FACTORS AFFECTING SUCCESSFUL IMPLEMENTATION OF ELECTRONIC PROCUREMENT AT ZAMBIA AIR FORCE BASED ON THE TECHNOLOGY ACCEPTANCE MODEL

By

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DECLARATION

I, **CLARA KABWELA KADEMAUNGA**, do hereby declare that this work is my original work achieved through personal reading and research. This work has never been submitted to the University of Zambia or any other Universities. All sources of data used and literature on related works previously done by others, used in the production of this dissertation have been dully acknowledged. If any omission has been made, it is not by choice but by error.

Signed…… Date……

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APPROVAL

This dissertation by **Clara Kabwela Kademaunga** is approved as fulfilling the requirements for the award of the MSc Operations, Project and Supply Chain Management.

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ABSTRACT

Electronic procurement has continued to gain ground in many organisations world over both in government and private institutions as a basis for competitive procurement and as a good practice. African countries have also started implementing electronic procurement and Zambia piloted its electronic procurement through the Zambia Public Procurement Authority (ZPPA) known as Electronic Government Programme (eGP). Electronic procurement when well harnessed has many organisational advantages gained from such reforms. The aim of the dissertation was to identify factors affecting successful implementation of electronic procurement at Zambia Air Force (ZAF) based on the Technology Acceptance Model (TAM). A baseline study was conducted for a targeted population of 100 respondents purposively selected, drawn from Information Technology, Procurement and Finance Departments. Data was collected through the questionnaire administration and analysis of some secondary data. The research design used was descriptive survey, descriptive survey because it provided a set view of the subject, population, and segment. The target population for the study were drawn from Zambia Air Force Headquarters and other outlaying Bases within Lusaka whom data was collected through questionnaire administration and interviews. Data was analysed using Social Package for Social Sciences version 20 and Microsoft Excel. Statistical correlation was used in data analysis to assess the level of adoption and usage of electronic procurement based on the TAM Model. The study findings revealed that perceived ease of use and intention to use was positive. The findings deduced that personnel were ready to embrace electronic procurement implementation reforms largely due to ease of use and usefulness of the system. However, the study revealed that not much was being done by top management at Zambia Air Force regarding the implementation of electronic procurement. The study recommended that ZAF put up necessary electronic procurement prerequisites to enhance operational efficiency, transparency, and accountability in its procurement processes thereby, abiding by government requirement through the ZPPA mandate of 2016.

Keywords - Electronic government Programme, electronic procurement, implementation, information technology, mandate, Microsoft Excel, social package for social sciences, Technology Acceptance Model (TAM), Zambia Air Force (ZAF), Zambia Public Procurement Authority (ZPPA).

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DEDICATION

Dedicated to my husband and family whose belief and support in me has seen me succeed and kept me going.

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LIST OF ACRONYMNS

B2B	Business to business
DMO	Defense materiel order
DOD	Department of Defense
EC	Electronic commerce
eGP	Electronic government procurement
E- auction	Electronic auction
E-catalogue	Electronic catalogue
Email	Electronic mail
E-procurement	Electronic procurement

E-ordering	Electronic ordering
ERP	Enterprise resource planning
GDID	Gauteng department of infrastructure development
ICT	Information communication technology
IT	Information technology
LAN	Local area network
TAM	Technology Acceptance Model
SMCFs	Small medium construction firms
UK	United Kingdom
ZAF	Zambia Air Force
ZPPA	Public Procurement Authority

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Technology is the cornerstone that drives every organisation in this modern world. The Zambian government through the Zambia Public Procurement Authority (ZPPA) is moving towards electronic procurement (E-procurement). ZPPA in 2016 introduced electronic government procurement (e-GP) for all companies and government institutions (CSO, 2015).

Therefore, this thesis sought to identify factors affecting successful implementation of E-procurement at Zambian Air Force (ZAF). Tech-target elucidates that electronic procurement, also known as E-procurement, is the business-to-business (B2B) requisitioning, ordering and purchasing of goods and services over the internet. To meet this goal, procurement leaders negotiate contracts, establish relationships with suppliers and set guidelines or limits on what spending can take place and items. E-procurement software allows procurement leaders to automate adherence to these policies, contracts, and vendor relationships within their system.

ZAF for some time now has been using old methods of acquiring and inventory management of equipment and materials in rather a queer way that has proved to be a problem to the system. Globally, the number of internet users has grown rapidly from 361 million in 2000 to 3.0 billion in 2014 (Miniwatts Marketing Group, 2015). By communicating and interacting with each other through the internet, people create a society within the internet that has been called a network society (Barney, 2004, Castells, 2010). This new society inspires governments to change their approach to providing services to the public, as they turn their attention to digital era governance (Dunleavy et al., 2006).

Michael Malakata reported that Zambia had joined the growing list of countries in Africa that were adopting E-procurement systems in an effort to curb rampant corruption in bidding for public contracts, especially in the telecom and construction sectors (Cavalier, 2005).

Kenya was the first country in Africa to implement an automated, end-to-end procurement and payment system to enhance transparency, accountability, and fairness. The World Bank, a major funder of telecom and construction projects in Africa, is providing financial and technical support

for E-procurement initiatives in several African countries including Zimbabwe, Nigeria, Mauritius, Cameroon, Uganda and now, Zambia.

Zambia and Kenya were forced to cancel telecommunication tenders worth millions of Dollar because of suspected corrupt manner in which aforementioned, contracts were awarded to suppliers. The main problem is that government officials take kickbacks from vendors to award them contracts and additionally, inflate project costs. Contracts for telecommunication projects in several other African countries including Nigeria, Zimbabwe and Algeria, have also been hit with allegations of corruption.

In Zambia, the Anti-Corruption Commission is still investigating telecommunication tenders that were allegedly improperly awarded to China-based ZTE and Star Software Technologies, respectively for projects involving installation of anticrime closed circuit television (CCTV) cameras on the streets and a broadcast digital migration project. The Kenyan government had to cancel a school laptop project valued at more than US$200 million in the wake of corruption charges (Bwoga, and Kamau, 2011).

Zambia Public Procurement Authority (ZPPA) Director General Chibelushi Musongole said the country's E-procurement system would reduce malpractice and improve efficiency in monitoring bids and contracts. Bidders, would be able to submit their offers from anywhere in the world through the ZPPA website, this aspect of procurement will enhance competitive bidding and achievement of value for money. Bidders would have automated compliance validation during bid submissions (Office, 2016).

The system will curb corruption because it will reduce face-to-face transactions and there will be anonymity of bidders until bids are opened, Musongole said.

> "*Government is spending money on overpriced goods and services because public entities have difficulties adhering to procurement plans. E-procurement will therefore, be used by government and quasi-government institutions for all public procurement transactions in Zambia," (Ibid).*

The World Bank stated that E-procurement had proved to be a cost-effective tool for bringing good governance to public-procurement processes. "Most African countries are now prioritizing the strengthening of procurement systems because they are losing huge sums of money, resulting in

the donor community also losing confidence in the governance system," said Edith Mwale, a telecom analyst at Africa Center for Information Communication Technology Development.

1.2 Operation of the E-Procurement System

As earlier alluded to, in layman's term, E-procurement is nothing but electronic data transfer to support operational, tactical, and strategic procurement. E-procurement has been in existence for a long time in one form or the other was done through electronic data interchange. Electronic procurement conducted over the internet which entails organisations having the necessary infrastructure before fully implementing electronic procurement. As E-procurement evolved, various forms of E-procurement initiatives began to be used thus replacing manual procurement of getting things done.

1.3 Statement of the Problem

Majority of organisational spending is attributed to purchasing (Nelson et.al, 2001). The internet has revolutionized the way organisations conduct their businesses world over. The raise of e-business in the late 1990's led to the development of new opportunities related to procurement; E-procurement, spend management, outsourcing and joint product design (Lancioni et.al, 2000). Many organisations have realised the benefits accrued to conducting businesses electronically. The Zambian government in keeping abreast with the latest technology advancements, in 2016 mandated the Zambia Public Procurement Authority to introduce electronic government procurement for all companies and government institutions. It is important to note that despite the various costs associated with electronic procurement implementation program, there are a number of benefits associated with successful implementation that organisations can benefit from among them the enhancement of transparency which leads to reduction in corrupt activities. However, despite this mandate, not much is being done about it and a check on the ZPPA website does not provide one with a lot of information regarding electronic procurement. Zambia Air Force is not an exception to this and therefore, has not implemented electronic procurement as per requirement.

1.4 Purpose of the Study

The aim of this study was to determine the factors affecting successful implementation of electronic procurement at Zambia Air Force and propose factors that would help to improve the adoption based on the Technology Acceptance Model (*TAM*). The study also attempted to gain knowledge on how this system could be of help in the quest to achieve efficiency and assessed the

levels of alertness on the part of personnel that will be tasked with the task of using this system for the benefit of the organisation.

1.5 Ojectives

i. To determine the factors affecting the adoption of the electronic procurement implementation at the Zambia Air Force (ZAF) based on the *Technology Acceptance Model (TAM).*

ii. To evaluate solutions that would help improve the level of technology adoption based on the *Technology Acceptance Model (TAM)* in order to improve the adoption of the electronic procurement implementation at the Zambia Air Force

1.6 Research Questions

i. What are some of the factors affecting the adoption of electronic procurement implementation at the Zambia Air Force?

ii. What solutions can improve level of technology adoption of electronic procurement implementation at the Zambia Air Force?

1.7 Significance of the Study

This study was conducted to determine the factors affecting successful implementation of electronic procurement Zambia Air Force based on the Technology Acceptance Model. This implies that Zambia Air Force would be the first benefactors of the study. Through the findings of this study, managers would be able to not only learn about the challenges they are likely to face during the implementation of E-procurement as a strategy to ensure sustainable supply chains, but they would also get to understand the best ways of implementation E-procurement reforms to achieve the desired organisational outcome. This was study also intended to contribute to the body of knowledge regarding the use of E-procurement as a business strategy aimed at maintaining a sustainable supply chain. It can be used for future references by individuals conducting researches on related topics.

The study can further help procurement managers to understand various E-procurement applications. They can be able to identify processes which can make procurement more effective. Procurement managers should be able to understand risk associated with E-procurement implementation and its management. The findings of the study would help not only in identifying

factors affecting successful implementation of electronic procurement at Zambia Air Force, but also make recommendations on how the organisation can successfully implement E-procurement to be able to gain the benefits that come with the implementation program as opposed to traditional procurement.

It is therefore, hoped that by undertaking this study, the Procurement Department at ZAF, can be engaged so as to strategize on how best they can benefit from E-procurement rather than using the old way of procurement and inventory management. With this study there is a presupposition that enhanced training will be given to the appropriate personnel and more frequently through such media as workshops and any other educational interactive activities so as to enhance their understanding and appreciation the E-procurement benefits. The ZPPA should be modelled in such a way that it embraces and strictly implements electronic procurement change as the world of today is very dynamic. A case in point is the current pandemic of the Corona Virus that has disrupted many supply chains thereby, affecting their general performance. However, with well-integrated electronic procurement in the supply chains, disruptions can be kept to a minimum as people are able to operate from anywhere despite not going to their offices physically.

1.8 Limitations

The fact that this study looked at E-procurement program in the defense, the result findings may not be generalized for other government institutions other than those under the Ministry of Defense. Additionally, the lack of available literature contextualized locally on the subject matter.

1.9 Conclusion

The chapter gave an overview of the reasons for conducting the study. It also provided the significance of the study while looking at the importance of electronic procurement. The Chapter also highlighted the objectives and questions underpinning the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The review of related literature aims at providing the necessary framework within which the problem is presented, analysed and interpreted. Given that the objective of this research was to investigate the factors affecting successful implementation of electronic procurement at Zambia Air Force based on the Technology Acceptance Model, the literature review is organised along the lines of these individual research streams. Theoretical and conceptual framework discussion of past research on E-procurement was reviewed, its status at ZAF and a chapter summary.

This chapter provides an overview of the literature pertaining to E-procurement. Today companies are facing increasing market pressures due to globalisation, shortened product life cycles and more sophisticated consumer tastes and preferences. This chapter also examined literature on E-procurement and its current use and benefits. Procurement is an integral part of any company's relationships with its suppliers, besides internal cross-functional efforts. E-procurement has emerged as a critical tool that enables procurement managers to carry out several purchasing-related tasks efficiently and effectively.

2.2 Procurement

Procurement (Supply) usually represents one of the largest expense items in a firm's cost structure. It is significant to acknowledge that, because the procurement function did not establish itself within the academic ranks and research institutions until recent years, a search of contemporary literature on the subject shows little evidence that public procurement has penetrated the theoretical boundaries of academic research, despite the profession's efforts over a decade to enhance, develop, and improve its profile in the eye of other professions (Matthews, 2005). Notwithstanding its theoretical limitations, the International Trade Centre (ITC) in recognizing the value of the procurement function explains that, its experience in developing countries shows that public procurement may be contributing between 50-70 per cent of imports in these countries. Implicitly, improvements in public procurement systems in developing countries could have a direct and beneficial effect on the overall economic situation of the countries. Evaluating the benefits developing countries could derive from well-structured procurement systems necessitated intervention programs from the World Bank and other regional institutions like the African

Development Bank (AfDB) to assist developing countries to review and revise their procurement structures and systems (Wittig, 1999).

Procurement in the public sector has seen rapid growth in recent years. Transactions can be standardized and all bids for products and services can be tracked more easily, allowing business owners to use such knowledge to obtain better pricing. Due to faster exchanges of information and delivery of goods and services, E-procurement also promotes shorter product- development cycles. According to Wilson (2002) E-procurement is the amalgamation of sales and purchasing business models and calls for differentiation based on application and functions. Therefore, suppliers form an integral part of the implementation process and their attitude, integrity; transparency, capacity, and willingness to comply play a major role in the success of the process.

