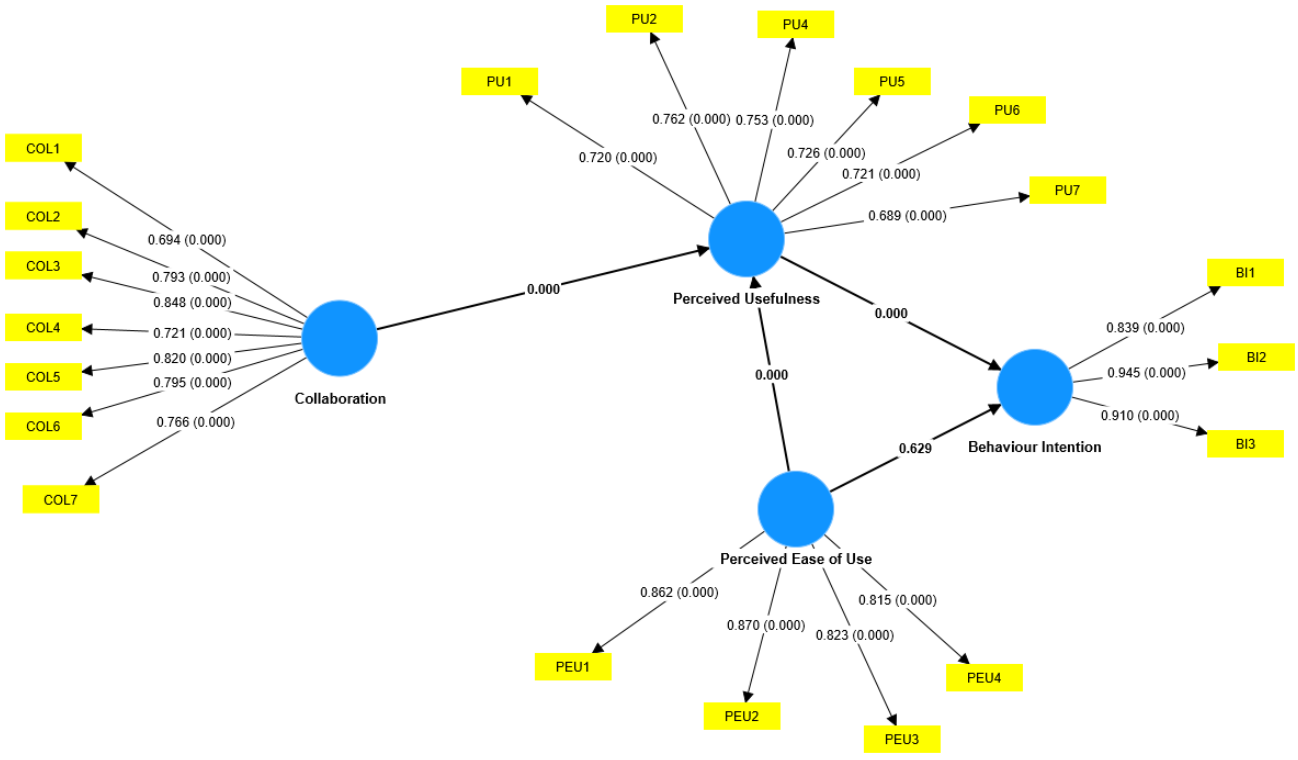

Figure 3: The final model of the study (Author)

A. The direct influence of Perceived Ease of Use on Perceived Usefulness (H1b)

This study put out the theory that citizens' opinions regarding the perceived utility of E-government were directly

impacted by how simple they thought it was to use. According to certain studies[5], there is evidence to support this claim about the use of e-government systems. The results of the investigation are shown in Table 5, which shows that H1b was statistically significant. This suggests that the theory has been verified.

B. The direct influence of Perceived Usefulness on Behavior Intention (H1c)

Table 5 indicates that Tanzanian citizens accepted the usefulness and intention of the behaviour of hypothesis H1c, which was found to be statistically significant as seen in Table 5. This implies that citizens' intentions to use e-government systems in the future are influenced by their perception of their usefulness.

C. Direct Influence of Perceived Ease of Use on Behaviour Intention (H1a)

According to the study, citizens' intentions to use e-government systems in the near future will eventually be influenced by their perception of how user-friendly they are. The study's findings, which are shown in Table 5 show that this hypothesis was not supported showing that citizens' intentions to use e-government tools, software, and technologies in the near future are do not have impact on the increase with the ease of use of e-government systems

D. Direct Influence of E-government Collaboration on Perceived Usefulness (H2a)

It was hypothesised that users' perceptions of e-government's usefulness would be influenced by the extent of collaboration existing on their usage. Using Table 5 as a reference, hypothesis H2a met statistical significance. Thus, this relationship is supported by the study.

VI. CRITICAL DISCUSSIONS

The use of technology in government service delivery to citizens has increased, making the adoption of e-government systems more crucial than ever in recent years. Investigating the problems surrounding the implementation of e-government from multiple perspectives is essential to enabling key stakeholders to fully utilize its potential. Collaboration within the e-government space is one of the most important factors that requires particular consideration whenever individuals are using e-government tools, platforms, or systems to obtain services from their governments. Through literature review and empirical investigation, this research offers a comprehensive picture of the relationship between E-government collaboration and TAM variables. The results of this investigation provide a solid basis for the theoretical models and the regulations that govern the country.

CONCLUSION

This research provides insights into e-government technology acceptance by Tanzanian citizens. It employed a survey involving 203 respondents where TAM was extended by E-government Collaboration to assess whether it has a significant impact to perceived usefulness. The hypotheses were tested through a survey where results showed that the e-government collaboration has a significant relationship with perceived usefulness of e-government systems in Tanzania. This research provides the basis for adjusting policy and regulations and a platform for researchers and scholars in the area of technology acceptance. Further research may focus on the assessment of other factors such as culture and conflict aspects on their impact to the way citizens access governmental services.

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