


A Framework for Enhancing the Adoption of E-Tax Services in Tanzania

Daniel Deogratus, Makerere University, Kampala, Uganda

Gilbert Maiga, Makerere University, Kampala, Uganda

Emmanuel Eilu, Uganda Christian University, Mukono, Uganda & Mbale University College, Mbale, Uganda

 <https://orcid.org/0000-0002-2482-0535>

ABSTRACT

Domestic revenue collection through taxation is still below its potential in many developing countries. There have been concerted efforts to improve domestic revenue mobilization in many developing countries using ICT. However, since the use of ICT in taxation in developing countries is still relatively a new phenomenon, models and frameworks that can best guide the adoption of an e-tax service in a developing country context are lacking. Therefore, in this article, the authors investigated requirements for enhancing e-tax service adoption in a typical developing country like Tanzania. Requirements for enhancing e-tax service adoption were first elicited through literature review and validated using questionnaires and an interview guide. The requirements for enhancing e-tax adoption were used to extend TOE framework developed by Tornatzky and Fleischer in 1990. This article, therefore, presents a model that supports electronic tax services adoption in a typical developing country like Tanzania

KEYWORDS

E-Tax, Framework, Tanzania

INTRODUCTION

In recent years, there have been concerted efforts to change policy on domestic revenue mobilization in many developing countries (Mascagni et al., 2014). Currently, governments in developing countries collect much lower proportions of their GDPs in tax revenue than the governments of the OECD countries. A report from the African Development Bank Group (2011) indicates that domestic revenue collection through taxation is still below its potential in many Sub-Saharan African Countries. Their tax effort indices (that is, revenue collections relative to estimated revenue potentials) are also lower than those of the OECD countries (10-20% rather than 30-40%) (Mascagni et al., 2014). This means that, although the revenue potential is high, the actual revenue collected is very low. While a few Sub-Saharan African countries can raise 15% or slightly more domestic revenue, very many countries still do not raise the necessary amount of resources to allow for sound functioning of domestic institutions and basic service delivery (Baunsgaard & Keen, 2010). As a result of low domestic revenue, high poverty level, malnutrition, vulnerability to natural disasters amongst others have been registered in these countries (Baunsgaard & Keen, 2010).

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However, despite the huge domestic revenue disparity, Experts do agree that there is considerable potential to increase tax revenue in developing countries (Mascagni et al., 2014). Many developing countries have begun exploring different strategies on how to increase domestic revenue collected, and this has been done through a wave of several tax administration reforms carried out across the sub-Saharan African countries. These tax reforms range from the establishment of autonomous revenue authorities, simplification of the tax payment systems, widening the tax base, to the creation of new tax policies. However, much of the significant reforms have generally been centered on the use of information and communication technology (ICT) to improve the efficiency and effectiveness of the tax bodies (Eilu, 2018). This reform has been driven by the rapid growth of the telecom industry and the Internet. There are a number of ongoing efforts to exploit the benefits of Information and Communication Technology in enhancing efficiency and effectiveness in tax administration with the aim of increasing domestic revenue collected in Africa (Eilu, 2018). In the next section, this paper reviews related literature on a number of ongoing efforts in deploying Information and Communication Technology in tax administration in developing countries, and more particularly in Tanzania.

LITERATURE REVIEW ON E-TAX ADOPTION

The use of ICT in tax administration is normally referred to as electronic Tax service (e-Tax service). By way of its definition, Dehghantanha and Dinara (2010) look at an e-tax service as a web-based application that allows a user to view, modify and submit tax filing online. E-Taxation can also be defined broadly as means of trans-organizational processes with data transfer (upload and download) between the taxpayers and the tax authorities using an IT system (Makolm & Orthofer, 2009). These data transactions can be in form of online income and other tax return filing and payment services, online filing and assessment of tax returns, electronic funds transfer to enable tax payments and refunds (Chatfield, 2009). The overall aim of the e-tax service or system is to replace cumbersome manual and bureaucratic service systems with collaborative, efficient, process-driven and secure online delivery service which boosts domestic revenue collection (Mukesh, 2009).

Besides its overall aim, there are various benefits which can be gained from using electronic tax service. For example, implementing electronic tax service in a revenue authority enables faster and cheaper electronic transaction between the government and taxpayers (Saha, 2008). Electronic tax service, if well deployed, transforms the bureaucratic tax public administration into a modern efficient and effective citizen-centric “service” organization (Chatfield, 2009). Electronic tax service also facilitates easy communication between clients and the authority in the aspect of helping the clients have access to the service without time and location boundaries (Von Frankenhorst & Kaiser, 2008).

Tanzania is one of the developing countries that has greatly benefited from electronic tax service deployment. The government of Tanzania recognized the necessity of ICT in the development process and decided to deploy ICT in the revenue sector (Yonazi, 2010). Adoption of electronic service in Tanzania revenue authority can be traced back in 1997. Since then, a number of ICT aided tax services have been deployed. Some of these systems include the following;

- ITAX -which is an integrated modular system for taxation with an open source database, which can handle all types of taxes. iTAX supports the revenue authority in registration, assessment, collection, accounting, debt management, auditing, tax monitoring, and reporting (Seelmann et al., 2011)
- The Automated System for Customs Data (ASYCUDA) is a computerized system designed by the United Nations Conference on Trade and Development (UNCTAD) to administer a country’s customs
- Computerized Motor Vehicle Registration System and Computerised Driver’s License System;
- Electronic Fiscal Device (EFD) is a machine designed for use in business for efficient management traces the economic activities of every business organization for tax purposes and report to TRA, thus ensuring an accurate approximation of tax returns.

All these systems were internally implemented with the major aim of improving the services of the Tanzania Revenue Authority. The following table summarises more of the services provided by Tanzania Revenue Authority (TRA) and the channel used to provide the service to the clients.