The procurement activity of organisations is one which spans both internal service and business-to-business (B2B) services. This is an important activity found in all organisations, public, private, governmental, quasi government, and charities alike and can be responsible for a large amount of spending. Such spending on, for example, materials components, facilities, subcontract capacity, information technology equipment and supplies, consumables, stationery, travel, and insurance can constitute a significant amount of money. Most organisations spend at least one-third of their turnover/income on the purchase of goods and services (Chandler, 2003).

Procurement is traditionally an internal service provided by a dedicated team of professionals. It typically operates at the interface between the organisation's external supply marketplace and the organisation's operational processes. Procurement has many of the characteristics of the marketing function though it faces the other direction in the supply chain. Procurement is usually responsible for the identification of (internal) customer's needs, translation of those needs into specifications, management of the delivery of goods and services and an assessment of the (internal) customer's satisfaction with those goods and services. The other elements of the process involve communication with suppliers sourcing, requests for tenders, price negotiation, ordering, receipt and invoicing. In examining the utility of an internal service perspective for procurement, Stanley and Wisner (2002) reinforced the links between internal and external service quality, supporting the contention that positive internal customer service provided by procurement has a significant impact on the external procurement performance (Christiansen, 2011).

The role played by the Procurement Department has radically changed over the years. Traditionally, the Procurement Department had been considered a reactive transactional function, mainly in charge of processing supply requests coming from production and logistics departments and of negotiating orders with suppliers to gain the lowest bidding price. Strategic decisions (for example, high-value order approvals and long-term agreements) need to be ratified by the company's Chief Executive Officer (King, 2004).

Internet procurement now delivers significant return on investment (ROI) through reduced prices for goods and services; shortened order processing and fulfilment cycles; reduced administrative burdens and costs; improved control over off-contract spending; and better inventory control. By introducing internet procurement, purchase and fulfilment cycles reduced to 2 days from 7.3 days compared to traditional paper-based procurement, administration costs reduced to $30 from $107 per order requisition. As shown above, the introduction of E-procurement brings huge benefits to industry (ibid). The increased focus on E-procurement solutions and capabilities has dramatically impacted the traditional procurement function, resulting in a shift in focus to value added strategic activities. When implemented separately, strategic sourcing and E-procurement can achieve significant benefits for an organisation

2.3 Factors Affecting Electronic Procurement in Organizations

A study was conducted by Mwangi (2016) on Information Communication Technology Adoption and Supply Chain performance of Parastatals in the Kenya's Energy Sector established a strong relationship between ICT adoption and Supply Chain performance of the Kenya's Energy Sector. Level of managerial commitment emerged as a key challenge to the implementation of E-procurement in the nine Parastatals. They concentrated on the implementation of E-communication which in turn improves communication internally and externally. Other main challenges to the adoption of ICT are caused by inability of staff to adapt to changes, poor support from the top management and the limited quality of training to staff. The study therefore recommended that deployment of ICT in Supply Chain is necessary and should be encouraged because of the advantages it would bring to organizations (Mwangi, 2016).

Oporo (2014) also studied factors influencing E-procurement application at Kenya Revenue Authority. The researcher highlighted the fact that recent changes in the Kenyan political landscape had brought cuts in public sector spending and the demands of government institutions

to be efficient in their operations. The findings were that there was some difficulty selling the E-procurement concept internally to organizational stakeholders such as Senior Management and end-users, a lack of confidence, a fear of making errors, lack of technology and innovation champions within the organizations which had inhibited full acceptance of the process. The other factors that were found to affect the E-procurement process included size of the firm and organization readiness (Oporo, 2014).

While various governments are encouraging public sector agencies to adopt E-procurement, its implementation does not appear to have been smooth and the rate of E-procurement implementation success has been less than spectacular, as supported by Steinberg's (2003, p. 1) claim that "Government E-procurement projects have been notoriously unsuccessful". The development and implementation of E-procurement has not been as easy as some of the solution providers have suggested, nor has it necessarily brought the anticipated savings. Furthermore, engaging suppliers in the process especially smaller organizations was also proving to be difficult given the level of investment expected in terms of providing catalogue information to buyers, and marketplaces using different technologies, platforms and business languages (OGC, 2002).

Exploratory studies have indicated that many companies are pursuing electronic means to conduct business, that there are a number of factors influencing the adoption of electronic commerce, and that these may be summarised as E-procurement, e-sourcing and e-collaboration (Allen, 2010). A study on E-procurement adaptation in Greece (Pasiopoulos et al., 2013), pointed out E-procurement strategy, re-engineering of procurement processes and management of expectations as key success factors in an E-procurement adaptation strategy. Their conclusion was that implementation must be achieved in a manner of "incremental change" where technological solutions apply to regulations and policies. An investigation into the implementation strategy of E-procurement in the Irish public sector concluded that fundamental changes are required in the public sector procurement environment to achieve the benefits of E-procurement approach (Lee, 2007). It was found that the key issues could be grouped into a number of areas: procurement framework and practices, organizational arrangement, E-procurement technology framework, and the legal and economic environment. Among these issues, a strong and efficient organizational aspect was identified as a very critical success factor for efficient E-procurement implementation.

The main organisational factors that appear to impact on the likely adoption of E-procurement are size and type of operations. E-procurement is more evident in bigger organisations than smaller. Small to medium enterprises (SMEs) often lag behind larger organisations in E-procurement adoption (Hofstede, 2001). Reasons for this include owner attitudes, resource poverty, limited IT infrastructure and limited knowledge and expertise with information systems (Harland, Caldwell, Powell, & Zheng 2007). The use of E-procurement applications often goes hand-in-hand with repetitive purchases from suppliers, reducing human intervention and paperwork and often resulting in improved performance for buyers and suppliers (KRUSIN, 2005). Creating routine and repetition in the procurement system will increase the efficiency in this process and results in a higher level of electronic integration between buyers and suppliers (RBS, 2013). Operations with high usage of maintenance repair and operation supplies are more likely to use E-procurement (Croom, 2000). The B2B ecommerce solution is likely to vary with the number of buyers and suppliers, their connectivity and the purpose of trading (ibid).

2.3.1 Supplier Adoption

Electronic procurement implementation success is closely related to early supplier involvement. It is important to demonstrate the proposed solution to the suppliers and discuss any necessary changes, issues, and concerns such as various options in developing and maintaining supplier catalogues (Birks *et al*., 2001). According to the OSD (2001), providing opportunities for suppliers to offer their feedback will allow the public procurement department to monitor areas for improvement and adjust practices accordingly. Because many suppliers may be unwilling to conduct business electronically with public sector agencies because they are unclear about the benefits to be gained, they might see E-procurement as a means by which public sector agencies will simply attempt to force down prices (ECOM, 2002). Suppliers, therefore, should be educated on the E-procurement benefits that can be provided to them through a process of consultation as early as possible in the project. The degree to which the success of an e-Procurement initiative can be realized may well be related to the level of e-readiness of suppliers, and appropriate communication with suppliers is therefore important (AOT, 2003).

2.3.2 System Integration

It is very important to determine the level of integration required between E-procurement solution and existing information systems (KPMG, 2001). The Chartered Institute of Public Finance and Accountancy (CIPFA) report reasoned that if integration issues are complex, it is more likely that

underlying business processes within an organization should be changed or adapted (ECOM, 2002). It is also critical to link the E-procurement system to the financial management system in order to facilitate the process of online payment to suppliers (WB, 2003). It is necessary for purchase transactions carried out through an electronic ordering transaction support system to be reflected in an agency's Financial Management Systems and communicated to suppliers for fulfillment (DOF, 2001).

2.3.3 Re-Engineering the Process

Electronic procurement should be viewed as an enabling mechanism to make the process of procurement more efficient in terms of cost, time, and achievement of value for money (ECOM, 2002). Where existing procurement practices and procedures may contradict the goals and objectives of the new initiative, the implementation of E-procurement will require the re-engineering of existing purchasing processes (KPMG, 2001). According to the Stenning and Associates Report (2003), as a significant proportion of the benefits to be gained from implementing E-procurement initiatives are related to the changes made through process re-engineering rather than the implementation of the E-procurement initiatives themselves, existing processes for dealing with procurement will need to be revised. Birks *et al.* (2001) suggest that the process of reengineering should not only address process but also supplier relationships and all the internal groups affected by procurement.

2.3.4 Top Management Support

There is little doubt that senior management leadership is critical to the success of an E-procurement implementation (AGV, 2003). The top management team (steering committee) must involve the project manager, any consultants working with the committee, and agency staff to develop an implementation strategy (ECOM, 2002). In this regard, considerable attention and support need to be provided by senior management to ensure that the procurement reform has been well understood in the agency (S&A, 2003). Furthermore, the executive management team is responsible for setting the vision and goals, bringing about collective commitment for change in process and organizational structures, and formulating the policies and strategies necessary to put an E-procurement initiative in place (WB, 2003).

2.4 The Changing Role of Procurement

African countries have various reasons for wanting to undertake procurement reforms. Some countries undertake reforms to support essential internal administrative improvements, others accept reform programs to help qualify for international financing from multilateral institutions, or to help integrate a country into the multilateral trading system. Procurement reforms are often seen as an important feature of anti-corruption efforts that can help promote good governance (Thai, 2008). Transparency in public procurement is an important issue for all countries. Developed countries have established various means to create and sustain transparency. It has become imperative for African governments to incorporate monitoring and control systems into public procurement to consolidate the modest gains especially in areas of transparency, equity and fairness in their current structures (Wittig, 1999).

In recent years, the impetus for reforms have increased, partly in consequence of requirements set by the World Bank and other donor organisations as a condition for providing development aid, but principally because the inefficiencies of unreformed systems have become self-evident. Most donors consider that a well- functioning procurement system is an essential requirement if their funds are able to be used effectively to promote development (Abeille, 2003). In most African countries the aim of accepting and instituting these reform programs is to establish a strong and well-functioning procurement system that is governed by a clear legal framework establishing rules for transparency, efficiency and mechanisms of enforcement, coupled with an institutional arrangement that ensures consistency in overall policy formulation and implementation (Hunja, 2003).

E-procurement has also become an enabler for many of the best practices as well as a best practice in its own right. Automating and distributing transaction processing into the hands of employees frees the procurement team to do more value-added work. The emergence of E-procurement makes use of new tools such as reverse auctions, global sourcing, aggregated volumes, and fast and inexpensive communications, enabling more companies to implement best practices and save money (King, 2004).The procurement process is a critical supply-chain management function since it has a direct impact on a company’s supply-chain performance. The procurement process involves the exchange of a high volume of information and requires the analysis of this information to arrive at procurement decisions that fully satisfies the procurement policies and specific aims of the business (Martinez, 2006).

Prior to E-procurement being introduced, buyers frequently had to deal with individual transactions. They had to negotiate with suppliers, convert purchase request into purchase orders, handle queries and ensure the proper allocation of the invoices received. Operationally buyers had little influence over the choice of suppliers and the purchased products. Their negotiating power was limited as the decision to purchase was made by the requester and/or authorizer (see Figure 1 below.

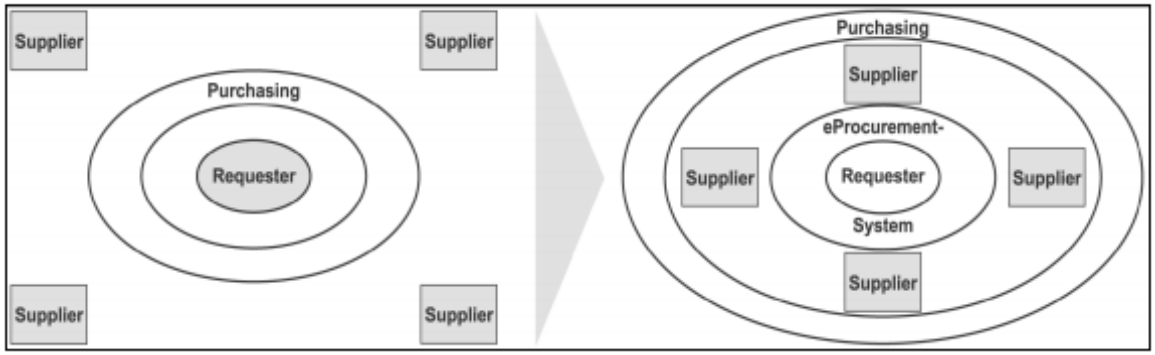

Figure 1: Shift from managing transactions to suppliers (Carr, 2011)

Identifying the right E-procurement strategy for each commodity is crucial to the success of a company's solution and therefore, ranks as one of the major challenges. Procurement supports a delivery-relationship between buyers and sellers. Being a broader scope than "purchasing," procurement involves strategic activities such as sourcing, negotiating with suppliers, and coordination with research and development. However, both the buyers and sellers need to have basic computer skills to use the electronic platform, and buyers may not trust the internet to provide personal information to the sellers. Therefore, in order to minimise such weaknesses and threats, as well as to maximize the benefits that can be gained from the migration, careful planning is essential (Chakravorti, 2008).

2.5 The Four-Phase Migration Model

The first phase of migration is the digitisation of data with database systems arranged in a local area network (LAN) to manage the information storage and retrieval within the company. In order to maintain such a system, security and financial issues such as login and password control and firewalls to protect the LAN, and costs for computer hardware/software and staff training should be treated as important as technical requirements (Ludwig, 2006).

The next phase is the setup of communication infrastructures with other companies where information is transferred or exchanged within the inter-organisational connections through e-mails and EDI. Costs for internet access and building of EDI and e-mail systems, and a more sophisticated firewall to protect such systems are required.

The third phase is the implementation of an electronic commerce (EC) front-end system for the procurement business processes where information processing can be facilitated with web sites and search engines. Costs for staff training for the implementation and maintenance of the EC front-end system as well as technical and EC consultations, and a firewall to protect such systems are required (Ahmed, 2009).

