

**DETERMINANTS OF VENDORS' PARTICIPATION IN PUBLIC
ELECTRONIC PROCUREMENT SYSTEM: A CASE OF ILALA DISTRICT,
TANZANIA**

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**DETERMINANTS OF VENDORS' PARTICIPATION IN PUBLIC
ELECTRONIC PROCUREMENT SYSTEM: A CASE OF ILALA DISTRICT,
TANZANIA**

By

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**A Thesis Submitted in Fulfilment of the Requirements for Award of the Degree
of Doctor of Philosophy of Moshi Co-Operative University**

Moshi

2021

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The undersigned certify that they have read and hereby recommend for acceptance by Moshi Co-operative University thesis titled “**Determinants of Vendors’ Participation in Public Electronic Procurement System: A Case of Ilala District, Tanzania**” in fulfilment of the requirements for award of the degree of Doctor of Philosophy of Moshi Co-operative University.

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DEDICATION

I would like to dedicate this thesis to our Almighty God, the Creator of Earth and Heaven. I also dedicate it to my beloved parents (my Late father Mr. Loisujaki and my mother Nengarivo) for taking care of me and providing me with access to education up to the doctorate level. Dedication further goes to my wife Pendael, to my sons Shedrack and Abedinego and to my daughters Sarah and Esther. Lastly, but not least, I dedicate the work to the late Dr. Abswaid Mfanga and to my siblings Baraka, Thomas, Ayubu, Zawadi, Ombeni and Frank for their love and encouragement throughout the time of my PhD study programme; may the Almighty God bless them abundantly.

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LIST OF ABBREVIATIONS AND ACRONYMS

AVE	:	Average Variance Extracted
CB-SEM	:	Covariance Based Structural Equation Modelling
DAS	:	District Administrative Secretary
DOI	:	Diffusion of Innovation
EDI	:	Electronic Data Interchange
ERP	:	Enterprise Resource Planning
EU	:	European Union
GDP	:	Gross Domestic Product
GPSA	:	Government Procurement Service Agency
ICT	:	Information and Communication Technology
KII	:	Key Informant Interview
KMO	:	Kaiser-Meyer Olkin Measure
MSD	:	Medical Stores Department
PCA	:	Principal Component Analysis
PEPS	:	Public Electronic Procurement System
PEs	:	Procuring Entities
PPA	:	Public Procurement Act
PPRA	:	Public Procurement Regulatory Authority
PLS-SEM	:	Partial Least Square-Structural Equation Modelling
PU	:	Perceived Usefulness
RBV	:	Resource Based View
OECD	:	Organisation for Economic Co-operation and Development
SEM	:	Structural Equation Modelling
SME	:	Small and Medium Enterprises
TAM	:	Technological Acceptance Model
TANePS	:	Tanzania National e-Procurement System
UN	:	United Nations
UNDP	:	United Nations Development Programme
URT	:	United Republic of Tanzania
VRIN	:	Valuable, Rareness, Imitable and Non-substitutable
WB	:	World Bank

ABSTRACT

Tanzania has introduced the public e-procurement system as a solution to shortfalls of the traditional procurement system, but vendors are still reluctant to participate in it. The study objectives were to examine the influence of vendors' willingness drivers on participation in the public e-procurement system (PEPS); investigate perceived benefits of participation in the PEPS; examine technological factors influencing vendors' participation in PEPS; and determine organisational factors influencing vendors' participation in PEPS. The study adopted a cross-sectional research design and was conducted in Ilala District, Tanzania. Simple random sampling was used to select 300 respondents, and purposive sampling technique was used to select three key informants. Content analysis was used to analyse qualitative data while quantitative data were analysed by using descriptive analysis and inferential statistics (independent samples t-test, multiple linear regressions, Covariance Based Structural Equation Modelling (CB-SEM) and Partial Least Square Structural Equation Modelling (PLS-SEM)). The findings revealed that, perceived ease of use, corruption free and perceived usefulness were significant ($p < 0.05$) were vendors' drivers for participation in PEPS. Perceived benefits were significantly different ($p < 0.05$) between participant and non-participant vendors in PEPS. Further, technological factors (data management, data quality, data security among others) were significant at $p < 0.05$ for vendors' participation in PEPS. Lastly, organisational factors (top management support, skilled human resources) had significant influence at $p < 0.05$ for vendors' participation in PEPS. Also, indirect effects of governmental aspects' (bureaucratic control, system by-laws, and administrative practice) on vendors' participation in PEPS were noted. The study concludes that vendors are willing to participate in the public e-procurement system once significant drivers, perceived benefits, technological factors and organisational factors with or without governmental aspects are well observed. The study recommends PPRA to continue training vendors for PEPS benefits and make sure data are well secured and with high quality to attract vendors to participate. The study further recommends to vendors' top management to employ skilled personnel and provide clear internal guidelines to their procurement operations, hence support system participation. These findings require policy makers to involve vendors from the design to implementation stage of the public e-procurement system whereby PPRA should improve environment for easy vendors' use of the system.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Problem

The acceptance of public electronic procurement system by private institutions (vendors) in Tanzania was very limited; it was about 33.4% among Small and Medium Enterprises (SMEs) and only 28.5% among large companies (Alomar and Visscher, 2017). Public procurement is among operations absorbing highest expenditures from government's budget aiming at providing basic needs through goods, services and works. In the European Union (EU), public procurement represents 13.3% of the total Gross Domestic Product (GDP) (Cernet and Kutlina-Dimitrova, 2020; European Commission 2019). The World Bank (WB) emphasises that public procurement is among major economic activities of any government, due to the fact that it constitutes from 15% to 20% of government revenues in developed countries and around 70% in developing countries (WB, 2014). Ivanova (2020) noted significant volumes of public procurement with high flow of funds hence involving high risk for regulations violation. Therefore, there must be a full-fledged platform which offers trusted mechanisms of doing public procurement.

The public procurement operations have been done manually for communicating with suppliers, and manual public procurement processes face a number of challenges including delays and high costs in the procurement process (Adam, 2020; Chang and Wong, 2010). In the recent years, the world has witnessed massive discoveries and changes in different fields of technology including uses of the Internet in business. Internet adoption has stimulated business and embraced electronic procurement, whereby public institutions have been applying it in innovative ways to deliver services and improve performance since 1990 (Husin *et al.*, 2019; Gurakar and Tas, 2016; Lee *et al.*, 2005).

In doing business with suppliers with existence of Information and Communication Technology (ICT), public procurement relatively easily provides social services to citizens through e-procurement. Moreover, the use of ICT has improved productivity and service delivery, controlled bureaucracy, increased revenue collection opportunities, increased customer satisfaction, led to cost savings, introduced paperless services, increased transparency and accountability and operational

efficiency (Ibrahim, 2020). E-procurement has developed through different stages as per technology advancement and time from purely traditional procurement to the stage where Internet tools and platforms have replaced traditional procurement and everything done via integrated electronic systems (Tan and Ludwig, 2016; UN, 2012). E-procurement means handling of the procurement process for requirement identification up to contract closure for the purpose of acquiring products and services by an online platform (Adam, 2020; Husin *et al.*, 2019).

The adoption of e-procurement has always been boosted by external and internal factors for existence. Gascó *et al.* (2018) revealed external factors (like social, political, economic and technological) and internal factors (including organizational, environmental and individual), but little attention was given to factors attracting vendors' participation in public e-procurement system. Chong *et al.* (2018) and UN (2014) reported that The Republic of Korea prospered on the use of e-procurement system among 191 countries, due to friendly environment for vendors' participation in the public e-procurement system. Prosperity of vendors participating in e-procurement was also noted in India by Lewis-Faupel *et al.* (2016). It was proved that quality improved, time decreased and costs benefits were realised due to effective integration of vendors in public e-procurement system with sound administrative processes and top leadership support. Mohd-Nawi (2016) from Malaysia revealed benefits to be gained by e-procurement system's participants which include cost saving, efficiency improvement, faster public procurement process and higher transparency. In Ukraine and Germany, studies done by Ivanova (2020) and Glas and Ebig (2018) revealed factors which attract private business to participate in public procurement to be competitive regulation, ICT infrastructure, increased confidence to vendors, monitored internet, public procurement process itself, managerial support and public tender volume, while in developing countries, due to technological differences, generalisation is impossible. Therefore, the study on which this thesis is based adopted some of these factors and how they influence vendors' participation in the public e-procurement system.

Similarly, studies done by Aguila (2020), Ivanova (2020) and Walker *et al.* (2013) found significant buyers-sellers collaboration for specific assets, free movement of resources (persons, capital, goods and services), knowledge sharing, supplier team

support, availability of skilled human resources and governance which allow transparency with no discrimination. Despite the scholars' emphasis on vendors' participation in public e-procurements, there are several barriers which hinder vendors from participation like partnership scarcity, resource indivisibility, institutional environments, IT skilfulness, financial resources constraints and technological incapacity (Belokrylov, 2017). In addition, PricewaterhouseCoopers pointed out that a buyer could gain savings of 30% to 40% from non-direct spending if they buy from responsive vendors integrated with the public e-procurement system (Hope-Ross and Reilly, 2000), with 75% cost reduction, 85% time-saving, 54% paperwork reduction on printing costs and 43% faster response times for the ordering process (Nchuchuwe, 2016; Sharrard, 2001). All these happen once appropriate vendors have been involved and integrated in the public procurement operational systems. Organisation for Economic Co-operation and Development (OECD) (2015) confirmed that it is only 20% and below of Belgian businesses (vendors) that use public e-procurement systems to access tenders' documents and specifications, while it is only around 10% of them who actually use the public e-procurement system to do their procurement operations with public institutions.

Studies done in UK, Australia, India, Italy, Central Asia and USA on determinants of e-procurement adoption by public sectors reported the following significant factors: organizational and managerial factors (Vaidya *et al.*, 2006), system integration (Johnson, 2013), technological factors (Gascó *et al.*, 2018), E-readiness and reward (Panda *et al.*, 2013), ICT literacy, ICT infrastructure and legal issues (Aguila 2020), political, and economic and social factors (Cortés-Morales, 2017). From the aforementioned studies including ones which were done by De Conick *et al.* (2018), Seo and Warman (2018), Nawi (2016) and Bengtsson *et al.* (2013), the concentration was on factors for adoption of e-procurement system for either private or public institutions independently while the focus on which this thesis is based was on determinants that influence vendors' participation in the public e-procurement system.

In Africa, Aduwo *et al.* (2016) documented that the use of electronic system by vendors in developed countries is impressive, but usage in developing countries is very low due to organisational culture, political factors, social factors, poor ICT

infrastructure and IT skills. Thomas (2020) revealed barriers to adoption of the e-procurement by public institutions to include attitude, poor training, lack of supplier preparation, resistance to change, lack of innovation, poor internet connection, and lack of acceptability by top management. These studies concentrated on barriers for adoption by public institutions while the focus for this thesis is participation of vendors in the public e-procurement system; therefore, some of indicators were just borrowed.

Furthermore, scholars including Muriuki (2019), Sarpong *et al.* (2017) and Makoba and Eliufoo (2017) added the following items to be among the issues that hinder adoption and implementation of e-procurement by public sectors: inadequate legal environment, poor vendors' participation, poor IT infrastructure, unsatisfactory training, low technical support, unreliable power, poor human capital and security risks. Mwemezi (2015) proved that public institutions adopt e-procurement for the sake of lowering operational costs, whereby procurement transactions in some countries are estimated to account for 10% to 30% of the respective countries' Gross Domestic Products (GDP).

Madzimure (2020), Antony (2018) and Ibem and Laryea (2015) confirmed that, for any African government to benefit from adoption of e-procurement, vendors must integrate and implement their procurement operations via the public e-procurement system. Regardless of the system being very important and vendors' participation in the system being crucial, most of developing countries' procurement processes still use paperwork-system with maverick buying by approving non-qualified suppliers due to low numbers of participating vendors on a competitive basis (Belisari, 2019; Uromi, 2014; Thai, 2009). Therefore, sensitization on vendors' participation in public e-procurement for effectiveness and efficiency procurement is inevitable.

In Tanzania, public procurement accounts for approximately 41% to 70% of the total country's budget (Controller and Auditor General (CAG), 2013). Regardless of the massive absorption of government budget by public procurement, the previous Public Procurement Acts (PPA 2001 and PPA 2004) were only supportive on the paper-based system (Mlinga, 2018). Scholars, including Dello and Yoshida (2017), found that Public Procurement undertaken using paperwork system, is inefficient and leads

to corruption practices, lack of transparency, inflated costs and delays completion of projects, hence it fails to meet public procurement objectives, which include fairness, competitiveness, honesty, transparency and value for money assurance. From the paperwork system shortfalls, the PPA 2011 and its regulations 2013 (amended in 2016) empowered PPRA to introduce a public e-procurement system with recommendations for full vendors' participation (Mlinga, 2018). Although some initiatives have been taken by the government to attract vendors to participate, including training, desk help support, among others, still few (about 24.3% from those sampled) vendors have willingly adopted the system (Mlinga, 2018).

Shatta *et al.* (2020) revealed that determinants of adoption of the public e-procurement system include legal framework, performance expectancy, relative advantage, top management support, training and educating stakeholders. The study on which this thesis is based borrowed some of these factors to assess their influence on vendors' participation in public e-procurement system. Most vendors were not integrated in the public e-procurement, and some of the proposed reasons were lack of competent personnel, unfamiliarity with the integration process, poor trust of the system and poor technological infrastructure; hence most vendors preferred doing their businesses with the government through traditional procurement process (Barua and Konana, 2011).

Panda and Sahu (2014) found that inefficiency and ineffectiveness of the manual procurement system are due to lack of transparency, tediousness of the paperwork-system, and loss of time and money on procurement; hence the government introduced the e-procurement system for efficiency and effectiveness, which is perceived to be conducive for e-procurement on the availability of business resources, specifically business relationships with ICT foreign companies and the use of technology for interactions and transactions (Kabanda and Brown, 2015). Nevertheless, public procurement needs strong vendors to trade with; unfortunately, responsive and approved vendors are very reluctant to register in the public e-procurement system (Barahona & Elizondo, 2014).

Mbamba and Sichone (2017) found factors influencing ICT infrastructure and ICT regulations for e-procurement adoption from firm level, but they did not focus on

factors influencing vendors' participation in the public e-procurement system. Therefore, the study on which this thesis is based assessed determinants of vendors' participation in the public e-procurement system.

1.2 Statement of the Problem

Public procurement in Tanzania was mainly traditional using a paper-based system which attracts corruption, inflates procurement costs, leads to poor qualities of supplies and delays procurement activities. Public procurement of goods, works, services and disposal of assets is based on the need to achieve value for money, having due regard to timely delivery, cost effectiveness and quality standards (Mole, 2015; Cousins *et al.*, 2011). The Public e-procurement system has emerged as a solution to the shortfalls noted from traditional procurement (Nchuchuwe, 2016). The question which remained unattended was why vendors are still reluctant to participate in the e-procurement system. For instance, while 20% of Belgian vendors participated, 33.4% SMEs and 28.5% big companies in EU vendors' participated; in Tanzanian among sampled vendors' about 24.3% participated, and determinants which attract vendors to participate were not yet documented (Alomar and Visscher, 2017; Dello and Yoshida, 2017).

For the government to achieve transparency, competition, honest, integrity for value for money, and public procurement activities have to be done through the public e-procurement system, with qualified integrated vendors in the system (Makoba and Eliufoo, 2017; Sijaona, 2010). Scholars, including Shatta *et al.* (2020) and Dello and Yoshida (2017) noted reluctance of vendors to integrate in the public e-procurement system, regardless of public procurement regulations stating clearly that only registered (participating) suppliers will trade with public institutions and not otherwise.

Tutu and Kissi (2019) proved that successful implementation of the public e-procurement system requires public bidding process functions to be handled between procuring entities (PEs) and vendors. Moreover, partnership between government and vendors in data sharing, communication and training on public e-procurement (Sarwar, 2017) is highly required. PEs and vendors play important roles towards commitment and trustfulness on the use and adoption of e-procurement (Barsemoi

and Asienyo, 2018; Bengtsson *et al.*, 2013). Despite the efforts invested by PPRA to attract vendors including training them on system associated benefits, internet connectivity improvement and helpdesk support for the sake of easy integration in the public procurement system, there is still reluctance of vendors to participate in the system, resulting to failure implementation of public e-procurement (URT, 2018). The PEs might be forced to less involve competition in the process due lack of a reasonable number of qualified suppliers in the database (Daoud and Ibrahim, 2018). Zhou (2018) and Bahri *et al.* (2013), from their studies, documented factors that attract vendors to adopt the e-procurement system at the firm level; those factors include ICT infrastructures, IT experts, financial aspects, trust, habit, perceived usefulness, ease of use and cost saving. The study on which this thesis is based adopted some of these factors with the focus on assessing their influence on vendors' participation in the public e-procurement system.

It is also noted that most of the previous related studies in developing countries; for instance, Shatta *et al.* (2020), Thomas (2020), Afolabi (2019) and Muriuki (2019); concentrated on factors for adoption and implementation of e-procurement in public procurement. A few other scholars like De Coninck *et al.* (2018) and Flynn and Davis (2016) addressed factors for vendors' adoption of the e-procurement system at firm level which were quite different from determinants of vendors' participation in public e-procurement system. According to Seo and Warman (2018), Bengtsson *et al.* (2013) and Purchase and Dooley (2010); effective implementation of public e-procurement system by the public depends much on vendors' willingness, commitment and readiness to participate in the system, whereby the PEs can be assured of having a reliable database with enough qualified vendors for competitive procurement operations. The study on which this thesis is based, therefore, was intended to fill the existing gap by assessing determinants of vendors' participation in the public electronic procurement system.

1.3 Research Objectives

1.3.1 Main objective

The main objective of this study was to assess determinants for vendors' participation in the public electronic procurement system.

1.3.2 Specific objectives

Specifically, the study intends to achieve the following objectives:

- (i) Examine the influence of vendors' willingness drivers on participation in the public e-procurement system,
- (ii) Investigate perceived benefits of participation in public electronic procurement system,
- (iii) Examine technological factors influencing vendors' participation in public electronic procurement system,
- (iv) Determine organisational factors influencing vendors' participation in public electronic procurement system.

1.4 Hypotheses

The alternative and null hypotheses stated below were developed and tested:

H₀₁: Vendors' willingness drivers have no significant influence on participation in the public electronic procurement system.

H₀₂: There are no differences in perceived benefits of e-procurement between vendors participating and vendors not participating in public procurement.

H_{a1}: Technological factors have significant influence on vendors' participation in the public electronic procurement system.

H_{a2}: Organisational factors have influence on vendors' participation in the public e-procurement system,

H_{a3}: Governmental factors have influence on vendors' participation in the public e-procurement system.

H_{a4}: Organisational factors once mediated by governmental factors have influence on vendors' participation in the public e-procurement system.

1.5 Justification for the Study

United Nations' Sustainable Development Goal Number 9 (SDG 9) suggests to bridge the digital divide, promote sustainable industries and invest in scientific research and innovation which is very important for facilitating sustainable development by 2030 (UNDP, 2015). Tanzania needs assurance on value for money, effectiveness and efficiency in public procurement activities, and empowered PPRA

to establish the Tanzania National Electronic Procurement System (TANePS), which is a digital technique of doing public procurement operations. On this effort, it is expected that vendors who are key partners in public procurement operations would join hands by participating in this vital system. Thus, this study fills in the experienced vacuum by addressing to policymakers, public e-procurement system regulators (PPRA, MSD and GPSA) and other public procurement stakeholders including vendors themselves on determinants of participation in the public e-procurement system and why it matters.

Moreover, the study was supported by the Tanzania Development Vision 2025 which envisioned transforming Tanzania into a middle-income country by 2025 and encouraging sustainable procurement in effective and efficient ways with value for money assurance (URT, 2010). This aspiration supported competition for qualified vendors' participation in public projects with money value addition, hence competitive economy at state and local level assured. In order for vendors to trade with government, they must comply with public procurement regulations which require them to register/participate in the public e-procurement system. Thus, this thesis, assessed determinants for vendors' participation in public electronic procurement system willingly.

The study addressed the e-government strategy 2013-2018 and its regulations of 2017 whereby e-Government is more than just the adoption of ICT in the government, but it is more about applying ICT to reform and advance government processes, and eventually making the services more suitable and easily accessible. E-Government is a key enabler for accelerating work processes, delivering services to citizens and businesses, accountability and increasing transparency while also lowering costs of operation. An e-Government strategy is a guide to show us 'where we can go'; 'where we are at present' and 'what we are supposed to do to reach there'. By having knowledge on determinants of vendors' participation in public e-procurement system, the real effort invested by the government for ICT transformation will be realized.

The study also supported the Second Five-Year Development Plan (FYDP II (2016/17-2020/21), whereby Tanzania scaled up investments to become an industrialized economy (URT, 2016b). The government strove to locate her scarce

resources (including financial resources and human resources) for value addition assurance including changing procurement method, introducing Tanzania E-Government Strategy (2009) and E-Government guidelines (2017) for supporting electronic procurement to make the database suitable for vendors to participate in the public e-procurement system.

1.6 Scope of the study

This study was confined to vendors under GPSA for commonly used items, particularly goods, services or works because the interest was to assess determinants of vendors' participation in public e-procurement system. The study adopted both first generations like multiple regression, t-test and descriptive and second generation include multivariate (Structural Equation Modelling) for data analysis; this was due to the presence of constructs with complex relationship including mediation. The data for the study were collected during the financial year 2018/2019 at Ilala District, Tanzania.

1.7 Limitations of the study

The main limitation of the study was the complexity of the variables for some specific objectives, whereby others required mediation and commonly used models from first generation failed to appropriately analyse the data. The researcher was compelled to use second generation analysis techniques (SEM) to handle this limitation.