A number of successes have been registered as a result of the introduction of the various e-tax services in Tanzania. For example, according to Eilu (2018), the electronic tax collection through banks has enabled the Tanzania Revenue Authority to reduce operational costs by a high margin, and at the same time improve efficiency in the payment system. The system has minimized settlement risks and eliminated floats between Commercial Banks and the Central Bank. Since the introduction of the system of payment through banks, 97 percent of total revenue collection is settled under interbank arrangements (Eilu, 2018). A study conducted by Siraji in 2015 in Tanzania revealed that 60.0% of the Electronic Fiscal Devices EFD users agreed that the use of EFD is more reliable and fast way of their tax assessment compared to the manual data processing method and that 79.4% of the EDF users agreed that the Electronic Fiscal Device (EFD) is very instrumental in record keeping and tax collection.

However, Asianzu and Maiga (2012) observe that, despite the benefits of an electronic tax service, the system still faces numerous challenges in its adoption, in that its uptake and use amongst taxpayers in developing countries has been low. In developing countries, including Tanzania, taxpayers have limited internet resources that can facilitate the use of electronic tax filing system. There is limited internet access, low network speeds, power shortages and system failures, shortage of well-qualified ICT professionals, no ICT master plan, and the electronic system can be quite slow, highly priced and unreliable (United Republic of Tanzania, 2003; Yonazi, 2010; Asianzu & Maiga, 2012; Eilu, 2018). In Tanzania, EDF users decried of high EDF prices. The average cost of an EDF, when ordered online from China, is 100, 000 TZ Shs (about 45 USD), however, the prices of EDFs in Tanzania is between 600,000 to 800,000 (270-360 USD), that is, six to eight times more (Siraji, 2015). EDF users also complained that there was little education campaign given to the new EFD by TRA, no technical support is given, and that it takes a long time to enter transactional information into the EDF (Siraji, 2015).

Since the use of ICT in taxation in developing countries is still relatively a new phenomenon, the models that can best guide the adoption of an e-tax service in a developing country context are lacking (Lippert & Govindarajulu, 2006). Generally, the adoption of new information technology has been widely researched and there are several theories have been forwarded. In the next section, we briefly discuss and illustrate a number of technology adoption models that have emerged over time.

Technology Adoption Models

Theory Reasoned Action (TRA)

TRA is the theoretical model which was proposed by Fishbien and Ajzen in the year 1975. Fishbien and Ajzen suggested that the person's actual behavior could be determined by considering his or her prior intention along with the belief that the person would have for the given behavior. They referred to the intention that a person has prior to actual behavior as the behavioral intention of that person, and define it as the measure of one's intention to perform the behavior. "Behavior intention could be determined by considering both the attitude that a person has toward actual behavior, and the subjective norms associated with the behavior in question" (Fishbein & Ajzen, 1975).

Theory of Planned Behavior (TPB)

This theory was forwarded by Ajzen in 1985, TPB posits that individual behavior is driven by behavioral intentions where behavioral intentions are a function of an individual's attitude toward the behavior, the subjective norms surrounding the performance of the behavior, and the individual's perception of the ease with which the behavior can be performed (behavioral control) (Ajzen, 1985). It is determined through an assessment of one's beliefs regarding the consequences arising from a behavior and an evaluation of the desirability of these consequences. Formally, overall attitude can

Figure 1. Theory of reasoned action model (Fishbein & Ajzen, 1975)

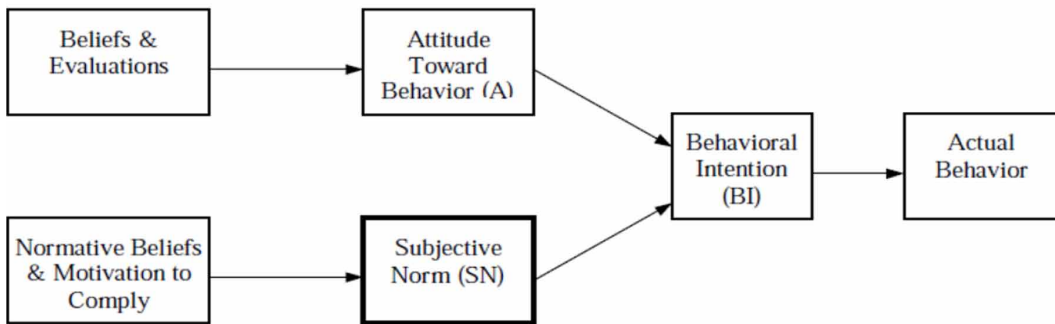
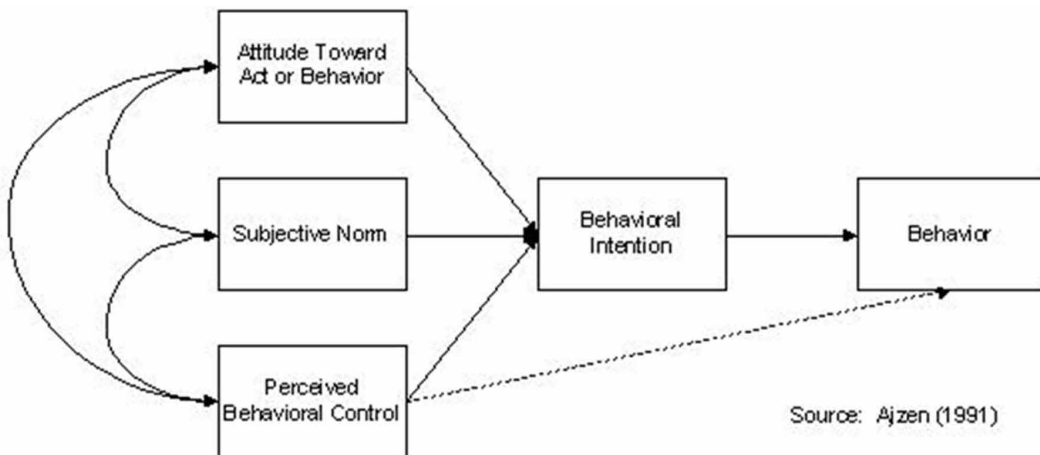


Figure 2. Theory of planned behavior (Ajzen, 1985)



be assessed as the sum of the individual consequence x desirability assessments for all expected consequences of the behavior. Subjective norm is defined as an individual’s perception of whether people important to the individual think the behavior should be performed. The contribution of the opinion of any given referent is weighted by the motivation that an individual has to comply with the wishes of that referent. Hence, the overall subjective norm can be expressed as the sum of the individual perception x motivation assessments for all relevant referents. Behavioral control is defined as one’s perception of the difficulty of performing a behavior (Ajzen, 1985).