The last phase is the integration of a vertical portal where the EC front-end system is coordinated with third parties, such as transaction and logistic bodies. For security reasons, data are encrypted for information transaction as well as protecting such a complicated system with firewalls. There are also costs for maintaining such a system and transaction charges paid to the third parties, such as banks and logistic bodies. In addition, an authentication access model should be carefully implemented with each phase as different access rights are given to different functional staff or users to avoid the misuse of information. Electronic transactions can be done without the need of physical forms of payment that are restricted to geographical and currency barriers. Suppliers can benefit from secure real-time collection of payment while the risk of unsuccessful receipt of payment is lowered resulting in a profitability improvement. With delivery, uncertainty of receiving time is reduced by separated logistics and shipment, while information flow or communication between suppliers and logistic third parties is facilitated (Allen, 2010).

Not every company will fully adopt EC while integrating their procurement functions into the internet, companies may not necessarily need to implement all four phases or start from the first phase, depending on the existing technical requirements of the companies. One should be aware that the degree of expertise, intangible costs, complexity of information, security, and uncertainties increase from phase one to phase four, therefore careful planning is necessary with the migration of a procurement process on to the internet in order to achieve a positive impact (ibid).

During the transition to an E-procurement system, non-value-added activities such as manual approval processes and invoice matching via phone/mail/fax are replaced with online approval, EDI for purchase orders and other technical enhancements. The new process is more streamlined,

buyers have more time to focus on strategic rather than transactional functions and manual payable and receivables are handled electronically as denoted in Figure 2 below.

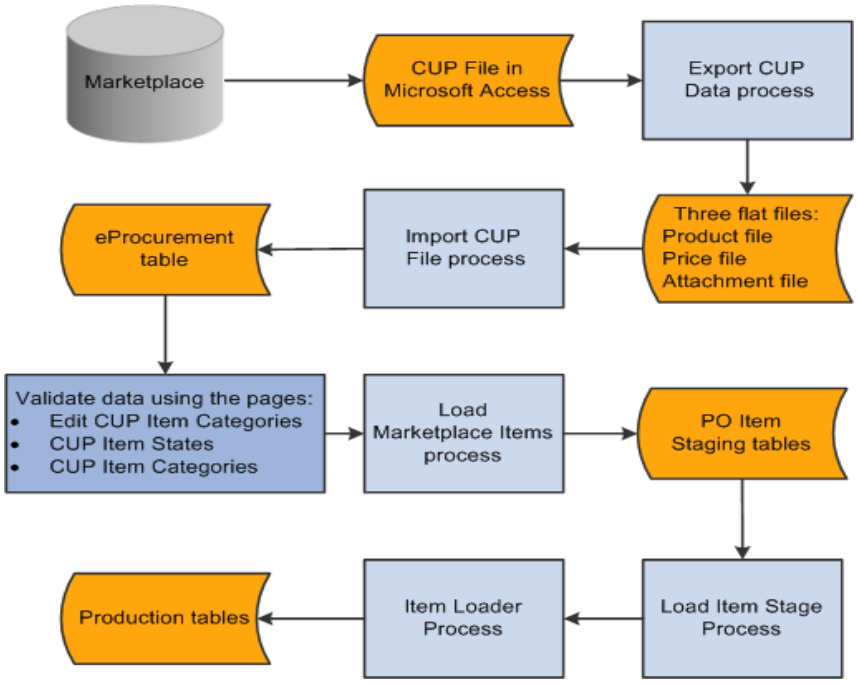

Figure 2 :Electronic Procurement Processes (Allen, 2010)

2.6 Electronic Procurement

Definitions of E-procurement vary across literature in the field. E-procurement has been defined as the use of information technologies to facilitate business to business (B2B) purchase transactions for materials and services (Wu et al., 2007). Different forms of technology are appropriate for different procurement activities; six forms of E-procurement have been classified (Carr, 2011), including E-ordering/E-Maintenance Repair Operate (MRO), web-based enterprise resource planning (ERP), E-sourcing, E-tendering, E-reverse auctioning/E-auctioning and E-informing. Other writers have classified E-procurement into three broad types – transaction management to manage the requisition to payment process, brokerage such as using electronic exchanges and E-auctions, and electronic integration which may involve shared information systems in the supply chain, such as EDI or sharing computer aided design systems (Ahmed, 2009). The approach taken in this research was to use an all-encompassing definition, and to define E-procurement to include all forms of use of electronic infrastructure that connects two organisations in the purchasing process (de Boer, et al., 2001; Min and Galle, 2003). A broad perspective has also been taken in other research and ensures that respondents are not confused over intricate and minor differences in definitions when responding to self-administered questionnaires.

While a number of definitions of E-procurement exist. Presutti (2003:221) defined E-procurement as “A technology solution that facilitates corporate buying using the internet.” Min and Galle (2003) define electronic procurement as "Business-to-business procurement practice that utilises electronic commerce to identify potential sources of supply, to purchase goods and services, to transfer payment, and to interact with suppliers". This is the definition that was adopted for this research because it is comprehensive.

E-procurement refers to the purchase of goods and services for organisations (Turban et al., 2006). The term E-procurement refers to the use of the internet, to buy and sell productions, services and information (Chakravorti, 2008). E-procurement applications are limited in the types and scope of purchasing activity they address (Gilbert, 2000). All E-procurement applications aim to improve the efficiency of procuring personnel, automating the approval cycle, enabling negotiation of better contract pricing, leveraging existing contracts more effectively and reducing off-contract purchases (Chakravorti, 2008).

Definitions of E-procurement vary in both scope and depth, ranging from a narrowly defined technology-focused view through to a much broader business focused view. Most E-procurement research studies place technology and applications centre stage focusing on the adoption and implementation of specific technology solutions such as integrated catalogues, reverse auctions or E-marketplace systems. Whilst such studies provide important insights into technology adoption they tend to investigate a limited range of procurement activities. Their focus is primarily on requisitioning (i.e. selection of products, authorization, and order placement, etcetera) and the operational/transactional aspects of E-procurement.

The emphasis is on the use of technology to substitute or enhance transactional activities in order to gain operating efficiencies (Chandler, 2003). Electronic procurement is defined as the act of placing an order over the web. The source of the supply or good can be direct from a manufacturer through a trading network or through a Web-enabled distributor. The transaction must involve buying and must occur over the Web.

2.7 Technology Acceptance Model

Davis (1993) developed and validated the Technology Acceptance Model (TAM) to explain the mechanisms that influence and shape users’ acceptance of new information technology. A well-designed process and policy willing can be essential pre-conditions for E-procurement

implementation. However, there is a crucial variable which put at risk the success of the implementation. This variable tends to be users' acceptance of the new process. Electronic procurement consist change for the organization and specifically for the employees of the procurement unit. Abolition of the traditional handwritten procedure and its replacement of new procedures based on the use of computer and information technology consist some of the major changes. Resistance to change is a barrier for electronic procurement process construction and users' acceptance isn't considered given. Davis (1986; 1989, 1993) developed and validated the Technology Acceptance Model (TAM) to explain the mechanisms that influence and shape users' acceptance of new information technology. According to TAM, there are two specific variables that are fundamental determinants of users' attitude toward using information technology and actual use of the system: perceived usefulness and perceived ease of use relatively to new information system design features.

In the broader information technology (IT) discipline, three important frameworks on an individual's acceptance of IT applications have received wide publicity. These include Technology Adoption Model (Davis, 1989), TAM2 - a new version of TAM (Venkatesh, 2000) and Unified Theory of Acceptance and Use of Technology – UTAUT (Venkatesh el al., 2003). These frameworks aim to explain why individuals accept information technologies. According to TAM Davis (1989) perceived ease of use and perceived usefulness are the two most important factors in explaining acceptance of information technologies by individuals.

Technology Acceptance Model (TAM) recognises that, in addition, to perceived ease of use and perceived usefulness, subjective norms are also an important factor affecting adoption decisions of individuals. Many scholars have applied these models in explaining various types of business IT applications and e-commerce applications. However, analysis of empirical research with TAM is not totally conclusive. Venkatesh et al. consolidated all the prior studies on acceptance and usage in information technology and produced a holistic view of individual acceptance and usage behaviour pertaining to information systems and proposed a new framework called UTAUT which identifies four factors that are significant determinants of user acceptance: performance expectancy, effort expectancy, social influence and facilitating conditions.

Davis (1986, 1989) introduced the constructs in the original TAM (see Figure 3 be) as follows: perceived usefulness (PU), perceived ease of use (PEOU), attitude, and behavioral intention to use.

Among the constructs, PU and PEOU form an end-user's beliefs on a technology and therefore, predict his or her attitude toward the technology, which in turn predicts its acceptance.

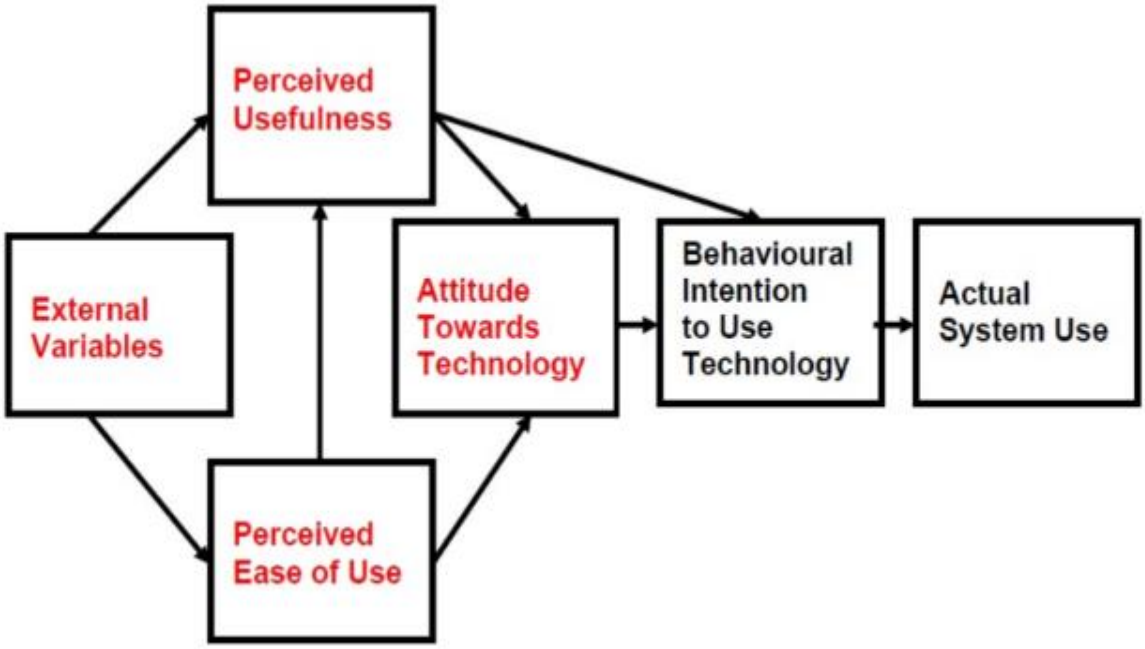

Figure 3: Technology Acceptance Model (Davis, 1986)

When users are presented with a new technology, two key factors influence their decision on how and when they will use it. These two factors enable individuals change their intentions and behavior towards to acceptance of new technology and hence they can use the actual system.

2.7.1 Perceived Ease-of-Use (PEOU)

The degree to which a person believes that using system would be free from effort. Perceived ease of use can contribute in an instrumental way in improving a person's performance. Since the user will have to deploy less effort with a tool that is easy to use, he will be able to spare efforts to accomplish other tasks.

2.7.2 Perceived Usefulness (PU) and Intention to Use

The degree to which a person believes that using a particular system would enhance his or her job performance. Perceived ease of use also influences in a significant way the attitude of an individual through two main mechanisms: self-efficacy and instrumentality (Davis, 1986). Self-efficacy is a concept which explains that the more a system is easy to use, the greater should be the user's sense of efficacy. Moreover, a tool that is easy to use will make the user feel that he has a control over what he is doing.

The key to increasing use is to first increase acceptance of information technology (IT), which could be assessed by asking individuals about their future intentions to use IT. Knowing the factors that shaped one's intentions would allow organizations to manipulate those factors in order to promote acceptance, thus increase IT usage. Technology Acceptance Model hypothesizes a direct link between perceived usefulness and perceived ease of use. With two systems offering the same features, a user will find more useful the one that he finds easier to use. The theoretical and conceptual framework to the study has been discussed in relation to the adoption of E-Procurement buy customers with the case study being Zambia Air Force. The section covered the theoretical framework that is driving this research and the conceptual framework on how the research was conceptualized.

TAM explains the general determinants of computer acceptance that lead to explaining users' behavior across a broad range of end-user computing technologies and user populations. The basic TAM model included and tested two specific beliefs: Perceived Usefulness (PU) and Perceived Ease of Use (PEU). Perceived Usefulness is defined as the potential user's subjective likelihood that the use of a certain system (for example single platform E-payment System) will improve his/her action and Perceived Ease of Use refers to the degree to which the potential user expects the target system to be effortless. The belief of person towards a system may be influenced by other factors referred to as external variables in TAM (Davis, 1986).

Venkatesh and Davis (2000) proposed the TAM 2, this study provided more detailed explanation for the reasons users found a given system useful at three (3) points in time: pre-implementation, one-month post-implementation and three-month post-implementation. TAM2 theorizes that users' mental assessment of the match between important goals at work and the consequences of performing job tasks using the system serves as a basis for forming perceptions regarding the usefulness of the system (Venkatesh and Davis, 2000). The results revealed that TAM 2 performed well in both voluntary and mandatory environment.

2.8 Electronic Procument System Globally

E-Procurement is now accepted in the global market of procurement and each country or region has its own system and norms which guide electronic procurement processes. Information technology (IT) has helped many businesses in improving their operational efficiencies by providing internet-based solutions for their supply chain networks and electronic solutions. From the late 1990s a raft of new electronic commerce (E-commerce) technologies emerged which

revolutionized working practices, threatening existing business models (Chan & Lu, 2004). As a result of this development on the use of E-commerce in business-to-business market, there has been significant adoption of new supply chain related technology and applications by organizations globally (Sheng, 2002).

