An E-government Readiness Assessment Framework for Ugandan Ministries

Sumaya, M. Kagoya[1] and Maiga Gilbert[2]

Abstract

E-government has become a trend norm globally for countries to survive economically. Most developed countries have made efforts to make their citizens aware and e-ready to adopt E-government and indeed have successfully reaped voluminous benefits from it. On the contrary, numerous developing countries like Uganda in a scuffle to achieve e-government, have found themselves just copying and pasting e-government projects from developed world without making their citizens e-ready for adoption, hence resulting to massive failure of such projects. Therefore, to reduce this knowledge vacuum, this study aimed at assessing e-government readiness in Ugandan Ministries and specifically proposing an e-government readiness assessment framework (EGRAF) to increase citizens' awareness, e-government readiness hence adoption among other benefits. Using a cross sectional survey design, quantitative data was gathered from purposively sampled technocrats in e-government from the three Ministries of ICT and guidance, Finance planning and economic development and Ministry of Works and transport using a structured questionnaire. Data was analysed using descriptive statistical Analysis with the aid of SPSS Version 21. Findings revealed that the study contributes to existing theoretical and empirical literature by adding an E-government Readiness Assessment framework for assessing the e-readiness in the Ugandan Ministries. This study offers useful implications to all stakeholders in e-government adoption and implementation.

Key words: E-government, E-readiness Assessment, Micro Levels, UTAUT

Introduction

The world has witnessed the birth of a new –E-government era *which is currently* sweeping through all corners of the world (United Nations E-government survey, 2018; Ifinedo, 2005), this has become a global phenomenon which has seen both industrialized (Most developed countries) and to lesser extent developing countries initiate E-Government strategies and projects (Schuppan, 2009). The MDCs are leading in e-government adoption and implementation, where by their implemented 70 % e-projects have achieved success (United Nations E-government survey, 2018; Kagoya & Mbamba, 2020). E-Government in developing countries is seen as a means of strengthening the performance of government and public administration for economic and social development, and would be a solution in sub-Saharan Africa, where public administration is characterized by inefficiency, limited capacity, and poorly trained personnel (Nabafu & Maiga; 2012; Schuppan, 2009). More so, numerous developing countries like Uganda in a scuffle to achieve e-government, have found themselves just copying and pasting e-government projects from developed world without making their citizens e-ready for adoption,

[1]Makerere University Business School-Uganda,
Email: skagoya@mubs.ac.ug
[2]Makerere University Kampala-Uganda,

hence resulting to massive failure of such projects (United Nations, 2016; Anthopoulos, 2016; Rabaai, 2017; Twizeyimana & Andersson, 2019).

Furthermore, over the last three years, a number of e-readiness assessment frameworks and tools have been developed by various individuals and organisations using a several indices and models (Nabavi, 2009; Vaez, Sattary, & Bimar, 2009; Kulkarni & Chaundhari, 2012). Some of these important organisations working in this field are those of Economic Co-operation and Development (OECD), World Information Technology and Services Alliance (WITSA) and Asian Pacific Economic Corporation (APEC) (OCED & WITSA, 1999; APEC, 2000) (Durek & Reðep, 2016; Nabavi, 2009). On the surface, most them emphasize on producing parameters/ indices and a general set of requirements like ICT access, usage, and applications among countries, however- the e-readiness needs of specific sectors and business organisations in many developing countries remain largely unknown (Molla, 2004; Kagoya & Mbamba, 2019). Therefore, to curb this knowledge vacuum, this study proposed E-government Readiness Assessment framework for assessing the e-readiness in the Ugandan Ministries. E-government readiness assessment framework is a valuable tool that can support governments in understanding the strategies and action plans of e-government. Similar to that, it is a useful exercise to raise awareness, recognize the opportunities and possible threats, and devise a plan for future prospects (United Nations, 2019).

E-readiness assessments are most handy when they have been tailored to fit the national context of a country and accepted as part of evaluation and benchmarking. More so, the e-readiness assessments offer a portrayal of the environment in which e-government development is ought to take place and proves the feasibility of the application in question (United Nations, 2018). The e-readiness assessments intend to establish the fragile or feeble areas in e-government so as to set counteractive measures in place to guarantee the success thereof. These assessments also aim, where necessary, in the implementation of e-government approaches in a specific public administration, update e-government strategies and action plans, and provide a monitoring tool for e-government projects (United Nations, 2018). According to Bhatnagar (2004) and Sodhi (2016), developing countries are increasingly trying to put e-Government on their economic agenda because of the apparent opportunities it promises for example providing opportunities for rapid economic development, addressing key barriers and challenges with regard to entering global economy and for future growth potential and facilitates improvements in productive capacity. It is worth noting that the Adoption rate of e-government has increased in most countries, however, this rate varies from country to country with less developed countries lagging behind in e-government adoption, which is contrary to most developed countries (United Nations, 2018). Uganda is one of the countries at the bottom among the developing countries at number one hundred and thirty-three (133) out of one hundred eighty-two (182) according to the United Nations' Global e-Government Readiness rankings (United Nations, 2018). Dutta and Mia (2011) stated that Uganda is ranked number 107 in the Networked Readiness Index 2010–2011.

Definition of Key Concepts

E-Government

E-government is where various governments endeavour to utilize the digital age to acclimatize service delivery to the public, rendezvous plus teamwork approaches (OECD, 2017a). E-

government is the utilization of Information Technologies to deliver services to the citizens by the government. It is aimed at reducing costs, ensuring timely and quality information, efficient and effective service delivery to citizens 24/7 a week without interruptions (Li & Shang, 2020; Kagoya, Maiga & Jani, 2019; Hujran, 2012). E-Government is a conduit through which the state interacts with its citizens (eCitizens and eServices), advances public service delivery and processes (eAdministration), and establishes outside connections (eSociety) (United Nations, 2016; Alshehri & Drew, 2010). Electronic government refers to the application of technology to convey merits for the users who can access government services. This embroils making extra transactions available online, making innovative applications on user-friendly websites (Chan, Yong & Harmizi., 2020; Violetta, *et al.,* 2018). In this study, we refer to e-government as the utilization of ICTs by smart public ministries, to enable citizens to get access to the electronic services throughout the year without technological disruptions.

E-readiness

Lou (2010) defined organisational e-readiness as *"a measure to which an organisation or business may be ready, prepared or willing to adopt, use and benefits arise from the digital economy such as e-procurement".* And assessment of e-readiness depends on assessed subjects (country, industry, or an enterprise), used technology, and the goal of implementation project. The e-readiness concept was originated by the intent to provide a unified framework to evaluate the breadth and depth of the digital divide between more and less developed or developing countries during the late part of 1990's (Lou *et al.,* 2020; Goulding *et al.,* 2019; Mutulaa & van Brakel, 2006). In this study, e-readiness refers to a state where the citizens in the government Ministries are in a state of being able to utilise the ICT systems available to access government services offered online. This is in line with the e-government vision 2030, to attain successful e-government adoption and implementation (United Nations E-government survey, 2018).