Technology Acceptance Model (TAM)

First introduced by Davis in 1989, Technology acceptance Models (TAM) is one of the most used models in electronic commerce (Wu & Wang, 2005). Technology Acceptance Model (TAM) is based on Theory of Reasoning Action (TRA), which suggests that social behavior is motivated by the attitude and intention to perform (Mathieson, 1991). TAM posits that perceived usefulness and perceived ease of use determine an individual’s intention to use a system with the intention to use serving as a mediator of actual system use. According to (Davis, 1989) Technology acceptance model (TAM) is defined as a theoretical foundation to explain and predict individual acceptance of information technology. In 1989, Fred Davis proposed the technology acceptance model in his Doctoral thesis at

the MIT Sloan School of Management. “Perceived usefulness (PU) means that the users think that it is beneficial to use the technology in completing his/her work; Perceived Easy Use (PEU) is how the users perceive the easy using the technology”. Davis (1989) suggest that user’s motivation can be explained by three factors: perceived ease of use, perceived usefulness, and Attitude toward the System.

Social Cognitive Theory (SCT)

The social cognitive theory provides a framework for understanding, predicting, and changing human behavior. The theory identifies human behavior as an interaction of personal factors (P), behavior (B), and the environment (E) (Bandura, 1977; Bandura & Cervone, 1986). In the model, the interaction between the person and behavior involves the influences of a person’s thoughts and actions. The interaction between the person and the environment involves human beliefs and cognitive competencies that are developed and modified by social influences and structures within the environment. The third interaction, between the environment and behavior, involves a person’s behavior determining the aspects of their environment and in turn, their behavior is modified by that environment. In conclusion, the social cognitive theory is helpful for understanding and predicting both individual and group behavior and identifying methods in which behavior can be modified or changed.

Technology-Organization-Environment Framework (TOE Framework)

The process by which a firm adopts and implements technological innovations is influenced by the technological context, the organizational context, and the environmental context (Tornatzky &

Figure 3. Technology acceptance model (TAM) (Davis, 1989)

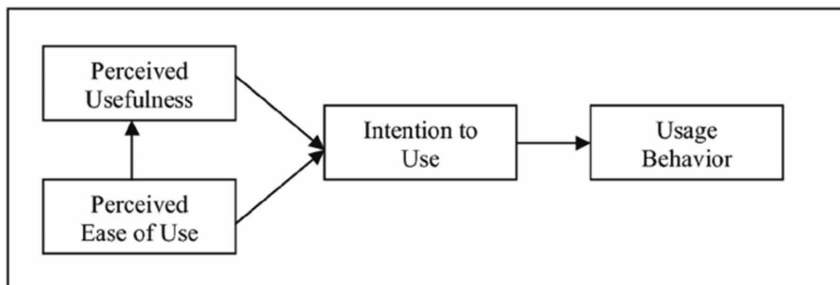
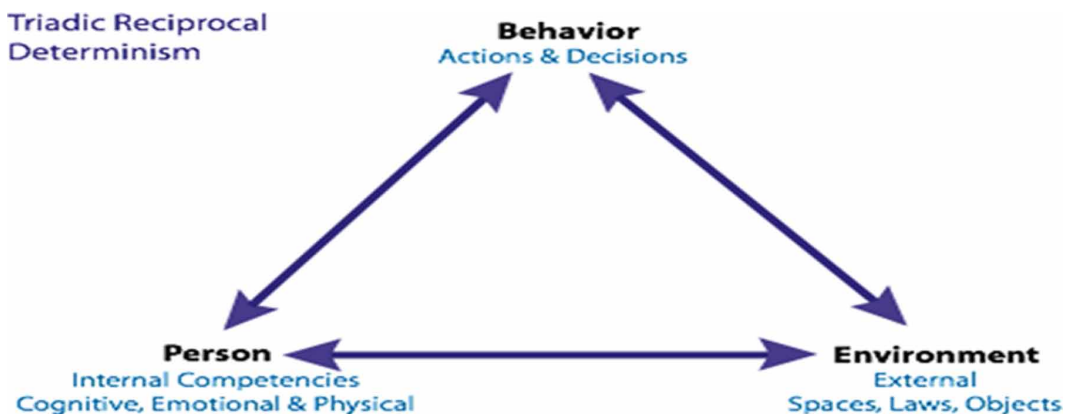


Figure 4. Social cognitive theory (Bandura & Cervone, 1986)



Fleischer, 1990). The technological context includes the internal and external technologies that are relevant to the firm. Technologies may include both types of equipment as well as processes.

The organizational context refers to the characteristics and resources of the firm, including the firm’s size, the degree of centralization, the degree of formalization, managerial structure, human resources, amount of slack resources, and linkages among employees.

The environmental context includes the size and structure of the industry, the firm’s competitors, the macroeconomic context, and the regulatory environment (Tornatzky & Fleischer, 1990). These three elements present “both constraints and opportunities for technological innovation” (Tornatzky & Fleischer, 1990). Thus, these three elements influence the way a firm sees the need for, searches for, and adopts new technology.