2.8.1 United States of America Defence Electronic Procurement System

The defense procurement process in the United States is managed by the Department of Defence (DOD). It is a complex system that involves several organizations within the DOD. The Office of the Under Secretary of Defence for Acquisition, Technology and Logistics is responsible for the oversight of the procurement activities of the various segments of the DOD (www.acq.osd.mil/index).Each individual armed service (U.S. Army, U.S. Navy, U.S. Air Force, U.S. Marine Corps, and U.S. Coast Guard) executes its own defence procurement and is supported by distinct procurement offices (Doe, 2002).

2.8.2 Electronic Procurement System in Europe

Defence procurement in the United Kingdom is administered by a single agency known as Defence Equipment and Support (DE&S). The organization defines itself as a "bespoke trading entity, an arm's length body of the Ministry of Defence (Ministry of Defence, 2014)."DE&S was created in April 2007 through the merger of two Ministry of Defence organizations: The Defence Procurement Agency and the Defence Logistics Organization. The aim of the merger was to create a new integrated procurement and support organization. DE&S is headed by a Chief of Defence Materiel and is overseen by the Minister for Defence Equipment, Support and Technology. DE&S employs approximately 12,500 people (Croom, 2015)**.**

In Switzerland, Defence procurement is undertaken by an independent procurement organization known as Armasuisse, which operates outside the scope and responsibility of the Swiss Armed Forces. The organization reports directly to the Swiss Department of Defence, Civil Protection and Sports (DDPS). The origin of Armasuisse dates to 1968 when the Swiss government decided to centralize Defence procurement under a single government organization: The *GruppefürRüstungsdienste* (Defence Procurement Agency), or GRD. The system was set up after technical problems and massive cost overruns were encountered with some major weapon systems acquired by the Swiss armed forces in the 1960s. The Swiss government concluded that the country's Armed Services which up to that time had purchased all Defence materiel themselves

could no longer properly manage the acquisition of complex and sophisticated modern weapon systems (Armasuisse for Defence Procurement).

2.8.3 Electronic Procurement in Asia

Public procurement plays a vital role in the socio-economic development of a country. Transparent public procurement is quite essential for judicious utilization of the taxpayers' money. Lot of efforts has been made by the Government of India to enhance transparency in Public Procurement. Technology is widely used in bringing the transparency in governance. An effort has been through light on the End-to-end E-procurement system, which is considered as one the best initiative taken by the Government of India to enhance transparency in public procurement. Very important initiatives are electronic publishing, electronic procurement and government electronic marketplace. Public procurement bill aims to regulate public procurement. Ensuring transparency, accountability, fair and equitable treatment of bidders, promoting competition, enhancing efficiency and economy are must for judicious spending of tax payers' money (Panduranga, 2016).With the development of information society and the needs of agreements of WTO, the application of E-commerce, which is an advance management model, is an essential way to increase the efficiency of management, to reduce the cost of management, to exploit the international and internal market, and to improve the competitive of company. Many companies in China pay more attention to the E-Procurement as a basic content of E-ecommerce application.

2.8.4 Electronic Procurement Practice in Africa

An investigation on the key elements of the impact of electronic procurement on strategic sourcing which include strategic elevation of the procurement function, information sharing benefits of implementing E-procurement and current procurement practices was conducted by Chipiro. The study also investigated the impact of internet on the procurement function through E-procurement and consequently on the strategic sourcing of the Bank. With ever increasing competitive pressures, growing numbers of firms use electronic procurement (E-procurement) to reduce costs and increase profitability. Academics and practitioners alike agree that one of the most important benefits of E-procurement is its ability to facilitate integration within the firm and across the supply chain (Chipiro, 2009).

Many countries on the African continent have developed and rolled out E-procurement across their countries for the whole procurement sector. Rwanda was the first African country to implement

E-procurement; many other countries took several years to pilot E-procurement systems and were slow to use E-procurement at the sub-national and local levels. As of 2018, Zambia had joined Rwanda as one of the pioneers of e-procurement in Africa, and other countries were beginning to follow suit. “Rwanda and Zambia have broken the myth that e-procurement cannot be done in Africa,” said Duthaluri. “It has created a ripple effect across the continent, and now we have seen Tanzania, Uganda, and others sign contracts to implement e-procurement” (Rwanda: Pioneering E-procurement in Africa).

E-procurement referred to the use of internet-based (integrated) information and communication technologies (ICTs) to carry out individual or all stages of the procurement process including searching, sourcing, negotiation, ordering, receipt, and post-purchase review. Even though E-procurement is not a new process but in Tanzania is at infant stage. This article aimed at analyzing the adoption of E-procurement and Value Addition (the Tanzanian context). Three key factors that were reviewed and critically analyzed involved: Technological Factors (T), Organizational Factors (O) and Environmental Factors (E) (T-O-E). Findings provided ample evidence that Tanzania could adopt E-procurement (Suleiman, 2015).

2.9 Factors Influencing Adoption of Electronic Procurement

Exploratory studies have indicated that many companies are pursuing electronic means to conduct business, that there are a number of factors influencing the adoption of electronic commerce, and that these may be summarised as E-procurement, e-sourcing and e-collaboration (Allen, 2010).

In the study on E- procurement adaptation in Greece, Panayiotou (2004) pointed out e-procurement strategy, re- engineering of procurement processes and management of expectations as key success factors in an e-procurement adaptation strategy. Their conclusion was that implementation must be achieved in a manner of “incremental change” where technological solutions apply to regulations and policies. An investigation into the implementation strategy of e-Procurement in the Irish public sector concluded that fundamental changes are required in the public sector procurement environment to achieve the benefits of e- procurement approach (Lee, 2007). It was found that the key issues could be grouped into a number of areas: procurement framework and practices, organizational arrangement, e-procurement technology framework, and the legal and economic environment. Among these issues, a strong and efficient organizational aspect was identified as a very critical success factor for efficient e-procurement implementation.

The main organisational factors that appear to impact on the likely adoption of E-procurement are size and type of operation. E-procurement is more evident in bigger organisations than smaller. Small to medium enterprises (SMEs) often lag behind larger organisations in E-procurement adoption (Hofstede, 2001). Reasons for this include owner attitudes, resource poverty, limited IT infrastructure and limited knowledge and expertise with information systems (Harland, Caldwell, Powell, & Zheng 2007). The use of E-procurement applications often goes hand-in-hand with repetitive purchases from suppliers, reducing human intervention and paperwork and often resulting in improved performance for buyers and suppliers (KRUSIN, 2005). Creating routine and repetition in the procurement system will increase the efficiency in this process and results in a higher level of electronic integration between buyers and suppliers (RBS, 2013). Operations with high usage of MRO supplies are more likely to use E-procurement (Croom, 2000). The B2B ecommerce solution is likely to vary with the number of buyers and suppliers, their connectivity and the purpose of trading (ibid).

2.10 Theoretical Framework

All studies should be grounded on theory to provide a guideline. According to the Oxford English Dictionary, a theory is an idea used to account for a situation or justify a course of a course of action. It is a supposition, or a system of ideas intended to explain something, especially one based on general principles independent of the thing to be explained.

Diffusion of Innovation (DOI) theory, developed by Rogers in 1962, is one of the oldest social science theories. It originated in communication to explain how, over time, an idea or product gains momentum and diffuses (or spreads) through a specific population or social system. The result of this diffusion is that people, as part of a social system, adopt a new idea, behavior, or product. Adoption means that a person does something differently than what they had previously (i.e., purchase or use a new product, acquire, and perform a new behavior, etc.). The key to adoption is that the person must perceive the idea, behavior, or product as new or innovative. It is through this that diffusion is possible.

Adoption of new idea, behavior, or product (innovation) does not happen simultaneously in a social system rather it is a process whereby some people are more apt to adopt the innovation than others. Rogers (1962) stated that the diffusion of innovation is done through five stages: awareness building, attitude formation, adoption, adaptation, and appropriation. He also divided the adopters

of any new technology to five categories, that is, innovators, early adopters, early majority, late majority, and laggards. When promoting an innovation to a target population, it is important to understand the characteristics of the target population that will help or hinder adoption of the innovation.

The Innovation diffusion theory is a model grounded in business study. Since 1940's the social scientists coined the terms diffusion and diffusion theory (Dean, 2004). This theory provides a framework with which one can make predictions for the period that is necessary for a technology to be accepted. Constructs are the characteristics of the new technology, the communication networks, and the characteristics of the adopters. Innovation diffusion is seen as a set of four basic elements: the innovation, the time, the communication process and the social system. The concept of a new idea is passed from one member of a social system to another Klakota (2010) redefined a number of constructs for use to examine individual technology acceptance such as relative advantage, ease of use, image, compatibility and results demonstrability.

2.11 Conceptual Framework

According to Mathieson, (2001), a conceptual framework is a written or virtual product that explains, either in narrative or in graphically form, the main things to be studied, the key elements being variables, concepts and the presumed relationships among them. Conceptual framework, according to (Stratman & Roth, 2004), are structured from a set of broad theories and ideas that help a researcher in properly identifying the problem they are looking at, frame their research questions and find suitable literature. Most academic research uses a conceptual framework at the outset because it helps the researcher to clarify his research question and objectives.

A conceptual framework is an analytical tool with several variations and contexts used to make conceptual distinctions and organize ideas. A conceptual framework as a concise description of the phenomenon under study accompanied by a graphical or visual depiction of the major variables of the study (Mugenda, 2008). In this study, the dependent variable is e-procurement implementation at ZAF while the independent variables are top management commitment, ZAF readiness, staff training, intention to use and perceived usefulness and ease of use.

Figure 4 below is the conceptual framework proposed for this study on the factors affecting successful implementation of electronic procurement at Zambia Air Force (ZAF). Independent variable influences the outcome or implementation of electronic procurement at ZAF. When

interventions and necessary electronic procurement reforms are put in place key benefits like cost savings, improved efficiency and better relations with suppliers can be achieved, thus improving overall organizational performance.

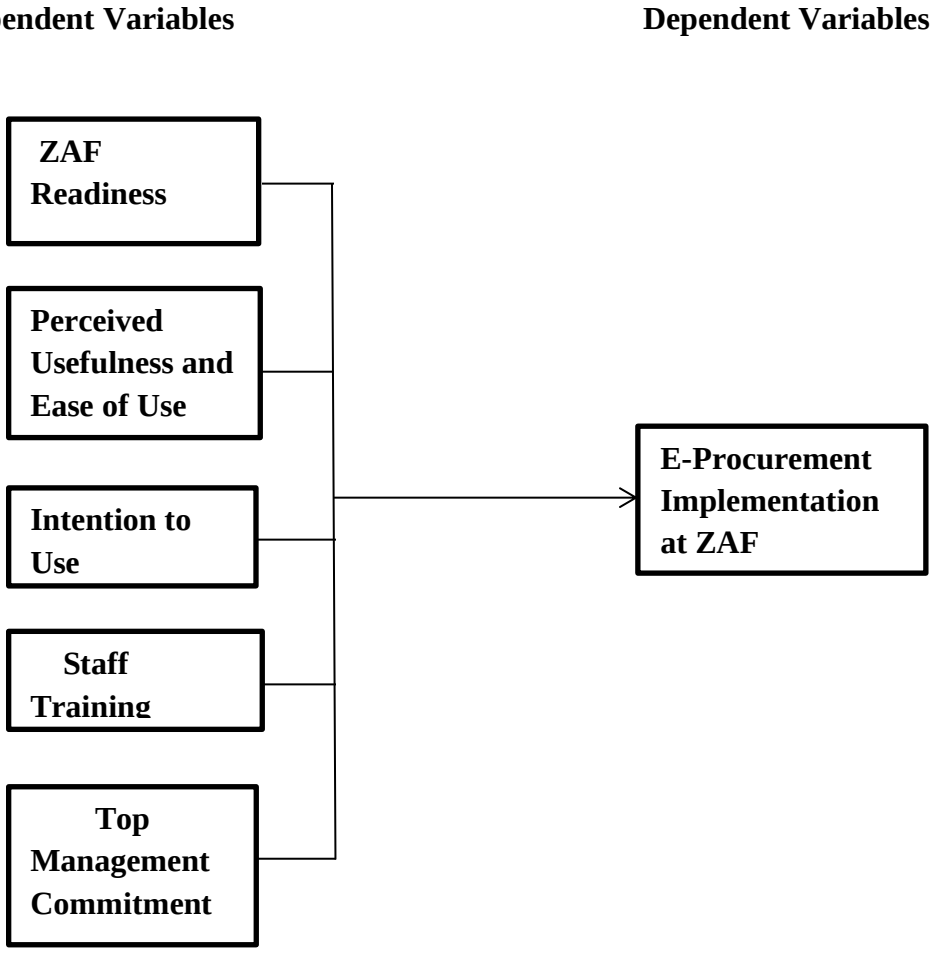

Figure 4: Conceptual framework (Source Author, 2019)

2.12 Knoweldge Gaps

According to Lysons & Gillingham, (2003) firms have made considerable gains because of having electronic procurement systems installed. The use of internet and technology-based systems in procurement has led to lower costs and efficiency in the process (Heijden, 2003). Zambia Air Force does not have electronic procurement system running despite pronouncements by the Zambian government that this program has been introduced. The Zambia Public Procurement Authority's website just mentions the E-procurement program in passing. Just like in the United States of America, unlike the Navy, the Air Force does not have a program office for managing its E-

procurement efforts. As a result, it does not have a unifying strategy for internet-based acquisition and its e-procurement initiatives are more fragmented and fewer in number.

From the reviewed literature, E-procurement presents tremendous opportunities for the ZAF procurement system. E-procurement saves on time and resources for example paper as the entire system is paperless. ZAF as a big organization has the IT infrastructure necessary for the successful implementation of E-procurement as compared to small organization. For Zambia, E-procurement has only started gaining ground and is still in the acceptance stage by ZAF personnel in the procurement department as this is a new technology.

E-procurement reduces issues of corruption in the system to a reasonable amount. The implementation of a remote e-auction can almost zero corruption. Chile's experience with e-procurement has made business opportunities with the Chilean Government more transparent, reduced firms' transaction costs, increased opportunities for feedback and cooperation between firms and public agencies, and sharply reduced opportunities for corruption (Orrego, 2005). The merits experienced by the Chilean government in E-procurement can be enjoyed by ZAF if implemented.