Theoretical Review

The Unified Theory of Acceptance and Use of Technology (UTAUT), which was crafted in 2003 by Venkatesh and Devis (Venkatesh *et al.,* 2016), supported this study. UTAUT stresses that that individual's behavioral intention to use a technology is swayed or persuaded by PE (Performance Expectancy), EE (Effort Expectancy), SI (Social Influence) plus FC (Facilitating Conditions). The argument for applying UTAUT is that it puts intonation on Information Technology usage, which is similarly stressed by e-Government readiness, hence being suitable for this paper. More so, UTAUT has been applied in voluminous studies of management information systems and ICT usage because of its suitability (Kagoya & Mkwizu, 2020; Masele, 2019, Mkwizu & Kagoya, 2019; Venkatesh *et al.,* 2012,). For example, using the UTAUT theory, Kagoya & Mwizu (2019) examined panelist sessions and PhD studies in Tanzania. The findings suggest that there was there is a significant positive relationship between ICT usage and panelist sessions and success in completion of PhD studies at the University of Dar es Salaam Business School.

Similarly, Masele (2019) used UTAUT in his study in e-business adoption in SMEs in Tanzania, found out that, if a firm is to adopt ICTs, the technology behind it has to be easy to use since it is intended for the users, which inculcate an individual/user's self-efficacy to use Green eBusiness, drivers that influence Intention to Use . In addition, his findings reveal that facilitating conditions availability were seen motivate the new adopters, whereas, the existence of coercive pressure

reinforces the "green" behaviors allied to use of IT plus electronic business. Radovan and Kristi (2017) used UTAUT to examine acceptance and use of Learning Management Systems (LMS) among higher education teachers in the context of online learning with findings showing that information of learning processes depend on characteristics of LMS tools and the perceived usefulness of the application. Therefore, in this study, the theory of UTAUT, which embraces information technology usage, guides the proposed E-government Readiness Assessment Framework for measuring the level of e-readiness at micro level in Ugandan Ministries.

Empirical Literature

E-government or digital government is vital to ultimate in servicing the digital societies and frugalities' needs and this is not an option any more but a must for good fortune and economic progress of any nation at the moment (OECD, 2017). Several studies have been conducted in the e-government field (Reddick, 2020; Kagoya & Mbamba, 2020; Almaiah & Nasereddin, 2020; Arayankalam *et al.,* 2020; Kagoya *et al.,* 2019; Li & Shang, 2020, Elkadi, 2013; Al-Hujran, 2012 Heeks, 2006, 2002). For instance, Al-Hujran (2012) in his study on e-government citizen adoption in developing countries reconnoitred factors that affected citizen adoption of e-services. Using Technological Acceptance Model, the findings revealed that there was a positive relationship between perceived trustworthiness, culture and perceived public value on one hand and citizen adoption on the other hand. Furthermore, nations must put a first choice in utilizing up to-date ICTS coupled with data so to and data to reconsider the existing designs and development procedures of the public services coupled with rules or policies, team up with outside stakeholders to deal with encounters and promote a culture of openness (OECD, 2018; Nam, 2018). All these, are aimed at attaining extra citizen motivated citizen-driven methods or slants, which targets users' needs, empowered human resource with not only new mind set, but also new competences in ample digital and leadership skills (OECD, 2018; 2014).

E-readiness at organisational level is vital given the fact that ready people are more proactive to engage in new technological changes, which in most cases make e-government implementation a success (Kagoya & Mbamba, 2020; Joseph *et al.,* 2018; Machova, 2016). E-readiness opens the way for the citizens to move with the government and enhances their trust that successively advances the economic efficiency and business. Therefore, eReadiness is turning into an accepted concept at the level of governments, organisations, and citizens (Shouran *et al.,* 2019). Al-eryani & Rashed (2012) asserted that the computer and Internet experiences increase the e-Government readiness, serve as media platform sources. Joseph and Olugbara (2018) asserted that the high impact of the technology infrastructure on eReadiness emphasizes that, technology is the main supply of modification and provides power for enabling the method of implementing e-Government initiatives. In the study conducted by Alkhaffaf and Abdullah (2017) in Iraq on technological readiness, the result envisaged that there is a significant positive relationship between technological readiness and the IT competencies of Iraqi accountants. This infers that, the technology readiness relating to willingness, enthusiasm, and motivation of accountants using IT has an impact on their IT competencies, which is agreement with study of Shouran, Rokhman and Priyambodo (2019). Furthermore, Masele (2019) contended that one of the perquisites for organisations and businesses like Small and Medium Enterprises, e-business adoption is the presence ICTs. Additionally, Mohungoo *et al.* (2020) assert that the hurdles to e-government implementation in both developing and least developed countries stem from poor ICT infrastructure, language impediments, and strong cultural and organisational barricades.

Conversely, the study findings reveal that lack of e-readiness among the end users (employees) of e-services in the Ugandan Ministries and absence on an assessment framework, are among the challenges of e-government implementation success in the Ugandan context, hence warranting this study to fill in this knowledge gap.

Shouran *et al.* (2019) suggest that aggregating more training skills and education level among the citizens absolutely upsurge the decentralization factor in an organisation. They further assert that there is a positive statistically significant relationship between technological readiness and the Information Technology competencies (computer skills), the technology readiness in terms of citizen willingness to adopt IT, e-commerce, coupled with citizen education levels. Joseph & Joseph and Olugbara (2018) jotted that the high impact of the technology infrastructure e-readiness accentuates or emphasizes technology triggers e-Government implementation, and this is in line with the study Kagoya and Mbamba (2020) who asserted that ICT infrastructure and Information system attributes have a statistically positive influence on e-government implementation in the Ugandan.

Their findings concluded that user participation attributes (attitude, willingness, experience, attitude, peer pressure and e-readiness) are the leading attributes, followed by Information system attributes and ICT Infrastructure attributes, for the e-government implementation success in Ugandan context. Conversely, some prior studies avert that citizen awareness is paramount when a country is to adopt e-government and this, will later aid them embrace it and later participate in the e- projects for implementation success (Dias, 2020; Kagoya *et al.,* 2019, Sichone & Mbamba, 2017). This implies that, lack of awareness about the benefits of e-Government remains a critical factor in user adoption in Least Developed Countries (Kagoya *et al.,* 2019). Previous researchers denote that up to date some sections of citizens in developing countries, Uganda inclusive, have inadequate awareness about e-government, which renders e-government projects implemented in such areas to fail since citizens are not e-ready (Shouran *et al.,* 2019; Kagoya, Mbamba & Sichone, 2019; Joshi & Islam, 2018; Mutimukwe *et al.*, 2017 Siddiquee, 2016; Azab *et al.,* 2009). For instance, Azab, Kamel and Dafoulas (2009) conducted a case study in Egypt using seventy-one respondents. They established a framework for e-government readiness assessment that comprised of technology, strategic planning, processes and people.