As discussed above, theories and models such as Theory Reasoned Action (TRA) proposed by Fishbien and Ajzen in the year 1975, the Theory of Planned Behavior (TPB) forwarded by (Ajzen, 1985), Technology Acceptance Model (TAM) (Davis, 1989), Social Cognitive Theory (SCT) (Bandura, 1977; Bandura & Cervone, 1986), Technology-Organization-Environment Framework (TOE) (Tornatzky & Fleischer, 1990) among others are very useful for adopting new information and communication technology. However, all these models have their limitations as well. In Table 2, we highlight some of the limitations of each of the theories and models discussed above.

Besides the individual weaknesses of the theories in Table 1, in their individual capacities, these theories do not provide an all-around solution for adopting new technology in a developing country like Tanzania with diverse technological, economic and political dynamics. These models, as Yonazi (2010) explains, do not reflect the situation in developing countries. Therefore, there is a need to understand the adoption dynamics of electronic tax systems in a developing country and identify the factors that can influence the decision to use or not use these electronic tax-filing systems.

Therefore, in this paper, we investigate factors for successful adoptions of e-tax services and present a model that supports electronic tax services adoption in a typical developing country like Tanzania. We took in Tanzania as a typical developing country of study and Tanzania Revenue Authority as our case study. In order to effectively carry out this study, this research was guided by the following research questions.

Figure 5. Technology-organization-environment framework Source: Tornatzky & Fleischer, 1990

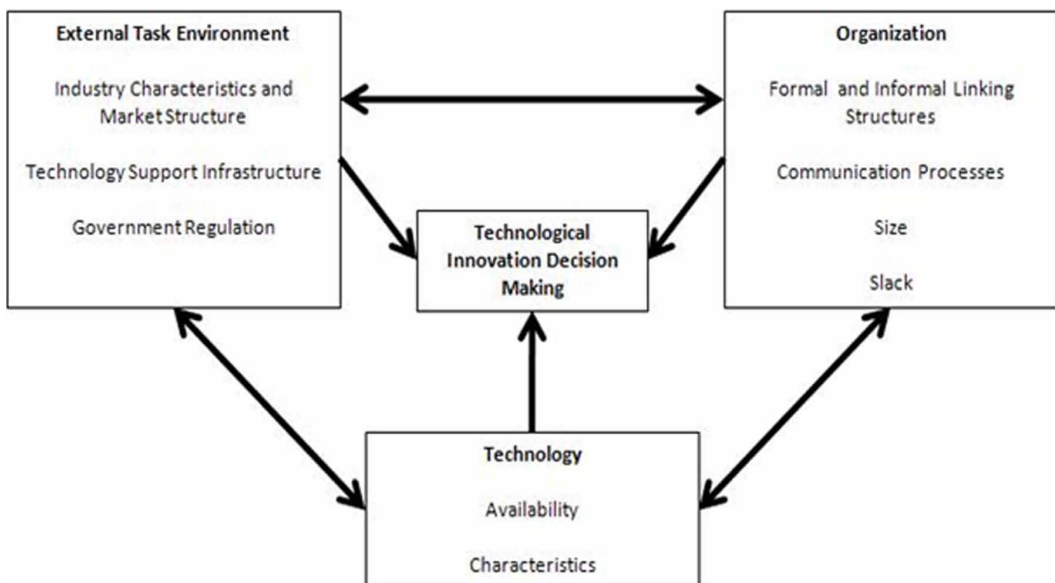


Table 1. Summary of some tax service in TRA and the mode of provision

Service Provided	Manual (Office interaction)	Semi Electronic (Download form)	Electronic (fill online)
Driving Permit Application	Yes	Yes	
VAT Application for Registration,	Yes	Yes	Yes
TIN Application	Yes	Yes	Yes
Calculation of PAYE			Yes
Custom License application	Yes	yes	Yes
Domestic Tax payment	Yes	Yes	Yes
Pre-Arrival Declaration	Yes	Yes	Yes
Transfer of revenue to Bank of Tanzania	Yes	Yes	
Customs forms	Yes	Yes	
Tax Exemption & Tax Consultant Application	Yes	Yes	

Source: TRA, 2012

Table 2. Limitations of the adoption theories

Model	Strength	Weakness
TRA	Explain human behavior toward the system (Davis, Bagozzi, & Warshaw, 1989)	Does not specify the silent behavior that is operated for particular behavior (Davis et al., 1989)
TPB	Provides a complete explanation of individual behavior (Musiime & Ramadhan, 2011)	It analyses group of behaviors more (i.e. more than one behavior)
TAM	It basically explains computer usage behavior, it also uses TRA as theoretical basis for relationship of main constructs (Davis, 1989)	Does not accommodate roles of surrounding people in influencing behavior, does not consider individual differences in behaving, does not consider person ability to actualize their intention (Musiime & Ramadhan, 2011).
SCT	Help to understand and predict both individual and group behavior and identify method which behavior can be changed (Bandura & Cervone, 1986).	The theory lack biological process to explain behavior (Jones, 1989).
TOE Framework	Emphasis on how Technology Organization and environment have impact on influence the way a firm sees the need for searches for and adopts new technology (Tornatzky & Fleischer, 1990)	It does not provide concrete model describing the factors that influence the organizational adoption decision; it rather provides taxonomy for classifying adoption factors in their respective context (Bose & Luo, 2011).

RESEARCH QUESTION

1. What factors influence the successful adoption e-tax services adoption in Tanzania?
2. How do these factors translate to a theoretical model for e-tax service adoption in Tanzania?
3. How can the proposed theoretical model be evaluated to establish e-tax services adoption in Tanzania?