The other limitation was that the study was carried out in one District, Ilala, in Tanzania; therefore, the findings cannot be generalised to developed countries and neighbouring African countries with economic and technological differences. However, the findings can be generalised to all Tanzanian districts as it used vendors of commonly used items across the country.

The researcher also faced a challenge whereby some vendors were not found in their offices. The researcher handled this challenge by making appointments with vendors at GPSA premises while they were attending to collect tender documents, and they agreed to fill in out questionnaire copies as administered by the research.

The study assessed determinants for vendors' participation in public e-procurement system using case studies of the selected private entities located in Ilala District. The limitation is that some factors were context specific to private sectors dealing with public projects; it may not be applicable to individual firms accepting the e-procurement system for procurement operations at the individual level.

1.8 Literature Review

1.8.1 Operational definitions and Variable review

This thesis used some of the terms with different meaning for the common usage. Therefore, here below are definitions of key terms used in the sense of this study, in order to avoid confusing the audience who will read this thesis.

1.8.1.1 Adoption

The act or process of beginning to use something new or different or giving official approval or acceptance of something in technological in nature (Afolabi *et al.*, 2019; Darko *et al.*, 2017). This study on the use adoption meant the Acceptance of new technology for firm's individual use and its general transformation traditional platform to sophisticated platform Therefore, elements pushes someone to adopt a certain technology, was tested to see whether can also make to integrate/ participate in partners' system.

1.8.1.2 Electronic procurement

Is termed as the application of internet (under information and communication technology services) to fulfil all procurement activities as depicted by procurement cycle (from procurement planning up to contract management and closure). According to Waithaka and Kimani (2021), e-procurement refers to the use of Internet-based (integrated) information and communication technologies (ICTs) to carry out individual or all stages of the procurement process. For the purpose of this thesis, it applied as a public electronic procurement system.

1.8.1.3 Eligible vendor

A pre-qualified supplier under the framework agreement contracts ready to be picked by procuring entities doing business with government. All pre-qualified vendors are invited to participate in the competitive bases in public procurement (Chen *et al.*,

2021; Aminah *et al.*, 2018). Vendors who are pre-qualified to offer something for sale like goods, services or works are required to participate in public e-procurement system as required by procurement act (Siwandeti *et al.*, 2021; URT, 2018). For this thesis, anyone who shows interest to trade with the government and submits his/her documents to GPSA for pre-qualification is counted as an eligible vendor and is expected to participate in the public e-procurement system.

1.8.1.4 Governmental factors

These factors sometimes relate to political factors communicated on how the government interferes in the economy. Specifically, governmental factors include labour law, tax policy, environmental law, trade restrictions, tariffs, and political stability among others (Adjei-Bamfo *et al.*, 2020). For the purpose of this study, governmental factors were used as mediator constructs and were measured using adopted indicators from literature, including government leadership, administrative practice, legal and policy framework, bureaucratic control, system bylaws, public-private partnership policies, procurement procedures, and equal information sharing (Aguila, 2020; Bauman-Vitolina and Osypenko, 2020)

1.8.1.5 Organisational factors

These encompass features that influence the ways that the organisation and everyone within it behaves. According to Lobong and Keji (2020), organisational factors influencing e-procurement implementation in the public sectors are trainings, suppliers' compatibility, IT skills, the cost of the system infrastructure, top management support and change management. The study on which this thesis is based adopted some of these organisational factors for testing their influence on vendors' participation in the public e-procurement system

1.8.1.6 Participation

It is the process by which individuals, groups and organizations are consulted about or have the opportunity to become actively involved in an on-going project or any government activity (Toots, 2019). This stands as an action of taking part in something, whereby vendors get registered in the public e-procurement system and are counted among those using the system (Medzhybovska and Lew, 2019). The current study measured participation final output on profit to be acquired, market

share, control on contract, production planning and proper inventory management in place (Dhir, 2020; Belisari, 2019). This study used this term with the consideration that every vendor takes initiative to register/integrate his/her e-procurement system with the public e-procurement system. Vendors are counted as participating due to having access to all free published tenders and being eligible to apply.

1.8.1.7 Perceived benefits

This is something that offers an advantage for others or something you may receive as reimbursement from accepting/concurring with it or profit gained from something or enjoyment gained by being a member (Waithaka and Kimani, 2021). The perceived benefits include efficiency improvement, negotiation support, paperwork reduction, corruption reduction, report writing improvement, cost reduction, time management and standardisation of the procurement process (Ibrahim, 2020; Belisari, 2019; Mohd-Nawi, 2016). The current study used these perceived benefits to compare their contribution to participants and non-participants in the public e-procurement system.

1.8.1.8 Technological factors

These refer to the ways new technological equipment and practices can affect businesses. These may include ICT development, automation, information and communication resources, production techniques, production, logistics, marketing, maturity of technology, innovation potential; technology legislation, technology access, licensing and patents, intellectual property issues (Oliychenko, 2019). For the purpose of this study, technological factors were measured by these indicators of data management, creativity and innovation, system integration, data quality, computer and IT literacy, promising security, informational transparency, presence software and hardware (Polukhov, 2020; Afolabi 2019).

1.8.1.9 Vendor

This is a party in the supply chain who/which provides services or goods to an individual or organisation, or is a person or company posing something for sale and is also known as a supplier or a business entity that sells something to a trade partner (Madzimure, 2020). For the purpose of this study, a vendor is termed as anyone who manufactures or buys in bulk at cheaper prices, repacks and keeps inventories for the

purpose of reselling to the government (public). This study selected only vendors under the government framework contract financial year 2018/2019 as pre-qualified by GPSA for commonly used items.

1.8.1.10 Vendors' willingness drivers

These are elements which push vendors to accept integration between their system and public e-procurement system. It's the promises which vendors rely on from the system, hence encourage participation to acquire them (Ivanova, 2020). The indicators for vendors' drivers were established from thorough literature review and the Participation Theory with the TAM model. These include perceived usefulness, perceived ease of use, lack of human interference, track and monitor, paperwork reduction, transparency, internal efficiency, lack of threat to job, corruption free, business networking, tender information and sharing information (Shatta *et al.*, 2019; Alomar and Visscher, 2017; Dello and Yoshida, 2017). For the purpose of this study, these drivers were adopted and tested to sort out those with relationship for vendors' participation in public e-procurement system.

1.8.2 Guiding Theories and Model

Three theories and one model were used to find how they explain linkages between the independent variables and the dependent variable of the study. While the theories are the Participation Theory, the Resource Based View (RBV) Theory, and the Diffusion of Innovation (DOI) Theory; the model is the Technological Acceptance Model (TAM). In order to create concrete grounds for the thesis, the researcher found no single theory which had sufficient concepts that could explain realities of the phenomena under the investigation. Thus, the researcher used all the above-listed theories and the model as a means of combining their strengths and minimising weaknesses inherent in each of them. The researcher used the Participation Theory to analyse vendors' drivers influencing vendors' participation in public e-procurement system and the perceived benefits which contribute to the use of the system. The Resource Based View Theory (RBV) was used to examine technological factors influencing vendors' participation. The Diffusion of Innovation Theory supported was used to analyse vendors' drivers and organisational factors influencing vendors' participation. Lastly, the TAM model was used to analyse perceived benefits' impacts and technological factors influencing vendors' participation in the public e-

procurement system. The subsequent sub-sections give descriptions of the theories and the model, and why they were selected based on the nature of the objectives of the research with different variables' indicators and concepts which would not adequately be explained by a single theory.

1.8.2.1 Participation Theory

The participation Theory was propounded by Jorge Ferrer in the 1950s and actually developed by Jennings (2000). The theory argues that the world community is suffering on lack of development due to poor involvement in development decisions, implementation and benefits on the associated projects (Storey, 1999). The study on which this thesis is based applied the Participation Theory due to the fact public e-procurement system is one of the vital projects which need vendors' participation for assurance of the government to meet its objectives like transparency, competition and value for money. The theory proves that effective participation of the key stakeholders in the project (public e-procurement system) can endure project performance. The theory suggests that acceptance for involvement in a certain project depends on efficiency of use (perceived usefulness, ease of use, literacy on the system, willing to change and information transparency) and benefits (transparency, corruption free, no human interference and save operation time) to be acquired from it (Altayyar and Beaumont-Kerridge, 2016) where this all borrowed as indicators for objective one and perceived benefits. Reeds *et al.* (2017) revealed that, this theory will be applied well if full understanding of the context of the project and best way for participation were chosen, key partners to the project had dialogue for developing a shared goal and objectives, controlling power dynamics to enhance every participant's contribution to the project's prosperity and lastly matching stakeholders' representation, power of decision making, length and frequency of participation in order to have continuous success on stated project by reducing external resistance.

The traditional inheritance of the theory decisions was based on top-down approach and focus on single discipline and reductionist paradigms (Johnson and Walker, 2000; Agrawal and Gibson, 1999). But the advanced Participatory Approach marked the weakness and made emphasis on popular participation as a remedy to these shortcomings, and proved that, if an individual (vendor) is willingly participating in a given project (public e-procurement system), then it is possible to make unique

contributions for better implementation of that project (Bond-Barnard *et al.*, 2018; Mompati and Prinsen, 2000). This theory failed to put on board others factors which attract vendors to participate in the project (public e-procurement system), like technological resources, organisational factors where Technological Acceptance model, Diffusion of Innovation and Resource Based View theory came in place to supplement the weakness.

1.8.2.2 Resource Based View Theory

The Resource-Based View (RBV) was postulated by Wernerfelt in 1984 and put into action by Barney in 1991. The RBV interprets and analyses resources of the organisations to understand how organisations can achieve a sustainable competitive advantage. The theory sees the firm as a collection of assets and/or capabilities whereby the success of organisation based on those of their assets or capabilities that are distinctive. RBV asserts that ‘a firm is said to have sustained competitive advantage when it is implementing a valuable creating strategy (value), unable to duplicate the benefits of the strategy (imitable), not simultaneously available to other competitors (rarity), and not possible to make substitutions (non-substitutable) (Kay, 2007). RBV perceives the firm as bundles of tangible or intangible resources; competences, capabilities, organisational processes, information and knowledge owned by a firm which enables it to implement strategies that improve its effectiveness and efficiencies (Muriuki, 2019).

RBV posits that the organisational resources/assets including both tangible (e.g. financial, human, technological and physical) and intangible (e.g. goodwill, knowledge, employee’s skills) can be used as the strategic assets and capabilities which ultimately enhance the organisational competitiveness and provide the quality goods and services to the customers (Ahmed and Othman, 2017). This study therefore used the Resource Base View (RBV) theory for the third and fourth specific objectives’ variables for organisational and technological factors and determines the strategic resource required for the variable to influence vendors to participate in the public e-procurement system. According to Barney (1991), a resource is any tangible or intangible material which adds on strength of a vendor to attain the desired goal of participation in the public e-procurement system.

The resources attributes under RBV should possess assumptions commonly known as VRIN: V stands for Valuable resources (technological resources like informational, data, and internet; and organisational resources like training, procurement standards and management style) are those which contribute to vendors' participation in the system. R stands for Rareness, implies that technological factors and organisational factors have to be unique like creativity and innovation for technological aspects and management support for organisational aspects. I stands for imperfectly imitable, that resources should give support to vendors to participate and being different with situation where there is no those resources like hardware and software for technological resources and electronic procurement strategy for organisational resources. And lastly N stands for non-substitutable, this implies that public e-procurement system should provide a relative advantage to vendors to the extent that no other available techniques which will offer the same benefits as the system does (Kozlenkova *et al.*, 2014).

Nevertheless, the RBV has been criticised as being tautological, which uses the term resources and capabilities as two different terms due to limited prescriptive implications (Priem and Butler, 1996). Another criticism is an assumption that for a firm to be profitable in a highly competitive market it needs to exploit advantageous internal resources, which does not always hold true due to the presence of external resources concerning the industry as a whole (Rumelt, 1991). That is why the supportive theory was added as per each nature of respective objective.

1.8.2.3 Diffusion of Innovation Theory.

The diffusion of Innovation theory was postulated by Rogers, 1995. Diffusion means spread of concepts, ideas, technical information and actual practices under societal system, whereby the spread or movement of flow starts from its origin/source to an adopter via a communication channel and influence (Rogers, 1995). The communication channel and influence alter an actor's probability of adopting the stated innovation whereby an actor (adopter) may be any societal entity like an organisation, an individual, groups or a national representative (Wejnert, 2002). The diffusion of innovation insists that technology adoption is a function of a variety of factors, including relative advantage and ease of use. Scholars' review across a range of disciplines led them to conclude that the diffusion process displays patterns and

regularities across a range of conditions, cultures and innovations which includes innovation itself, time, communication channel and social system which mainly rely on human capital (Afolabi, 2019; Rogers, 2003). The study of diffusion of innovations began under Tarde's 1903 book of *The Laws of Imitation*, and development of this approach stopped until forty years later, when Ryan and Gross (1943) came up with results from Iowa farmers on the spread of hybrid-corn use. Just after this study, the publication above 4000 research papers appeared on diffusion with diverse innovations as technologies (Palmer *et al.*, 1993, Burt 1987, Coleman *et al.*, 1966), agricultural practices (Fliegel 1993, Griliches 1957), policy innovations (Valente 1995, Berry and Berry 1992, Boli-Bennett and Ramirez 1987), fertility-control methods (Rosero-Bixby and Casterline 1994, Rogers and Kincaid 1981) and political reforms (Starr, 1991 and Meyer 1987). These studies analysed sets of variables with different methods and concepts involving diverse principles, processes and determinants of diffusion.

Scholars used the same theory include Alomar and Visscher (2017) who investigated on factors for SMEs and big companies to accept e-procurement on their procurement operations, where the results revealed that perceived usefulness, competitive pressure, quality of the system, perceived benefits, financial and technological resources are the factors attract acceptance. The current borrowed some concepts for vendors' willingness drivers and organisational objectives used DOI to obtain those with influence for vendors to participate in the innovation (public e-procurement system). The innovation depends upon its relative complexity or socioeconomic attributes (knowledge for the system by training) (Oliychenko, 2019). The relative advantage or benefits to accept the innovation (reduced paperwork, lack human interference, no threat to job, internal efficiency, corruption free, business networking and sharing information), relative position in the social network for trialability and observability (top management support, create willing to change), compatibility (perceived values, need and reliability, which assure availability required information timely) (Oliychenko, 2019).

The Diffusion of Innovation Theory suggests that an innovation that offers higher relative advantages, compatibility, triability, observability and lower complexity will be disseminated earlier; therefore, it will justify vendors' participation in public e-

procurement system. This study views diffusion as an interactive dynamic process between actor (vendor) and environment (public e-procurement system) on stimulating participation. This situation appears in the same as Rogers (1995) suggested that it is an actor and an actor's attributes that account for differences in time of adoption between first adopters (innovators) and late adopters (laggards) for an innovation, these noted as weakness, hence TAM model added to supplement this shortfall.

1.8.2.4 Technological Acceptance Model

This Technological Acceptance Model (TAM) was postulated by Fred Davis, 1985. It is a widely used model in studying individual's acceptance and use of newly proposed technology. TAM argues that perception and individuals' beliefs about use and attitudes towards the technology determine the intention to adopt or not to adopt an innovation. Venkatesh and Davis (2000) revealed that the TAM is still being employed in various Information system (IS) adoption studies. Jeyaraj *et al.* (2006) confirmed that this is the mostly used model to examine factors influencing individual acceptance of a technology.

Afolabi (2019) and Han (2003) argue that TAM is empirically adopted in various IS innovation studies from database systems, communication technologies to Internet-based services (electronic procurement system inclusive). The two attributes under TAM, namely Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) are assumed to be foremost user motivation variables. PEOU is termed to determine whether the use of the IS will be free from effort by the user and PU is used to determine whether life efficiency increases or user's job performance is enhanced when the system is employed (Ramkumar *et al.*, 2019). The study on which this thesis is based used perceived usefulness and perceived ease of use by analysing their influence on vendors' participation in public e-procurement system.

Scholars of numerous empirical studies tested TAM, and their results were consistent and reliable; they confirmed the validity of the model. Therefore, TAM was fit for the study on which thesis is based, particularly on determining how technological factors influence vendors' participation in public e-procurement system as the new technology in a procurement operations item (Brandon-Jones and Kauppi, 2018;

Mayasari *et al.*, 2017; Ashrafi *et al.*, 2014). The study on which this thesis is based adopted technological indicators like computer use and IT literacy and presence of hardware and software as IT infrastructure. In summary, TAM has successfully been employed in various studies to explain individual acceptance and usage behaviour in a working environment. For the study on which this thesis is based, TAM was combined with the RBV theory in order to supplement what was missing as basic needs for individuals to have full capacity of adopting the technology for vendors' participation in public e-procurement system.

1.8.3 Empirical Review

The empirical literature reviewed in this section is discussed in relation to the objectives of the research on which this thesis is based.

1.8.3.1 Vendors' willingness drivers for participation in PEPS

Public e-procurement offers recommendable value for money for public procurement by ensuring the enterprises receive timely and accurate payment, and maximise accountability and transparency in all public procurement processes with assurance of reasonable collaboration between the suppliers (vendors) and the government (Daoud and Ibrahim, 2017). Tanzania, in efforts to improve efficiency and effectiveness in the procurement process, introduced the public electronic procurement system, which required all business partners (vendors inclusive) to be connect to the system, together with efforts to encourage them to register including training on other support aspects, but vendors are still reluctant to participate in the system, which shows there is low competitiveness in public procurement activities (URT, 2018).

Studies done by Razak *et al.* (2017) and Kaliannan and Awang (2010) confirmed that the use of the public e-procurement system by SMEs (private partners) was comparably low. Habiburrochman (2020) confirmed that monopoly of power, information asymmetry; transparency, managerial support and accountability have positive and significant effects on intention to adopt the e-procurement system. Ngussa *et al.* (2020) added supply chain drivers for adoption of e-commerce (e-procurement inclusive) like merchandise management, information sharing and procurement store location. Some of these factors were used in the study on which this thesis is based to determine vendors' willingness drivers which influence

participation in the public e-procurement system. In South Sudan, limited use of technology was due to high computer illiteracy, low supplies rate of personal computers and poor supply of broadband infrastructure (UNESCO, 2015).

Lobong and Keji (2020) revealed that factors influencing e-procurement implementation in the public sector are: IT skills, training, suppliers' compatibility, cost of the system infrastructure, top management support and change of management, which are quite different from factors for vendors' participation in the public e-procurement system; hence some of the factors were adopted as indicators of participation in the public e-procurement system in the study on which this thesis is based. Further, in South Sudan, the operating environment by the e-government was weak, due to low number of registered businesses whereby only 97 were registered (1.3%) (AfDB, 2013).

Vendors' participation in the public e-procurement system plays an important role towards commitment and trustfulness on the use and achievements of the benefits of e-procurement by the government (Shatta, 2020; Barsemoi and Asienyo, 2018). Scholars, including Zhou (2018), Altayyar and Beaumont-Kerridge (2016), Nawi (2016) and Cousins *et al.* (2011) found that the factors that attract vendors' adoption of e-procurement at the firm level are ICT infrastructures, IT experts, exploration of new markets, financial aspects, trust, habits, cost saving, control cycle time, usefulness and ease of use as supported by the Diffusion of Innovation (DOI) and Participation Theory.

De Coninck *et al.* (2018) and Flynn and Davis (2016) researched on implementation, policy compliance and factors for adoption of e-procurement in public procurement like procurement process, a community built around a digital sphere and company culture, while the vital angle on Vendors' Willingness Drivers for participation in public e-procurement system was left behind. Therefore, the study on which this thesis is based examined Vendors' Willingness Drivers which influence participation in public e-procurement system, including testing the null hypothesis (H_0) that: *"Vendors' willingness drivers have no significant influence on participation in public electronic procurement system"*.

1.8.3.2 Perceived benefits of participation in PEPS

In order to succeed, the public e-procurement system depends much on the qualities and competitiveness of participating vendors. Vendors' participation is vital for successful implementation of the public e-procurement system (Iles, 2017; Mwemezi, 2015). A number of scholars; including Halizahari (2020), Alomar and Visscher (2017), Lewis-Faupel *et al.* (2016) and Panduranga (2016); have documented perceived benefits to be achieved for system usage like minimizing procurement transactional cost, timely delivery, correctness as per specifications and increase in transparency. The studies added that failure to achieve these will be due to lack of qualified suppliers (vendors) in the available database; hence they emphasize on effective vendors' participation in public e-procurement system. Further, Mutangili (2019), Eskandarin (2016) and Ashrafi (2014) revealed numerous benefits acquired with e-procurement in use like lower costs, faster access to information, saving in supply chain, improving skills of employees and creation of competitive advantages. Quality improvement leads to time control and corruption control. Some procurement laws and regulations are still ambiguous and contradictory on vendors' participation in public procurement, hence leaving a room for individual interpretation, which in turn causes disputes between the participants and non-participants in the procurement procedure; hence this causes delays in appeals of tenders (Oliychenko, 2019).

Harelimana (2018), revealed benefits to be acquired from public e-procurement usage like saving estimated budget, paperwork reduction, procurement procedures standardisation, transparency, negotiation support, change management, improving efficiency, saving time, contract management and reduction of costs. Public e-procurement makes procurement for goods, works and services more transparent in budget formulation, but also has implications for accuracy of budget realisation information by vendors' participating (Bakar *et al.*, 2016). Furthermore, public e-procurement system acts as a control system to vendors on budget execution by making a more reasonable cost estimate regarding the cost of the budget ceiling (Yano, 2018; Chebii, 2016). Scholars like Tutu and Kissi (2019); Sarpong *et al.* (2017) and Makoba and Eliufoo (2017) added more on the perceived benefits of adoption and implementation of e-procurement. A study by Shatta (2020) on the influence of relative advantage (perceived benefits) revealed a direct positive and significant influence of relative advantage on adoption of e-procurement system.