For example, ZAF is the most technological advanced security organization in Zambia and has such is equipped enough to implement E-procurement. The gap that exists in this regard is lack of software where all procurements can be posted for easy participation as this promotes transparency and accountability.

More developed countries than Zambia have developed software's where interested suppliers and purchasers participate in government procurement. This is a more transparent and cost effective used for procurement.

2.13 Conclusion

From the reviewed literature E-procurement presents tremendous opportunities for the ZAF procurement system. E-procurement saves on time and resources for example the entire system is paperless which saves on transactional cost and reducing the time interval for order processing and actual receipt of goods and services. E-procurement reduces issues of corruption in the system. Chile's experience with E-procurement has made business opportunities with the Chilean government more transparent, reduced firms' transaction costs, increased opportunities for feedback and cooperation between firms and public agencies, and sharply reduced opportunities

for corruption (Orrego, 2005). The merits experienced by the Chilean government in E-procurement can be exploited by Zambia Air Force if the organisation can successfully implement electronic procurement. Creating routine and repetition in the procurement system will increase the efficiency in this process and results in a higher level of electronic integration between buyers and suppliers. Table 2.1 below highlights some of the literature that has been reviewed under this chapter.

Table 1. 1: Literature Review

SL No	AUTHOR(S)	ARTICLE	RESULTS	GAPS
01.	Croom, S. R. and Brandon-Jones, A., 2015. United Kingdom	Key Issues in E-Procurement: Procurement Implementation and Operation in the Public Sector	External Price efficiencies and internal cost efficiencies	Investigate e-procurement failures as a way of understanding of critical factors for e-procurement performance.
02.	Padhi, S. S. and Mohapatra, K. J. P., 2010. India	Adoption of E-Procurement in the Government Departments	IT-readiness and Management Policy Effectiveness key to e-procurement success.	The lack of use of a number of data collection methods (study only used questionnaires).
03.	Major D. M. Doe, 2002. United States of America	E-Procurement and The U.S. Military	To provide recommendations for DoD decision-makers.	Quantitative analysis of the costs and benefits of implementation.

04.	Njagi, C. K., & Kinoti, J., 2017. Kenya	Determinants of Electronic Procurement Implementation in County Governments in Kenya	Technological and organizational factors had an impact on successful implementation.	Successful implementation was affected by technological factors.
05.	Orregro, 2005. Chile	Chile's Government Procurement E-System	Chile's experience with e-procurement has made business opportunities with the Chilean Government more transparent, reduced firms' transaction costs,	Implementation affected by slow acceptance by end user
06.	Zhu, M. I. &. T., 2012. Sweden	Driving forces and hindering factors of e-procurement adoption for MRO Products in Bangladesh and China	improved the cost-performance and organizational competitiveness,	Problem with data management and internal communication

07.	Changsen, 2012. China	The study on the enterprises' E-Procurement in China.	Improved purchasing management both in domestic and abroad.	Upper management early adoption of the E-procurement system.
08.	Sithole, 2017. Gauteng – South	Implementation of e-procurement by the Gauteng department of infrastructure development and its impact on the development of small and medium construction firms-South Africa	it increased profitability through cost saving benefits and reduction in time required for transactions, increased their market access	The main disadvantages were found to be high capital cost of procuring and installing Information, Communication and Technology (ICT) infrastructure
09.	Suleiman, 2015. Tanzania	Adoption of E-procurement and Value Addition: Tanzanian context	Improved cost saving. Ease and quick procuring of items. Reduced corruption	Technological factors (T), Organizational factors (O) and Environmental factors

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter looks at the methodology employed during the study to come up with the research findings. Saunders, Lewis and Thornhill (2009, p. 585) define methodology as 'the theory of how research should be undertaken, including the theoretical and philosophical assumptions upon which research is based and the implications of these for the method or methods adopted'. Research design is the blueprint that links the empirical data collection to the initial research questions and the conclusion (Jacobs, 2007).

3.2 Research Design

The research was Pragmatic and qualitative in nature using the narrative approach to gain a deeper understanding from the respondents. Questionnaires provided a wide range of information which was summarized to come up with the required quality information for the study. Qualitative approach to research is concerned with the enquiry of a social or human problem (Creswell, 1998). Reis (2007) defines qualitative research approach as a research aimed at understanding human behavior. Basically, qualitative research is descriptive in nature as is mainly concerned with describing things. The research design was also descriptive survey. Descriptive survey was appropriate for this study because gives a set view of the subject, population, market segments or problem.

3.3 Study Site

The study was restricted to military personnel in Zambia Air Force from the Bases within Lusaka. The reasons for doing so was to have the required information and data needed to come up with better conclusion why electronic procurement has not been implemented in Zambia Air Force.

3.4 Study Population

Mugenda and Mugenda, (2003) describes the target population as complete set of individual cases or objects with some common characteristic to which the research wants to generalize the result of the study. Population also refers to the larger group from which a sample is taken (Orodho, 2003). The Research targeted personnel in Zambia Air Force from Information Technology, Finance and Supply Departments based at Air Force Headquarters and other outlaying Bases in

Lusaka. The study included both Commissioned Officers and Non-Commissioned Officers in Zambia Air Force from the selected Bases.

3.4.1 Sample Size

The researcher adopted a sample size using purposive sampling method. A sample size of 100 personnel was picked and was adequate for the study. The sample size was adopted using purposive sampling using the Yamen formula (1967) and adopted by Polit and Hungler (2004):

$$n = N/[1+N(e)^2 = 133/[1+133(0.05)^2 = 100$$

The response rate was 100% in that all the questionnaires disseminated were answered. The researcher targeted three (03) Departments for the purpose of the study as they would be the major users of the electronic procurement once implemented. Table 3.1 below tabulates the functions (Departments) that were researched which included Information Technology that would be responsible for overall implementation and smooth running of the system, Supply the major users of electronic procurement from need identification to eventual purchase and contract performance monitoring and finally Finance the ones to conduct payments at the end of the procurement cycle. As can be seen, majority of respondents were drawn from Supply the would-be main users of the electronic procurement system.

Table 1. 2: Functions Researched-Departments

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Finance	29	29.0	29.0	29.0
	IT	26	26.0	26.0	55.0
	Supply	45	45.0	45.0	100.0
	Total	100	100.0	100.0	

3.4.2 Inclusion Criteria

The study included personnel in Zambia Air Force from Information Technology, Finance and Supply Departments based at Air Force Headquarters and other outlaying Bases in Lusaka. This

included Commissioned Officers and Non-Commissioned Officers in Zambia Air Force from the selected Bases.

3.4.3 Exclusion Criteria

ZAF personnel from other departments other than those Information Technology, Finance and Supply Departments.

3.5 Sampling Method

Non probability - purposive sampling method was pursued to capture at least 100 respondents. Purposive sampling was adopted to identify the actual intended users for E-procurement for this study to provide the necessary information. The identified respondents were from Information Technology, Finance and Supply Departments, respectively.

3.6 Data Collection Instruments

According to (Mugenda & Mugenda, 2003) data collection is how information is obtained from the selected subject of an investigation. Both primary and secondary data was collected during the research. Primary was collected using a questionnaire covering factors affecting successful implementation of electronic procurement at Zambia Air Force. The questionnaire contained structured questions. Secondary data was collected from journal articles accessed through Google Scholar and Google search engine.

3.7 Research Strategy

A deductive approach was used to test existing theory with a view to eliminate false ones and to corroborate the surviving ones. Researcher validated the factors of the factors of the Technology Acceptance Model (TAM) using Descriptive Analysis, Correlation and P-Value.

3.8 Data Analysis

Data analysis encompasses collecting, modeling and transforming data in order to highlight useful information, suggesting conclusions and supporting decision making. It involves examining what has been collected in a survey or experiment and making decision and inferences. Data analysis aims at reporting information collected from respondents of this study. Findings were presented, analyzed and discussed in conjunction with the objectives of the study so as to select the most accurate and quality information from the feedback by the various respondents.

Microsoft Excel and SPSS version 20 was used to analyze the data. The specific statistical method that was used was descriptive statistics from SPSS version 20. The study was further analysed using SPSS and EXCEL workshop to come up with the finding of the study which were then generated graphically and interpreted. Correlation test was used to analyze the variables using the technology acceptance model. The correlation statistical technique is considered as one of the most general and most valuable statistics techniques. In addition to this, correlation is a single number that illustrates the degree of relationship between two variables. The correlation technique permits the explorer to study naturally occurring variables that are possibly unethical or unworkable to investigate experimentally (McLeod, 2008).

3.9 Model of the Study

A baseline study was conducted using the Technology Acceptance Model (*TAM*) to identify key conditions (indicators) affecting the successful implementation of electronic procurement at Zambia Air Force. A review of documents on studies on electronic procurement implementation in other countries was done. This model of study was adopted to explain the mechanisms that influence and shape user's acceptance of new information technology .This approach was also picked because it has two specific variables that are fundamental determinants of users' attitude toward using information technology and actual use of the system: perceived usefulness and perceived ease of use relatively to new information system design features. Figure 5 below is the original Technology Acceptance Model used for the study.

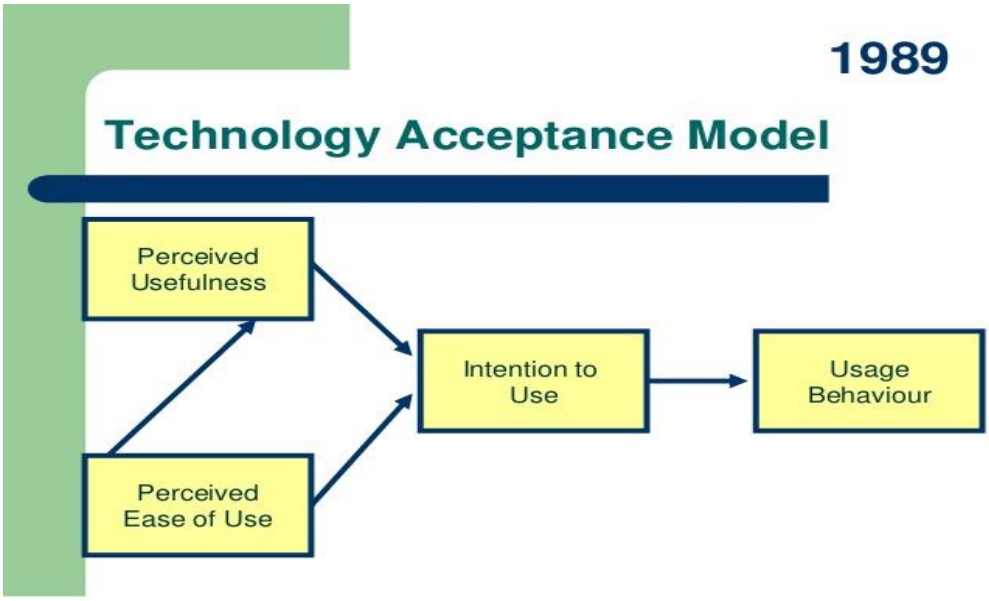

Figure 5: Technology Acceptance Model (Davis, 1989)

3.10 Hypothesis

The following were the research hypothesis for this study:

i. $H0_1$: Perceived ease of use and intention to use has no significant effect on implementation of E-procurement at ZAF.
ii. $H0_{2:}$ Perceived usefulness and intention to use has no significant effect on implementation of E-procurement at ZAF.
iii. $H0_{3:}$ Perceived usefulness and perceived ease to use has no significant effect on implementation of E-procurement at ZAF.

3.11 Key Assumptions

The study assumed that the respondents were going to provide reliable and accurate data that would be useful in making conclusions in relation to the study at hand.

3.12 Ethical Considerations

Prior approval sought from the University of Zambia Ethics Committee and Zambia Air Force Administration to grant authority to undertake this study. Informed consent was also obtained from participants before the administration of the Research Questionnaires. Ethics are important in all walks of life. In this study ethical consideration were very important in order to get the desired conclusion of the study without prejudice. One of the key elements in this study was honest and objectivity in the way data was collected and analysed with no room for biasness. Integrity, openness, honesty, and confidentiality of the responses by the respondents were assured.

3.13 Conclusion

The chapter highlighted the methodology used for this study and further indicated the model upon which this study was anchored on among other items. The targeted respondents show majority of personnel from Supply as they are the main users of electronic procurement platform for the interaction with suppliers of good and service in the procurement process. Information Technology personnel are included because they are responsible for configuration, connectivity, and maintenance of the E-procurement system. Finance respondents are the people responsible for remittance of payment to suppliers of goods and services contracted by the institution that will also be key players on the platform. A baseline study was conducted using the Technology Acceptance Model (*TAM*) to identify key conditions (indicators) affecting the successful implementation of electronic procurement at Zambia Air Force.

Table 1. 3: Design Matrix

RESEARCH OBJECTIVES	RESEARCH QUESTIONS	POPULATION AND SAMPLING	DATA COLLECTION METHODS	DATA ANALYSIS
To determine the factors affecting the adoption of the electronic procurement implementation at the Zambia Air Force based on the *Technology Acceptance Model (TAM).*	What are some of the factors affecting the adoption of the electronic procurement implementation at the Zambia Air Force?	-Information Technology, Finance and Procurement Departments Personnel. -Targeting 100 respondents -Purposive Sampling Procedure.	Questionnaire and document review.	Thematic and content analysis.
Based on the *Technology Acceptance Model (TAM)* recommend solutions that will address factors affecting successful implementation of electronic procurement at Zambia Air Force.	How can the level of technology adoption for electronic procurement implementation at the Zambia Air Force be attained?	-Information Technology, Finance and Procurement Departments Personnel. -Targeting 100 respondents -Purposive Sampling Procedure.	Questionnaire and document review.	Thematic and content analysis

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

4.1 Introduction

This chapter presents the analysis of data collected from the field based on the study by use of questionnaire, analyzing, discussing, and interpreting it. The study investigated factors affecting successful implementation of electronic procurement at Zambia Air Force based on the Technology Acceptance Model (TAM). Data from the questionnaire was collected and coded using Statistical Package for Social Science (SPSS) and Excel; it was then checked for uniformity, consistency, and accuracy. This chapter presents data in form of tables and figures as collected from the respondents. The questions conducted were designed using TAM model (which focus on user technology acceptance framework) as outlined in Literature Review in Chapter Two.