METHODOLOGY

This section describes the methods that were used to address the research questions of the study. Two methods were majorly used in this study as discussed below

Literature Review

The literature review was one of the methods used for identifying the research gap and to elicit requirements for adopting e-tax services in developing countries. Yonazi (2010) forwarded a number of factors for the successful deployment of e-government initiatives in developing countries. These factors were used to design survey questionnaires for the survey study. The factors include; Trust, Training, Awareness, Benefits, Skills and Education, Digital Divide, System Usability, Funds Availability, Electronic Payment Systems, Financial Institution Engagement.

Survey

The survey method was used to validate and supplement factors for successful adoption e-tax services in developing countries elicited from the literature. These factors were used to develop a model for e-tax services adoption in Tanzania. The target population for the field study was identified mainly within the Tax Payers Association of Tanzania (TATA) and at the Tanzania Revenue Authority (TRA). Probability sampling method was used, where every unit in the population had a chance of being selected in the sample using simple random sampling. This method is useful in that it gives equal chances to all respondents identified in the study both at TATA and TRA. The major data collection tools that were used in this study included quantitative data collection tool such as questionnaires. The questionnaire was pretested with 15 respondents. Out of a total of 300 (three hundred) respondents who were given the questionnaires, 267 (two hundred sixty-seven) returned valid filled questionnaires showing a response rate of 89%. The data collected was then categorized, quantified, coded and arranged in themes with respect to the objectives of the study using frequency tables and bar charts in sections following. Data analysis was done using statistical package for social sciences (SPSS).

Validity of the Research Constructs

Validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are. Factor analysis was conducted to examine convergent and discriminant validity using SPSS. Factor analysis is statistically used to determine the correlation among variables in a dataset and provides a structure to group variables based on strong correlations helping to detect misfit variables. Principal Component Analysis was used with Varimax Kaiser Normalization as it considers all the available variance. Convergent validity indicates the degree to which the items that are measuring the same construct are correlated. Discriminant validity, on the other hand, is indicated by the degree to which the variables on the factors are distinct and uncorrelated. The validation also involved measuring the communality, that is, the extent to which a factor correlates with all the other factors and if the communality of a variable is low (0.0-.04), that variable will struggle to load significantly on any factor.

FINDINGS OF THE STUDY

Requirements for E-Tax Services Adoption in Tanzania

The results presented in this section are from the analysis of the data collected through the questionnaires that were administered to TATA and TRA respondents. Out of 300 respondents, 267 respondents returned correctly filled questionnaires. Data was collected, categorized, quantified, coded and entered into SPSS.

Demographic Characteristics of the Population

Data on the demographic characteristics of the population was collected about gender distribution, age, working experience and interaction experience, of the people interacting with Tanzania revenue authority (clients and staff). The following section presents detailed descriptive statistics of the respondents' demographic factors.

Gender distribution

Background information of the respondents basing on Gender as shown in Table 3, it was observed that the total respondents were 267 in which 58.43% were Male while 41.57% of the respondents were comprised by female. From the research finding most of the respondent was Male side that was highly available on the field.

Age Group

Age group is one of the aspects of respondents’ background information that research was looking for when conducting research. As shown in Figure 6, it was discovered that of all the respondents 3.4% aged above 50 years old, 13.5% was below 20 years, 15.7% of the respondents were between 41-50 years old and the large number of the population of the respondents was 40.4% which was made of people between 31-40 years old.

Factors for successful adoption of E-tax in Tanzania

Using requirements elicited from literature, questionnaires were design based on a Likert scale of 5 (i.e. strongly agree, agree, not sure, disagree, and strongly disagree). During the analysis, strongly agree and agree were aggregated as agree, while disagree, and strongly disagree were aggregated as disagree. Based on this, respondents were asked about their level of agreement with each of the requirements on the questionnaire and the results are presented below.

During the field study, 30 questionnaires were handed out Tanzania Revenue Authority officials in Dar es Salaam, especially those official tax collection office. Another 270 questionnaires were given out to Small and Medium Scale businesses within the central business district in Dar es Salaam. First, the researchers needed to find out the extent skill and education influenced the successful adoptions of e-tax by posing the following question “How significant is prior skill and knowledge in using computer a determinant for the successful adoption of e-tax?” The research finding showed

Table 3. Gender distribution of the study population

	Frequency	Percent
Male	156	58.4
Female	111	41.6
Total	267	100.0

Figure 6. Age group distribution of the study population

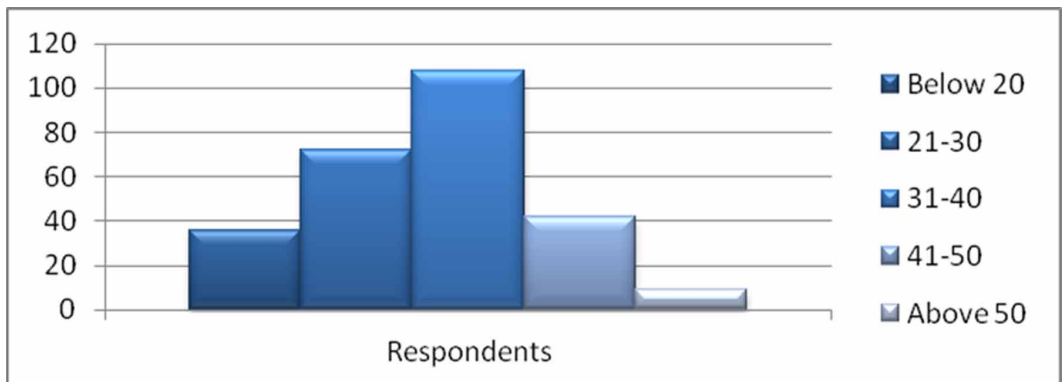
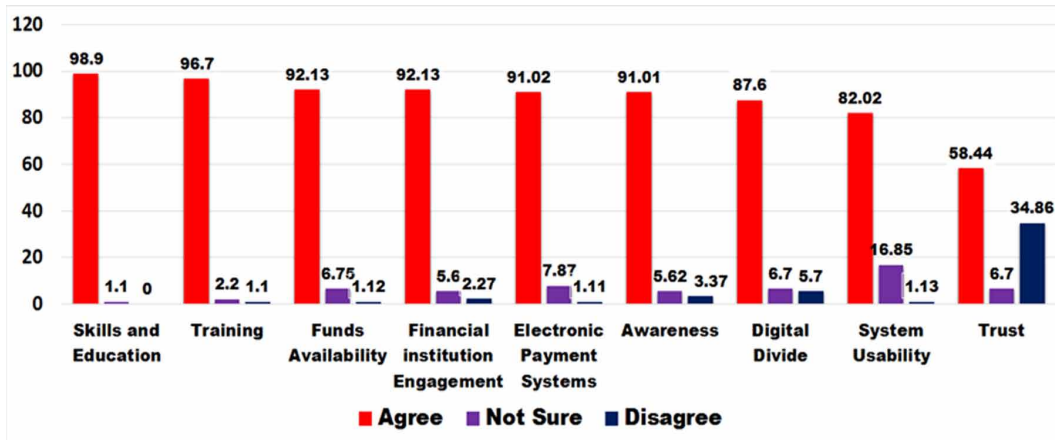