However, it's clearly noted that, with regard to benefits of using e-procurement system, there is still undocumented contribution of the system benefits from participant and non-participant vendors on participation in the system. Due to these missing contextual and theoretical factors on a comparison-based approach for explaining how far these perceived benefits (as both TAM and Participation Theory, termed relative advantage) enhance vendors' participation in public e-procurement system, this study compared the perceived benefits between participants and non-participants on factors which trigger vendors' participation in public e-procurement. The following second null hypothesis (H_0) was tested: *“There are no differences in perceived benefits of e-procurement between vendors participating and vendors not participating in public procurement”*.

1.8.3.3 Technological factors influencing vendors' participation in PEPS

The technological advancement worldwide has made e-procurement to gain popularity and dominance in many organisations and hence made the procurement activities faster and easier, and highly efficient with a competitive edge. The prerequisites for assurance on adoption and implementation of e-procurement require a number of factors to be observed like changing management programmes, vendors' involvement, skills on usage, system infrastructure, suppliers' compatibility and accessibility of reliable Internet service providers (Waithaka and Kimani, 2021). Sarpong *et al.* (2017) and Makoba and Eliufoo (2017) found barriers to e-procurement adoption, but not limited to IT infrastructure, human capital, unreliable power supply and security risks. Agbeko *et al.* (2021), in their study on digital transformation in public sectors, documented that stakeholders' (vendors') realisation and appropriate technological infrastructure are very vital for digital transformation initiative. In view of the study on which this thesis is based, vendors must be nurtured by considering technological influence on their participation in public e-procurement system. Despite these barriers, it was expected that the advent of technology would maximise the possibility of vendors' participation in public e-procurement. Therefore, the study was undertaken to examine how technological factors influence vendors' participation in the public e-procurement system.

African countries have been slow in digitisation of public procurement processes due to unavailability of ICT infrastructure, poor spread of internet supply and lack of

human resources (Anthony 2018). Regardless of the documented challenges, developing countries, Tanzania inclusive, have established public e-procurement systems, but little attention is given to technological factors that influence vendors' participation in the public e-procurement system. Previous empirical studies applied e-procurement adoption drivers like availability of IT infrastructure, reliable internet, power supply, trust, security, IT technical expertise, IT benefits, data quality, creativity and innovation and data management (Polukhov, 2020; Afolabi, 2019; Shouran *et al.*, 2019; Belokrylov, 2017) to examine influence of these factors on their vendors' participation in the public e-procurement system. Therefore, the study on which this thesis is based, in the third specific objective, examined technological factors which influence vendors' participation in public e-procurement system, and tested the alternative hypothesis (H_a) that: "*Technological factors have significant influence on vendors' participation in the public electronic procurement system*".

1.8.3.4 Organisational factors influencing vendors' participation in PEPS

A firm's internal characteristics mainly influence the behaviour of the respective organisation on acceptance or rejection of a newly introduced platform from a third party. The intervention of ICT helped organisations on automating the public procurement process, hence enhanced performance by adding value through administrative cost reduction, transaction cost reduction, maverick buying reduction, enhancing transparency, enhancing effectiveness and efficiency, reducing errors in ordering processes, cost-effectiveness and resilience, reducing corruption, simplifying paperwork and improving accuracy in decision-making and buyer-supplier coordination (Oliychenko, 2019; Brandon-Jones, 2017; Gardenal, 2013). For an organisation to be competitive in business, it must hold resources which are vital, rare, non-substitutable and immutable like financial resources, human capital, information and relational as supported by RBV (Barney, 2001). Some of organisations management teams were reluctant to accept the e-procurement system due to perceiving it as a threat to their jobs (PurchaseControl, 2019). The study on which this thesis is based adopted these indicators by examining organisational influence on vendors' participation in public e-procurement system.

According to Gasco *et al.* (2018), the organisational factors that influence someone to accept the e-procurement system were economic position, willingness to change,

ethical practice, top management support and training to practitioners. Basheka (2011) documented such factors under Government policy to be administrative practices, bureaucratic structures and bylaws as intervening resources for firms' competitiveness. Scholars have researched on organisational factors including culture, willingness to change, top management support, ethical practice, training for practitioners, resources and business nature for vendors' adoption of an e - procurement system for individual firms' use (Badi *et al.*, 2021; Daoud and Ibrahim, 2019; Suliantoro and Ririh, 2019; Naik and Bobade, 2018). The study on which this thesis is based adopted these organisational factors and indicators with focus on examining their influence on vendors' participation in the public e-procurement system. The study was mediated by governmental factors which were measured using these indicators, system bylaws and regulations, quality procurement process, and administrative practices at the government level (Hoekman and Tas, 2020; Gutierrez *et al.*, 2015).

Further, Mohungoo *et al.* (2020) documented challenges for organisations to adopt and implement the public e-procurement system like stakeholders' behaviours (vendors), leaders' behaviour, unskilled personnel, lack of training, resistance to change, organisational power and politics and public e-procurement value creation. The study on which this thesis is based used the same organisational factors to examine their influence on vendors' participation in public e-procurement system while being mediated by the government factors as noted by Baumane-vitolina and Osypenko (2020) and Belisari (2019) that the adoption of public e-procurement for an organisation depends on political will, language, degree of resistance, controlling laws in place, awareness of legal framework and business to government relation having influence on organisation's acceptance of public e-procurement system.

The Government support and regulations proved to work to either discourage or encourage organisations (vendors inclusive) to adopt newly introduced technologies (Chong and Olesen 2017; Al-Zoubi, 2013). Gibbs and Kraemer (2004) confirmed that, for developing countries (Tanzania inclusive), government support is more positive and significant for organisations to adopt technological innovations than in developed countries where organisations are capable to accommodate requirements for technological adoption in place. Studies by Polukhov (2020), Afolabi (2019),

Lumsden (2015) and Ramdani *et al.* (2013) revealed that organisational factors have influence on adoption of e-procurement system by public sectors like legal regulation, top management commitment, supportive e-procurement policies, uniform standard for displaying and specifying requirements, culture, information system skills and service linkage and best vendor identification (procedures). The study on which this thesis is based adopted some of governmental factors as mediators for organisational factors' influence on vendors' participation in public e-procurement system. Therefore, the following alternative hypotheses guided the fourth specific objective of the study:

H_{a1}. Organisational factors have influence on vendors' participation in the public e-procurement system.

H_{a2}. Governmental factors have influence on vendors' participation in the public e-procurement system.

H_{a3}. Organisational factors, once mediated by governmental factors, have influence on vendors' participation in the public e-procurement system.

1.8.4 Public electronic procurement strategies in developing countries

In Africa, as in most other developing countries, scholars like Shatta *et al.* (2019), Asare and Prempeh (2017), Njagi, (2017), Altayyar and Beaumont-Kerridge (2016), Chebii (2016), Mambo (2015) and Mohammadi (2013) found that determinants of the public sectors to adopt and implement e-procurement include relative advantage, performance expectancy, educating stakeholders (Tanzania), government support, competitors' pressure (Kenya); suppliers' readiness, policy and regulations (Iran); training, environmental factors and national culture (Ghana) and suppliers capacity, and ICT infrastructure (Malawi). Following a great performance of public e-procurement system in developed countries, developing countries are encouraged to adopt and implement the system to substitute traditional procurement. It is not only because it has numerous researched benefits, but it is also because it provides solutions to critical public procurement problems which include corrupt practices; hence it improves anti-corruption record (Neupane *et al.*, 2012). This study used these factors as indicators of vendors' participation in public e-procurement system (Barsemoi and Asienyo, 2014).

Mutangili (2019) and Eskandarin (2016) documented a number of e-procurement's perceived benefits including lower costs, quality improvement, transparency and corruption control. Ashrafi (2014) added that some benefits to be achieved by an organisation once it uses e-procurement are faster access to information, improved skills of employees and creation of competitive advantages. Furthermore, a research by Harelimana (2018) on the impact of e-procurement on the performance of public institutions in Rwanda found that it has positive and significant influence on paperwork reduction, procurement procedures standardization, transparency improvement, negotiation support, effectiveness on change management, improving efficiency, time saving and life cycle, improving contract management and reduction of administrative costs. However, little has been done to determine the contribution of these perceived benefits to vendors' participation in public e-procurement. The study on which this thesis is based had a specific objective on the perceived benefits' influence on participation in public e-procurement system between participants and non-participants vendors.

Under the rapid technological advancement, the procurement process has been shifted to a new paradigm. The e-procurement has emerged as a result of adoption of technology in procurement operations whereby suppliers, as points of sales, have increased online platform over the Internet supportive termed as internet sourcing (Chegugu and Yusuf, 2017). This was quite different from traditionally sourcing which uses a lot of time, with limited supplying sources and does not effectively cater for emergence procurement compared with the use of e-procurement which has been a major cause of cost reduction in procurement activities in organisations. From this technological advancement, it was expected that a number of vendors would quickly and willingly participate in public e-procurement for assurance of procurement opportunities as promised by the technology. However, contrary results have been found.

Therefore, for the study on which this thesis is based, a specific objective to determine the influence of technological factors on vendors' participation in public e-procurement system was included. Furthermore, e-procurement adoption in developing countries, Tanzania inclusive, as indicated by Watuleke (2017), Ibem *et al.* (2016), Ombat (2015) and Suleiman (2015) had a diverse focus on the unit of

analysis compared with the study on which this thesis is based, which focused on vendors' participation in public e-procurement system. Existing knowledge which involves application of public e-procurement system, as well as vendors' participation in developing countries, is still very limited. Therefore, there is a need for greater understanding of key determinants that lead vendors to participate in the system. (Boehmke and Hazen, 2017).

1.8.5 Public electronic procurement system and vendors' participation

Tanzania, with a lot of public procurement Acts amendments, from the first Public Procurement Act (PPA) 2001 to the current in use PPA 2011 and Public procurement Regulations (PPR) of 2013 and 2016 (amendments), still provides a loophole for corrupt officials (Mlinga, 2018). Tanzania's procuring entities have been utilizing IT systems to streamline and automate their purchasing and other processes over the past years. These systems are highlighted by Dai *et al.* (2002) as Electronic Data Interchange (EDI) which was launched in the 1960s, Enterprise Resource Planning (ERP) which followed in the 1970s and the Internet commercial system which was widely enabled in the 1980s and 1990s. Furthermore, on technological advancement, Tanzania invested millions of dollars to introduce the Tanzania National e-procurement system (TANePS) and safeguard it through PPA 2011 and Regulations of 2013 whereby, according to Regulation No. 340, public e-procurement is a system developed, operated and hosted by PPRA which allows Procuring Entities (PEs) and participating vendors to carry out their procurement activities through the system (Mlinga, 2018). The main objectives of the public e-procurement system were to ensure transparency and enhance efficiency in public procurement activities through the implementation of the public e-procurement system solution with maximisation of competition due to accessibility of a reasonable number of vendors who are ready to do business with government and willing to participate in this system for carrying out their procurement operations (Mamiro, 2015).

Despite the benefits that vendors could achieve from participating in the public e-procurement system and its confirmed positive performance, vendors are still reluctant to participate in the public e-procurement system (Mujtaba, 2014; Latif, 2014). For example, only 326 (30.9%) of the trained vendors at the pilot stage were participating in the public e-procurement system and 729 (69.1%) who had been

trained on the public e-procurement system were still reluctant to participate in the system (Shatta, 2020; URT, 2018). Also 1.2% of the vendors that had been trained had deregistered (not participating anymore) in the system by the financial year 2018/2019 (URT, 2019; URT, 2018). Therefore, this contextual gap needed to be filled in with empirical information on determinants of vendors' participation in public e-procurement system due to the fact that they were key partners for public procurement efficiency and effectiveness.

1.8.6 Research gap for vendors' participation in PEPS

Some previous related studies on participation in the public e-procurement system had inconclusive results. Such studies include ones by Maagi (2020), Shatta *et al.* (2019), Husin *et al.* (2019), Medzhybovska and Lew (2019) and Hudrasyah (2019) who attempted to explain participation in the public e-procurement system. Although their studies mainly concentrated on adoption of the e-procurement system by public institutions and others on participation of SMEs in the respective system on tendering with public sectors, no direct link was found which would motivate vendors to participate in the public e-procurement system, which the study on which this thesis is based mainly focused on. According to Trammell *et al.* (2019), about 51% of the public procurement articles focused on "procurement at firm level"; 17% focused on "contract related issues"; and around 14% concentrated on "procurement, legal issues", especially at the government level, for legal reform and legislation implementation to accommodate public e-procurement system (Trammell *et al.*, 2019). Studies which focused on tactics to attract vendors to participate in public e-procurement system are scarce, if not found.

Further, it is noted that most of the studies related to the one on which this thesis is based were carried out in different countries, mainly in developed countries, but they heavily addressed issues of adoption and implementation of the system at the firm level. Their findings are reflecting unique environments prevailing in the countries where the studies were undertaken; hence it cannot be generalised globally due to social and cultural dynamics. The study on which this thesis is based was necessary to examine the local context on determinants for vendors' participation in public e-procurement system. This thesis also integrated three theories (DOI, RBV and Participation Theory) and one model (TAM,), unlike previous related studies which

mainly used a single theory per study. Also, the study on which this thesis is based used both qualitative and quantitative data collection with relevant analytical techniques from second generation like CB-SEM and PLS-SEM; hence validity and robustness were assured.

The implication of this study is that little is known about the determinants for vendors' participation in public e-procurement system. The aforementioned previous studies focused on general adoption of the e-procurement system at the firm level the determinants of vendors' participation in the public e-procurement system and enjoy its benefits was not yet documented, but also the study informed the government on what should be taken on board for vendors to participate in the system. This study, therefore, examined the determinants for vendors' participation in public e-procurement system. The Participation Theory by Storey (1999) guided the study and was supported by the Resource Based View (RBV) theory by Barney (2001) for the resources side and the Diffusion of Innovation (DOI) Theory by Rogers (2003) and the Technological Acceptance Model (TAM) by Davis *et al.*, (1989) were used for the technological side. For combination of these theories, government and vendors opened a new window for knowledge and enjoyed a competitive advantage over scarce resources. The study on which this thesis is based tries to fill in this knowledge gap (contextual, methodological and theoretical) by assessing determinants of vendors' participation in the public e-procurement system in Ilala District, Tanzania.

1.8.7 Conceptual Framework of the study

The conceptual framework that is presented dramatically in Figure 1.2 represents relationships among variables in this study. The variables used in this study are independent variables, dependent variable and mediating variables. The independent variables predict the amount of variation that occurs in the dependent variable. And the dependent variable is influenced by the independent variables. Mediating variables stand to influence effects of the independent variables on the dependent variable.

The independent variables; which were obtained from objectives one, three and four which were vendors' drivers; were measured by perceived usefulness, perceived ease of use, lack of human interference, track and monitor, paperwork reduction,

transparency, internal efficiency, business networking, corruption free, no threat to job and information sharing. Technological factors were measured by the indicators data management, data quality, creativity and innovation, full system integration, ICT literacy, information transparency, ICT infrastructure and promising security. The other group of independent variables was organisational factors, which included top management support, ethical practice, skilled human resource, management style, willingness to change, training, electronic procurement strategy, agreeing with new standards and procedures, and database capacity. These independent variables were regarded to have direct effect on influencing the dependent variable by maximising the rate of vendors' participation in the public electronic procurement system.

The mediating variables, which are governmental factors, transfer indirect effects of independent variables. The mediating variables (governmental factors) were measured by government leadership, administrative practice, legal and policy framework, bureaucratic control, system bylaw, policies for PPP, information for policy making, equal treatment to companies, contract management and reliable procurement procedures. The dependent variable (vendors' participation) was measured by maximise trust, increase market share, improve contract control, improve on production planning and improve on inventory control. Little is documented as determinants for vendors to participate willingly, and it is what this conceptual framework addresses to fill in the vacuum that exists.

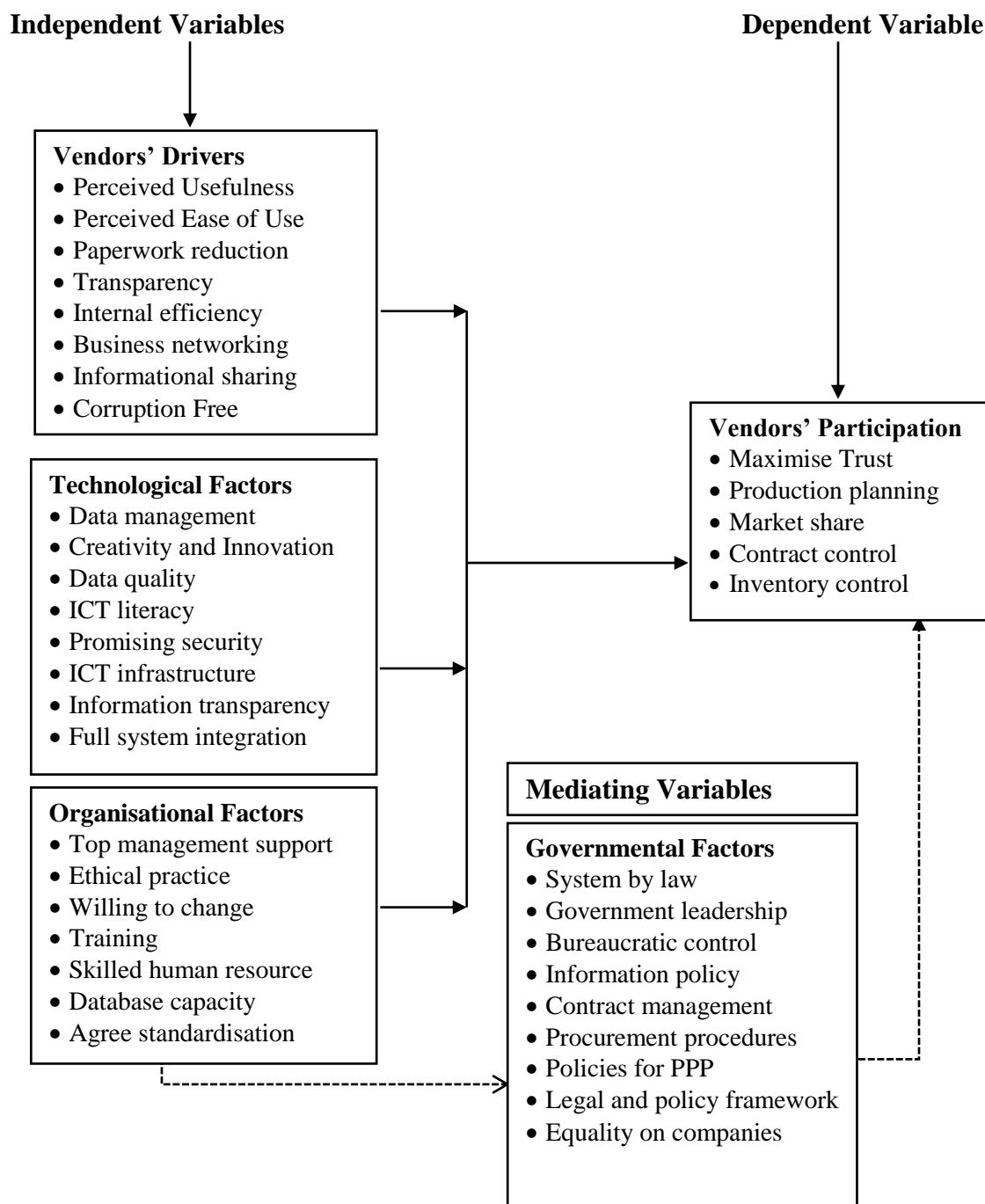


Figure 1.1: Conceptual framework

1.9 General Methodology

1.9.1 Research philosophy

The philosophical stance of this study was pragmatism because the study adopted both qualitative and quantitative approaches. The philosophical traditions which dominate the discussion of mixed methods research strategies include positivism and phenomenology which are termed as pragmatism (Creswell, 2014; Flick, 2011;

Saunders *et al.*, 2009). The main intention of positivism is to produce general laws which can be used to predict behaviour, in terms of probability at least, if not with absolute certainty; so it is a purely quantitative research and gives credence to quantitative research methods which focus on scientific realistic methods without human being biases (Fisher, 2010). While the phenomenology, alternatively termed as interpretivism, believes that truth is dynamic and complex and can only be obtained by studying a person who interacts with prevailing situation, generally it is seen as a study of people's subjective and everyday experience (Creswell, 2014). The phenomenological research is mainly associated with qualitative techniques specific to a given context and, hence, difficult to generalise (Adcroft and Willis, 2008). The study, which opted for pragmatism philosophy (mixed-methods research approach) to draw strengths and minimise weaknesses of each single approach, presents an opportunity for skills enhancement, allows both collection of thick data and generalisation of research finding and increase the validity of the study by covering contextual conditions (Rukwaru, 2015).

1.9.2 Research design

This study was guided by cross-sectional research design. The design was chosen because it controls the conditions of the study by capturing the state at the moment, facilitates snapshot at a large population and allows generalising findings (Saunders *et al.*, 2003; Owens, 2002). Furthermore, the design allows the use of mixed methods on data collection which improves validity and reliability and also allows the use of different analytical techniques, for example the use of independent samples t-test for comparison, multiple regressions and structural equation modelling (Flick, 2011).

1.9.3 Study location and population

The study was conducted in Ilala District, Dar es Salaam Region. The district is found in the region located in the Eastern part of Tanzania, with an estimated total population of 5.2 Million people (URT, 2015). The district was chosen due to having a large number of vendors who were eligible for participation in the public procurement, due to the fact that they were already pre-qualified to trade with government through Government Service Agency (GPSA). A total of number of 1110 eligible vendors out of 9740, equivalent to 11.4%, are based in Ilala, Dar es Salaam, leaving 8630 vendors scattered in all other districts across the country (URT, 2018).