The chapter seeks to highlight the demographic profile of respondents targeted for the study. To facilitate meaningful data analysis and interpretation of the findings, information on bio data of respondents has been included. The report sheds light on factors affecting successful implementation of electronic procurement at Zambia Air Force.

4.2 Respondent's Characteristics and Classification

The data from the questionnaire sought general information about the respondents. The information under this section provides a summary of the profile of respondents indicating their duration of employment, departments of attachment and levels of education.

4.2.1 Functions Researched (Departments)

As earlier alluded to, the functions that were researched were Information Technology, Finance and Supply Department. This was the inclusion criteria because they would be the main users of this platform when implemented. Departments that were researched which included Information Technology because they would be responsible for overall implementation and smooth running of the system, Supply the major users of electronic procurement from need identification to eventual purchase and contract performance monitoring and finally Finance the ones to conduct payments at the end of the procurement cycle. From the functions researched, the researcher came up with 100 valid responses from the targeted respondents broken down as follows; 26 respondents (26%) were from Information Technology (IT), 29 respondents (29%) from Finance and 45 respondents

(45%) from were from Supply Departments respectively. This information is tabulated in Table 4.1 that highlights the numbers and percentages of respective respondents from the targeted departments.

Table 1. 4: Functions Researched - Departments

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Finance	29	29.0	29.0	29.0
	IT	26	26.0	26.0	55.0
	Supply	45	45.0	45.0	100.0
	Total	100	100.0	100.0	

4.2.2 Gender

The researcher further sought to establish the respondents' gender distribution. The results are as indicated in Figure 6 below which indicates 69% male representation, 30% female representation while 1% depicts the non-disclosure of gender representation across the three Departments researched during the administration of the questionnaire.

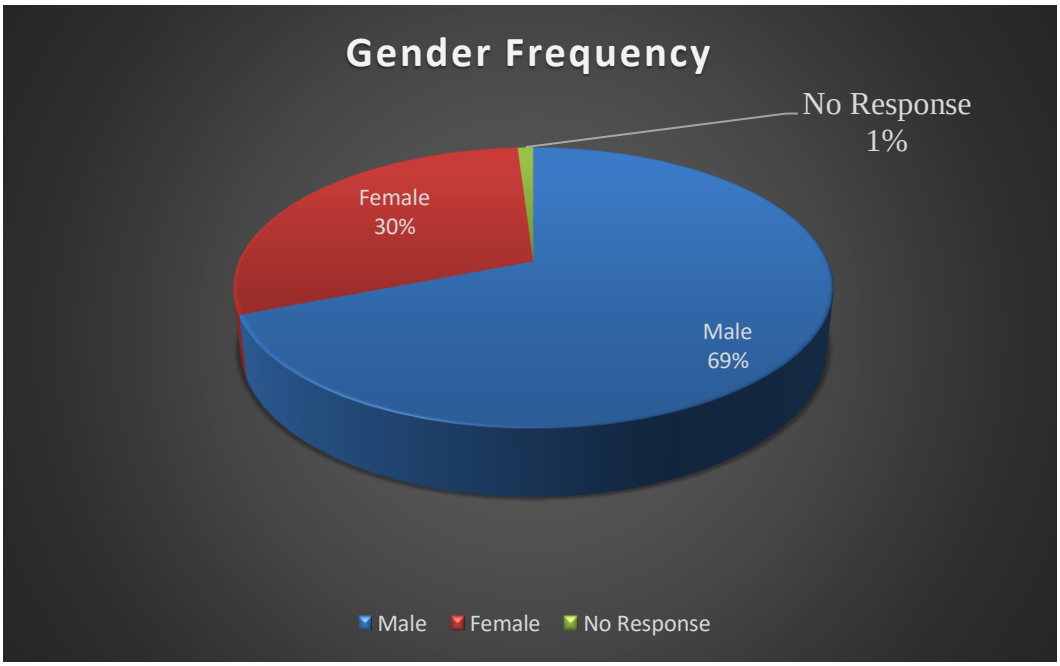

Figure 6: Gender Distribution of Respondents

4.2.3 Respondent's Age

The data below in Table 4.2 depicts the age group of respondents that were researched and responded to the questionnaire that were administered to them. The highest age group was between the ranges of 26 to 35 years of age that accounted 48% of the respondents with the lowest age range being from 46 to 55 years of age at 12%. Important to note is also a single person with a representation of 1% that did not give their age. Age was an important factor during the study because age factor has an effect of a person's internet usage.

Table 1. 5: Respondents Age (In Years)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25 years	4	4.0	4.0	4.0
	26-35 years	48	48.0	48.0	52.0
	36-45 years	35	35.0	35.0	87.0
	46-55 years	12	12.0	12.0	99.0
	Missing system	1	1.0	1.0	100.0
	Total	100	100.0	100.0	

4.2.4: Education Level

Education has an impact on the adaptability and ease of transition for personnel using new technologies and innovations as would be the case with the use of electronic procurement at Zambia Air Force (ZAF). The researcher also sought to establish the respondents' highest level of education. Personnel should have the general education to be able to use the electronic procurement platform once implemented. It should be noted here, that ZAF that employees both grade twelve (12) levers known as direct entrants as well as professionals known as professionally qualified entrants during its recruitments. The study indicated that majority of the respondents were Diploma holders that accounting for 39% of the targeted respondents, followed by certificate holders who had 31% representation, university degree holders and grade twelve(12) certificate holders where each represented at 14% respectively, with least representation being 2% of

respondents that held master's degree and above qualifications. Cumulatively, the targeted respondents gave 100% feedback return rate on the level of education.

4.2.5: Length of Service at Zambia Air Force

The study also obtained information on the number of years' respondents had served in their respective Departments in Zambia Air Force. The length of period served in various departments has a bearing on personnel's adaptability to new technologies and innovations, people tend to be comfortable with doing things or performing tasks in a certain way hence the need for rigorous change management programs. People are generally skeptical to change and hence the need to ensure that personnel do not feel threatened with the possibility of job losses or redundancy with the introduction of new technological reforms. Figure 7 below indicates that the majority of respondents have served between 15 to 19 years of service represented at 29%, the next higher length of service ranged between 5 to 9 years at 27%, followed by those whose length of service was between 10 and 14 years with a representation of 16%, personnel with length of service below 5 years was at 13%. Additionally, those whose length of service was 25 and 29 years had 12% representation while 20 to 24 years had a representation of 3% respectively. The above statistics are depicted in Figure 6 below to give a graphical representation.

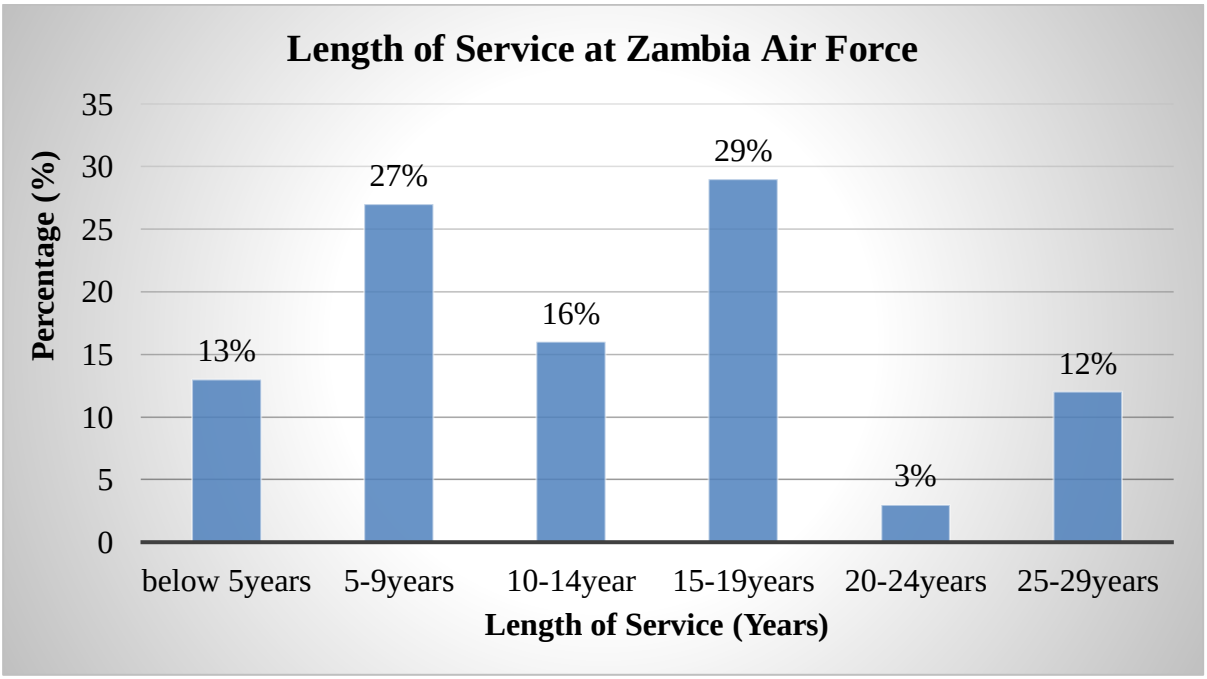

Figure 7: Length of Service at Zambia Air Force

4.3 Implementation Readiness

4.3.1 Feasibility of Electronic Procurement Implementation

The research tried to access the feasibility of electronic procurement implementation at Zambia Air Force as one of the aspects of the study. Successfully implementing E-procurement in developing and less developed countries under which category Zambia falls under may require the need to consider hybrid approaches combining on-line and off-line approaches to enhance successful implementation of the program while setting achievable and realistic timeframes for total shift from offline to complete online procurement transactions. Additionally, electronic procurement may require a combination of centralized and decentralized approaches depending on the particular features of each country and geographic region and this is where the Zambia Public Procurement Authority the government mandated organ needs to pay more attention and come up with segregation plans for successful implementation programs. From the information obtained from the respondents through questionnaire administration as indicated in Table 4.3 below, it was deduced that 83% of respondents answered in the affirmative that it was feasible to introduce electronic procurement, 11% stated that it was not possible while 6% of respondents did not know whether it was feasible or not to implement E-procurement.

Table 1. 6: Feasibility of Electronic Procurement Implementation in ZAF

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	83	83.0	83.8	83.8
	No	11	11.0	11.1	94.9
	Don't know	6	6.0	6.0	100.0
	Total	100.0	100.0	100.0	100.0

4.3.2 Top Level Management Support to the Implementation of Electronic Procurement at Zambia Air Force

For the success of any program or reform, it requires top level management commitment, guidance and encouragement. The study findings as obtained from the administered questionnaire revealed the lack of top-level management commitment in the implementation of electronic procurement at Zambia Air Force. Figure 7 below alludes to the following research deduction; 38% indicated in the negative by stating that there wasn't much being done by the top-level management as regards the implementation and actualization of electronic procurement at Zambia Air Force. Only 15%

of the respondents indicated in the affirmative that indeed there was commitment from top level management towards electronic procurement implementation reform at Zambia Air Force. Top level management involvement is the cornerstone to the successful implementation of any program as the driving force for change management in organisations. The following was also deduced from the research findings; 20% of the respondents were neutral as they could not indicate whether there was organisational top management commitment or. Figure 8 below highlights the research as obtained from respondents' feedback from questionnaire administration. From the research findings, it can be deduced that top level management regarding implementation of electronic procurement was lacking at the time of conducting this research. As earlier alluded to, it is incumbent upon top level management to drive the organisational changes it seeks to achieve by incorporating change management programs in company policy documents such as Mission and Vision Statements, respectively.