Figure 7. Factors for successful adoption of e-tax in Tanzania



that 98.9% of the respondents agreed that prior skill and knowledge in using computer is very significant for users to use the e-tax systems. Besides having prior skill and knowledge on how to use a computer, the researchers also wanted to find out the relevance of training to the successful adoption of e-tax service. Training was the second most important requirement for the adoption of e-tax service in Tanzania. The research findings show that 96.7% of the total respondents strongly Agreed that training users on how to use the e-tax service provided by TRA will enable them to use the service. Just like any other systems, there is need for adequate funding both at the initial stages of the project and during maintenance. From the study, 92.13% of the respondents hinted that funding was a key aspect for e-tax adoption. According to the research finding it was also discovered that 92.13% of the respondents strongly agreed that having a Tailor-made system that links three stakeholders (Financial institutions, TRA, and Clients) will facilitate easy adoption of the system compared to how it is right at the moment. The research finding found that ePS will facilitate easy Transaction between TRA and its clients which will facilitate e-tax usage. It is 91.02% of the total respondents Strongly Agreed that ePS facilitate easy Transactions which will facilitate electronic tax adoption. Other important requirements for the adoption of e-tax in Tanzania included; Awareness (91.01%), Digital divide (87.6%), systems usability (82.02) and Trust (58.44%)

DISCUSSION OF THE FINDINGS

Requirements for the E-Tax Service Adoption Model

From the field study, the results in figures identified the following factors as requirements for the e-tax adoption in Tanzania. These factors are discussed in relation to e-tax and they include the following:

1. Skills and Education
2. Training
3. Funds Availability
4. Financial institution Engagement
5. Electronic Payment Systems
6. Awareness
7. Digital Divide
8. System Usability
9. Trust

1. **Skilled Personnel (Education):** Yonazi (2010) observes that there is a clear shortage of skilled personnel to implement and support the functioning of the electronic systems in Tanzania. Therefore, for a successful implementing and adoption of e-tax services, it is important for one to take into consideration the availability of skilled personnel. Eilu (2018a) observes that, for any e-tax service initiative to succeed, emphasis should be put on sensitisation, education and training programmes. This helps to inform all stakeholders on how to use e-tax services and the benefits of the service to the taxpayer and to the government. The research finding shows that skilled users/personnel was the most important requirement for adoption an e-tax service- a view shared by 98.9% of the respondents.
2. **User Training:** The second most important requirement for adopting e-tax service is training for the user. Training should be done to both clients and the employees. The training will allow users to be familiar with what is to be implemented and how it will help them in accomplishing their daily works. User training on how the e-tax system works contributes to high acceptance and usage levels. Finding from research revealed that training is the second most important requirement for successful adoption of e-tax service in Tanzania representing 96.7%.
3. **Funds and Financial Institutions Engagements:** The third most important requirement for the successful adoption of e-tax service in Tanzania is the availability of Funds and Financial institution engagement. There is a need to mobilize enough funds to support adoption of electronic tax project from the start to the end. On the other hand, financial institutions engaged in e-tax transaction can provide a link between Government and taxpayer, this can be done through a tailor-made system that can link financial institutions, revenue authority and Clients Bank account. Research finding shows that 92.13% of the respondents acknowledged the relevance of Funds availability facilitate easy electronic tax adoption and financial institutional engagement.
4. **ePayment Systems:** Payment Systems will facilitate easy transactions between Tanzania Revenue and its Clients. In Tanzania, the most common electronic payment method is through mobile phones, which sometimes become very hard and complicate to use due to chains of process which one need to pass before completing payment. It is important that a payment system is put in place to facilitate easy transaction between revenue authority and customers. According to research findings, 91.02% of the total respondents agreed that ePS facilitate easy Transactions which will facilitate electronic tax adoption.
5. **Awareness:** If potential users are not aware of online services, the service will be under-utilized. Therefore, creating awareness among both clients and revenue workers about the electronic tax services should be given maximum priority. The finding shows that 91.1% of the respondents said that creating awareness of the e-tax system and its benefits would enable easy adoption of the system.
6. **Digital Divide:** Yonazi (2010) observes that only 15% of the population in Tanzania in 2005 had access to ICT. A nationally representative ICT Survey in 2017 completed by Research ICT Africa (RIA) found out that 43% of Tanzanian population does not own a mobile phone (RIA, 2018). This means that there is a wide digital divide. Therefore, there is need to narrow the digital divide gap in Tanzania. The study shows that 87.6% of respondents agreed that narrowing the digital divide gap would definitely boost high levels of e-tax service adoption in Tanzania.
7. **Usability:** It means making products and systems easier to use, and matching them more closely to user needs and requirements. Currently, there are very few challenges with the usability of the EDFs in Tanzania. A study carried out by Kapera (2017) in Tanzania found out that the EDFs were usable and reliable in the collection of tax. From the study, 82.02% of the respondents agreed that usability of the e-tax –service is very important if the service is to be widely adopted.
8. **Trust:** Trust is the amount of confidence a user has about the system. Some issues of trust need to be addressed for e-tax adoption in Tanzania such as; confidentiality of user information, integrity of the e-tax systems, reliable network connections, authentication of users and ensuring availability of the e-tax system. However, there was no serious concerns on trust because trust in