Basing on the above literature reviewed, a number of authors did a great work to state out the need for e-readiness (Vahidi, 2020; Khan *et al.,* 2020; Lou *et al.,* 2020; Wibowo & Pratomo, 2020), barriers to e-readiness adoption and way forward (Alabbadi &Al-Masaeed, 2020; Scott, 2020; Anggraini & Iqbal, 2020; Kirmizi & Kocaoglu, 2020; Hung *et al.,* 2014). However, these factors are from technological side (supply), macro levels and not less has been jotted on the citizen (demand side) which are at the micro levels (Kagoya *et al.,* 2019). More so, they are not consolidated to serve a specific context since each region or country in the world have different e-readiness assessment needs which suits it and Uganda is not exceptional (Kagoya & Mbamba, 2020; Chipembele & Bwalya, 2016). This study therefore, was motivated to fill this vacuum by proposing for an e-government assessment framework to help the Ugandan Ministries and Low developing and some developing countries with similar characteristics, to assess the level of their e-readiness. This in turn will result to successful e-government adoption by citizens and other users and successful implementation of e-government projects by the government (Reddick,

2020). Similarly, e-readiness assessment framework proposed in this study will act as a base line tool for judging the ICT effect, to replace wild claims and anecdotal evidence about the role of ICT in development with concrete data for comparison (Renu & Sameer, 2002; cited in Kagoya *et al.*, 2019).

Methodology of the Study

The study was conducted in the Uganda and specifically in the 3 Ugandan Ministries of ICT, Finance and Works. Using structured questionnaire was tested for reliability using Cronbach's Alpha, which was used to test for the reliability of all the parameters given in the subsections, for instance computer experience, Internet experience, e-commerce experience, e-government experience and the barriers to e-government Citizen Adoption as shown in the questionnaire. Using a cross sectional design, quantitative data was collected from 90 employees and 44 were answered well. The 44 respondents included staff from the three ministries (Managers, heads of departments, secretaries, and other employees). These were entered in SPSS version 21 and Principal component analysis was used for the analysis.

Table 1: Summary of Reliability Analysis Scale (Alpha)

	Cronbach's Alpha	Number of Items
E-government experience	.749	4
E-commerce experience	.778	6
Internet experience	.687	11
Computer experience	.523	4
Barriers to e-government adoption	.595	11

As per the summary of the reliability analysis scale in the Table 1, two constructs (E-government experience, and E-commerce experience) met the required level of Cronbach's Alpha since they were above 0.70 and three constructs were slightly below the required level as shown in the table above (.687, .595 and .523). For that matter therefore, the results from the questionnaire should be relied upon since the results in Table 1 represents a commonly acceptable level of reliability for research.

Validity of Research Constructs.

It should be noted that validity tests if the measuring instrument measures what it is intended to measure (Bond & Heene, 2020; Moulang, 2015). This study used factor analysis to work out convergent and discriminant validity using data that was collected from the field study and the principal component analysis with Varimax Rotation was executed. In addition, the pilot study were ten key e-government experts were given the questionnaire to get face validity, which is part of content validity. This was vital as it assisted in using the right tools and method that truly measured the constructs and their items or indicators (Heale & Twycross, 2015; Halperin & Heath, 2020).

Findings and Discussions

Socio-demographic information

In this study, data from the respondents on socio-demographic information conducted was analysed as envisaged in the Table 2. The results indicate that the highest frequency of respondents was 32 with a percentage of 72.7%, aged between 20-30 years old, most of whom

had bachelor's degree with 40.9% and 2.3% representing the minority with PhD degree. Similarly, the majority income level ranged 500000-900000shillings. And their age bracket was 20-30 years with at least a bachelor's degree were ready for e-government adoption and used part of their income which ranged from 500000-900000shillings to acquire and use computers and other internet technologies hence being ready to adopt e-government. Data from the respondents on age was analysed and findings revealed that 72.7% of the respondents who were the majority had age bracket of 20-30 years and were willing to use e-government services hence showing that Age is one of the major determinants in assessing the level of e-government readiness in the Ministries that were under study.

Data concerning Citizen's views about their income level was analysed and the results indicate that most respondents (44%) earned more than 900,000shs income, followed by (40%) ranging in between 500000-900000shs, (12%) earned between 200000-500000shs and the remaining percentage (4%) earned less than 200000shs income. This was related to the study objectives in that it enabled the researcher and her team to establish the relationship between the income level and the rate of citizen adoption to e-government. It was found that for a citizen (employee) to be able to surf on the Internet, buy a product on line, access e-government services online, he/she had to have enough income to acquire internet, purchase a computer, hence making the e-government readiness dependent on the level of income of a Ugandan citizen. The more income a citizen earns, the more chances and willingness he/she could afford to access personal computers, mobile Internet (modem) to be able to communicate online any time, conduct e-commerce hence being ready to adopt e-government. All in all, 44% of the respondents who were the majority earned more than 900000shs income and 95% of 44% of the respondents were willing to use e-government services hence showing that Income level is one of the major determinants in assessing the level of e-government readiness in the Ministries that were under study.

Table 2: Socio-demographic Information

		Frequency	Percent
Age	Less than 20	2	4.5%
	20-30	32	72.7%
	31-40	7	15.9%
	Above 40	3	6.8%
Level of education	Primary school	2	4.5%
	Secondary school	13	29.5%
	Bachelor's degree	18	40.9%
	Master's degree	8	18.2%
	PhD	1	2.3%
	Others	2	4.5%
Income level	<200,000	1	4.0%
	200,000-500,000	3	12.0%
	500,000-900,000	10	40.0%
	>900,000	11	44.0%

Computer Experience

Respondents' views on Computer experience for example ever worked on a computer, Place of computer usage, Frequency of computer usage daily, Main use of computer daily were analysed. Table 3 envisages both frequencies and percentages of the responses to the attributes which were suggested on Computer experience by the citizen of Uganda.

Table 3: **Computer Experience**

		Frequency	Percent
Ever worked on a computer	Yes	39	88.6%
	No	5	11.4%
Place of computer usage	Home	4	9.8%
	Work	10	24.4%
	School	9	22.0%
	Home- work- school	13	31.7%
	Home - work	4	9.8%
	Work- school	1	2.4%
Frequency of computer usage daily	<1 hr	5	14.3%
	1-3 hrs	13	37.1%
	4-10 hrs	10	28.6%
	>10 hrs	7	20.0%
Main use of computer daily	internet -email-browser-	24	60.0%
	office application -word processor -spreadsheets-database	5	12.5%
	games and entertainment	3	7.5%
	others	8	20.0%

The findings from the above Table 3 indicate that most people (88.6%) use the computer daily, between 4 – 10 hours (43.2%) and only 11.4% use the computer for less than 1 hour. In addition, 15.9% of the respondents use the computer for over 10 hours daily. The major use of a computer daily was for surfing Internet -email-browsing (60.0%) like news reading, find new products and others (20.0%), office applications (12.5%) and lastly for games and entertainment (7.5%). From the above analysis, most citizens who had high frequencies on computer experience or computer literacy were ready to adopt e-government. All in all, 84.1% of the respondents used the computer daily and 94% of 84.1% of the respondents were willing to use e-government services hence showing that compute experience is a major determinant in assessing the level of e-government readiness in the Ministries that were under study.

Internet experience

Respondents views on Internet experience for example internet usage, frequency of Internet usage, venue of Internet usage, monthly expenditure on Internet usage, main use of Internet were analysed as shown in the Table 4.