The study was carried out in Ilala District, Tanzania and focused on vendors who were pre-qualified and shortlisted in GPSA for common used items (URT, 2018). It was established that the vendors who has shown interest to trade with the government and submitted their documents for pre-qualification were most eligible to participate in public electronic procurement system. The study used a vendors list which was obtained from GPSA database in the financial year 2018/19 with a total of eligible vendors' amount to 9740 countrywide. While Ilala District has 1110 vendors qualified for the sample of 300 respondents to be selected here randomly. It is from this population that the researcher obtained valuable information concerning determinants of vendors' participation in public electronic procurement system.

ILALA District Council with bounding districts - Temeke and Kinondoni



Figure 1.2: A map of Ilala District

1.9.4 Sampling and sample size

Random numbers were generated with the help of MS Excel to pick 300 respondents. The minimum sample size was calculated by using the finite population Cochran formula (Cran *et al.*, 1977) whereby a sample size of 286 respondents was obtained. Then, the sample was adjusted due to sensitivity on sample size for the analytical

methods used. The respondents comprised senior representatives because they were the ones in position to authorise heavy investment for the business.

$$n = \frac{n_o}{1 + (n_o - 1) / N}$$

Where n = sample size for a finite population, n_o = sample size for an infinite population, N=Total population of the vendors qualifying to participate in the study.

It was then required to obtain n_o from an infinite population using the Cochran infinite population formula;

$$n_o = \frac{z^2 pq}{e^2} = \frac{(1.96)^2 (0.5)(0.5)}{(0.05)^2} = 384 \dots\dots\dots (1)$$

Where:

n_o = Sample size from an infinite population,

z = Critical value / degree of confidence (95% which yields 1.96),

p = percentage of target population estimated to have a proportion of the desirable attribute (50%=0.5),

q = 1.0-p calculated as 1.0-0.5=0.5, and e = level of precision (set at 0.05)

The finite population formula (Cochran, 1977) was used to determine sample size for vendors:

$$n = \frac{n_o}{1 + (n_o - 1) / N} = \frac{384}{1 + (384 - 1) / 1110} = 286 \dots\dots\dots (2)$$

Then, simple random sampling was used to select respondents to ensure that the findings obtained qualified to be generalised to the population but also provide high validity results, which is also supported by Teddlie and Tashakkori (2009).

1.9.5 Source and method of data collection

This thesis relied on primary data collected by using a structured questionnaire and key informant interview guide. The study adopted a mixed-methods approach

concurrently to guide collection of qualitative and quantitative data, hence allowed collaboration of results within the study (Saunders *et al.*, 2012). Quantitative data were collected by using survey method with a structured questionnaire containing closed and open-ended questions to 300 vendors as respondents located in Ilala. Qualitative data were collected using Key informant Interviews (KIIs) with the help of a Key Informant Interview guide. Three (3) KIIs were conducted with key informants (technical system support personnel, termed as TANEPS focal person) who were selected basing on their knowledge on public electronic procurement system in question from public pioneer systems institutions which were GPSA, Medical Stores Department (MSD) and PPRA. The Key Informants were selected purposively depending on being regarded as having necessary knowledge related to the status and progress of public e-procurement in Tanzania.

1.9.6 Data analysis

Qualitative data were analysed using content analysis technique by coding useful information, suggestions on determinants of vendors' participation in public electronic procurement system. The analysis was done stage-wise: recorded, transcribed, categorised, coded and grouped into themes related to the specific objectives on vendors' participation in the public e-procurement system. Contents were summarized to skip irrelevant information, which was filtered out to common domains in question and looking for features to describe the actual situation in need.

Quantitative data analysis involved manipulation of observations and numerical representation for the purpose of explaining and describing the phenomena those observations reflected. This study adopted different analysis techniques as per specific objectives for quantitative data; each analytical technique applied is described briefly in the succeeding paragraphs.

Vendors' willingness drivers were analysed using a multiple regression model to predict the influence of these drivers on vendors' participation in the public electronic procurement system. Knowing the resources are scarce, it is better to identify the drivers with high influence for proper allocation of resources.

Perceived benefits of participation in public e-procurement which were established as commonly known as critical success factors were analysed with the help of multiple response analysis and independent samples t-test for comparison of two groups in the study, which were participants and non-participants, with the main intention of documenting differences in acceptance and knowledge for existing benefits for the respective system. Then Eta-square was run to depict the magnitude of difference between the two groups.

Technological factors for the public e-procurement system were analysed with support of Covariance Based-Structural Equation Model (CB-SEM) due to the fact that it supports complex relationship analysis and is capable of estimating a series of inter-relationship among latent constructs simultaneously in a model, that treat both observed and unobserved measures. The model was also opted for due to its capacity to handle Confirmatory Factor Analysis (CFA) for measurement; hence it reduces measurement errors. Lastly, CB-SEM was found relevant to analyse technological factors due to the fact that no theoretical indicators which must be retained; so, it allows the assessment of model fitness and allows dealing with multi-collinearity among independent constructs.

Organisational factors for the system were analysed with the help of Partial Least Square Structural Equation Model (PLS-SEM). The model construct involves four alternative hypotheses and has mediator of governmental factors (bureaucratic control, by-laws, procurement procedures and administrative practices as observed measures). PLS-SEM was found powerful for this analysis because it does not require model fit or other assumptions to be met due to the fact that the constructs has some theoretical measures which must be retained. PLS-SEM also is powerful for small sample size and it is perceived that PLS-SEM path modelling using SMART PLUS is appropriate to carry on confirmatory factor analysis which is more valid and reliable. It is also causal-predictive and more precise with higher robustness when a dataset is limited and data are non-normal (Hair *et al.*, 2014).

1.9.6 Reliability and validity of data

1.9.6.1 Reliability of data

Reliability is the degree to which data collection technique and analysis yield consistent findings if repeated by another researcher (Csikszentmihalyi and Larson, 2014). Cronbach's alpha coefficient was used to test internal consistency reliability of constructs, because it is the one that is mostly used in social science research and provides better results than other methods of measuring reliability. Hair *et al.*, (2010) state that reliability of 0.70 is highly satisfactory. Similarly, Field (2009) observes that an alpha coefficient between 0.70 and 0.80 is an acceptable value. A pilot test was done on a sample size of 30 respondents from Ubungo and Kinondoni Districts which were not part of the study area as recommended by Saturno-Hernandez *et al.* (2019). From a total of 174 items involved, the reliability results count was 0.972, and after removal of similar and ambiguous items, re-testing of reliability achieved a Cronbach's alpha coefficient of 0.879 for the items. As the Cronbach's alpha coefficient was above the 0.7 threshold, the variables used for the research were reliable.

1.9.6.2 Validity of data

Validity refers to the extent to which the measures used in a questionnaire are truthfully measuring the intended concepts and not something else (Rukwaru, 2015, Golafshani, 2003). The validity of the research instruments was established by carrying out a pilot study before actually using the instruments for data collection. Moreover, training was done to research assistants whereby they practised how to collect data using the instruments. Proof reading of the research instruments including the questionnaires was done by an expert who then gave comments for improvement of the instruments for their validity. The study also allowed a transparent process in conducting the research and tries to be as open as possible towards the readers and experts for better final report production (Creswell, 2014). The Internal validity was also assured by controlling and isolating other conditions that could influence the dependent variable. Generalisation was only possible and guaranteed from the findings when internal validity was achieved (external validity). For measurement instruments, discriminant validity (respective variable is independent from one another on influencing the dependent variable), content validity (indicators involved measures respective variable) was ensured. This was done by making sure those

instruments exhaustively captured all essential aspects and findings of one measure corresponded with another respectively. Finally, individual scholars who were experts in the area were asked for face validity assurance to the study objectives.

1.10 Ethical considerations

Ethics are a set of moral principles of conduct which govern behaviour, decision-making and procedure of undertaking an activity (Agrwor and Adesina, 2018). The researcher observed ethics as required by Moshi Co-operative University as documented in the research and postgraduate guidelines of 2020. A clearance letter for data collection was obtained from the University, and an introduction letter was addressed to the Dar es Salaam Regional Secretary. From the Regional Secretary Office, an introduction letter addressed to Ilala District Administrative Secretary (DAS) was obtained; then from DAS to Ilala Municipal Director. Lastly, a permit was provided by Ilala Municipality director for data collection from eligible vendors as respondents. For Key Informant Interviews, letters of request were sent to MSD, PPRA and GPSA management; each of the institutions independently gave the researcher permission to interview the respective system focal persons (TANePS expert). The principles of participating voluntarily were observed by the researcher, and the respondents' identification and feedback were not disclosed. Vendors' managers who participated were informed in advance, and their permission sought; nobody was coerced to give information. The institutions were promised by the researcher to get a copy of the results of the study.

1.11 Organisation of the thesis

This thesis is organised in four chapters excluding preliminaries and appendices pages. The preliminary pages comprise the title page, declaration, copyright, certification, dedication, acknowledgements, table of contents, list of tables, list of figures, abbreviations and acronyms and extended abstract. Chapter one spells out a general overview of the study forming the foundation of the whole thesis; it covers background to the study which includes introduction, problem statement, research objectives, justification, theories, conceptual framework, methodology and ethical issues. The proceedings chapters start from chapter two which comprises three published papers while chapter three comprises a publishable manuscript. The manuscripts format appears as per the requirements of the specific proposed

publishers. Chapter four addresses a summary of findings, conclusions and recommendations. It is a general chapter where the reflection of the theories used in the research is given.

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CHAPTER TWO

2.0 PUBLISHED PAPERS

Siwandeti, M., Sanga, C., Mfanga, A., & Panga, F. (2021). Vendors' willingness drivers for Participation in Public Electronic Procurement System, Ilala District, Tanzania. *Springer International Publishing. Sustainable Education and Development*, 445–454, 2021. doi.org/10.1007/978-3-030-68836-3_38.

Siwandeti, M., Sanga, C., & Panga, F. (2021). Perceived Benefits of Participation in Public Electronic Procurement: A Comparative Analysis Of Vendors In Ilala District, Tanzania. *Journal of Co-operative and Business Studies (JCBS)*, 6(1), 165-176.

Siwandeti, M., Sanga, C., & Panga, F. (2021). Technological Factors Influencing Vendors' Participation in Public Electronic Procurement System In Ilala, Tanzania. *East African Journal of Social and Applied Sciences (EAJ-SAS)*, 3(1), 91-102.

CHAPTER THREE

3.0 PUBLISHABLE MANUSCRIPT

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Organisational Factors Influencing Vendors' Participation in Public Electronic Procurement System: A Case of Ilala District, Tanzania

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Abstract

Public electronic procurement holds a tremendous promise to meet intended public service delivery. However, the uptake by vendors' community for participation in public electronic procurement system is still unsatisfactory. This paper examines the organisational factors influencing vendors' participation in the public electronic procurement system (PEPS). Ilala District was used as a study area using a cross-sectional research design. Simple random and purposive sampling techniques were used to sample 300 vendors and three key informants. A structured questionnaire and a key informant interview guide were used to collect quantitative and qualitative data respectively. PLS-SEM was used to analyse quantitative data, and content analysis was used to analyse qualitative data. The results revealed a significant influence at $p < 0.05$ of organisational factors like training, top management support and skilled human resources on vendors' participation in PEPS. The study concludes that organisational factors with or without mediation by governmental aspects have strong significant influence on vendors' participation in the PEPS. It is recommended to Public Procurement Regulatory Authority to continue providing training to vendors for participation in the system. It is also recommended to vendors' top management to set strategies that make to participate in the PEPS. The practical implication of the study is that it attracted vendors to participate hence value for money. Lastly, the social implication is that policy-makers and vendors know exactly how the organisational factors and governmental aspects enhance participation in PEPS.

Keywords: Organisational Factors, Participation, Public electronic procurement, Vendors

1. Introduction

Globally, service delivery improvement by governments through public procurement has become an important agenda due to amount of budget set for this activity. Experience from using public procurement has noted a political landscape and institutional problem and therefore recommended innovation for the use of clear procurement procedures, national strategy, necessary expertise and legal framework (Li & Ribeiro, 2020). According to Dello (2017), public procurement which was done manually was found to be very inefficient, and led to corruption, delays in project completion, costs inflation, lack of transparency in its operation and provision of poor quality of services and supplies. To solve the challenges of the manual procurement system, the Information and Communications Technologies (ICT) has opened up new possibilities for governments to introduce public electronic procurement (World Bank, 2016). The public e-procurement implementation in developed countries has brought benefits such as cost reduction, efficiency, reduction of the procurement process, reduction of corruption level, and enhanced compliance and standardisation of procurement (Tutu *et al.*, 2019; Vaidya and Campbell, 2016). The expected benefits of e-procurement transaction have been considerable; just after the adoption of this technology, public procurement expenditure decreased from 5% to 20%; and once properly encouraged, participation of private sectors (vendors) increased (European Commission, 2012).

In the globalisation era, vendors' participation in the public e-procurement system is becoming critical for improving public e-procurement success rates by meeting the intended objectives like transparency, quality improvement, time management, costs reduction, paperwork system reduction, and improving efficiency and effectiveness in the operation (Ujakpa *et al.*, 2016). It is also documented that among other benefits of vendors' participation in public e-procurement system is allowing advanced and qualified suppliers from developed countries to trade with developing countries (Dhaoui, 2019; Eei *et al.*, 2015; Sharabati *et al.*, 2015). Further, apart from the benefits, scholars have also documented organisational factors measurements which lead vendors to adopt the e-procurement system which are organisational culture, willingness to change, top management support, ethical practice, training for practitioners, resources and business nature. All those organisational indicators have led vendors to adopt the e-procurement system for firm level use (Daoud and

Ibrahim, 2019; Suliantoro and Ririh, 2019; Naik and Bobade, 2018). This paper examines the influence of the organisational factors on vendors' participation in the public e-procurement system mediated by governmental factors, measured by system by-laws, reliable procurement procedures, government leadership, bureaucratic control and administrative practices (Gutierrez *et al.*, 2015).

Scholars like Shouran *et al.* (2019), Zhou (2018), Irma *et al.* (2016), and Cousins *et al.* (2011) argue that organisational factors that lead vendors to adopt an e-procurement system for their own use include Information Technology (IT) literacy and infrastructures, financial aspects, managerial support and legal preparedness. Furthermore, Aqeel and Asim (2019), De Coninck *et al.* (2018), Seo and Warman (2018), Lynn and Davis (2016) and Thiga (2016) also revealed that top management support, presence of reliable procurement procedures, training to vendors, and a reliable database influence vendors' adoption of technology (e-procurement system) for individual firms' use. The aforementioned scholars gave little attention to how these organisational factors can influence vendors' participation in public e-procurement system. Therefore, this paper examines organisational factors which influence vendors' participation in the public e-procurement system.

In Africa, Muriuki (2019), Sarpong *et al.* (2017) and Makoba and Eliufoo (2017) documented that organisational and governmental aspects which hinder adoption of e-procurement by public sectors include inadequate legal environment, poor vendors' participation, poor IT infrastructure, unsatisfactory training, low technical support, unreliable power, poor human capital and security risks. According to Mwemezi (2015), public institutions adopt e-procurement for the sake of lowering operational costs, whereby procurement transactions in some countries are estimated to account for 10% to 30% of the respective countries' Gross Domestic Products (GDP). Madzimure (2020), Antony (2018) and Ibem and Laryea (2015) confirmed that, for any African government to benefit from adoption of e-procurement, vendors must integrate and implement their procurement operations via the public e-procurement system. Regardless of the system being very important and vendors' participation in the system being crucial, most of developing countries' procurement processes still employ the paperwork system with maverick buying by approving non-qualified

suppliers due to low numbers of vendors participating in the database (Belisari, 2019; Uromi, 2014; Thai, 2009).

In Tanzania, studies by Dello and Yoshida (2017) proved that manual public procurement was inefficient, which led to corruption, delays in public projects completion, costs inflation, lack of fairness, lack of transparency and provided poor quality services/supplies. The introduction of e-procurement is expected to be a catalyst to rectify the shortfalls associated with the manual procurement system, and relative advantages like transparency, paperless system, corruption free and usefulness which have been documented (Shatta, 2020). Ngussa *et al.* (2020) found that merchandise management (vendors) is one key driver for best public procurement performance. Tanzania, through PPRA, invested efforts to integrate public procurement functions and its proceedings among vendors and Procuring Entities (PEs) into the public e-procurement system. However, there is reluctance on the vendors side to participate; hence this has resulted in the use incompetent suppliers in government projects due to lack of reasonable numbers of qualified vendors in the database for procurement competitions (URT, 2018). Therefore, for this paper, organisational factors, mediated by governmental aspects, were analysed to examine how they influence vendors' participation in public e-procurement system.

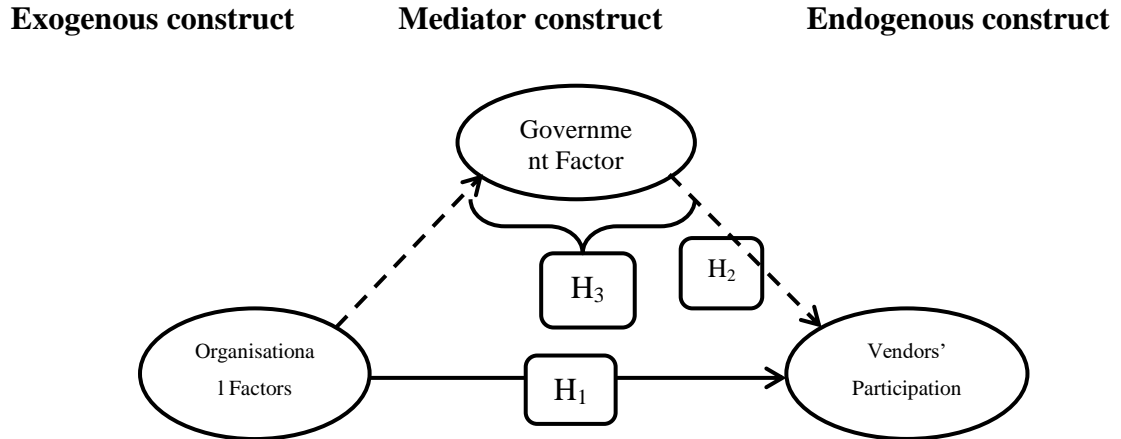


Figure 3.1: Model Construct

Key:

—→ Direct Influence is organisational factors to Vendors' Participation

- - → Indirect Influence is Organisational factors via Governmental Factors to Vendors' Participation

The endogenous constructs were guided by the Diffusion of Innovations (DOI) theory by Rogers (2003), for relative advantages which are profits maximisation, increase in market share, and enhancing trust and contract control. Furthermore, Rahman *et al.* (2019) documented those factors influencing e-procurement implementation in an organisation are selling efficiency, improved savings, increased job performance, increased productivity and management improvement. The Diffusion of Innovations (DOI) Theory also catered for exogenous construct aspects like training, top management, willing to change, database capacity for quick retrieval and mediating construct which were governmental aspects like administrative practice, by-laws for the system, reliable procurement procedures, and equal access to both big and small vendors; these both stand as resources and capabilities for vendors' participation in public the e-procurement system. Abdul and Lyimo (2019) also revealed factors influencing adoption of e-procurement in institutions which were top management support, suppliers' capacity and information systems infrastructure. This paper adopted post-established organisational factors to examine their influence on vendors' participation in public e-procurement system. Suliantoro and Ririh (2019), Thiga (2016), and Li *et al.* (2015) revealed organisational factors influencing adoption of e-procurement in respective organisations such as top management support, e-security, information sharing, business to business experts and change management. This

paper adopted the same organisational factors to examine their influence on vendors' participation in public e-procurement system. Prayudi *et al.* (2019) and Kaliannan (2009) revealed that the uptake of vendors of public e-procurement system is very low; hence this paper used governmental factors (administrative practice, by-laws, procurement procedures and equal access to all vendors) which mediate organisational factors to influence vendors' participation in the system.

Likewise, Daoud and Ibrahim (2019) and Shukla *et al.* (2016) revealed the importance of e-procurement like access to a wider market, control of malpractice, time saving, reduction of business costs, maximizing transparency and streamlining the procurement process, but postulated that only 27% of Jordan firms (vendors) participated in the public e-procurement system. Seo *et al.* (2018) also found that vendors' willingness to participate in public e-procurement was limited; hence they called for investigation of organisational factors affecting vendors' participation in the system. Furthermore, Isaac *et al.* (2015) revealed major limitations for organizations' e-marketing (similar to e-procurement system) uptake to be confidentiality and trust, worrying about information leakage to rivals; hence they strongly recommended to government and other stakeholders to intervene the process by providing awareness programmes to SMEs (vendors). Therefore, the governmental factors influencing vendor participation in the public e-procurement system need to be researched on.

Furthermore, challenges for the public e-procurement system implementation are documented to be: stakeholders' behaviours (vendors), leaders' behaviour, leadership shortcomings, unskilled personnel, lack of training, resistance to change, organisational power and politics and public e-procurement value creation (Mohungoo *et al.*, 2020). This paper's focus was to use the same challenges (organisational factors) to examine their influence on vendors' participation in the public e-procurement system while being mediated by the government itself. Lumsden (2015) documented those organisational factors for clouding technological acceptance include legal regulation, service linkage and best vendor identification (procedures). They mostly know as governmental factors, under this study they acted as mediating variable for the organisational factors influence on vendors' participation in public e-procurement system. From the facts narrated, this paper

needed to fill the existing knowledge gap. Therefore, the following alternative hypotheses were hypothesized and tested:

H_{a1}: Organisational factors have influence on vendors' participation in public e-procurement system,

H_{a2}: Governmental factors have influence on vendors' participation in public e-procurement system,

H_{a3}: Organisational factors once mediated by governmental factors have influence on vendors' participation in public e-procurement system.