the ICT systems in Tanzania have been boosted by the reliability of the mobile phone services provided by the various telecom companies. Such services include; mobile money and all its associated mobile payment services. This explains why the trust factor in this study scored the list representing 58.44%.

A MODEL FOR ENHANCING ADOPTION OF E-TAX SERVICE

This part presents information on the model design starting with the theoretical contribution of TOE, requirements for designing the model and the actual design of the model using UML Use Cases. The following is the presentation of use case for e-tax adoption model.

Theoretical Contribution of TOE by Tornatzky and Fleisher (1990)

Earlier in this paper, a number of adoption theories were identified and discussed. These theories included Theory Reasoned Action (TRA) proposed by Fishbien and Ajzen in the year 1975, the Theory of Planned Behavior (TPB) forwarded by (Ajzen, 1985), Technology Acceptance Model (TAM) (Davis, 1989), Social Cognitive Theory (SCT) (Bandura, 1977; Bandura & Cervone, 1986), and Technology-Organization-Environment Framework (TOE) (Tornatzky & Fleischer, 1990). As a result of the diverse and unique technological, economic and political dynamics in developing countries like Tanzania, in their individual capacities and within the context of Tanzania, these theories do not provide an all-around solution. In Table 2, we highlight some of the limitations of each of the theories. However, one of the most flexible and widely used models to adopt for implementing an ICT project is the TOE model forwarded by Tornatzky and Fleisher in 1990. Compared to other models and theories discussed earlier, the TOE theory has been used by a large number of studies to investigate the adoption of, for example, Electronic Data Interchange, (EDI), open systems, and e-business. Most of these studies applied TOE framework in developed country setting. Little or no application of this model has been applied in a developing country setting like Tanzania. However, using the requirements elicited from the literature, and later validated and supplemented in a survey study, the TOE model can be used in enhancing successful e-Tax Adoption in Tanzania. According to TOE framework theory, the organizational adoption and implementation of technological innovations are influenced by three components namely; Technological context, organizational context and environment context. Details of these contexts are discussed below.

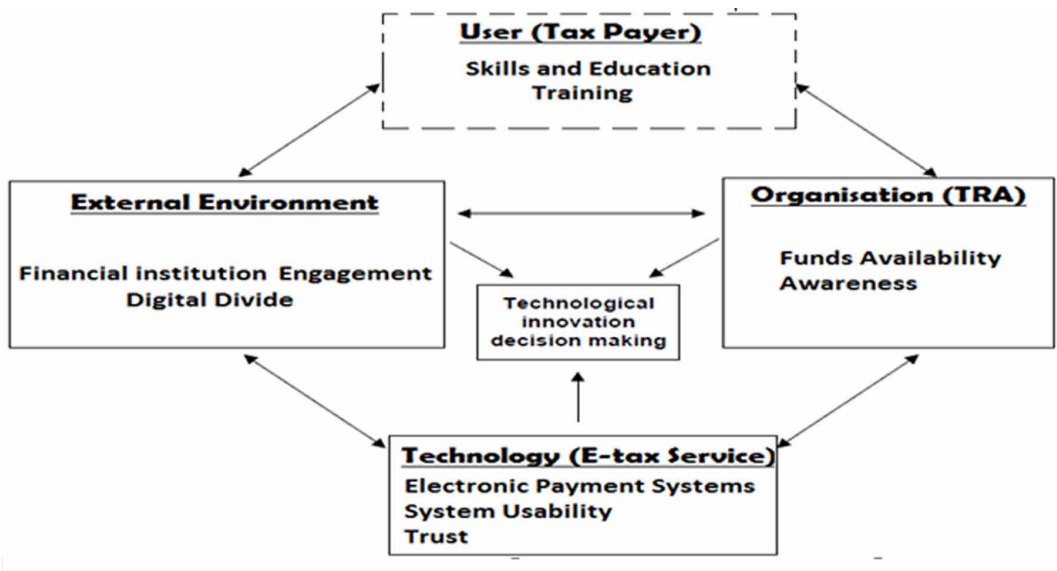
The technological component refers to characteristics of the technologies available for possible adoption by the organization, and the current state of technology in the organization. This current state of technology can be expressed in both material (e.g., equipment owned by the organization) and immaterial (e.g., methods currently in use). The organizational component consists of the organizational structure, the presence of innovation-enabling processes such as informal communication and strategic behavior of top management, and the size and slack resources of the organization. The environmental component combines factors such as market structure and characteristics, the external support available for adopting new technologies and government regulations. These three components are posited to interact with each other and to influence technology adoption decisions.