Table 4: Internet Experience

		Frequency	Percent
Have you ever used the internet	Yes	37	94.9%
	No	2	5.1%
Frequency of internet usage daily	<1 hour	11	30.6%
	1-3 hrs	9	25.0%
	3-6 hrs	9	25.0%
	>6 hrs	7	19.4%
Where internet is mainly used	Home	5	13.5%
	Work	10	27.0%
	Internet Café	7	18.9%
	School	6	16.2%
	Home and work	1	2.7%
	Others	8	21.6%
Estimation of monthly expenditure on internet	<2,000	10	27.0%
	2,000-5,000	7	18.9%
	5,000-10,000	5	13.5%
	>10,000	15	40.5%
Main use of internet	Email	5	13.5%
	information and knowledge search	30	81.1%
	others specify	2	5.4%

The results in Table 4 show that majority (94.9%) of the respondents had ever used the Internet and informed the researcher that they were ready to adopt e-government as per the survey and only 5.1% had never hence not ready for e-government adoption and these were the minority. On frequency of Internet usage daily, 30.6% used less than an hour, 25.0% used 1-3 hours, and 25.0% used 3-6hours, 19.4% used less than 6 hours daily. All in all, 94.9% of the respondents who were the majority had ever used the Internet and 99% of 94.9% of the respondents were willing to use e-government services hence showing that Internet Experience and its frequency of Internet usage daily are among the major determinants in assessing the level of e-government readiness in the Ministries that were under study.

Frequency of Internet usage daily

Data from the field study on frequency of Internet usage in terms of hours spent was collected and analysed. Findings show that the highest percentage (37.14%) of respondents shows that they used Internet daily for 1-3 hours, followed by 28.57% using 4-10 hours daily, 20% used less than 10 hours and the rest used less than 1 hour daily to get Internet services. It should be observed that citizens/ employees with the highest percentage (37.14%) of internet usage had more chances of being ready to adopt e-government and vice versa. All in all, 37.14%) of the respondents who were the majority used Internet daily for 1-3 hours and 92% of 37.14%) of the respondents were willing to use e-government services hence showing that Internet usage daily for a period of 1-3 hours are among the major determinants in assessing the level of e-government readiness in the Ministries that were under study. This is related to the study objective one in that it assisted in determining the requirements needed for e-government

readiness needs in Uganda. This calls for the Ugandan government to increase the campaign of Internet Usage daily for 1-3 hours daily amongst its citizens and lower the Internet costs, increase band width such that it becomes much easier not only to access 24/7 a week but also to afford it.

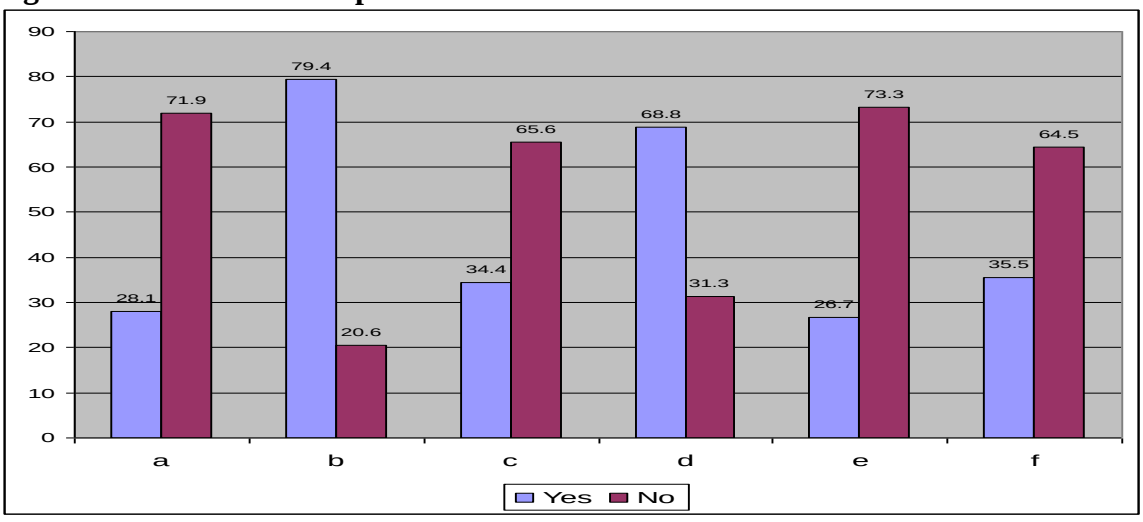
Main Place of Internet usage

The data from this study conducted about the place of Internet usage indicated was analysed and results indicate that most users, use the Internet mainly in at work (27%), followed by Internet café (18.92%), 13.6% at school / colleges/Universities, while 2.3% at both home and work and 18.2% used it in other places other than the above for example mobile internet while traveling in a car, aero-plane hence showing indicators of being e-ready to adopt government services online. All in all, 27% of the respondents who were the majority used Internet mainly at work and 97% of 27% of the respondents were willing to use e-government services hence showing that place of Internet usage is among the major determinants in assessing the level of e-government readiness in the Ministries that were under study.

E-Commerce experience

In this study, Respondents were asked to ascertain whether they had e– commerce experience. Respondents' questions were such that 1 represents Yes, 2 – No. The findings indicate that the majority respondents had never shopped on the Internet (No = 71.9%), most respondents had ever used the internet to find information about services and products (74.9%). The majority of the respondents had requested further information about certain products or service medium like internet (68.8%) and only 31.3% had not done it. Most of the respondents had not paid utilities' bills using any electronic medium like the internet (73.3%) and a few had done it with (26.7%). The majority of the respondents had not conducted e-commerce with the internet (64.5%) and the minority had conducted e-commerce (35.5%). All in all, 95% of 35.5 of the respondents who had ever conducted a transaction online were ready to adopt e-government services in future.

Figure 1: E-Commerce Experience



KEY

a. Shopping on Internet

b. Ever used the Internet to find information about services and products
c. Requested further information about certain products or service medium like internet
d. Paid utilities' bills using any electronic medium like the internet
e. Buying on internet (e-commerce)

e- Government public transaction experience

Here respondents were asked to comment on issues regarding the e- government experience items and they were required to choose either a yes , indicated by 1 or no (indicated by 2) as envisaged in the Table 5 below.

Table 5: **e- Government Public Transaction Experience**

		Frequency	**Percent**
Will you be required to perform any transactions with any public organisation in the near future?	Yes	32	84.2%
	No	6	15.8%
Total		38	100.0%

From the above results in table 5, it reveals that most respondents (84%) agreed that they will be required to perform any transacts with any public organisation in the near future and only a few (15.8%) disagreed. This implied that the majority were much willing to adopt e-government in the near future hence being able to increase on the adoption rate with the help of the proposed framework.

Number of times transactions are conducted annually with the public sector

From the results below, the biggest percentage of 46.67% had ever conducted transactions 5 times annually, followed by 30% with > 20 times, then 13.3% with 5-10 times and lastly 10% with 10-20 times. This implied that the majority respondents conducted transactions few times with annually with the public sector which enabled the researcher to determine the cause for this and get the possible solutions to increase on the number of times of respondents conducted transactions few times with annually with the public sector which increases the adoption rate too of e-government readiness assessment.

Table 6: Number of Times Transactions are Conducted Annually with the Public Sector

No of respondents who conducted annually with Public sector	**Number of times**	**Percentage**
14	< 5 times	46.67%
9	>20 times	30.0%
4	5-10 times	13.33%%
3	10-20 times	10.0%

Transactions with the public sector

In this study, the questionnaire extracted responses on a number of attributes proposed on how transactions with the public sector are mainly conducted by respondents in the Ministries. After data analysis, findings revealed that the highest percentage of 46.67% used face to face while conducting transactions with the public sector, followed by both face to face and by phone

(30%), then 20% used an agent to conduct transactions with the public sector and lastly 3.33% used phone only to conduct transactions with the public sector.