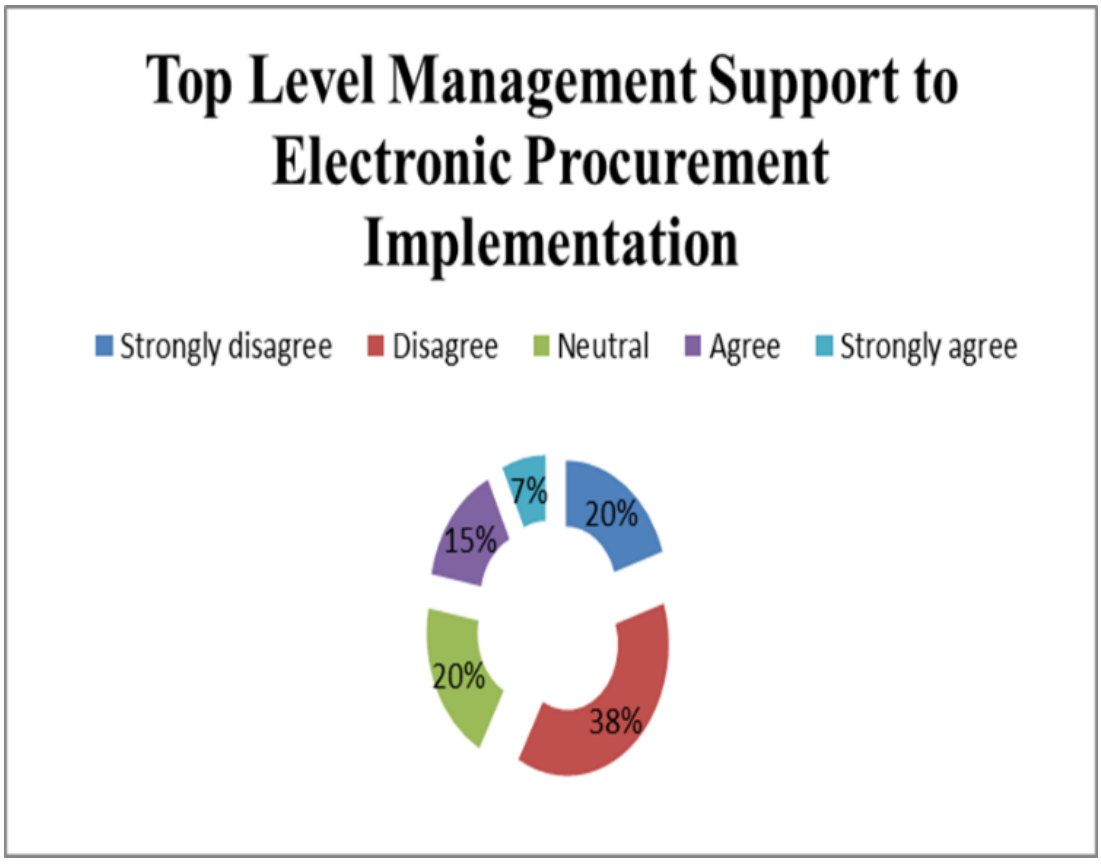

Figure 8: Lack of Top Level Management Support

4.3.3 Availability of Computers and Gadgets

Availability of the prerequisite electronic procurement facilities is key is achieving successful implementation and smooth running of the program for any organization. In trying to understand the feasibility of electronic procurement implementation based on the Technology Acceptance Model, the researcher inquired from the respondents on facility availability. The following findings were deduced from the study because majority of respondents stated that some the basic prerequisite for electronic procurement implementation were not available. The basic prerequisite include but not limited to the following; computers, gadgets, scanners, internet facilities both cable and wire mesh to enhance smooth electronic procurement transactions and many other basic prerequisite as can be seen by the responses indicated in the Figure 9 obtained from the respondents. Majority (40%) of respondents indicated in the negative on the availability of computers, gadgets, and other requirements. However, 35% of the respondents agreed that indeed Zambia Air Force had the basic prerequisite in place required for electronic procurement implementation. Overall, when the responses are aggregated both for and against, it can be deduced that there is inadequate or indeed non availability of computers and gadgets at Zambia Air Force.

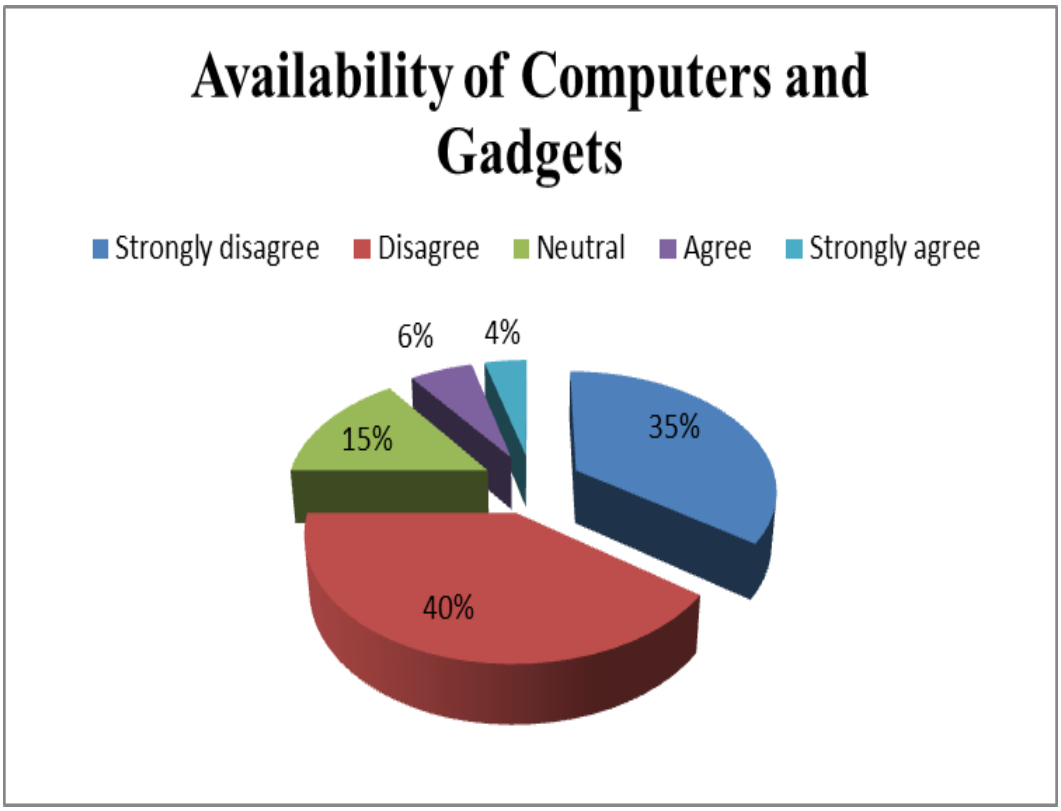

Figure 9: Availability of Computers and Gadgets

4.3.4 Personnel Ready to Embrace Electronic Procurement System (EPS)

Change management can never be over emphasized. It is imperative before any organisation embarks on serious overhaul that could influence employee job performance and satisfaction that adequate awareness program is carried out by that respective organisation. Regarding Zambia Air Force employee readiness in embracing electronic procurement as a new organisational practice, the study findings revealed the following; majority (64%) of the respondents indicated in the affirmative that if the new reform of E-procurement were to be implemented, they would be ready to embrace the new technological advancements. However, 19% stated that they were not ready to embrace electronic procurement as a basis of good practice. Additionally, 17% of the respondents were neutral during the findings. The findings on employee readiness as regard E-E-procurement embracement is indicated in Figure 10.

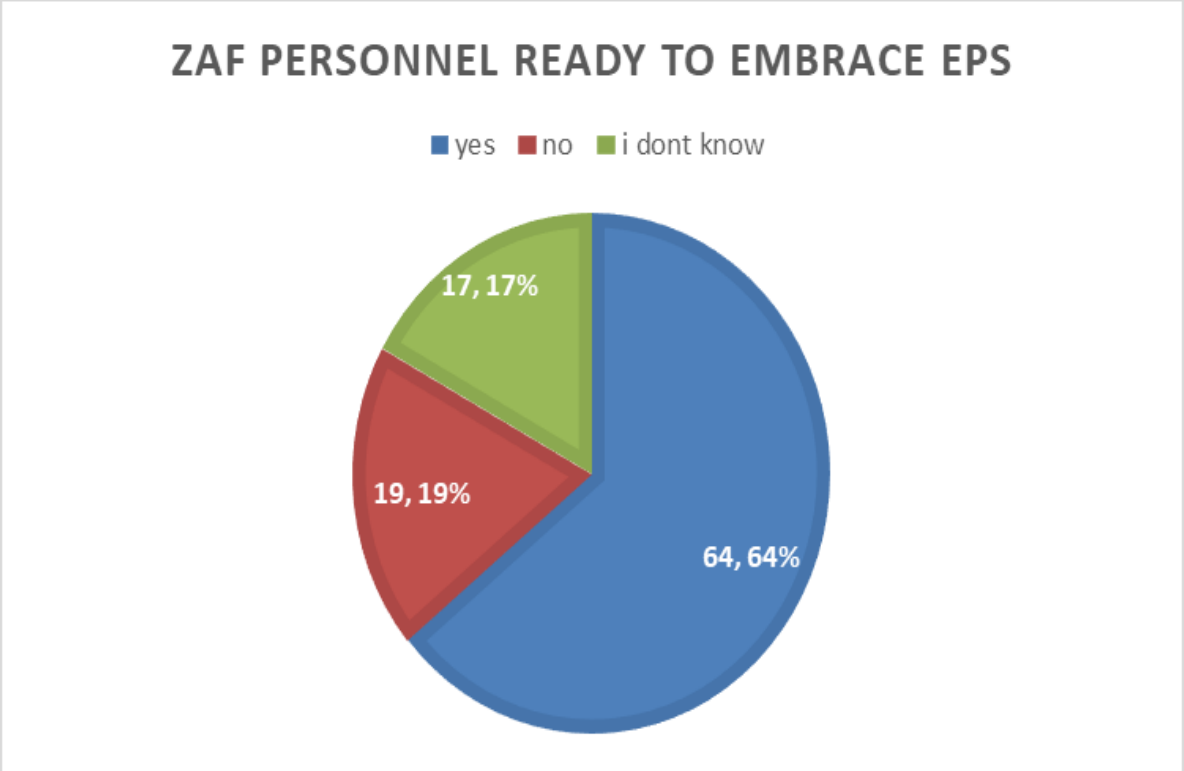

Figure 10: ZAF Personnel Ready to Embrace Electronic Procurement System (EPS)

4.3.5 Electronic Procurement Implementation Measures

When data was analyzed on whether ZAF had put up the necessary prerequisite measures required for E-procurement implementation, 42% of the respondents stated that not enough measures had been put in place for the implementation program to take place. 37% answered in the affirmative

that indeed some measures were in place to conduct successful implementation of E-procurement, while 21% of the respondents indicated that they didn't know whether the necessary requirements for E-procurement implementation were in place not as indicated in Figure11 below.

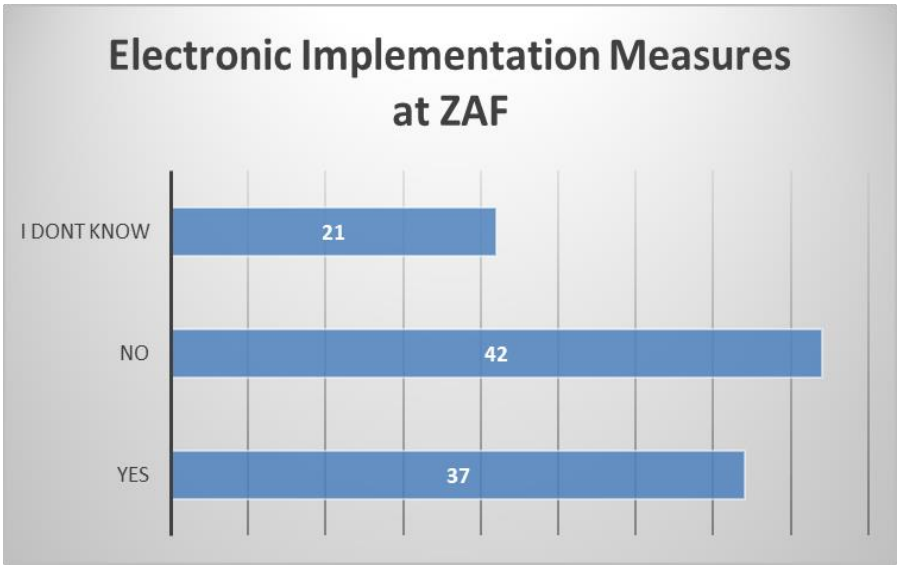

Figure 11: Electronic Implementation Measures at Zambia Air Force (ZAF)

4.3.6 Internet Usage Experience

Data obtained and analyzed from the questionnaire indicated that 58% of respondents had been using internet for over 5 years with a representation of 58% and the least internet usage was under one year at 5%. The Table 4.4 below shows tabulates the responses on internet usage experience as obtained from the respondents. Internet usage is very imperative in successfully operationalizing electronic procurement as it is the main form of conducting electronic procurement.

Table 1. 7: Internet Usage Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	under 1year	5	5.0	5.0	5.0
	1-3years	12	12.0	12.0	17.0
	3-5years	25	25.0	25.0	42.0
	above 5years	58	58.0	58.0	100.0
	Total	100	100.0	100.0	
Total		100	100.0	100.0	

4.3.7 Hourly Daily Internet Usage

The duration that one spends on the internet will give such a person some added advantage when it comes to the operation of electronic procurement systems. Table 4.5 below gives an overview of internet usage by the respondents that were targeted for this research. Majority of respondents who accounted for 44% stated that they spent an average of 1 to 3 hours on the internet daily with the least percentage usage being at 17% using internet for less than 1 hour. 3 to 5 hours internet users had a representation of 19% while above 5 hours daily usage was at 20%.

Table 1. 8: Hours Spent on the Internet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1hour	17	17.0	17.0	17.0
	1-3 hours	44	44.0	44.0	61.0
	3-5 hours	19	19.0	19.0	80.0
	Above 5 hours	20	20.0	20.0	100.0
	Total	100	100.0	100.0	

4.3.8 General Computer Knowledge

Computer literacy or knowledge in a layman's term can be defined as the knowledge and ability to use computers and technology efficiently to achieve set organisational tasks or objectives. Computer literacy can also refer to the comfort level someone can has with using computer programs and other applications that are associated with computers. Computer literacy or knowledge goes in hand with ability to use one or more of the available Microsoft programs installed on computers or being used in different organisations and can include but not limited to the following; Microsoft Word, Excel, PowerPoint, Access, and Internet Explorer among other applications for certain very well-defined simple tasks.

The implementation of electronic procurement comes with several challenges which can be categorized into institutional and economic-legal challenges (United Nations, 2011). One of the institutional factors that affect the implementation of electronic procurement is employee competence and capacity. From the research findings, on average the general computer knowledge

ranged between good (38%) and moderate (32%), while good computer knowledge was assessed to be at 25%, poor 3% and very poor at 2%. Figure 12 highlights the research findings as deduced from the answers that were provided in the questionnaire.