2. Theoretical Guidance

The paper was guided by the Diffusion of Innovations (DOI) Theory by Rogers (2003). The choice of this theory was justified by need of resources for participation and the requirement for advantages motives for the diffusion of the newly established innovation system which will support vendors to participate in public e-procurement. The Diffusion of Innovations Theory by Rogers (2003) was used to evaluate the dissemination of innovations. The innovation process for adoption by organisations passes first knowledge of an innovation for forming an attitude towards the innovation, to a decision to adopt or reject the given innovation, to the implementation of the new idea”, and awareness of characteristics of an innovation has an impact upon the intention of the individual to use the technology (Rogers, 2003).

The Innovation diffusion is communicated through certain channels over time, among the members of a social society as “*an idea, practice, or object that is perceived as new by an individual or another unit of adoption*”. Innovation distribution is dependent upon the relative complexity (knowledge for practitioners by training), advantage (relative usage which will create willingness to change), trialability and observability (to justify management support aspects, the innovation to allow testing for approval and the results to be visible), and compatibility (perceived values, need and reliability to justify the need for database capacity aspects, which assure timely availability of required information). The Diffusion of Innovations theory suggests that an innovation that offers higher relative advantages, compatibility, triability,

observability and lower complexity will be disseminated earlier; therefore, it will justify vendors' participation in the public e-procurement system.

3. Methodology

This paper is based on a PhD research which was conducted in Ilala District, Dar es Salaam Region, Tanzania. The study area was selected because of having 1110 vendors out of 9740 countrywide (11.4%), who were eligible for participation in the public e-procurement system (URT, 2018). Both quantitative and qualitative data were collected; quantitative data were collected using a structured questionnaire, which comprised, among other items, a Likert scale. Qualitative data were collected through interviews with key informants; the interviews were guided by a key informant interview guide. The study adopted cross-sectional research design, because the design allows the use of a variety of analytical techniques, different methods for data collection and its ability to allow data management (Creswell, 2014; Flick, 2011).

Simple random sampling technique was used to select 300 vendors (adjusted from calculated minimum sample size of 286 and it involved only managerial personnel as respondents) by randomly generating numbers with the help of Microsoft Excel and then selecting from a list of vendors those whose serial numbers corresponded with the random numbers generated. The list was obtained at Government Procurement Service Agency (GPSA) database for the Financial Year (FY) 2018/2019. Purposive sampling technique was used to sample three (3) Key Informants from empowered public institutions (Public Regulatory Authority, Government Procurement Service Agency and Medical Stores Department) to develop and control the system. These institutions were selected due to their richness of information on the public e-procurement system (Tanzania National electronic Procurement System (TANePS)). The minimum sample size reached by using the Cochran' finite population formula (Cochran, 1977) was 286. To start with the sample size, n_0 , from an infinite population was first calculated as follows:

$$n_o = \frac{z^2 pq}{e^2} = \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2} = 384 \dots\dots\dots(1)$$

Where n_o = Sample size from an infinite population, z = selected critical value, p = estimated proportion of attribute, $q = 1-p$, and e = level of precision (i.e. 0.05). Assuming $p = 0.5$, and taking a confidence level as $+0.5$, $p = 0.5$, $q = 1-0.5 = 0.5$, $e = 0.05$, and $z = 1.96$.

The sample size from the finite population formula (Cochran, 1977) was used to determine the sample size for vendors:

$$n = \frac{n_o}{1 + (n_o - 1) / N} = \frac{384}{1 + (384 - 1) / 1110} = 286 \dots \dots \dots (2)$$

A questionnaire was developed without ambiguity in concepts and terms used and pre-tested using a sample size of 30 respondents (vendors) as a rule of thumb at Ubungo District (which was not the actual study area) (Saunders *et al.*, 2016). Internal consistency reliability was tested by using Cronbach's Alpha; at the pilot stage internal consistency reliability was 0.972 which was above the minimum required threshold of 0.7, hence allowed the final questionnaire to be developed. Also, the respondents were informed about the confidentiality which would be observed. Face validity was done by involving procurement experts from College of Business Education and Moshi Co-operative University. A total of 26 items from 29 items were involved with loading above 0.5 including 9 organisational factors, 10 governmental aspects, and 7 vendors' participation indicators the used software (SmartPLS 3.0 for PLS-SEM) requires results from positive to negative (Hair, 2016). Therefore, a Likert scale was developed comprising statements to which the alternative responses ranged from 1 to 5 (ranging from 1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; and 5 = strongly agree) to examine the extents to which organisational factors influenced vendors to participate in the public e-procurement system.

Quantitative data were analysed by using the Partial Least Square Structural Equation (PLS-SEM), which was appropriate for testing hypotheses in the model. Reliability, item loading, convergent and discriminant validity were assessed by clearly observing the indicated threshold. The Cronbach's Alpha was > 0.7 , outer loading > 0.5 , Average Extracted Variance (AVE) > 0.5 and composite reliability (CR) > 0.5 .

Qualitative data analysis was done by using content analysis (thematic approach) after stage-wise tasks whereby data were recorded, transcribed, categorised, axially coded and grouped into themes relating to organisational factors influencing vendors' participation in public e-procurement system.

PLS-SEM analysis tools were chosen due to their flexibility which permit examination of complex associations, capability to combine linear regression and factor analysis, estimate constructs which are formatively or reflective, free from model fit and ignore assumptions hence remove error measurement problems (Hair *et al.*, 2016; Wolf *et al.*, 2013). The PLS-SEM analysis method was used as a prediction-oriented technique since it is capable to carry out Confirmatory Factor Analysis (CFA) with provision of reliable and valid outer loadings which guide on which indicators to drop and which ones to retain for results interpretation (Afthanorhan, 2013). The PLS-SEM analysis involves two main stages (Chin, 2010) which were: (1) The assessment of the measurement model like discriminant validity, internal consistency and item reliability of the measures (Formative measurement model for this study) and (2) the assessment of the structural model for path analysis determinants.

The Variance Inflation Factor (VIF) was inspected on assessing the multicollinearity problem. Table 3.1 depicts that the VIF were all below 10, meaning that the problem of multicollinearity did not exist (Chin, 2010). The wide measurement used to measure reliability was Cronbach's Alpha as per social sciences (Loewenthal and Lewis 2018; Bonett and Wright, 2015; Cronbach, 1951). Reliability of data were used to assess the internal consistency for all the 26 aspects through Cronbach's Alpha and was significant at an Alpha of 0.925, and reliability as per constructs was significant as indicated in Table 3.1 where all constructs' reliability tested scored above 0.7 indicating a strong consistency among constructs aspects (Prajogo & Sohal, 2003).

Two aspects were used to measure construct validity, namely discriminant validity and convergent validity. These measures were used to examine the variance of the shared latent variable and differences between each other (Alarcón *et al.*, 2015). In order to overcome traditional Cronbach's Alpha (CA's) deficiencies, the Composite Reliability (CR) was applied. The CRs threshold accepted in the study was above

0.80, and all are observed in table 3.1. The Average Variance Extracted was used to measure convergent validity, and the acceptable threshold should be above $AVE > 0.5$ (Fornell and Larcker 1981). The results showed the acceptable threshold for convergent validity see Table 3.1.

Table 3.1: Factor loadings, Reliability, Multicollinearity, Average Variance Extracted and Composite reliability

Construct	Indicator	Factor Loading	VIF	Cronbach's Alpha	AVE	Composite Reliability
OF	OFVPeP1	0.541	1.288	0.838	0.519	0.874
	OFVPeP10	0.674	1.673			
	OFVPeP11	0.745	1.789			
	OFVPeP12	0.618	1.619			
	OFVPeP3	0.706	1.733			
	OFVPeP4	0.612	1.448			
	OFVPeP5	0.720	1.716			
	OFVPeP6	0.532	1.476			
	OFVPeP8	0.768	1.936			
GF	GFVPeP1	0.625	2.076	0.932	0.622	0.942
	GFVPeP10	0.777	3.050			
	GFVPeP2	0.815	3.291			
	GFVPeP3	0.741	2.219			
	GFVPeP4	0.812	2.822			
	GFVPeP5	0.809	2.477			
	GFVPeP6	0.820	2.701			
	GFVPeP7	0.845	3.569			
	GFVPeP8	0.831	3.287			
	GFVPeP9	0.792	3.130			
VPeP	VPeP2	0.759	1.861	0.852	0.532	0.888
	VPeP3	0.801	2.091			
	VPeP4	0.750	1.828			
	VPeP5	0.684	1.494			
	VPeP6	0.760	1.890			
	VPeP7	0.712	1.712			
	VPeP1	0.626	1.380			

OF1: Electronic procurement strategy, OF3: Willing to change; OF4: Ethical Practice; OF5: Top management support; OF6: Agreements on new standards and procedures; OF8: Skilled human resources; OF10: Management Style; OF11: Training for practitioners; OF12: Database Capacity; GF1: Government leadership; GF2: Administrative Practice; GF3: Legal and policy framework GF4: Bureaucratic control; GF5: Bylaws for the system; GF6: Policies for Public-Private partnership GF7: Reliable Procurement procedures; GF8: Access of information for policy making; GF9: Equal access for SMEs and big enterprise; GF 10: Presences of PeP- contract management; VP1: Maximize Profit; VP2: Increase Market share; VP3: Maximize trust; VP4: Help contract control; VP5: Require small investment and accessible solution; VP6: Help in production planning; VP7: Help on inventory management.

Discriminant Validity requires the square root of Average Variance Extracted (AVE) to be greater than the correlations for the given constructs (Fornell and Larcker 1981); hence, it was tested and observed as shown diagonally in Table 3.2

Table 3.2: Discriminant validity test for measurement model in PLS-SEM

	GF	OF	VPeP
GF	0.789		
OF	0.449	0.662	
VPeP	0.531	0.563	0.729

GF: Governmental Factors, OF: Organisational Factors, VPeP: Vendors' Participation e-Procurement

4. Findings and Discussions

The structural model was assessed by using two measures: coefficient of determination (R^2) and significance level (t- test) with estimated path coefficient (β). The PLS-SEM method was used to determine influence of the constructs with the model by testing both organisational and governmental hypotheses as indicated in the paper. The significance of paths for the respective model was determined by actual testing. Therefore, the squared multiple correlation (R^2) for each construct was assessed. Then the paths' levels of significance were also evaluated for each construct.

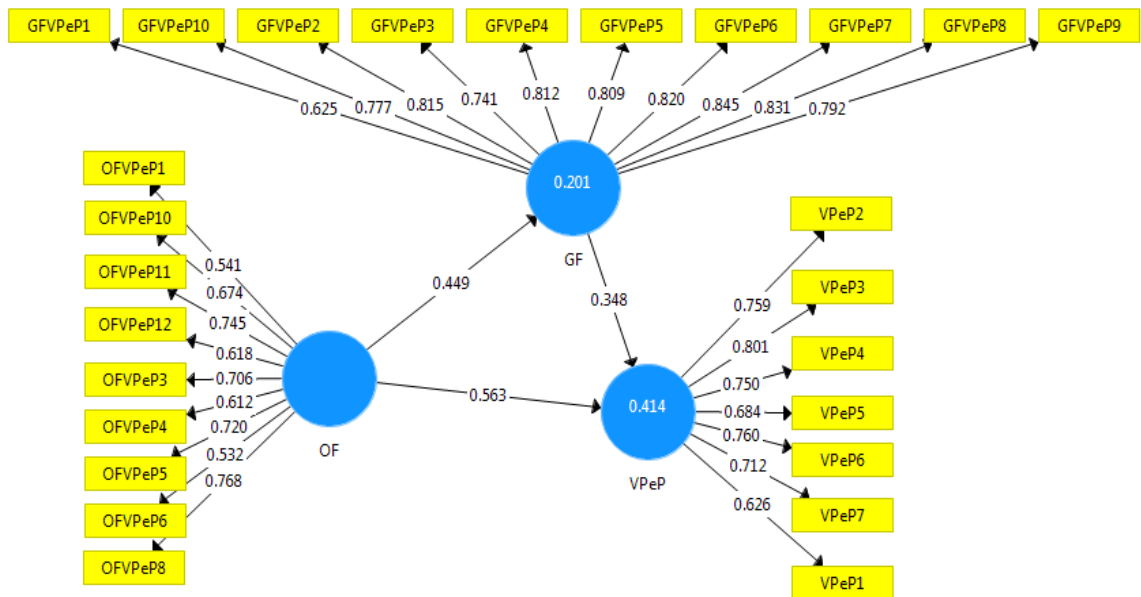


Figure 3.2: The PLS-SEM model results

The statistical results in Figure 3.2 for the theoretical model tested show significance to the hypothesized influence of organisational factors, which was supported by acceptable loadings for all measurements above 0.5. The results indicated that organisational factors had both direct and indirect influence on vendors' participation in public e-procurement system and the hypothesized influence appeared to be in line with real life due to the fact that training gives knowledge for anything new but also

top management must approve anything to be incorporated in the organisation structure.

Chin (2010) suggested that R^2 values up to 0.190 are weak; values ranging from 0.200 to 0.333 are moderate; and values 0.34 and above are substantial. Figure 3.2 shows that 20.1% ($0.201-R^2$) of the variance in governmental factors was explained by organisational factors, while 41.4% ($0.414-R^2$) in the vendors' participation aspect were explained by both organisational factors and governmental factors. The R^2 values fell under the moderate and substantial category as per Chin (2010); hence the values showed good results.

Table 3.3: The Partial least squares (PLS-SEM) results for hypothesis model test

Constructs	B	T-Value	P-Value	Remark
GF -> VPeP	0.348	5.006	0.000	Supported
OF -> VPeP	0.563	6.038	0.000	Supported
OF -> GF-> VPeP	0.156	3.680	0.000	Supported

GF: Governmental Factors, OF: Organisational Factors, VPeP: Vendors' Participation e-Procurement

In PLS-SEM, paths' levels of significance for the measurement model were tested by using the bootstrapping method. The bootstrap method was used because it is an alternative way to get better approximations for a true small sample property (Schmidheiny and Basel, 2012; Beaumont and Bocci, 2009; Chin's, 1998). According to Hair *et al.* (2011), the critical t-values for a two-tailed test are t-value >1.65 (significant at 0.1 level), t-value >1.96 (significant at 0.05 level) and t-value >2.58 (significant at 0.01 level). Table 3.3 indicates the hypothesis test and standardised path coefficient results. The results show that all the independent constructs positively and significantly influenced the dependent constructs VPeP (GF $\beta = 0.348$, t -value = 5.006, $p = 0.01$; OF $\beta = 0.563$, t -value = 6.038, $p = 0.01$; OF-GF $\beta = 0.156$, t -value = 3.680, $p = 0.01$) and GF (OF $\beta = 0.449$, t -value = 5.865, $p = 0.01$).

The results in Table 3.3 supported the alternative hypothesis (H_{a1}) that organisational factors (mainly top management support, willing to change, training to practitioners and skilled human resources) have no influence on vendors' participation in public e-procurement system, and this is highly supported by the DOI theory assumptions that an organisation must acquire requirements for participation in new innovations including training and top management approval. This implies that, for vendors to

participate in the public e-procurement system, vendors' employees must be trained; vendors' top management must be supportive but it must also allow change for better, but also, human resources involved in vendors' procurement process must be skilful; hence, guidelines and procedures have to be perfectly observed for better participation in the system. The training practice to vendors for participation in the e-procurement system was supported by key informants interviewed, some quoted saying:

“.....We, as a mandated government agency for the system, prioritise attracting vendors to participate in the system by attending training. Although it is a heavy duty, we must do it” (PPRA, TANePS personnel, 8th May 2019).

“.....Yes, being knowledgeable of the public e-procurement system as a vendor will motivate one to participate and use it” (MSD, TANePS personnel 7th May 2019).

The main argument for this key informant was how training can influence vendors' participation in the system. Studies conducted by Bahaddad *et al.* (2019), Muganda *et al.* (2018) and Thiga (2016) concurred with the findings reported in this paper by proving that organisational readiness (willing to change), training of employees (IT knowledge and skills) and top management support were significant and supportive factors for adoption and implementation of the e-procurement system, which was also a decisive factor for acceptance of existing technology; the only different was focus of the study.

Furthermore, top management support was the second organisational aspect with great influence on vendors' participation in the system; key informants supported this argument by arguing as follows:

“Vendors' top management must be supportive and willing to register; we have no other mechanism than letting them know the importance of being part of the system, because no way they can do business with government anymore” (MSD, TANePS personnel 7th May 2019).

This remind the vendors' top management that, they must permit integration to take place and not leave all decision to operational level who are not empowered to close big deal.

The findings of this paper concur with findings of a study done by Suliantoro and Ririh (2019), which found that supportive leadership (top management support), knowledge sharing (training) and change management (will to change) influenced vendors' usage of an e-procurement system. It was also supported by one of the key informant, quoted saying that:

“The integration between the public e-procurement system and vendors’ systems depends much on managerial commitment from respective vendor organisations. Third party software integration is the biggest issue; management willingness must be guaranteed” (GPSA, TANEPS personnel 7th May 2019). This implies that, management must bless this transition otherwise it won't succeed.

The second alternative hypothesis (H_{a2}), *“Governmental factors have influence on vendors’ participation in public e-procurement system”* was also supported. This implies that, for every unit increase in governmental aspects, effects would contribute a unit increase in organisational aspects of supporting vendors’ participation. And, more importantly, the effects of organisational factors on governmental factors were significant ($p < 0.001$).

Lastly, the third alternative hypothesis (H_{a3}), which stated that *“Organisational factors, once mediated by governmental factors, have influence on vendors’ participation in the public e-procurement system”*, was also supported by the results of this paper. Positive influence of organisational factors, mediated by governmental aspects for vendors’ participation in public e-procurement system, was found. This implies that once the government sets by-laws for the system, easy administrative practices, puts reliable procurement procedures in place and provides equal access for both small and medium sized enterprises and big companies, organisational factors can influence vendors’ participation in public e-procurement system. A Key Informant interviewee supported the intervention of government by saying:

“I think when government initiatives on implementing public e-procurement system by vendors are well supported, participation rate must improve due to the fact that vendors have nothing to do with establishing laws and regulations on behalf of government agencies” (MSD, TANEPS personnel, 7th May 2019).

This argument from a key informant implies that mediated organisational factors had strong influence on vendors’ participation in the public e-procurement system. The results proved wrong Baron and Kenny tests, which claim that there is no direct effect but mediation is strongest when there is an indirect effect in the equation, whereby the truth is that the strength of mediation should be measured by the magnitude of indirect effect and not by lack of direct effect (Zhao *et al.*, 2010). The study results imply that organisational factors have a strong influence on vendors’ participation in the public e-procurement system once mediated by governmental factors rather than direct effects. The Diffusion of Innovations theory (DOI) was assumed to have relative advantages (benefits/requirements) in place, acceptance of a given innovation being maximised. The findings of this paper support the DOI theory assumptions that having training, top management support, skilled human resources and willing to change have significant influence on vendors’ participation (diffuse) in a new innovation (public e-procurement system in this case).

5. Conclusions and Recommendations

The study found significant and direct influence of organisational indicators (which are training, top management supports, willing to change and skilled human resources) on vendors’ participation in public e-procurement system. This result means that an increase in one standard deviation of organisational indicators translated into increase of the rate of vendors’ participation in public e-procurement system. In addition, direct influence was found statistically significant ($p < 0.05$), which implies that influence exists in actual life of vendors’ participation. For organisational aspects having statistically significant and direct influence on vendors’ participation in the system suggests the existence of partial mediation. The study results also found an indirect linkage between organisational factors and governmental aspects for vendors’ participation in public e-procurement system. Therefore, for organisational factors and governmental factors having direct and indirect influence toward vendors’ participation in public e-procurement system, it is

concluded that internal organisations' characteristics and government interventions are very vital for vendors to participate in the system; hence co-operation between these key partners is highly encouraged for public e-procurement system successful implementation.

The study recommends that Public Procurement Regulatory Authority should continue to train vendors on how to participate in e-procurement system and get practical benefits from the system. The study also recommends to vendors' top management to procure infrastructure required for participation in the system but also that they should employ skilled human resources who can meet public procurement procedures requirement for participation in public e-procurement system. Lastly, since there is indirect influence of organisational factors via the aforementioned governmental aspects, it is recommended that PPRA should update system bylaws and reduce unnecessary bureaucratic controls for easy vendors' participation in public e-procurement system.

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CHAPTER FOUR

4.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

4.1 Summary of key findings

The study on which this thesis is based was conducted in Ilala District in Dar es Salaam Region, Tanzania. The overarching objective was to assess the determinants for vendors' participation in public electronic procurement system (PEPS). The study had four specific objectives: examine vendors' drivers on willingness to participate in the PEPS, compare the potentiality of perceived benefits between participants and non-participants for participating in PEPS, examine technological influence on vendors' participation in PEPS, and determine the influence of organisational factors with or without mediation of governmental factors on vendors' participation in PEPS.

The reasons that inspired the present study to be conducted were: first, it's was noted that public procurement consumes about 70% of budget for both development expenditures and normal expenditures. Second, there was clear evidence that vendors are key partners in all government purchases, and the government shifted its manual procurement to e-procurement system but vendors remained behind in integrating with this system, hence endangering competitiveness which will lead to poor quality supplies. Third, there was paucity in determining the influence of technological factors on vendors' participation decision. It has always been over reported that perceived benefits of technology can push/pull adoption/participation without clear evidence between participant and non-participant vendors for participation. Finally, the influence of organisational factors with mediation on governmental aspects on vendors' participation decision was not given due attention.