However, in this paper, we include the fourth component called “the User”. A user is a person who interacts with a system, typically through an interface, to extract some functional benefits. The “the User” was added into the TOE framework as an extension. This was done with the aim to specifically cater for the needs of the user which the TOE framework did not. The requirements identified through literature and validated through a survey were classified based on the four components. This, therefore, extended the TOE model proposed by Tornatzky and Fleisher (1990). This classification is discussed below as follow;

- **External Environmental Component:** The Environmental context is the arena in which a firm conducts its business such as the industry, competitors, and dealings with the government. Requirements for adopting the e-tax service in Tanzania that can be classified under this factor include; Financial Institution Engagement in e-tax service and narrowing the Digital Divide.
- **Technological Component:** This factor describes both the internal and external technologies relevant to the firm. This includes current practices and equipment internal to the firm. Requirements for adopting the e-tax service in Tanzania that can be classified under this factor include; Electronic Payment systems (ePS) in that the e-tax service should support not only filing return online but also support electronic payments like mobile money payments. Just like many people trust mobile money transactions, the e-tax systems should also gain taxpayers trust by ensuring security fundamentals like confidentiality, integrity, and availability. Besides just being trusted, the e-tax service should be easy to use.
- **Organization Component:** This refers to the descriptive measures about the organization such as scope, size, and managerial structure. Requirements for adopting the e-tax service in Tanzania that can be classified under this factor include; Funds availability- this is the amount of money TRA has to deploy and maintain the e-tax service, which should be readily available. Awareness- it is also the duty of TRA to create awareness about the system and this helps not only to educate the users about the systems but also to dispel any negative rumours that may have been circulating about the e-tax service
- **User Component:** The use is a person who interacts with a system, typically through an interface. This is done so as to extract some functional benefits. Requirements for adopting the e-tax service in Tanzania that can be classified under this factor include; Skills and Education- High levels of literacy in the population also means that the population has a higher potential to accept and effectively use e-tax services. Training- some ICT structured education and training programs can be offered to help build basic skills that allow easy adoption of e-tax services.

Below, we present a graphical illustration of a model for enhancing e-tax services adoption in a developing country like Tanzania. This model is an extension of the TOE model forwarded by Tornatzky and Fleisher in 1990.

Figure 8. Proposed electronic tax adoption model



The model presented above is the extension of Technology Organization Environmental model (TOE) proposed by Tornatzky and Fleisher (1990) using the requirements obtained from the field study. Originally, TOE framework established its own categories of components which are external task environment, organization and technological components which together predict adoption of new innovation. The new model provides 9 theoretical constructs classified under the three categories of factors established Tornatzky and Fleisher (1990) in the TOE model. This new model helps to enhance the adoption an e-tax service in a developing country like Tanzania. The extended factor is the “User” and added constructs are: Skills and Education, Training, Funds Availability, Financial institution Engagement, Electronic Payment Systems, Awareness, Digital Divide, System Usability, and Trust. Considering the mean percentages of each contract in regard to each of the four factors, the highest mean registered was from the User factor representing 97.8% (That is Skill and Education-98.9%, and Training-96.7%). This means that the highest consideration for a successful adoption of an e-tax service is on the User, with emphasis on the user’s skills and education, and training. The user factor is closely followed by the organization factor representing 91.01%, then followed by external environment representing 89.7% and lastly by the technology factor representing 77.16%.

VALIDATION OF THE MODEL

Workshops were carried out to test and validate the extended e-tax service adoption model. This was done by conducting workshops with ICT experts and also experienced stakeholders in TRA. This was done in order to validate the appropriateness of the constructs of the model. In order to validate the relationship between dependent and independent variable in the model, a multiple regression was done in four dependent variables which are: Organization, Technology, External Task environment, and User factors. Through multiple regression on done on the dependent variables, we found out that factors determining Technology were Electronic Payment Systems ($B = .722, p < .000$), Factors that determine External Task Environment is Financial Institution ($B = .690, p < .001$), the factor determining Organization is Funding ($B = .579, p < .000$), and factors determining the Users was Skills and Education ($B = .724, p < .000$). The rest of the factors such as; Digital Divide, Usability, Trust and Awareness were not significant (0.05 level)

THE IMPLICATIONS OF THE E-TAX ADOPTION MODEL (PRACTICE AND THEORY)

The outputs of this research process present several far-reaching theoretical and practical implications for e-tax service providers and clients as follows:

First, the results elicited from the literature and validated through a survey were used in the development of a customized model for successful e-tax service adoption in a developing country like Tanzania. The model is generic and can be applied to other e-government services in other developing countries with similar context as Tanzania. This model enhances the adoption of e-tax services in a developing country and proposes critical factors that should be addressed first before the e-tax service is rolled out. This model addresses four critical issues of e-tax adoption namely; Users, Organization, Technological and External Task Environment factors. Electronic Government Agency (EGA) in Tanzania can consider this model to be used a guide for the adoption of all e-government services in the country.

This e-tax model is an extension of the TOE model forwarded by Tornatzky and Fleisher in 1990. The extension was achieved by first, introducing the fourth factor (the user), and secondly, by classifying the requirements established from literature and the survey into the four factors namely; Users, Organization, Technological and External Task Environment. Through this, a new e-tax adoption model was developed. This model can be used to enhance the adoption of an e-tax service in a developing country like Tanzania. Therefore, the new extended TOE model incorporates the “user”

as one of the factors besides the original three factors (Organization, Technological and External Task Environment) suggested by Tornatzky and Fleisher (1990).

CONCLUSION

The major contributor to the low adoption rates for e-tax services is the lack of appropriate models to explain e-tax adoption in developing countries. This study aimed at developing a model that supports electronic tax services adoption in a developing country like Tanzania. This model enables TRA to fully benefit from the huge advantages brought in by an electronic tax service. The study used literature review and survey method. During the survey, a total of 300 respondents were given questionnaires, 267 respondents returned validly filled questionnaires showing a response rate of 89%. The factors obtained from the results of the literature review and field study were used to extend TOE framework in order to derive an appropriate model that enhances the adoption of electronic tax service in Tanzanian context. One of the most important factors for enhancing e-tax adoption as identified in the model is “the user”, followed by organization factor, then followed by external environmental factor, and lastly by the technology factor

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Daniel Deogratus is a Master of Information Systems Student at Makerere University.

Gilbert Maiga is an associate professor and Dean- school of computing and IT, Makerere University.