Table 7: Transactions Conducted with the Public Sector

Responses	Mode utilised	Percentage
14	Face to face	46.67%
9	Face to face & by phone	30.0%
6	Using an agent	20.0%
1	By phone	3.33%

E-government experience

In this study, the questionnaire extracted responses on a number of attributes proposed as e-government experience. Data from their responses on E-government experience was analysed as envisaged in the Table 8.

Table 8: E-government Awareness

		Frequency	Percent
Heard of e-government	Yes	19	46.3%
	No	22	53.7%
Being helpful to Uganda	Yes	27	77.1%
	No	8	22.9%
Willingness to use it	Yes	30	88.2%
	No	4	11.8%
Awareness of e-government initiatives in Uganda	Yes	9	30.0%
	No	21	70.0%

Results showed that half of respondents had generally never heard of e-Government before the time of the study (53%) nor were they aware of any e-government initiatives in Uganda and 46.3% had ever had of it. However, all the respondents they believed e-government adoption would be helpful to the Ugandan Citizens and they would be willing to use it (88.2%)**.** In relation to the objectives this study, these results are vital in that they were a basis of determining the requirements for e-government citizen adoption in Uganda and finding the obstacles for e-government adoption in Uganda. Since the majority, respondents had never heard of e-Government before the time of the study (53%), there is need for the Ugandan Government to embark on the campaign for Awareness of e-government initiatives, which will motivate respondents to willingly use it, which increases on the adoption rate, achieve its massive benefits as mentioned earlier in the previous chapters.

Barriers to e-government readiness adoption

In this study, the questionnaire extracted responses on a number of attributes proposed as barriers to e-government readiness adoption by respondents. The findings indicate that the respondents believe that the poor infrastructure and technologies (96.7%), inadequate of Skilled IT Staff (90.6%) and (90.6%) and Lack of funding (90.3%), are all great challenges to the implementation of e-governance projects in the Ugandan Ministries. Other challenges were; Lack of IT Skills, lack of users ' Trust and Confidence and a lack of Security.

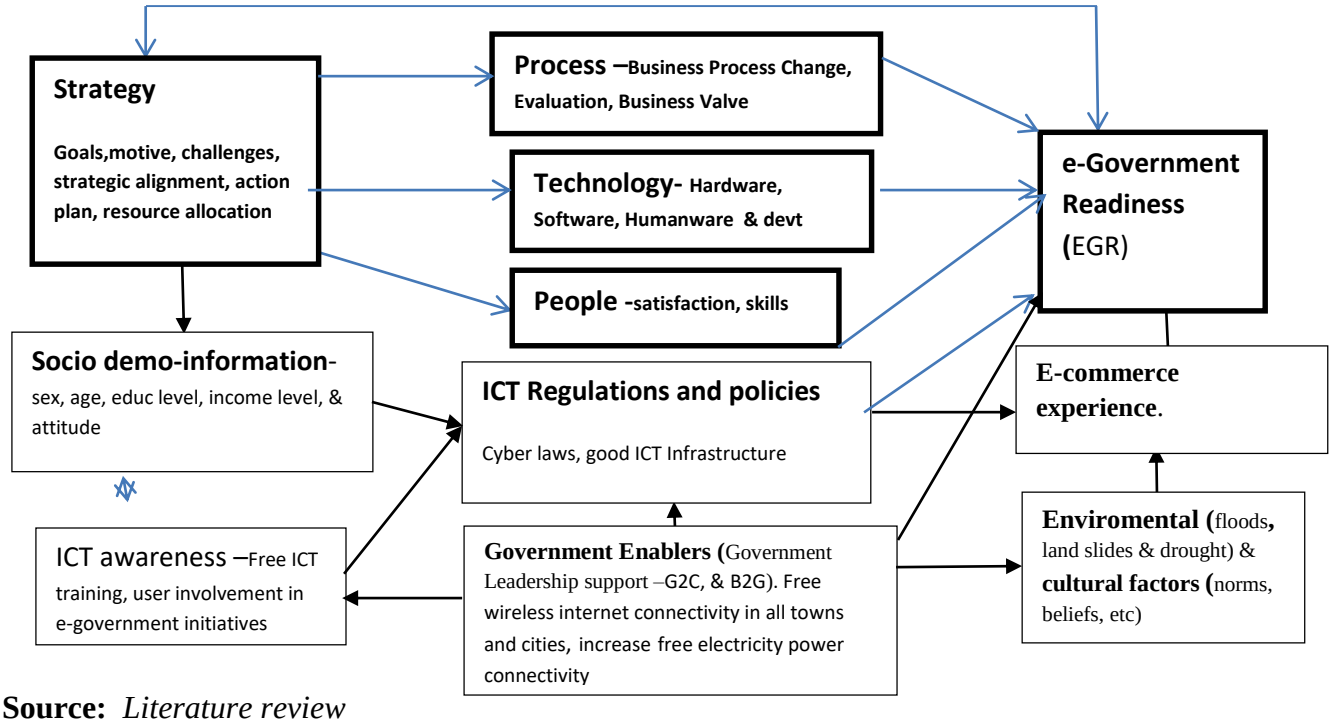
Table 9: Barriers to e-Government Readiness Adoption

Barrier	High relevance (%)	Low relevance (%)
Inadequate of skilled IT staff	90.6	9.4
Lack of IT skills, awareness and motivation	83.3	16.7
Lack of users' trust & confidence	90	10
Lack of security	87.1	12.9
Poor infrastructure & technologies	96.7	3.3
Lack funding	90.3	0.7
Poor marketing campaigns	78.1	21.9
Lack of legislation and laws	80	20
Lack of administrative commitment & support	87.1	12.9
Internet & computer costs	87.1	12.9
Poor project management skills	83.9	16.1

A Proposed framework for E-government Readiness Assessment for Uganda

Throughout the literature, the following significant e-readiness indicators were identified. These indicators will act as requirements for developing a comprehensive e-government readiness assessment framework for Uganda. E-Government Readiness Assessment Framework (EGRAF) for Uganda adopted is an extension of Azab *et al.* (2009) framework and in addition to the parameters above the EGRAF added six parameters among which includes, ICT Policies and Regulations, Socio demographic Information, Environment, Government enablers and E-commerce experience including (Computer experience, Internet experience, and e-Government experience) which suits the Ugandan situation according to e-Government experts in Uganda.

Figure 2: E-Government Readiness Assessment Framework for Uganda (EGRAF)



Source: *Literature review*

Reasons for adopting the AZAB's E-readiness Assessment Framework

This framework is necessary since it focuses on the main internal factors in the assessment of e-government organisational readiness in developing countries and how they lead to successful e-government adoption. This is in the same line with the researcher's study of e-government assessment framework in Ugandan Ministries of ICT and National Guidance, Finance planning and economic development and Works and transport. as current ones ignore challenges that arise due to organisational transformation issues stemming from diffusion of Information and Communication Technologies ICTs.