4.1.1 Vendors' drivers influencing participation in PEPS

The aim of this objective was to examine drivers which influence participation in public e-procurement system. The indicators used to measure vendors' drivers were perceived usefulness, perceived ease of use, lack of human interference, track and monitor, paperwork reduction, transparency, internal efficiency, lack of threat to jobs, corruption free, business networking, tender information and sharing of information. Factor analysis was conducted by using Principal Component Analysis for the sake of data reduction, whereby only 6 indicators out of 12 indicators were retained for further analysis. The data then were analysed using the multiple regressions model,

whereby the overall results showed that r-square was 0.297 implying that vendors' drivers predict vendors' participation in the public e-procurement system by 30%. The constant B term was 1.688 implying that that, if all variables were held constant, a unit increase of vendors' drivers increased the odds of vendors' participation in public e-procurement system by 1.688 times.

The vendors' drivers that were found to influence participation in the system were perceived usefulness, reduced paperwork, transparency and corruption free, all at the $p < 0.05$ level of significance. Generally, these results imply that vendors are attracted to participate if external drivers are well observed rather than internal vendors' drivers which they can manage internally.

4.1.2 Perceived Benefits of Participation in PEPS

The second objective of the study was to make a comparative analysis between participants and non-participants on the perceived benefits of participation in public e-procurement system. Factor Analysis (FA) was done for data reduction by removing all indicators with loadings less 0.5 (50%). The qualified measurement indicators for perceived benefits were improve efficiency, support negotiation, limit paperwork, improve transparency, standardize procurement process, decrease corruption, improve report writing, enable work to be done timely and costs control. These were post established benefits for the system (technology) adopted from literature and theories applied as relative advantages for acceptance of new technological innovation.

Multiple response analysis was used to compare the acceptance rate between two groups of participants and non-participants. The results revealed that both groups accepted by 90% and above those perceived benefits can be acquired if vendors participate in the system. Then, for robustness and indicators' significant level confirmation, the independent samples t-test was used for perceived benefits indicators between participant and non-participant vendors. The Eta square was applied to determine the magnitude of difference between the groups. The ETA results difference between participants and non-participants, were small and ranging from 0.01 to 0.06, therefore statistically significant according to Cohen (1988). The interpretation guideline was 0.01 = small, 0.06 = moderate and 0.14 = large.

Therefore, the null hypothesis that “There are no statistical differences in perceived benefits of public e-procurement between vendors participating and vendors not participating in public e-procurement” was rejected, implying that participants and non-participants differ on perceived benefits for participation in the public e-procurement system.

4.1.3 Technological factors influencing vendors’ participation in PEPS

The study focused on examining technological factors which influence vendors’ participation in public e-procurement system. Technological factors measurement indicators retained after Factor Analysis (FA) for data reduction and Confirmatory Factory Analysis (CFA) for model fit as per model analytical technique adopted were better data management, creativity and innovation, full system integration, data quality, computer and IT literacy, promising security, informational transparency and presence of software and hardware, these all are for exogenous constructs, while measurement of endogenous constructs were maximise trust, production planning, contract control and inventory control. The Covariance Based Structural Equation Modelling (CB-SEM) was used to assess complex influence relationship and testing the alternative hypothesis “Technological factors have significant influence on vendors’ participation in public electronic procurement system”. The results supported the alternative hypothesis, which implies that, for the vendors to participate in the system, some technological aspects must be acquired. The highly significant indicators for technological factors were data management, data quality, informational transparency and promising security, implying that vendors are so sensitive to data privacy rather than infrastructures for system integration support.

4.1.4 Organisational factors and vendors’ participation in PEPS

The last objective of the thesis aimed to examine influence of organisational factors mediated by governmental factors on vendors’ participation in public electronic procurement system. The indicators of organisational factors were electronic procurement strategy, willingness to change; ethical practice; top management support; agreements on new standards and procedures; skilled human resources; management style; training for practitioners and database capacity. The indicators of governmental factors (mediator) were government leadership; administrative practice; legal and policy framework; bureaucratic control; bylaws for the system; policies for

public-private partnership; reliable procurement procedures; access of information for policy making; equal access for SMEs and big enterprise and presence of public electronic procurement- contract management. Four alternative hypotheses were tested. The Partial Least Structural Equation Modelling (PLS-SEM) was used to confirm whether there were direct and indirect influences on vendors' participation in public electronic procurement system. The results indicated an R-square of 0.414 for both direct and indirect influence for vendors' participation in the system. This implies that organisational factors without mediation and with mediation are predictive to vendors' participation in the system by 41.4%. And all the alternative hypotheses were supported, implying that both organisational factors and governmental factors need to be considered for better vendors' participation in the public electronic procurement system.

4.2 Contribution of the Study

4.2.1 Contribution to literature

This study contributes a lot on long time undermined areas for scholars and adds information to the literature. Public procurement is counted as an economic backbone for any government and any means; the government cannot fulfil her requirements without engaging vital partners. Vendors are among key partners for public procurement; their requirements include goods, services and works. Therefore, participation of vendors in public projects (public e-procurement system inclusive) has been a vital requirement in order to succeed as documented by scholars, development planners and policymakers at local and international levels. Regardless of vendors being key partners for public projects to succeed, and no direct enforcement laws or regulation which might push them to participate in these public projects, little voluntary efforts have been made to document what will lead vendors to be motivated to participate with less effort from the government. These results filled this paucity in literature by providing key determinants which, if well observed, vendors as key partners in public procurement operation can be attracted to participate in this crucial project of public electronic procurement system hence improve qualified vendors in the database for providing government requirements.

Moreover, it is noted, while other scholars have studied direct relationship between organisational factors and innovation acceptance, this study tested mediation effects

of governmental factors on the influence of organisational factors on vendors' participation. This study gives evidence that the causal influence between organisational factors and vendors' participation is mediated by generic governmental aspects.

4.2.2 Theoretical contributions

The study was guided by the Participation Theory which is built on the assumption that vendors' choices to participate are affected by knowledge about the perceived benefits of a given system. The study found this theoretical claim true since perceived benefits had significant difference for acceptance of public e-procurement system between participant and non-participant vendors. However, the assumptions of the theory fall short in pulling more vendors or putting clearly factors which influence a large number of surveyed vendors who did not participate in the public electronic procurement system to participate. By this weakness, the study adopted other more theories including DOI, RBV and the TAM model which qualified to bring in light on more factors which will lead vendors to participate in the system.

The Diffusion of Innovation theory (DOI) provided basic assumptions that relative advantages (including corruption free, transparency, lack human interference, save time, improve data quality, business networking and allowing information sharing) of the new technological innovation will attract vendors to diffuse and participate in public e-procurement system. Scholars' review across a range of disciplines has also concluded that the diffusion process displays patterns and regularities across a range of conditions, cultures and innovations. The DOI Theory developed a new framework with five stages: knowledge, persuasion, decision, implementation and confirmation. However, an individual may reject to diffuse information if he or she encounters difficulties in adapting to the innovation. Thus, willingness on innovation decision process involves searching for information that can be used to reduce uncertainty about the innovation (Rogers 2003). From the finding, it is proved that relative advantages are catalysts for vendors' participation in public e-procurement system. Therefore, the theory's assumptions hold the truth. According to Rogers (2003), the influence of spread of new ideas, innovation itself, time, communication channel and social system, mainly relies on human capital; therefore, system controller (PPRA) and vendors have assignments to make sure they adore this theoretical claim so that

this vital project for public procurement advancement can be achieved and valued for money acquired.

The Resource-Based Theory (View) has the assumptions that for an organisation (vendors in the current study) to participate well, its internal resources (tangible or intangible) must fully be applied (Barney, 1991). Those resources, in order to bring competitive advantage to the respective organisation, must be valuable, rare, imitable and non-substitutable (VRIN). The thesis argues that both internal and external resources are vital for an organisational to have a competitive advantage. Internal resources include knowledge of the system, skilled human resource, top management support, ICT infrastructure and electronic procurement strategy; but the external resources found relevant were system bylaws, Internet, legal and policy framework and information policy. The argument supported, as for the vendors to participate in public e-procurement system, must acquire relevant knowledge, having IT resources, acquire quality data and manage them properly as internal resources, but also must acquire by-laws for the system, Internet, and legal resources as external resources. RBV's assumption falls short against the reality, due to the fact that vendors require both internal and external resources in order to participate in the public e-procurement system. Also, with fragile world on technological advancement, less resources are found to be rare, imitable and non-substitutable, but can only be valuable if they meet the intended purpose (add value on procurement operations for this study).

The Technological Acceptance Model (TAM) also guided the study on specific objectives two and three as it holds some assumptions fit for vendors' participation influence. The TAM postulates relative advantages (perceived usefulness-PU, and perceived ease of use-PEOU) which enhance vendors to accept technology and participate. The assumptions were found positive due to the fact that usefulness of the public e-procurement system is what attracts vendors to participate as they see it worth doing, especially on their competitive base and maximise market share, also ease of use will allow less effort to participate in the system. The TAM model helped on which technological factors to prepare for measurement which are information transparency, security assurance, room for innovation and creativity, easy accessible by IT infrastructure (Software and hardware) and assurance of having quality data in place which are a catalyst for vendors' participation in the public e-procurement

system. Therefore, this model was clearly supported by this study on its respective objectives applied; hence pull vendors to participate in the system.

4.2.3 Policy contribution

The thesis recommends several managerial implications. First, the PPRA, PEs and vendors should invest in modern technologies as a result of technological changes and improve their participation in public electronic procurement system. This would result in effective, efficient, competitive and value for money on whatever procurement operations are handled by these key business partners.

Security and data privacy should be given high priority for effective use of the public electronic procurement system. For instance, PPRA should develop an application with security features for securing sensitive data offered by vendors for retaining their competitive positions. This would make vendors trust and participate due to increase in reliability and accuracy of information. Furthermore, there should be very strong laws and regulations for vendors who participated in the public procurement system but fail to deliver as per the agreement with tender document specifications.

Institutions that control and supervise usage of the public electronic procurement system should ensure appropriate training is provided to vendors to enable them to cope with technological changes and develop a competitive edge on how to integrate effectively in the system.

Government should collaborate with other network providers, especially in the sources of internet providers, to enhance their visibility and strategically positioning. These in turn can influence provision of the required IT infrastructure and formulation of appropriate policies and standards for successful vendors' participation in public e-procurement system.

4.2.4 Methodological contribution

The first-generation models like regression; which include linear, multiple, Logit, probit, difference in difference (DID), simple t-test and propensity score matching (PSM); have been common models for a number of studies. With number of challenges including failure to handle complex relationship, they treat both observed measures and unobserved measures, but also, they have failed to accommodate both

independent and dependent indicators with their mediating or moderating influence at the same time. The study on which this thesis is based adopted both first generation models and second-generation models as its major analytical contribution, due to the fact that both applied Covariance Structural Equation Modelling (CB-SEM) and Partial Least Structural Equation Modelling (PLS-SEM) allow complex multiple relationships and uphold both mediating or moderating factors at a time. The model from second generation models also was the strongest predictive and highly reliable with reduction of errors due to having confirmatory analytical options for model fitness, hence improved its robustness.

4.3 Conclusions

4.3.1 Vendors' drivers influencing participation in public e-Procurement system

Vendors' drivers to participate in public e-procurement system were found vital in ensuring success of public projects from the supply side of the government. Thus, focus on how drivers lead vendors to participate in public e-procurement system was found unavoidable. The indicators that were used to measure vendors' drivers included corruption free, transparency, perceived usefulness and paperwork system. were the one provided by the study to have great influence for vendors to participate in the system. Therefore, the study concludes that the system must nurture these drivers' aspects so as to attract more vendors to participate in public e-procurement system as required.

4.3.2 Perceived Benefits of Participation in Public e-Procurement system

Perceived benefits were found to have influence for vendors' participation in public e-procurement system. The perceived benefits were indicators such as transparency, efficiency, report writing, corruption controller, costs cutting, paperwork reduction, report writing, standardised procurement process, and timely work done. They were the ones found significantly different between participant and non-participant vendors). Therefore, the study required general understanding of these perceived differences between the groups compared for assurance of achieving the individual operational target. Therefore, the study concludes that vendors must participate in order to reap the proved system's benefits and not otherwise.

4.3.3 Technological factors influencing vendors' participation in PEPS

Technological factors were proved to have significant influence on vendors' participation in public electronic procurement system. The technological factors that were found to have strong significant influence were system integration, informational transparency, creativity and innovation, better data management, data quality, computer and IT literacy, accessibility to software and hardware and security assurance. The study revealed that data privacy for participation was so sensitive compared to infrastructure which support system integration. The system must promise good treatment on data loaded and privacy for highly sensitive data, so that a competitive base for vendors won't be affected by any means. The system requires full knowledge on how to apply the system as computer and IT literacy which were also found having strong and significant influence just soon after data privacy.

4.3.4 Organisational factors influencing vendors' participation in PEPS

The organisational factors; as measured by the indicators training, top management support, willing to change and skilled human resources; revealed having significant influence on vendors' participation in public e-procurement system as direct effects. The organisational factors were also mediated by governments' factors (which were measured by bureaucratic control, system bylaws, reliable procurement procedures and administrative practice) and indirect effect proved to have influence on vendors' participation in public e-procurement system. Therefore, the study concludes that organisational factors and government factors are the key drivers for successful vendors' participation in the system in order to acquire reasonable number of qualified vendors in the government's database for competitive advantages on public procurement operations.

4.4 Recommendations

4.4.1 Recommendations to PPRA management

The study recommends to PPRA as mandated system developers to put easy features for system usage and assure that it cannot provide any loopholes for corruption; this can be done by allowing vendors to interact with procuring entities without meeting face to face and being able to close business electronically. The system must maximise transparency on procurement operations done by public institutions and vendors; this requirement will be achieved if all steps in the procurement process are

put online by procuring entities under PPRA supervision. The system must assure reduction of paperwork system once vendors participate in the system; this will be possible if PPRA controller continues allowing online attachments for necessary documents and recognize contracts with electronic signatures.

The study also recommends PPRA to consider surveyed perceived benefits indicators like transparency, paperwork reduction, costs control and time management, efficiency improvement and standardisation on procurement process by making sure all are met by the system. This can be achieved by reducing human intervention on the automated operations and maximise accountable with limited access to individual as per respective assignments.

The study further recommends PPRA to manage the quality of data, assure security and maximise transparency on information sharing across vendors participating in the public e-procurement system. This happen as it is noted from the findings that vendors are so sensitive on data they get and offer to the public for retention of their competitive position. This can be done by having level of access for vendors' filled documents which cannot hamper private information for business competitiveness position of the respective vendors.

The study recommends to PPRA that they should continue providing training to vendors on the associated benefits for participation in public e-procurement system. This can be done by providing knowledge on how to register in the system, how to use associated technology and how to get support from help desk for the system, but also sensitise why vendor must participate in the system for winning the public tenders advertised. It is also noted that willingness to change as a requirement of accepting new technology (public e-procurement system) is significant.

The study again recommends to PPRA as a system controller to continue providing technical support to vendors on computer and Information Technology so that more vendors will be confident to participate in public e-procurement system. Also provide necessary software and easily compatible to vendors so that they can't incur more charges to acquire them in the market.

4.4.2 Recommendations to individual vendors' management

The study recommends to vendors to continue participating in public e-procurement system in order to gain the benefits of using the system. This can be done through creating awareness and sensitization on the importance and benefits of participating in the system and competitive advantage of doing business with government as a vendor.

The study further recommends to vendors' management to be flexible on this new technological era by accepting the public e-procurement system. This can be done by the vendors' management allowing creativity and innovation advancement in their daily operations for coping with the current digital world.

Given that public e-procurement system stands better chances for vendors' competitiveness on doing business with government due to system' perceived benefits. The study recommended to non-participants vendors that they should consider participating in public e-procurement system for better position of winning the competitive tendering; thus, this would enable them to maximize their market share, cost minimization and generate more income for vendors' stability. This can be done by vendors' top management providing necessary support which might be required by non-participants to participate in public e-procurement system.

The study also recommends to vendors' top management to be supportive on participation in public e-procurement system. This can be done by vendors' top management employing skilled personnel and provide clear internal guidelines to their procurement operational staff for participation in public e-procurement system.

4.4.3 Recommendations to Ministry of Finance and Planning

The study recommends to the ministry of finance and planning as Policy makers to improve the existing public e-procurement system and its operations by investing more resources as they impact positively on acquiring the pillars of public procurement including value for money, transparency, accountability, competition, integrity, fairness to mention few. This is evident from participating vendors which helps them improve their market share and competitive base.

The ministry should improve on procurement procedures relating with the system and reduce unnecessary bureaucracy for easy vendors' participation in public e-procurement system. Also, the government through GPSA should establish the framework contract for only those vendors who are willing and ready to participate in the public e-procurement system. It must make this as the criteria for qualification to be pre-qualified.

The ministry should enforce application of waterfall model whereby the policies should be in place to identify vendors' needs from design, implementation, verification and maintenance of the system; hence vendors will be attracted to participate and be assured of its reliability.

Ministry's organs dealing with public e-procurement system including GPSA should make efforts to ensure that vendors are provided with assurance of quality data and security as possible just once the register in the system. This can be achieved by introducing bylaws and policies with its strategies on the level of support to be provided to vendors in order to attract them to participate.

The ministry should amend its policies by reviewing cost items charged on vendors' participation in the system in view of making them competitive and attracted to participate by registering with no charges. But if it's the must to charge some fees for the system maintenance, then affordable costs charged.

4.5 Areas for Further Research

The study assessed the determinants of vendors' participation in the public electronic procurement system in Ilala District. First, the study used a case study with just one selected district in Dar es Salaam. It is suggested that further research should be conducted using a survey design which will involve many districts so as to achieve generalisation of the study.

Second, it is suggested that further research should be done to assess vendors' profitability (benefits) under participation in the public electronic procurement system as this has been a main agenda for vendors on usage of the system.

Third, since this study focused on private sectors participation in the public e-procurement system, it is suggested that further research should be conducted on public institutions implementation of the public e-procurement system so as to come up with a comparative analysis showing acceptance of the system between the two sectors.

APPENDICES

Appendix I. Survey Questionnaire

Serial Number

MOSHI CO-OPERATIVE UNIVERSITY
DEPARTMENT OF MARKETING, PROCUREMENT AND SUPPLY
MANAGEMENT

A Questionnaire for assessing determinants for vendors' participation in public electronic procurement system: A Case of Ilala District, Dar es Salaam, Tanzania

Dear respondent,

I am Meshack Loisuji Siwandeti, a doctoral student at Moshi Co-operative University (MoCU). As part of my degree requirements, I am conducting a research titled "Assessment of determinants for vendors' participations in public Electronic Procurement system in Ilala District, Dar es Salaam, Tanzania". I have identified your institution as one of my potential respondents. I assure you that all information to be collected will be used purely for this academic research, and I guarantee utmost confidentiality of your institution and responses thereto. Please feel free to express your opinion as required by questions in each of the sections provided in this document.

Questionnaires Identification:

S/N	Item	Response
1	Date questionnaires filled	
2	Name of Organization	
3	Managerial position	
4	Integration status (Participated or Not participated)	

Section A: general information

1. Sex (check only one): Male = 1 () Female = 0 ()
2. Your age in years:.....
3. Job title: 1. Director () 2. Deputy director () 3. Manager () 4. Staff () 5. Unknown ()
5. Work experience (years):.....
6. E-procurement experience (years):.....
6. Level of Education: 1.Certificate () 2. Diploma () 3.Degree () 4. PGD 5. Masters() 6. Others ()
7. Registration by Professional body: 1. Yes (), 2. No (), 3. Not Applicable ()

Section B: Vendors' willingness drivers for participation in public e-procurement system

Objective One: Examine Vendors' Willingness Drivers toward participation in public e-procurement system

1. How do you rate compatibility of your business and usage of procurement electronic system? 1. Low (), 2. Moderate () 3. High ()

2. Do you prefer to integrate your electronic procurement system with public e-procurement system?

1=Yes () 0=No ()

3. For whatever answer above (Question 2), give brief statement why?.....

4. If the system integration requires addition costs, can you pay for it?

1=Yes () 0=No ()

5. Are you ready to equip by training your staffs for best integration and usage of public e-procurement system? 1=Yes () 0=No ()

6. Do you require any government support to push for quick integration into public e-procurement system? 1=Yes (), 0=No ()

7. If your answer above is Yes, give highlight on at least four (4) key areas you need support

(i), (ii), (iii), (iv)(v).....

8. Is the ICT policy (2003), attractive for you to integrate your system into public e-procurement system? 1=Yes (), 0=No ()

9. Do you prefer to integrate your electronic systems with public e-procurement system due high transparency expected in procurement proceedings? 1=Yes (), 0=No ()

10. Is the tender fee encountered on paper work system, drive you to be willing to integrate your operations with public e-procurement system? 1=Yes (), 0=No ()

11. What is your Strategic importance of public e-procurement system into your business?

1. Extremely important () 2. Important () 3. Neither important nor unimportant ()

4. Unimportant () 5. Extremely unimportant ()

12. As per your opinion on willingness to participate into public e-procurement system, what are the source of drivers for your participation?

1. Management () 2. Customers () 3. Competitors 4. government requirements ()

13 where did you got/expecting to get capital for public e-procurement system integration?