This study adopts an e-government framework to highlight the main internal factors involved in the assessment of e-government organisational readiness and to examine how these factors lead to successful, organisational e-government readiness. Azab's framework was chosen by the researcher in addition to other parameters like socio- demographic Information, e-commerce, e-government enablers, ICT Awareness, ICT policies and regulations, because it integrates seven dimensions for evaluating organisational e-government readiness including e-government strategy, user access, e-government programs, portal architecture, business processes, ICT infrastructure, and human resources. Azab's integrated e-government framework for assessing the e-readiness of government organisations was adopted by the researcher due to the fact that most assessment models are more appropriate for the assessment of the overall growth of e-government in each country; they are not focusing on the difficulties that exist in the internal factors affecting transformation of a government organisation caused by ICT diffusion. Most of these frameworks disregard the vision of external stakeholders and employees, although they represent the basis in the success of any e-government project.

More so, the knowledge obtained from this framework, offered valuable insights to ICT managers for effectively assessing the e-government readiness of organisations to facilitate the success of e-government programs in the three Ministries mentioned in the scope. Azab's framework helped the researcher to complete the previous work chiefly in the literature review and the processes dimension. Finally, the framework aided the researcher, her team and e-government experts in the three ministries under study to manage and effectively assess organisational e-readiness to improve the effectiveness of e-government initiatives in Uganda. The knowledge got from Azab's framework in addition to others, enabled the experts and other stakeholders to test the relations of the various parameters or factors in an emerging e-government environment using the three Ministries of ICT, Finance and Works a case study which was an essential step in the process of testing the framework for e-government readiness in Uganda.

Conclusion, Implications and Recommendations

This research developed an e-government readiness assessment framework for Ugandan Ministries government organisations in particular and Low Developed Countries in general. Unlike the previous e-government literature that focuses predominantly on technical issues and utilizes general e-government readiness framework (macro-level), this study contributes an organisational perspective at micro level for assessing e-government readiness that incorporates pertinent factors to an e-government context. The proposed E-government Readiness Assessment Framework (EGRAF) encompasses nine parameters of e-government readiness assessment for

government Ministries including e-government strategy, government enablers, e-commerce experience (computer/ internet/e-government experiences), socio-demographic information, environment, business process and information systems, ICT infrastructure, human resources, and ICT Awareness.

This study offers useful implications to e-government decision makers, ICT mangers, ICT specialists and suppliers in the public sector by providing insights geared towards improving business decision-making, and expanding competitive advantage from effective e-government services. It equips key stakeholders with a framework that could be applied in performing regular assessment of e-government readiness to identify and provide suitable solutions. Ministries/organisations assigned responsibility for assessing e-government readiness will refer to this framework as a useful reserve during the e-government project implementation projects as asserted by the experts who validated it. The proposed framework for assessing e-government ICT readiness will decrease difficulty associated with ineffective e-government strategies in the public sector through understanding the important e-government dimensions highlighted in the proposed framework.

Overall, this study empowers Uganda in fussy (particular) and other LDCs government Ministries in broad-spectrum with ample resource pertaining to e-government organisational e-government readiness and provides a comprehensive assessment methodology to guide agencies self-assessments. It is worth noting that whilst this researcher's contributions are constructive, supplementary research is obligatory. The proposed framework offered tiles the way for potential quantitative empirical research to test the framework in other government organisations and departments. Conclusively, this study is a vital conceptual trample in discovering pertinent or relatable features from Ugandan Ministries or organisational angle for assessing e-government readiness in e-government adoption and implementation perspective.

Recommendations

Therefore, based on the research findings the following recommendations are made to the Low Developed Countries in general and Uganda in particular through their Ministries and other interested stakeholders to use this as a guide to improve e-Government readiness for their citizens.

E-government Enablers

Users perceive risks concerning security and privacy issues that could discourage the use of online services. It is vital to ensure that users can transact on-line securely and their personal information will be kept confidential to increase the level of trust and the e-Government adoption rate. The government of Uganda should be acquainted with the fact that e-Government adoption highly depends on user perceptions of how securely they can transact online and whether their personal information is protected hence the need to establish state-of-the-art security infrastructure. The government should introduce a secure electronic credential (username/password) system called e-Pass to facilitate communication with online government services. In addition to entering username and password, users are prompted to input an activation code, which is sent by ground mail to the user to ensure privacy and authenticate user identity.

E-commerce Experience

As regards e-commerce experience, the researcher recommends that the Ugandan government should endeavour to put the following in place: basic infrastructure and technology (speed, pricing, access, market competition, industry standards, foreign investment), access to network services (bandwidth, industry diversity, export controls, credit card regulation), use of the Internet (use in business, government, homes), promotion and facilitation (industry led standards), skills and human resources (ICT education, workforce), and positioning for the digital economy (taxes and tariffs, industry self-regulation, government regulations, consumer trust).

E-Infrastructure: If the objective is on E-Infrastructure then the focus should be on organisations, hardware and software. Here e-readiness equals computers and access –computer hardware and network access are required to be e-ready and bridge the digital divide, and government and private initiatives should supply them.

Internet Experience

The government of Uganda through its ministries should ensure that its citizens have enough the internet experience to make them e-ready to adopt e-government, Social-demographic information (age, education level, and income level). The government of Uganda through its Ministries should ensure that the educational system (primary, secondary, tertiary and all colleges) integrate ICTs into its processes hence making citizens e-ready by improve learning and promote e-government adoption. Since the majority of the Ugandan citizens live below the poverty line, the government should put free technical training programs in the community that can train and prepare an ICT workforce.

E-government Awareness

Based on findings, a number of people are not aware of the e-government services and hence they not e- ready to adopt what they do not know. Therefore, this study recommends the government of Uganda to make massive consistent awareness among the citizens of Uganda. This can be done via various commonly known communication channels like radios, Televisions, government websites, Phone messages, tweeter, WhatsApp, to name it. These will increase on the rate of e-government awareness and adoption.

This study recommends the government of Uganda through its Ministries should strive to address the above mentioned barriers to e-government adoption in Table 9, starting from the most critical/ severe (poor ICT infrastructure and technologies) to the less severe (poor marketing campaigns). This will help to increase on the levels of citizen e-readiness, hence e-government adoption and implementation. This will also aid in the promotion of ICT usage; enhance Internet connectivity in Uganda in both urban and rural areas. It will also boost public-private partnerships; develop and strengthen the nation-wide backbone; enhance universal access and rural telephone networks. Furthermore, human resource development (University education, research and technology support networks, introduction of and making ICTs / computer skills compulsory from primary to University/tertiary levels (Zhang *et al.,* 2020; Wong *et al.,* 2020); and regulation (liberalizing ICT sectors), as supported by Economic Commission for Africa (2005).

References

Alabbadi, H., & Al-Masaeed, S. (2020). The impact of e-readiness on strategic flexibility. *International Journal of Management and Enterprise Development*, *19*(3), 257-272.

Al-eryani, A., & Rashed, A. (2012). The Impact Of The Culture On The E-readiness For E-Government In Developing Countries (YEMEN). In *The 13th International Arab Conference on Information Technology ACIT 2012 Dec. 10* (13).

Al-Hujran, O. (2012). Toward the utilization of m-Government services in developing countries: a qualitative investigation. *International Journal of Business and Social Science*, *3*(5), 155-160.