Personal income () 2. Government () 3. Microfinance () 4. Bank ()

14. Please mark (√) where suitable as per following scale

(Key: 1-Strongly Disagree 2-Disagree 3-Neutral 4-Agree 5-Strongly Agree)

Code	Indicators	1	2	3	4	5
VD1	I would use the public e-procurement systems for handling all my procurement tasks as they fit to it					
VD2	I prefer to use public e-procurement system than manual procurement system because it easy to use					
VD3	I prefer public e-procurement system due to less human interference in bidding processes, hence no added costs					
VD4	Public e-procurement will enable me to track and monitor my bidding document, which can increase the level of trust between government and vendors					
VD5	I like public e-procurement system because it will reduces paper work					
VD6	I am comfortable to use e-procurement system to ensure transparency					
VD7	I prefer public e-procurement system because it will improve internal efficiency across procurement processes					
VD8	My procurement personnel has negative feeling toward public e-procurement system as their job are save					
VD9	The use of public e-procurement system has no any harm to my business and does not put the business to high risks					
VD10	I am ready to provide my organization information to an public e-procurement system for better business networking					
VD11	I can always relay tender information provided in public e-procurement system portal					
VD12	I do not prefer public e-procurement system because it hinder direct contacts hence reduce experience sharing					

15. What are the factors that influence e-procurement adoption in vendors' business

Please mark (√) where suitable as per following scale

(Key: 1-Strongly Disagree 2-Disagree 3-Neutral 4-Agree 5-Strongly Agree)

ICT Infrastructure		1	2	3	4	5
T1	The Sufficient budget set for ICT infrastructure					
T2	The presence ICT equipment which facilitates the e-procurement process					
T3	The reliable internet to all departments is available					
T4	The software and hardware enhances the e-procurement is adequate					
T5	There is Sufficient ICT infrastructure for e-procurement system					
Public Procurement Regulations						
P1	The public tendering process affects e-procurement positively					
P2	Public procurement has adequate regulations to vendors' adoption					
P3	Well laid down procurement policies					
P4	Government promotes vendors' e- procurements system adoption					
Management Commitment to E-procurement						
M1	Managerial policies favour adoption of e-procurement					
M2	Managers are committed to e-procurement adoption					
M3	Employees are trained in e-procurement system					
M4	Management Style promote change for system adoption					
M5	Management support e-procurement activities processing					
M6	E-procurement adoption is not a threat to their jobs					

Section C: Comparative analysis of procurement e-procurement perceived benefits indicators between participating and non-participating vendors,

Objective Two: Compare the public e-procurement perceived benefits for participating vendors and non-participating vendors

16. Generally, how do you compare your procurement performance before and after public e-procurement system’s participation?

1. Improved () 2. Same as before () 3. Decreased ()

17. Please give reasons to support the choice made above:

.....

18. Public e-procurement system impact to Vendors’ procurement operation indicators:

(Key: Tick 1 = Yes (Agree) or 0 = No (Disagree))

S/N	Indicators	1	0
1	Using public e-procurement system enable works to be done quickly		
2	Using public e-procurement system make procurement process easier		
3	Public e-procurement system provides more consistency in bidding processes		
4	Using of public e-procurement system lead procurement functions to be more openness, transparency and fair		
5	Public e-procurement system help to decrease in the potential for corruption in public procurement		
6	Using of public e-procurement system reduce burden of paper work system		
7	The use of public e-procurement system increases competition among bidders/suppliers in contracting processes		
8	The use of public e-procurement system standardise purchasing processes across the organisation		
9	Public e-procurement system provide more transparency in bidding process than manual systems hence increase productivity		
10	Public e-procurement system develop a set of professional standards to enhance the knowledge, skills and integrity of public procurement officials		
11	Use of public e-procurement system improves internal efficiency across procurement processes		
12	Public e-procurement system helps to provide fixed-price contracts to all bidders		
13	Public e-procurement system, contributes to enhanced competition in terms of quality (participation) and quality (openness and fairness) in tendering processes		
14	Public e-procurement system support cross negotiation for win-win situation		
15	Public e-procurement system reduce customers complains		
16	Public e-procurement system allow easy retrieval of transaction records		
17	Public e-procurement system improve trade partners linkage		
18	Public e-procurement system contributes to the security of transactions		
19	Public e-procurement system lead procurement functions to be more effective and efficiency		
20	Public e-procurement system, improve legal compliance		
21	Public e-procurement system reduce administrative costs of document handling and distribution to multiple parties		
22	Public e-procurement system support complete log of all communications maintained for tracking purposes		
23	Public e-procurement system help to reduce risk of errors and rework on procurement		

	process		
24	Public e-procurement system lead to rich information available to managers		
25	Public e-procurement system help for procurement functions completion as per the specifications		
26	Public e-procurement system lowered transaction costs		
27	Public e-procurement system is more standardized and more efficient procurement processes		
28	Public e-procurement system has greater control over procurement spending (less maverick buying) and better employee compliance		
29	Public e-procurement system has more reengineered procurement workflows.		
30.	Providing specific mechanisms for the monitoring of public procurement and the detection and sanctioning of misconduct in public procurement		
31	Handling complaints from potential suppliers in a fair and timely manner		

19. What are the public e-procurement drivers that impact vendors' procurement performance?

	Drives (Indicators has impact on Vendors' performance)	1	2	3	4	5
1	Price Reduction					
2	Improve efficiency					
3	Improve effectiveness					
4	Negotiated Unit Cost reduction					
5	Improved Visibility of Internal Customer Demand					
6	Reduced Administration Costs					
7	Improved Market Intelligence					
8	Reduced Operational & Inventory Costs					
9	Enhanced Decision making					
10	Improved Contract Compliance					
11	Shortened Procurement Cycle Times					
12	Improved Visibility of Supply chain management					
13	Reduction in the number of suppliers					
14	Enhanced Inventory Management					
15	Enhancing service delivery					
16	Leveraging the business group					
17	Reducing "maverick" purchases					
18	Better management of information reports					
19	Standardise procurement processes across the organisation					

1– Least important, 2– less important, 3– neutral, 4–important,5-most important

20. What are the perceived benefits/transformations resulting from vendors' participation in public e-procurement system?

S/N	Impact of e-procurement initiatives on strategic sourcing processes by Vendors	1	2	3	4	5
1	Supply chain integration					
2	Supplier sourcing					
3	Employee overhead					
4	Levels of outsourcing					
5	Efficiency of Procurement procedures					
6	Strategic positioning of procurement					
7	Changes to technological infrastructure					
8	Staff development & training					
9	Inter-organisational information management					
10	Option to lease capital assets					

1–very low, 2–low 3-moderate, 4– high, 5-very high

21. Information regarding public e-procurement contributions for the procurement performance.

S/N	Contributions for public e-procurement business performance (Indicators)	0	1
1	Do you have right team with IT skills and e-procurement systems usage		
2	Does your team have appropriate experience on electronic system		
3	Do you think your team are highly motivated to sustain this procurement performance?		
4	Do you accommodate all your customers smoothly using this e-procurement system?		
5	Does your business have enough resources including financial to reach expected target for system integration?		
6	Do you reliable source of internet to manage full time online access?		
7	Does your e-procurement system perform well as expected?		
8	Does e-procurement system meet all perceived benefits lead to performance?		
9	Does power stability lead to public e-procurement to reach expected target?		
10	Does government support contributed to organisation to meet expected target?		
11	Does your system output meet expected quality data/product/service to customers		
12	Analyse purchasing behaviours of end users		
13	Consolidate suppliers and contracts		
14	Enforce on-contract buying with preferred suppliers		
15	Support joint problem-solving with buyers and suppliers		
16	Synchronised scheduling of order with suppliers and buyers		
17	Give individual and unit spending a lot of visibility		
18	Linking sourcing strategy to corporate strategy		
19	It allow the benchmark reference for implementations		
20	Its allow continuous Process improvement		
21	The use of public e-procurement service reduces bureaucracy		
22	The use public e-procurement service lowers administrative costs.		
23	Allow the higher information systems integration		
24	Increased transparency and competitiveness		
25	The use public e-procurement system lead to tenders value Increase		
26	It has a large impact on contracting time reduction		
27	Allow the greater control over procurement spending		

Tick 1=Yes (Agree) or 0=No (Disagree)

Section D: factors influencing vendors' participation in public e-procurement system,

Objective Three: Technological factors on vendor's participation in public e-procurement system,

22. How do you rate technological level lead vendors' participation in public e-procurement system? 1. Low (), 2. Moderate () 3. High ()

23. Please mark (√) where suitable as per following scale

(Key: 1-Strongly Disagree 2-Disagree 3-Neutral 4-Agree 5-Strongly Agree)

Code	Technological factors on vendors' participation in public e-procurement system	1	2	3	4	5
TF1	Promising Security control make easier participation					
TF2	Data quality drive into easy participation					
TF3	Information transparency encourage participation					
TF4	Better data management push into participation					
TF5	Full system integrations support quick integration					
TF6	Presence of Hardware and Software easy participation					
TF7	User computer/internet literacy encourage participation					
TF8	Creativity & Innovation motivate participation					
TF9	Reliable internet supply will encourage participation					
TF10	Public system training pull full participation					
TF11	Speed and affordable internet improve participation					
TF12	Use common system encourage participation					

Objective Four: Section One: Organizational factors on vendor's participation in public e-procurement system,

24. What is the level of organizational readiness on vendors' participation in public e-procurement system? 1. Low (), 2. Moderate () 3. High ()

25. Please mark (√) where suitable as per following scale (1-Strongly Disagree 2-Disagree 3-Neutral 4-Agree 5-Strongly Agree)

Code	Indicators	1	2	3	4	5
OF1	The organisation has electronic strategy which support participation					
OF2	Organizational structure is good and clear for participation					
OF3	The firm is willing to Change for better					
OF4	Ethical practice is the operational element into business					
OF5	Top management support to new IT and ways of business					
OF6	Agreements for new resource planning system and standards that enables to connect with business partners					
OF7	Information sharing culture speed up participation					
OF8	The organization we have enough knowledge about information technology(Skilled human resources)					
OF9	The organization policies are supportive for participation					
OF10	The Management style promote participation					
OF11	Training to practitioners' is among key pillars for the firm					
OF12	The gradual public e-procure system integration will improve database capacity					

Objective Four: Section Two: Government factors on vendor's participation in public e-procurement system

26. How do you rate the level of government initiative on vendor's participation in public e-procurement system? 1. Low (), 2. Moderate (), 3. High ()

27. Please mark (√) where suitable as per following scale

(Key: 1-Strongly Disagree 2-Disagree 3-Neutral 4-Agree 5-Strongly Agree)

Code	Government factors on vendor's participation in public e-procurement system	1	2	3	4	5
GF1	Government leadership supportive for participation					
GF2	Easy administrative procedures to integrate into public e-procurement system					
GF3	Legal and policy framework are well stated for participation					
GF4	Easily accessed to business permit for integration					
GF5	Conducive business system integration process are well established bylaws for vendors' participation					
GF6	Good policies for public-private partnership enhanced					
GF7	Good procurement procedures which allow all stakeholder involvement					
GF8	System campaign policy which allow information sharing with vendors for participation					
GF9	Equal access for SMEs and big enterprises					
GF10	Presences of Public e-procurement contract management					

Section three: Environmental factors on vendors' participation in public e-procurement system,

28. What is the level of environmental conduciveness for vendor's participation in public e-procurement system? 1. Low (), 2. Moderate () 3. High ()

29. Please mark (√) where suitable as per following scale

(Key: 1-Strongly Disagree 2-Disagree 3-Neutral 4-Agree 5-Strongly Agree)

S/N	Environmental factors on vendor's participation in public e-procurement system	1	2	3	4	5
1	Strong motivation encourage participation					
2	Trading partner readiness support on participation					
3	Formal performance tracking pull for participation					
4	Change management lead for participation					
5	Supportive cultural environment encourage participation					
6	Bureaucratic control support participation					
7	Prioritization of e-procurement encourage participation					
8	Reward & Recognition encourage participation					
9	System Development Methodology lead to participation					
10	Good service quality pull in participation					
11	Trust may lead for participation					
12	Electronic Transaction security pull in participation					
13	Market Potential assist on participation					
14	Stakeholder involvement support on quicker participation					
15	Good Governance support easy participation					
16	Political support may help on participation					
17	Business partner pressure may pull for participation					
18	Organisation intention to adopt lead for participation					
19	Adequate power supply encourage on participation					
20	Heavy fibre cable spread-over support on participation					

Section F: Factors hinder vendors' participation in public e-procurement system

30. Do you face any operational problems with usage of public e-procurement system?

1=Yes () 0=No ()

32. If yes, name the problems/barrier hinder your business operations into public e-procurement system. 1..... 2.....3.....

33. What are the interrelations between the mentioned barriers above?.....

...

34. How do the barriers within the vendors' participation within public e-procurement system process differ between technological and non-technological innovations?.....

35. Please mark (√) where suitable as per vendors' barriers for participation in the public e-procurement system as per your knowledge:

(Key: 1-Strongly Disagree 2-Disagree 3-Neutral 4-Agree 5-Strongly Agree)

S/N	Barriers Indicators	1	2	3	4	5
1	Lack of moral support among public employees					
2	Lack of financial base of the organization					
3	Lack of awareness on the public e-procurement participation benefits					
4	Unnecessary bureaucracy on process for integrating vendors' system into public e-procurement system					
5	Poor supervision on how to operate e-procurement system					
6	Political interference on participation process					
7	Hardware and software reliability problems					
8	Fear of job loss or making professionals redundant.					
9	Low competence of trading partners on adopting e-procurement					
10	Lack of training to vendors officers on how to integrate public e-procurement system					
11	Lack of commitment by Top firms' management					
12	Lack of competition of technological innovation to local vendors official due to government restrictions					
13	Poor involvement of partners to all system's stages					
14	Lack of enough IT infrastructures by some of vendors					
15	Rapid changes in ICT technologies in the market					
16	Lack of legal/policy support for use of ICT					
17	Illegality of e-procurement contracts					
18	Presence of unreliable of power supply					
19	Inadequate government support					
20	Access to relatively cheap work force in the market					
21	Poor safety and insecurity on the e-procurement process					
22	Age of the firm into business					
23	Size of firm					
24	Category of organization					
25	Lack of confidentiality and inflexibility					
26	Resistance to change					
27	Incompatibility of vendors' existing system into public e-					

	procurement system					
28	Lack of assurance on sustainment for the system					
29	Limited benefits knowledge/Low return on investment for ICT system integration					
30	Satisfaction with existing method of paper work system					
31	Lack of business relationship with customers due to low level of personal contact					
32	The negative impact of e-procurement on the organization					
33	Lack of confidence in the new technology					
34	Incorrect reassembly data transmission					
35	Lack of widely accepted e-Procurement software Solution					
36	Confidentiality of information-unauthorized Viewing					
37	Lack of a national IT policy relating to e-procurement Issues					
38	Lack of clarity of sender and tenderers information					
39	Prevention of tampering with document					
40	High cost of Internet services					

Determinants for vendors' participation in public electronic procurement system: A case of Ilala District, Tanzania.

Key Informants Interview Guide

Preliminary questions

Interview Questionnaire Number:.....

Date of interview:

Name of enumerator:.....

Name of the firm:.....

Position of interviewee in the firm:

Guiding Questions for the Interview on Determinants for Vendors' participation in public e-procurement system:

How do you describe public e-procurement system (Tanzania electronic procurement system)?

What do you do on fulfilling the vision on the establishment of this public e-procurement system? (the role you play for supporting the system)

How vendors are engaged into public e-procurement system? (Applicability)

What factors from technological, organisational, environmental or governmental can influence sustainability of vendors' participation in public e-procurement system?

From your organization, what are efforts made to improve vendors' participation in this public e-procurement system? How are they responding?

What the public procurement act and its regulation say about vendors' participation in public e-procurement system? (Willingly or mandatory?)

What happen if they will be reluctant to participate in the public e-procurement system?

Do you think vendors' participation into public e-procurement has enabled them to improve their chances participating into public procurement opportunities?

Without participation in public e-procurement system, how do you see vendors in competitiveness on their engagement into public procurement?

From your organization, what are the support your offering to vendors in order to maximize their participation?

From the point of your experience, what seems as the challenges facing vendors' participation in public e-procurement system?

Appendix II: Proposal Clearance Form

G-020

**MOSHI CO-OPERATIVE UNIVERSITY (MoCU)
CHUO KIKUU CHA USHIRIKA MOSHI**
Directorate of Research and Postgraduate Studies

To : **VICE CHANCELLOR**

RESEARCH PERMIT CLEARANCE FORM FOR POSTGRADUATE STUDENTS

This proposal clearance form should be filled by the student and approved by the Research Supervisor.

After approval by the supervisor the student should collect the research permit from the office of the Vice Chancellor ready for data collection.

Name of student: MESHACK LOISUTAKI SIWAMDETI

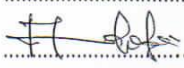

Programme of study: Ph.D

Registration number: HD/TSUA/MoCU/028/17

Research title: DETERMINANTS FOR VENDORS' PARTICIPATION
IN PUBLIC ELECTRONIC PROCUREMENT SYSTEM
IN DAR ES SALAAM, TANZANIA.


Name of supervisor: Dr. Mfanga


Approval by Supervisor: Allowed for data Collection

Student's Signature: [Signature] Supervisor's Signature

Date: 19/02/2019 Date: 19.02-2019




 Vision: To become a Centre of Excellence in Co-operative Education and Practice
 Centre of Excellence in Co-operative and Business Management Training of the East Africa Community (EAC)

Appendix III: Research Permit I

**MOSHI CO-OPERATIVE UNIVERSITY (MoCU)
CHUO KIKUU CHA USHIRIKA MOSHI**

Sokoine Road,
P.O. Box 474,
Moshi, Tanzania.
Tel:+255 272754401
Fax:+255 272750806
e-mail: info@mocu.ac.tz
Website: www.mocu.ac.tz



OFFICE OF THE VICE CHANCELLOR
P.O. Box 474,
Moshi, Tanzania.
Tel: +255 27 2751833
Fax: +255 27 2750806
E-mail: vc@mocu.ac.tz

Our Ref. No: MoCU/UGS/3/41

Date: 22 Februari, 2019

Your Ref. No:

Katibu Tawala,
Mkoa wa Dar es Salaam,
DAR ES SALAAM.

**YAH: KIBALI CHA KUFANYA UTAFITI KWA WANATAALUMA NA WANAFUNZI WA CHUO
KIKUU CHA USHIRIKA MOSHI (MoCU)**

Madhumuni ya barua hii ni kumtambulisha kwako **Ndugu Meshack L. Siwandeti** mtafiti/mwanafunzi wa Chuo Kikuu cha Ushirika Moshi ambaye kwa sasa anatarajia kufanya utafiti katika eneo lako.

Maombi haya yamezingatia Waraka wa Serikali wenye Kumb. Na. MPEC/R/10/1 wa tarehe 7 Julai, 1980 pamoja na Hati Idhini ya Chuo Kikuu Cha Ushirika Moshi (MoCU). Moja ya majukumu ya Chuo ni pamoja na kufanya utafiti na kutumia matokeo ya tafiti hizo katika kufundishia. Aidha, wanafunzi hufanya utafiti kama sehemu ya masomo yao wakiwa Chuoni.

Ili kufanikisha utekelezaji wa tafiti hizo, Makamu wa Mkuu wa Chuo hutoa vibali vya kufanya utafiti nchini kwa wanafunzi, waalimu, na watafiti wake kwa niaba ya Serikali na Tume ya Sayansi na Teknolojia.

Hivyo basi, tunakuomba umpatie mwanafunzi/mtafiti aliyetajwa hapo juu msaada atakaohitaji ili kufanikisha utafiti wake. Gharama za utafiti atalipia mwenyewe. Msaada anaohitaji ni kuruhusiwa kuonana na viongozi na wananchi ili aweze kuzungumza nao na kuwauliza maswali aliyo nayo kuhusiana na utafiti wake.

Madhumuni ya utafiti wa mwanafunzi/mtaalamu aliyetajwa hapo juu ni: **“Determinants for Venders’ Participation in Public Electronic Procurement System in Dar es Salaam, Tanzania”**

Sehemu atakazofanyia utafiti huo ni: **DAR ES SALAAM.**

Ikiwa kuna Sehemu ambazo zinazuiliwa, ni wajibu wako kuzuia zisitembelewe.

Muda wa Utafiti huo ni kuanzia tarehe **22/02/2019** hadi **31/12/2019**.

Ikiwa utahitaji maelezo zaidi tafadhali wasiliana nami.

Wako katika ujenzi wa Taifa,

Prof. F.K. Bee
MAKAMU MKUU WA CHUO

Nakala kwa: Mtafiti




*Vision: To become a Centre of Excellence in Co-operative Education and Practice
Centre of Excellence in Co-operative and Business Management Training of the East Africa Community (EAC)*

Appendix IV: Research Permit II

THE UNITED REPUBLIC OF TANZANIA
President's Office
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

DAR ES SALAAM REGION
Phone Number: 2203158
Fax number: 2203158
email: ras@dsm.go.tz
website: www.dsm.go.tz



REGIONAL COMMISSIONER'S OFFICE,
3 RASHID KAWAWA ROAD,
P.O. BOX 5429,
12880 DAR ES SALAAM

In reply please quote:
Ref. No.

08th March, 2019


District Administrative Secretary,
LALA
.....
P. O. Box,
DAR ES SALAAM.

RE: RESEARCH PERMIT

~~Prof/Dr/Mrs./Ms/Miss~~ MESHACK LEISUTAKI SJWANGETI is
student/Research from Mochi Co-operative University has been
permitted to undertake research on DETERMINANTS FOR VENDORS'
PARTICIPATION IN PUBLIC ELECTRONIC PROCUREMENT
SYSTEM, DAR ES SALAAM TANZANIA.

From 11th MARCH 2019 to 31st DECEMBER 2019.

I Kindly request your good assistance to enable her/his research.


.....
For; **REGIONAL ADMINISTRATION SECRETARY**
DAR ES SALAAM

Copy: Municipal Director,
LALA
.....
DAR ES SALAAM.


" Principal/Vice Chancellor
Mochi
.....

Appendix V: Research Permit III

The United Republic of Tanzania
Prime Ministers' Office

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

ILALA DISTRICT
Phone Address:
Phone No: 2203185/2203182
In reply quote: Ref. No: AB.60/87/01/




DISTRICT COMMISSIONER'S OFFICE
ILALA DISTRICT
P. O. Box 15486,
DAR ES SALAAM
Date: 8th/03.2019

Municipal Director,
P. O. Box 20950,
Ilala,
DAR ES SALAAM.