Alkhaffaf, H. H. K., & Abdullah, A. (2017). "The Influence of Cognitive Factors on Information Technology Competencies Among Accountants in Civil Conflict Environment ," *International Journal of Computer Applications* (0975 – 8887), 2(2): 13–30.

Almaiah, M. A., & Nasereddin, Y. (2020). Factors influencing the adoption of e-government services among Jordanian citizens. *Electronic Government, An International Journal*, *16*(3), 236-259.

Alshehri, M., & Drew, S. (2010). Challenges of e-government services adoption in Saudi Arabia from an e-ready citizen perspective. *World Academy of Science, Engineering and Technology*, *66*, 1053-1059.

Anggraini, A. T., & Iqbal, M. (2020). The Uttilization of Jogja Smart Service Application: an E-Readiness Approach. *Journal of Governance and Public Policy*, *7*(2), 150-159.

Anthopoulos, L., Reddick, C. G., Giannakidou, I., & Mavridis, N. 2016. "Why e-government projects fail? An analysis of the Healthcare.gov website," *Government Information Quarterly* (33:1), 161-173.

Arayankalam, J., Khan, A., & Krishnan, S. (2020). How to deal with corruption? Examining the roles of e-government maturity, government administrative effectiveness, and virtual social networks diffusion. *International Journal of Information Management*, 102203.

Azab, N. A., Kamel, S. & Dafoulas, G. (2009). A Suggested Framework for Assessing Electronic Government Readiness in Egypt. *Electronic Journal of e-Government* 7(2), 11–28.

Bhatnagar, S. (2004). E-Government: From vision to implementation: A practical guide with case studies, ed.: *Sage Publications*,9(4), 202-217.

Bond, T., Yan, Z., & Heene, M. (2020). *Applying the Rasch model: Fundamental measurement in the human sciences*. Routledge.

Chan, T. J., Yong, W. K., & Harmizi, A. (2020). Usage of WhatsApp and Interpersonal Communication Skills among Private University Students. *Journal of Arts & Social Sciences*, *3*(2), 15-25.

Chipembele, M., & Bwalya, K. J. (2016). Assessing e-readiness of the Copperbelt University, Zambia: Case study. *The International Journal of Information and Learning Technology*. 33(5), 315-332. https://doi.org/10.1108/IJILT-12-2015-0036

Dias, G. P. (2020). Global e-government development: besides the relative wealth of countries, do policies matter?, *Transforming Government: People, Process and Policy*. 14(3), 381-400. https://doi.org/10.1108/TG-12-2019-0125

Dutta, S., Mia, I., & Geiger, T. (2010). The networked readiness index 2010–2011: Celebrating 10 years of assessing networked readiness. *The global information technology report, 2011*, 3-32.

Durek, V., & Reðep, N. B. (2016). Review on e-readiness assessment tools. In *Central European Conference on Information and Intelligent Systems* (p. 161). Faculty of Organization and Informatics, University of Zagreb Pavlinska 2, 42000, Varazdin-Croatia

Economic Commission for Africa (2005), "The status and impacts of development of national and regional ICT policies, plans and strategies", *paper presented at 4thMeeting of the Committee on Development Information* (CODI IV), Addis Ababa, Ethiopia, 23-28 April 2005.

Elkadi, H. (2013). Success and Failure Factors foe E-government Projects. *Egyptian Informatics Journal*, 165-173.

Goulding, J., Lou, E., & Lee, A. (2019). E-readiness in construction (ERiC): self-assessment framework for UK small and medium enterprise building services providers.

Ifinedo, P. (2005). "E-government Initiative in a Developing Country: Strategies and Implementation in Nigeria". In Head, M. (Ed.), *Proceedings of the 26th McMaster World Congress on Electronic Business*, Hamilton, Ontario, Canada, January 19-21, 1-11.

Halperin, S., & Heath, O. (2020). *Political research: methods and practical skills*. Oxford University Press, USA.

Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-based nursing*, *18*(3), 66-67

Heeks, R. (2002). e-Government in Africa: Promise and practice. *Information polity*, *7*(2, 3), 97-114.

Heeks, R. (2006). Health Information Systems: Failure, Success and Improvisation. *International Journal of Medical Informatics*, 75(2), 125-137.

Hujran, O. (2012). E-government Adoption in Developing Countries: A user- Centric Perspective. *LAP Lambert Academic Publishing*, German. ISBN:3659161500 9783659161506.

Hung, W. H., Chang, L. M., Lin, C. P., & Hsiao, C. H. (2014). E-readiness of website acceptance and implementation in SMEs. *Computers in Human Behavior*, *40*, 44-55.

Joseph, S., & Olugbara, O. O. (2018). Evaluation of municipal e-government readiness using structural equation modelling technique. *TD: The Journal for Transdisciplinary Research in Southern Africa*, *14*(1), 1-10.

Joshi, P. R., & Islam, S. (2018). E-Government Maturity Model for Sustainable E-Government Services from the Perspective of Developing Countries. *Sustainability*, *10*(6), 1882.

Kagoya, M. S., Maiga, G., & Jani, D. (2019). An E-government Readiness Assessment Framework for Uganda. *14th ORSEA Conference Proceedings* November 2018-Tanzania.

Kagoya, M. S., & Mkwizu, H, K. (2020). ICT Usage in Panelist Sessions to Enhance Completion of PhD Studies in Public Universities – Study of Uganda and Tanzania. *ATLAS Tourism and Leisure Review*, Vol 2020(1), ISSN 2468–6719, pp 63-73

Kagoya,M,S., Mbamba, U,O., & Sichone, J. (2019). Key Attributes to E-government Implementation In Uganda. A case study of Ugandan Ministries. *ICAESB conference proceedings*: 2019- Tanzania.

Kagoya. M.S., & Mbamba, U.O. (2019). User Participation Approach to E-government Implementation Success in Uganda Ministries. *15th ORSEA conference paper –Uganda*.

Kagoya, M.S., & Mbamba, O, L. (2020). "*User participation approach, Key attributes and E-government implementation in Uganda"*. A review paper in GUA, 2020. (22-37).

Khan, M., Khurram, D. S., & Zubair, D. S. S. (2020). Societal e-readiness for e-governance adaptability in Pakistan. *Pakistan Journal of Commerce and Social Sciences*, *14*(1), 273-299.

Kirmizi, M., & Kocaoglu, B. (2020). The key for success in enterprise information systems projects: development of a novel ERP readiness assessment method and a case study. *Enterprise Information Systems*, *14*(1), 1-37.

Kulkarni, R. A., & Chaudhari, P. R. (2012). A Readiness Assessment Framework for e-Governance in Universities in Maharashtra. *Journal of Commerce and Management Thought*, *3*(3), 480-485.

Li, Y., & Shang, H. (2020). "Service quality, perceived value, and citizens' continuous-use intention regarding e-government: Empirical evidence from China." *Information & Management* 57(3): 103-197.

Lou, E. C., Lee, A., & Goulding, J. (2020). E-readiness in construction (ERiC): self-assessment framework for UK small and medium enterprise building services providers. *Architectural Engineering and Design Management*, *16*(1), 3-22.

Lou, E. C. (2010, September). E-readiness: how ready are UK construction organizations to adopt IT. In *Proc. 26th Annual ARCOM Conference* (pp. 6-8).

Machova, R. (2016). "The Assessment of E-Government Readiness in the Globalization Process," Glob. Its Socio Economic Consequences, *16Th Int. Sci. Conf.* Proceedings, Pts I-V, no. January, pp. 1244–1251.

Masele, J. J. (2019). "Modeling Green eBusiness Adoption among Small and Medium Tourism Enterprises in Tanzania," *The African Journal of Information Systems*: 11(3), 4.

Mohungoo, I., Brown, I., & Kabanda, S. (2020, April). A Systematic Review of Implementation Challenges in Public E-Procurement. In *Conference on e-Business, e-Services and e-Society* (pp. 46-58). Springer, Cham.

Mkwizu, K., & Kagoya. M.S. (2019). "Panelist Sessions and Ph.D. Studies: UTAUT approach*." Inter. J. Res. Methodol. Soc. Sci*., 5(2); 49-57. (Apr. – Jun. 2019); ISSN: 2415-0371. DOI: 10.5281/zenodo.3334935.

Molla. A, (2004). *The impact of eReadiness on eCommerce Success in Developing Countries: Firm-Level Evidence.* Development Informatics, Working Paper Series, No 18/2004, Institute for Development Policy Management, University of Manchester.

Moulang, C. (2015). Performance measurement system use in generating psychological empowerment and individual creativity. *Accounting & Finance*, *55*(2), 519-544.

Mutimukwe, C., Kolkowska, E., & Grönlund, Å. (2017, September). Trusting and adopting e-government services in developing countries? Privacy concerns and practices in rwanda. In *International Conference on Electronic Government* (pp. 324-335). Springer, Cham.

Mutula, S. (2013). E-government Divide: Implications for Sub-Saharan Africa. *Information Ethics for Africa: Cross-Cutting Themes*, 59-69.

Nabafu, R. & Maiga, G. (2012). A Model of Success Factors for Implementing Local E-government In Uganda. *Electronic Journal of e-Government*, 10(1), 31-46.

Nabavi, A. & Davidrajuh, R. (2009). *"Designing an assessment tool for measuring e-ReadinessofIraniancompanies"*, available at: https://brage.bibsys.no/xmlui//bitstream/handle/11250/181630/1/Designing%20an%20

assessment%20tool%20for%20measuring%20ereadiness%20of%20Iranian%20ICT%20companies.pdf (accessed 15 March 2018).

Nam, T. (2018). Examining the anti-corruption effect of e-government and the moderating effect of national culture: A cross-country study. *Government Information Quarterly*, *35*(2), 273-282.

OECD. (2014). *Recommendation of the Council on Digital Government Strategies*, OECD, Paris, www.oecd.org/gov/digital-government/Recommendation-digitalgovernmentstrategies.pdf (accessed 12 July 2018).

OECD. (2018). *OECD Science, Technology and Innovation Outlook 2018*. OECD Publishing.

OECD. (2017). Towards Effective Open Government Reforms in Kazakhstan, *OECD Governance Review*, Paris.

Rabaai, A. A. (2017). The use of UTAUT to investigate the adoption of e-government in Jordan: a cultural perspective. *International Journal of Business Information Systems*, *24*(3), 285-315.

Reddick, C. G. (2020). Handbook of Research on Strategies for Local E-Government Adoption and Implementation: Comparative Studies (2 Volumes). *Open Government*, 2580.

Renu, B. & Sameer, S. (2002). "E-Readiness Assessment" (Internet), www.mit.gov.in/eg/ereadiness.doc. 18th. May, 2002.

Schuppan, T. (2009). E-Government in developing countries: Experiences from sub-Saharan Africa. *Government information quarterly*, *26*(1), 118-127.

Scott, H., Baglee, D., O'Brien, R., & Potts, R. (2020). An investigation of acceptance and e-readiness for the application of virtual reality and augmented reality technologies to maintenance training in the manufacturing industry. *International Journal of Mechatronics and Manufacturing Systems*, *13*(1), 39-58.

Shouran, Z., Rokhman, N., & Priyambodo, T. K. (2019). Measuring the eGovernment Readiness: Proposed Framework. *International Journal of Computer Applications*, *975*, 8887.

Sichone, J., & Mbamba, U.O.L. (2017). *The Influence Of Administrative Aspects And Users'Attributes On E-Government Implementation Success In Tanzania. Users' Perspectives*. http://hdl.handle.net/20.500.11810/4681.

Siddiquee, N. A. (2016). E-government and transformation of service delivery in developing countries. *Transforming Government: People, Process and Policy*. 10(3):368-390 DOI: 10.1108/TG-09-2015-0039.

Sodhi, I. S. (2016). E-government in China: Status, challenges, and progress. In *Trends, prospects, and challenges in Asian e-governance* (pp. 36-54). IGI Global.

Twizeyimana, J. D., & Andersson, A. (2019). The public value of E-Government–A literature review. *Government Information Quarterly*, *36*(2), 167-178.

United Nations *E-Government Survey report.* (2018). Accessed on January, 30, 2019 at https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2018-Survey/E-Government%20Survey%202018_FINAL%20for%20web.pdf.

United Nations. (2019). *Sustainable Development Goal 16: Focus on Public institutions*, World Public Sector Report 2019, Department of Economic and Social Affairs, New York.

United Nations. (2016). *United Nations E-Government Survey 2016*, Available from http://www.unpan.org/egovkb/global_reports/08report.htm

Vaez, S, K., & Sattary, H., & Bimar, I. (2009). Comparsion of e-readiness assessment models; *scientific research and essay*. 4(5): 501-512.

Vahidi, H. (2020). Designing a Domestic E-readiness Assessment Model for the Deployment of Mobile Learning. *Interdisciplinary Journal of Virtual Learning in Medical Sciences*, *4*(1), 1-10.

Venkatesh, V., Chan, F. K. Y., & Thong, J. Y. L. (2012). Designing e-government services: Key Service Attributes and Citizens‟ Preference Structures. Journal of Operations Management, 30(1–2), 116-133. doi: http://dx.doi.org/10.1016/j.jom.2011.10.001.

Venkatesh, V., Thong, J.Y.L., & Xu, X. (2016). Unified Theory of Acceptance and Use of Technology: A Synthesis and the Road Ahead. *Journal of Association Information Systems*, *17*(5), 328-376.

Violetta, S. M., Evgeniya, V. V., & Irina, I. P. (2018). Operating E-Commercial Market Framework in Terms of Tourist Destination. *Revista ESPACIOS*. ISSN 0798 1015, 39(34), 1-7.

Wibowo, T. S., & Pratomo, I. (2020, February). Analysis of Malang City readiness in realizing Smart Tourism with new integrated E-Readiness model. In *2020 International Conference on Smart Technology and Applications (ICoSTA)* (pp. 1-6). IEEE.

Wong, G. K. W., & Cheung, H. Y. (2020). Exploring children's perceptions of developing twenty-first century skills through computational thinking and programming. *Interactive Learning Environments*, *28*(4), 438-450.

Zhang, L., Nouri, J., & Rolandsson, L. (2020, February). Progression of Computational Thinking skills in Swedish compulsory schools with block-based programming. In *Proceedings of the Twenty-Second Australasian Computing Education Conference* (pp. 66-75).