RE: RESEARCH PERMIT

Prof./Dr./Mr./Mrs./MS./Miss: MESHACK LOISWAKI SIWANDETI
 from The Moshi CO-OPERATIVE UNIVERSITY, she/he has been
 permitted to undertake a field work research on "DETERMINANTS
 FOR VENDORS' PARTICIPATION IN PUBLIC ELECTRONIC
 PROCUREMENT SYSTEM IN DAR ES SALAAM, TANZANIA"
 The case study at Ilala District from 11th March 2019 to 31st December 2019.

Therefore, you are asked to give the said researchers necessary assistance
and Cooperation.



 District Administrative Secretary
 ILALA

Copy: Moshi CO-OPERATIVE UNIVERSITY
(Mocu)
 Principal/Vice Chancellor,

Appendix VI: Research Permit IV

HALMASHAURI YA MANISPAA YA ILALA
BARUA ZOTE ZIPELEKWE KWA MKURUGENZI WA MANISPAA

SIMU NA. 2128800
2128805
FAX NO. 2121486



OFISI YA MKURUGENZI
I MTA A WA MISSION
S.L.P 20950
11883 - DAR ES SALAAM

KUMB. NA. IMC/AF.3/31

11th / 03 / 2019

VENDOR UNDER
GPSA FRAMEWORK.
ILALA-DSM.

YAH: RUHUSA YA NDUGU MESHACK LOISWAKI SIWANDI... KUFANYA
PROJECT/FIELD/RESEARCH


Tafadhali rejea somo tajwa hapo juu.

Mtajwa hapo juu ni mwanachuo katika Chuo cha USHIRIKA MASHI (M&U)

ambaye amekubaliwa kufanya Project/Field/Research juu ya
"DETERMINANTS FOR VENDORS' PARTICIPATION
IN PUBLIC ELECTRONIC PROCUREMENT SYSTEM" katika ofisi yako kuanzia
tarehe 11/03/2019 hadi tarehe 31/12/2019

Hivyo mpokee na kumpa ushirikiano kulingana na mahitaji yake.

Ninakutakia kazi njema.


Kny: MKURUGENZI WA HALMASHAURI YA ILALA

Kny: MKURUGENZI
HALMASHAURI YA MANISPAA YA ILALA

Appendix VII: Attendance certificate for TANEPS

CERTIFICATE OF ATTENDANCE



Public Procurement Regulatory Authority
FOR TRANSPARENT PROCUREMENT IN TANZANIA

Cert. No. PPRA/TANePS/2019-20/1256

This certificate is awarded to

Meshack Loisujaki Siwandeti

**for attending a training on “Tanzania National
Electronic Procurement System” - TANePS
(Electronic Tendering Module)**

**held in Arusha from 21st to 26th October 2019, and
qualified for the award of 48 hours of Structured
Continuing Professional Development**


Amb. Dr. Matern Lumbanga
Board Chairman, PPRA


Eng. Leonard S. Kapongo
Chief Executive Officer, PPRA

**Appendix VIII: Editorial Board for Sustainable Education and Development
Springer Nature**

Springer Nature Editors

1. Prof. Joseph N. Mojekwu
University of Lagos
Lagos, Nigeria
2. Prof. Wellington Thwala
Department of Construction Management
and Quantity Surveying
University of Johannesburg
Johannesburg, Gauteng, South Africa
3. Prof. Clinton Aigbavboa
Faculty of Engineering and the Built
Environment
University of Johannesburg
Johannesburg, South Africa
4. Prof. Lawrence Atepor
Cape Coast Technical University
Cape Coast, Ghana
5. Prof. Samuel Sackey
Kwame Nkrumah University of Science
and Technology
Kumasi, Ghana

Appendix IX: Editorial Board for Journal of Co-operative and Business Studies

EDITORIAL BOARD OF JCBS

A: EDITORS

- | | | |
|-------|----------------------------------|--------------------------------|
| (i) | Chief editor: | Dr. N. Kumburu -MoCU, Tanzania |
| (ii) | Deputy Chief Editor: | Dr. C.Komba -MoCU, Tanzania |
| (iii) | Editor debates and book reviews: | Dr. Y. Kulindwa-MoCU, Tanzania |
| (iv) | Editor research articles: | Dr. L. Njau -MoCU, Tanzania |

B: EDITORIAL ADVISORY BOARD

- | | | | |
|--------|--------------------------------|---|--|
| (i) | Prof. K.A. Kayunze
Tanzania | - | Sokoine University of Agriculture,
(kimkayunze@yahoo.com / kayunze@suanet.ac.tz) |
| (ii) | Prof. K. Mengisteab | - | Pennsylvania State University, USA
(kim3@psu.edu) |
| (iii) | Prof. F. M. Lin | - | Jack H.Brown College, California State
University San Bernardino USA
(flin@csusb.edu) |
| (iv) | Prof. B. Namwata | - | Institute of Rural Development Planning
(bnamwata@gmail.com or
bnamwata@irdp.ac.tz), Tanzania |
| (v) | Dr. L. Maina | - | Cooperative University of Kenya
(lkiganane@cuk.ac.ke) |
| (vi) | Dr. S. M. Angolo | - | Cooperative University of Kenya
(asmbandu@gmail.com) |
| (vii) | Dr. A. Benson | - | Cooperative College Manchester, UK
(amanda@co-op.ac.uk) |
| (viii) | Dr. C. Ross | - | Cooperative College Manchester, UK
(cillaross7@gmail.com) |
| (ix) | Dr. P.Paul | - | MoCU, Tanzania |

Appendix X: Editorial Board for East African Journal of Social and Applied Sciences (EAJ-SAS)

EDITORIAL BOARD OF EAJ-SAS

A: EDITORS

- | | | |
|-------|----------------------------------|--|
| (i) | Chief editor: | Dr. Nyanjige Mayala – MoCU, Tanzania |
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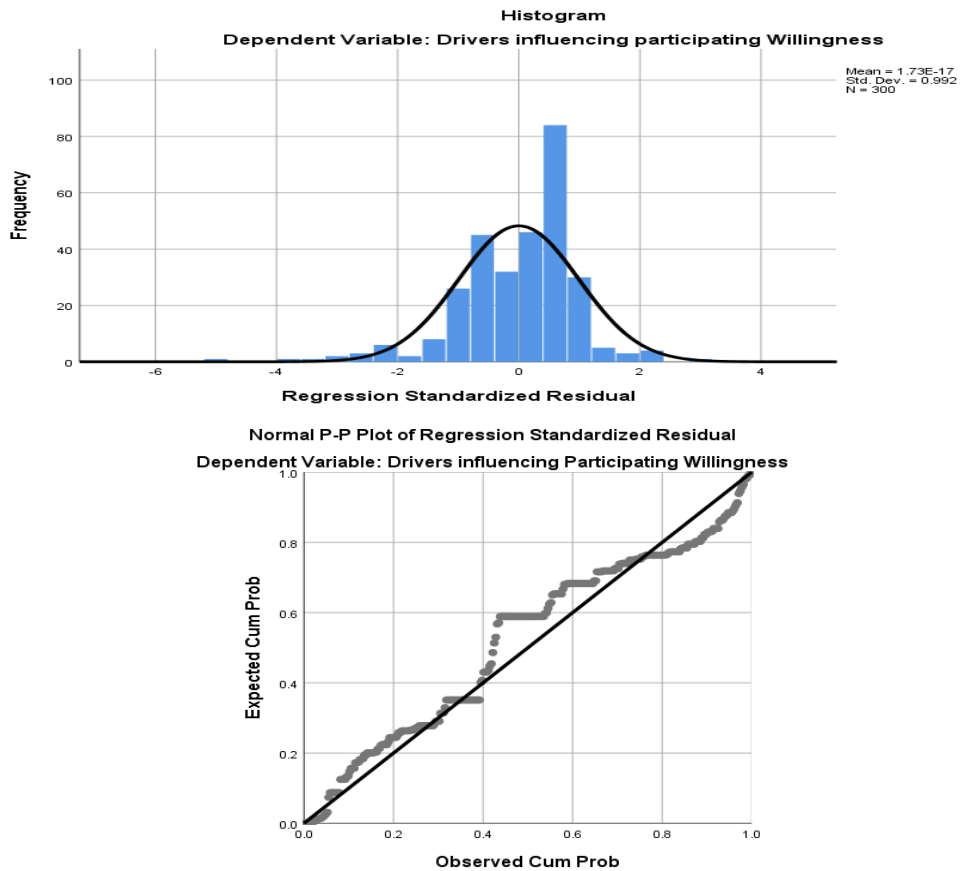
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Appendix XI: Assumption results for published paper one

		Vendors' Drivers	Perceived usefulness	Reduce paper work	Transparency	Internal efficiency	Corrupt free	Track and Monitor
Pearson Correlation	Vendors' drivers	1.000						
	Perceived usefulness	0.423	1.000					
	Reduce paper work	0.410	0.594	1.000				
	Transparency	0.188	0.062	0.078	1.000			
	Internal efficiency	0.420	0.393	0.399	0.154	1.000		
	Corrupt free	0.409	0.432	0.510	0.240	0.622	1.000	
	Enable Track and Monitor	0.295	0.374	0.366	0.121	0.300	0.311	1.000

Key: Correlation results

The Normality and Multicollinearity assumptions results



Appendix XII: Sampled Vendors from GPSA FY 2018/2019 list

1. M/s ABC Computer Limited
2. M/s Exson Solutions Limited
3. M/s Abe Mwangaza Co. Ltd
4. M/s ABG African Link Traders
5. M/s Africa One Business Line
6. M/s Ajabu and Company
7. M/s Alcel General Investment Co. Ltd
8. M/s Amazon Stationery Company Ltd
9. M/s Amina Traders
10. M/s Ansi General Supplies
11. M/s Antra Enterprises and General Supplies
12. M/s Avitech Investment Ltd
13. M/s Bama Supplies & Services Limited
14. M/s Beam System Supplies
15. M/s Ben - Magnus & Company
16. M/s Bonsons Trading Company
17. M/s Brilliant Solutions
18. M/s Buney Enterprises Company
19. M/s C & H Entertainment and General Supplies
20. M/s Calculus Trading (T) Company
21. M/s Care & Quality General Supplies
22. M/s Carven Investment Ltd
23. M/s Chan Enterprises
24. M/s Complex Polytechnics & General Supplies
25. M/s Computer Online (T) Limited
26. M/s Computron Distribution Ltd
27. M/s Computronix Centre
28. M/s Convers General Enterprises
29. M/s Cute Design
30. M/s Dajons Solution
31. M/s Dar es Salaam Office and Graphics
32. M/s Darworth Limited
33. M/s Dear Stationery & General Supply
34. M/s Dege Stationery and General Supplies
35. M/s Didactic Materials Supplier (T) Limited
36. M/s Diego Company Limited
37. M/s Dilo's Investment Ltd
38. M/s Disanaco Enterprises
39. M/s DM Solutions
40. M/s Dubai Trading Centre
41. M/s Dubai Trading Company Ltd
42. M/s Eastenders Limited
43. M/s Ebes Trading Company Ltd
44. M/s Emador Traders
45. M/s Enoseri Group Limited
46. M/s Entersoft Systems Company Limited
47. M/s ET Member Trading Company
48. M/s Events Printmarks
49. M/s Exodus Gold Co. Ltd
50. M/s Faanu General Supplies
51. M/s Fabi General Business
52. M/s Famous General Enterprises Limited
53. M/s Felimi General Supplies Company
54. M/s Firebrand Technologies
55. M/s Fireworks Solution
56. M/s Freedom Computer Limited
57. M/s Frontruners -Tz Ltd
58. M/s G & L Bright Agency and Services Ltd
59. M/s Galaxy Computers Company Ltd
60. M/s GG. Trading Company
61. M/s Glogigo Company
62. M/s Gulamali Group Company Ltd
63. M/s H.J Koosa Stationery
64. M/s Highland Stationery & General Supplier
65. M/s Hope Inter Trade
66. M/s Isadro Enterprises
67. M/s Itembweni General Traders
68. M/s J.O Agrey Materials Service
69. M/s JDM Technologies Ltd
70. M/s Jigisom Services Experts Ltd
71. M/s Johos General Supplies Ltd
72. M/s Jonestic Enterprises
73. M/s Kachoma General Enterprises
74. M/s Kaimbula Stationery General Supplies
75. M/s Kangi General Supplies
76. M/s Kapekwe Enterprises
77. M/s Kasa Stationers and General Supplies
78. M/s Kingstar Trading Company Limited
79. M/s Kirore Investment
80. M/s KJPJ Company Limited
81. M/s KS Global Supplies
82. M/s Logistic Experts (T)Ltd
83. M/s M.I Printing and Stationery Supplies Limited
84. M/s Mabuga General Traders
85. M/s Mak Consortium Ltd
86. M/s Mako Traders
87. M/s Makusa Investment and General Supplies Ltd
88. M/s Mama Care Supplies and Decoration
89. M/s Mamlakah W. Services
90. M/s Mariott General Supplies
91. M/s Marunda and Sons General Supplies
92. M/s Mbarika Enterprises
93. M/s Mbuyu General Supply
94. M/s Meremo General Traders
95. M/s Metro Fashion
96. M/s Mev General Supplies
97. M/s Minhaal General Traders & Stationers Ltd
98. M/s Missana General Traders
99. M/s Modular Enterprises Ltd
100. M/s Moto Investment
101. M/s Net Concepts (T) Limited
102. M/s NIF Traders
103. M/s Nshamba Co. Ltd
104. M/s Nyakimbila General Traders
105. M/s OAM Investment
106. M/s Office Solution Ltd
107. M/s Oveseace Hitech Ind. Co. Ltd
108. M/s Penplus Ltd
109. M/s Pioneer Tanzania Ltd
110. M/s PranPen Corner Ltd
111. M/s Presh Stationers
112. M/s Prime Printsystems & General Services
113. M/s Primetech Office & School Solutions Ltd
114. M/s Prince Secretarial Bureau Ltd
115. M/s Protective Systems Technologies
116. M/s PSC General Traders Company Ltd
117. M/s Quality Products Supply
118. M/s Regita Enterprises
119. M/s Rostom Investment Company
120. M/s Sadu Development Co .T Ltd
121. M/s Sagro General Traders
122. M/s Savy General Supplies Ltd

123. M/s Seveg Investment Company Limited
124. M/s Shalom General Business
125. M/s Sheda Enterprises and General Supplies
126. M/s Soicom & General Trading Ltd
127. M/s Status Investment Co. Ltd
128. M/s Step in Ltd
129. M/s Sun Star General Enterprises
130. M/s Sunoro Enterprises
131. M/s T. M. Nicholas and Co.
132. M/s Talent Secretarial Services
133. M/s Talha Stationery Limited
134. M/s Tanak International Limited
135. M/s Taxons Limited
136. M/s Technology Concepts Ltd
137. M/s Trend Trading Company
138. M/s Trust You Stationery
139. M/s Tycoon Ink Technology
140. M/s Upper Hill Trading Company
141. M/s Wadau Africa Ltd
142. M/s Yoke Enterprises
143. M/s Yon (T) Company Ltd
144. M/s Zamzam Stationery Supermarket
145. M/s Zinga General Office
146. M/s Bluezyn Communications
147. M/s First Image Pro
148. M/s Jamejo General Enterprises
149. M/s Janjen Secretarial
150. M/s Masumin Printway Stationery Ltd
151. M/s Ramfreck Investment and General Supplies
152. M/s Shifogomela Enterprises Ltd
153. M/s Zama Secretarial Investment
154. M/s Sage Traders Co. Ltd
155. M/s Akray'z General Supplies
156. M/s Bimana Printing Company Limited
157. M/s Blandisia Holdings Ltd
158. M/s Brandysia General Supplies
159. M/s Casa Home Appliances LTD
160. M/s Cyber Consult (Tanzania) Limited
161. M/s Dushima Investment
162. M/s Galian General Enterprises
163. M/s Genex Technology Limited
164. M/s Genuine Computer
165. M/s Janina Enterprises
166. M/s Johnson General Supplies
167. M/s Jori Investment
168. M/s New Samba Enterprises
169. M/s Office Mart TZ Company Limited
170. M/s Renshitts & Co. Ltd
171. M/s Simanjiro Traders
172. M/s Vesson Investment & General Supplies
173. M/s Brosis Company Ltd
174. M/s Mzuzu Investment Co.
175. M/s Oregon International (T) Ltd)
176. M/s Afro Stationery Manufactures Ltd
177. M/s Cummulative General Investment Ltd
178. M/s Ezrael Mwangaza Company Limited
179. M/s Fast Delivery Company
180. M/s Five Star Printers Limited
181. M/s Regi General Supplies
182. M/s Sanwa Corporation Limited
183. M/s Semuka International Ltd
184. M/s Seria General Enterprises
185. M/s Tahfif Office and School supplies
186. M/s Tanimco Import & Export Co.
187. M/s Mamez General Supplies
188. M/s Soft Office Supp. Inter (T) Ltd
189. M/s Fekas General Supply
190. M/s Beatus Kweyamba Rugimbana
191. M/s Print Zone Limited
192. M/s Raar Investment and General Supply
193. M/s Anfield Investment
194. M/s Dorga Investment Company Limited
195. M/s Hisaje Investment Company Limited
196. M/s Malindi Office Supplies & Services
197. M/s Takishi General Enterprises
198. M/s Sullivan Traders Co. Ltd
199. M/s Marielsa General Enterprises Limited
200. M/s J.O Enterprises Fumigation & General services Supplies
201. M/s M & Sons Investment
202. M/s Mapocho General Trading Company
203. M/s Marania Group Co. Ltd
204. M/s Kisarano Holdings East Africa Limited
205. M/s Gee Enterprises
206. M/s 4PL Agencies Ltd
207. M/s Abby Environmental And Manufacturer Services
208. M/s Attentive Consult Ltd
209. M/s Balbina Enterprises
210. M/s Beda'S Catering And Cleaning Services
211. M/s Begogoo Cleaning Services and General Supplies
212. M/s Bensal Investment Company Ltd
213. M/s Bs Brite Star Co. Ltd
214. M/s Care Sanitation and Supplies
215. M/s Clarcke Co.
216. M/s Dakan Investment
217. M/s Dameru General Supplies
218. M/s Dera Traders Ltd
219. M/s Double Two General Investment
220. M/s Dynasty Professionals
221. M/s Edikana General Supplies
222. M/s Eldorm Care
223. M/s Envirotec Hygiene And Pest Control Ltd
224. M/s Famous General Enterprises Ltd
225. M/s Feelof Investment Limited
226. M/s Flower Centre Company Ltd
227. M/s Fortune Sparks Ltd
228. M/s Globe Trotters Ltd
229. M/s H and R Consultants
230. M/s Hekima Cleaners Ltd
231. M/s Jomec Investment
232. M/s Jonestic Enterprises
233. M/s Jopack Investment Tanzania
234. M/s Juhudi Cleaning & Gardening
235. M/s JW General Supplies
236. M/s Kimwede General Supply
237. M/s Kireho Enterprises
238. M/s Kirore Investment
239. M/s Kishengweni Enterprises
240. M/s KJPJ Company Limited
241. M/s Ledso Consolidated Limited
242. M/s Masu Intertrade limited
243. M/s Moma Trading Company
244. M/s Moto Investments
245. M/s Nansimo General Enterprises Ltd
246. M/s Nesdel Enterprises Co. Ltd
247. M/s Nipe Usafi Company
248. M/s Paragon Services Co. Ltd
249. M/s Professsional Cleaners Limited
250. M/s Riks Enterprises Ltd
251. M/s Saiben Consolidated Co., Ltd

252. M/s Sapeki Company Ltd
 253. M/s Seveg Investment Co. Ltd
 254. M/s Tan Basic Vicoba Network Ltd
 255. M/s Ukune General Supplies & Services
 256. M/s Wasafi Company Ltd
 257. M/s Yh Tanzania Ltd
 258. M/s Zaheku Enterprises
 259. M/s Arec Tz Ltd
 260. M/s Builders ,paints and General Enterprises
 261. M/s Hyphen Africa Ltd
 262. M/s Maravilla general Supplies Co. Ltd
 263. M/s Matozi Company Ltd
 264. M/s Mission Corporate Company
 265. M/s Stagne Investment ltd
 266. M/s Unionbay Company Ltd
 267. M/s Wisegom Company Ltd
 268. M/s Lusendic Investments Co.
 269. M/s Cardif Company Limited
270. M/s Yh Tanzania Ltd
 271. M/s Kilola General Supplies
 272. M/s Blackring Company Ltd
 273. M/s Mamii Busines Center
 274. M/s Nalusam Investment
 275. M/s Mbase Enterprises
 276. M/s LJ International Ltd
 277. M/s Clays Distributors
 278. M/s Kuche Enterprises
 279. M/s Hisaje Investment Co. Ltd
 280. M/s Mtuwa Enterprises
 281. M/s Najuna General Suppies Company Limited
 282. M/s Workers General Supply Ltd
 283. M/s Hasalex Co. Ltd
 284. M/s Bensal Investment Company Ltd
 285. M/s Eldorm Care
 286. M/s Fare Service International
 287. M/s Jeliza Fumigation Enterprises
 288. M/s Matozi Company Limited
289. M/s Safi Group Company Ltd
 290. M/s Singila Technical and General Supplies
 291. M/s Sumwa General Enterprises
 292. M/s Crestod Enterprises Ltd
 293. M/s G'wagulanja Investnent
 294. M/s Daifu Investment Limited
 295. M/s Vijoso General Supplies
 296. M/s Hange Investment Company
 297. M/s Agricultural Consultancy And Solutions Ltd
 298. M/s Alpmat Tanzania Company Ltd
 299. M/s Chassl Group Company Limited
 300. M/s Clarcke Company