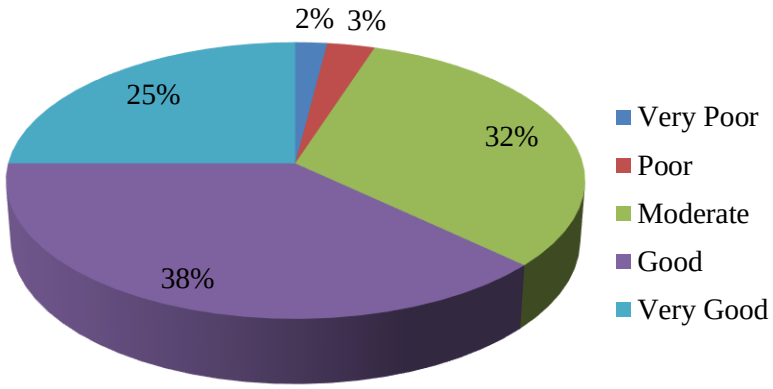

Figure 12: General Computer Knowledge

The findings suggest that to implement electronic procurement (E-procurement) successfully, an organization needs to train its members of staff to acquire the necessary skills to operate and use the electronic procurement system. The organization can also employ qualified staff for instance those with Information Communication Technology (ICT) and E-procurement knowledge and experience to supplement the existing staff and bring new knowledge and techniques that will be shared with others in order to enhance full implementation of the system. The organization can also develop an E-procurement manual to enable staff to refer to in case of need as they carry on their operations to supplement the successful implementation.

4.4 Perceived Usefulness and Ease of Use

The researcher obtained information from the questionnaires on the perceived usefulness and ease of use of electronic procurement if the reform was to be implemented at Zambia Air Force. Perceived usefulness and ease of use are among the important constituents of the Technology Acceptance Model that was used for the study in assessing the viability and as well as gaining an in depth understanding of why electronic procurement had not been implemented at Zambia Air Force.

4.4.1 Electronic Procurement Enhancing Job Performance

The study findings on whether electronic procurement would enhance job performance and task completion at Zambia Air Force revealed the following outcome: 36% of the respondents strongly agreed, 48% were generally in agreement, 9% were neutral whether or not electronic procurement would enhance job performance or not, 3% strongly disagreed that it wouldn't enhance their job performance, and 4% of the were also in disagreement on the relationship between electronic procurement and job performance enhancement. Table 4.6 and Figure 13 below indicate the responses on electronic procurement enhancing job performance.

Table 1. 9: Electronic Procurement Enhancement of Job Performance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree (D)	4	4.0	4.0	4.0
	Strong Disagree (SD)	3	3.0	3.0	7.0
	Neutral (N)	9	9.0	9.0	16.0
	Agree (A)	48	48.0	48.0	64.0
	Strongly Agree (SA)	36	36.0	36.0	100.0
Total		100	100.0		

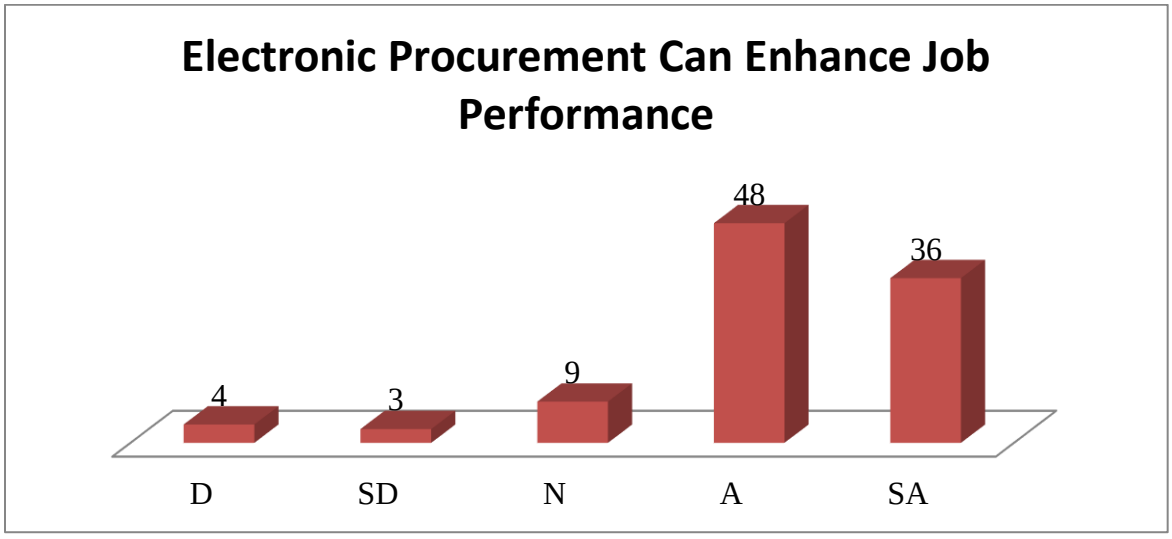

Figure 13: Electronic Procurement Enhancement of Job Performance

4.4.2 Ease of Electronic Procurement Implementation at Zambia Air Force

To understand why electronic procurement has not been implemented, the research also included an understanding on ease of electronic procurement implementation at Zambia Air Force. The study findings revealed are as indicated below. The responses from the study findings were as follows; 8% of the respondents answered in the negative that it was not easy to implement electronic procurement. Those that strongly disagreed on the ease of the implementation had a representation of 4%, neutral respondents were represented at 23%. However, many of the respondents (45%) agreed that it would be feasible and ease to implement electronic procurement at Zambia Air Force. 20% strongly agreed that electronic procurement would be easily implemented at Zambia Air Force. There were more people in agreement than the converse. Table 4.7 below indicates the above statistics in a graphical way in form of a table.

Table 1. 10: Ease of Electronic Procurement Implementation at Zambia Air Force

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	8	8.0	8.0	8.0
	Strongly Disagree	4	4.0	4.0	12.0
	Neutral	23	23.0	23.0	35.0
	Agree	45	45.0	45.0	80.0
	Strong Agree	20	20.0	20.0	100.0
Total		100	100.0		

4.4.3 Cost Reduction and Transparency Enhancement

Prior to emergence and origination of electronic procurement (E-procurement) organizations used to spend too much on their Supply Chain Management and those organisations that have not implemented electronic procurement still do spend a lot their Supply Chain Management. A review of various literature has alluded to the fact that E-procurement has significantly changed this attitude supporting the whole process of supply chain ranging from reducing the procurement overheads to value creation and overall efficiency and effectiveness along the supply chain. The necessity of adopting E-procurement is tremendously high since adoption of electronic procurement will result in reduced administrative costs, price reduction, shorter process cycle times, enhanced contract compliance, boosted inventory management, minimized operation and inventory costs, improved decision making, reduced negotiation unit costs, enhanced market intelligence, easy sourcing of products, services or suppliers from the ideal place for the reasonable

or lowest possible price and many other benefits that can be obtained from the implementation process.

With regards to cost reduction and transparency enhancement at Zambia Air Force, 2% of the respondents indicated that there was no relationship between E-procurement implementation and cost reduction and further stated that it would have no effect on transparency of operations. One person (1%) strongly disagreed, 2% were neutral but majority (57%) of respondents agreed that E-procurement would reduce costs as well as enhance transparency. Furthermore, 38% strongly agreed that implementation of electronic procurement would reduce costs and promote transparency in the way procurement processes would be conducted. Table 4.8 below highlights the research findings regarding cost reduction and transparency enhancement by use of electronic procurement.

Table 1. 11: Cost Reduction and Transparency Enhancement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	2.0	2.0	2.0
	Strongly Disagree	1	1.0	1.0	3.0
	Neutral	2	2.0	2.0	5.0
	Agree	57	57.0	57.0	62.0
	Strongly Agree	38	38.0	38.0	100.0
Total		100	100.0		

4.4.4 Interdepartmental Collaboration

Electronic procurement system is a multi-faced reform that requires concerted effort from different players for successful implementation and actualization. The study targeted three (03) Departments from Zambia Air Force which included Information Technology (IT), Supply/Procurement and Accounts Departments, respectively. A survey was also conducted on the above-mentioned Zambia Air Force Departments because of electronic procurement. It is imperative to determine the level of integration required between the electronic procurement (E-procurement) solution and existing information systems. For the E-procurement initiative to be successful, the system has to be well integrated with existing IT systems, especially financial systems (Panda and Sahu, 2012, Vaidya et al., 2006). This facilitates the process of online payment to suppliers. Furthermore, it is important that information is shared to all stakeholders in real-time

across systems, and that it is reliable and accurate (Panda and Sahu, 2012). If integration issues are complex, it is likely that underlying business processes within an organization should be changed or adapted (Vaidya et al. 2006).The research findings on interdepartmental collaboration due to E-procurement had the following outcome as tabulated below: 8% disagreed and 6% strongly disagreed. Those neutral had 8% representation. But the majority agreed at 49% and 29% strongly agreed that E-procurement would foster interdepartmental collaboration. From Table 4.9 below, it can be deduced that majority of the respondents agreed that indeed implementation of E-procurement would enhance collaboration among departments. This is a positive outcome for the implementation of the system.

Table 1. 12: Interdepartmental Collaboration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	8	8.0	8.0	8.0
	Strongly Disagree	6	6.0	6.0	14.0
	Neutral	8	8.0	8.0	22.0
	Agree	49	49.0	49.0	71.0
	Strongly Agree	29	29.0	29.0	100.0
Total		100	100.0		

4.4.5 Buyer/ Supplier Relationship Enhancement

The relationship between the buyer and supplier is paramount to the success of any procurement function of organisations. The research findings revealed the following outcome if electronic procurement (E-procurement) was to be implemented at Zambia Air Force; 5% of the respondents disagreed that E-procurement would not enhance buyer/ supplier relationship. Additionally, respondents that strongly disagreed had a 3% representation, neutral 9%. The majority agreed of the respondents answered in the affirmative (52%) that electronic procurement would indeed enhance buyer/ supplier relationship, and 31% of the responses strongly agreed. From the research findings, it can be deduced that the E-procurement system would enhance that relationship between the buyers and suppliers once implemented and operationalized. An enhanced buyer/ supplier relationship will foster collaboration between the contracting parties which can translate

in reduced expenses, enhanced supply chain visibility, and shorter lead times among other factors. Table 4.10 below highlights the research findings discussed in the presiding paragraph.

Table 1. 13: Buyer/ Supplier Relationship Enhancement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	5	5.0	5.0	5.0
	Strongly Disagree	3	3.0	3.0	8.0
	Neutral	9	9.0	9.0	17.0
	Agree	52	52.0	52.0	69.0
	Strongly Agree	31	31.0	31.0	100.0
Total	100	100.0			

4.5 Intention to Use

This aspect of the Technology Acceptance Model looked at the willingness of respondents to use electronic procurement once implemented at Zambia Air Force influenced by use of various variables identified in the conceptual framework in Chapter Two under Literature Review.

4.5.1 Intention to Use Electronic Procurement

Analysis of the responses obtained indicated that 48% of respondents were agreeable to the usage of electronic procurement, with 41% also strongly agreeing. Those that disagreed had a representation of 4%, strongly objected to the use of electronic procurement had a marginal 1% representation. Respondents that were neutral accounted for 6%. Majority of respondents, as illustrated in Table 4.11 below graphically, are positive on the intention to use the E-procurement system.

Table 1. 14: Intention to Use Electronic Procurement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	4	4.0	4.0	4.0
	Strongly Disagree	1	1.0	1.0	5.0
	Neutral	6	6.0	6.0	11.0
	Agree	48	48.0	48.0	59.0
	Strongly Agree	41	41.0	41.0	100.0
	Total	100	100.0		

4.5.2 Need for Further Training

End-user training and uptake is positively associated with successful implementation of an e-procurement initiative. As electronic procurement entails new technologies, it is necessary for changes in how tasks are done in an institution from the traditional approaches to new procurement approaches. Staff should therefore be trained on the use of electronic procurement tools and practices to implement electronic procurement successfully. The users can achieve immediate benefits of electronic procurement once they comprehend the operational functionalities (Hardy & Williams, 2011).

Research findings indicate that majority of respondents strongly (62%) agreed that there was need for further training for personnel to enhance their computer skills as well as keeping them abreast with the latest technology advancements, 30% of respondents were also in agreement with those in disagreement and non-responses accounting for 4% each respectively. Skill training and knowledge enhancement is paramount in fostering development and so easy adaptability to change. Figure 14 below gives the graphical representation of these findings.

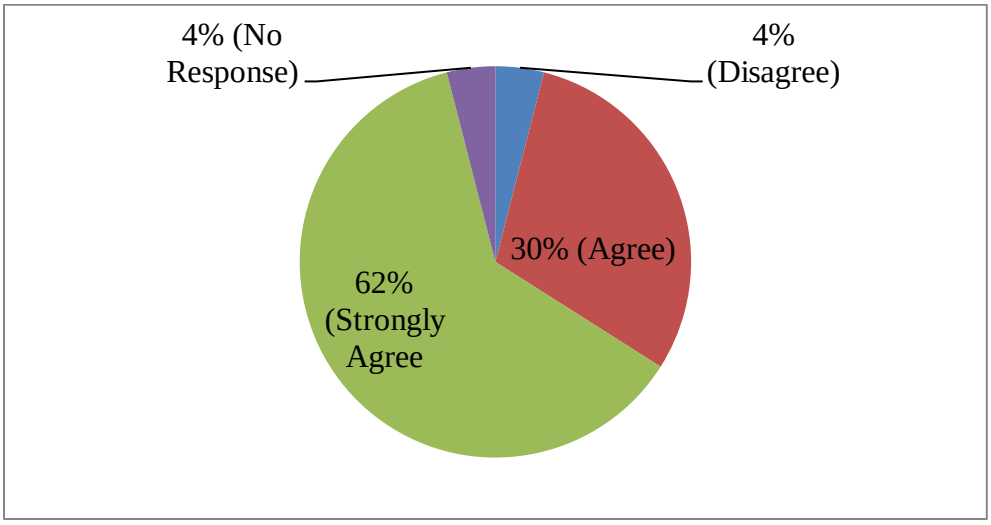

Figure 14: Need for Further Training

4.5.3 Platform Interaction with Other Users

On the regular usage of the platform as a means of interaction with other users such as buyers and suppliers, majority (52%) agreed (A), 33% strongly agreed (SA), 7% did not respond, 4% were neutral (N), 3% disagreed (D) with 1% strongly disagreeing (SD) over the usage of electronic procurement as a platform to interact with other others. From the research finding above, it can be

deduced that personnel were willing to use electronic procurement systems as an interactive platform with other users. Figure 14 indicate the research findings. Figure 15 below indicates the research findings.

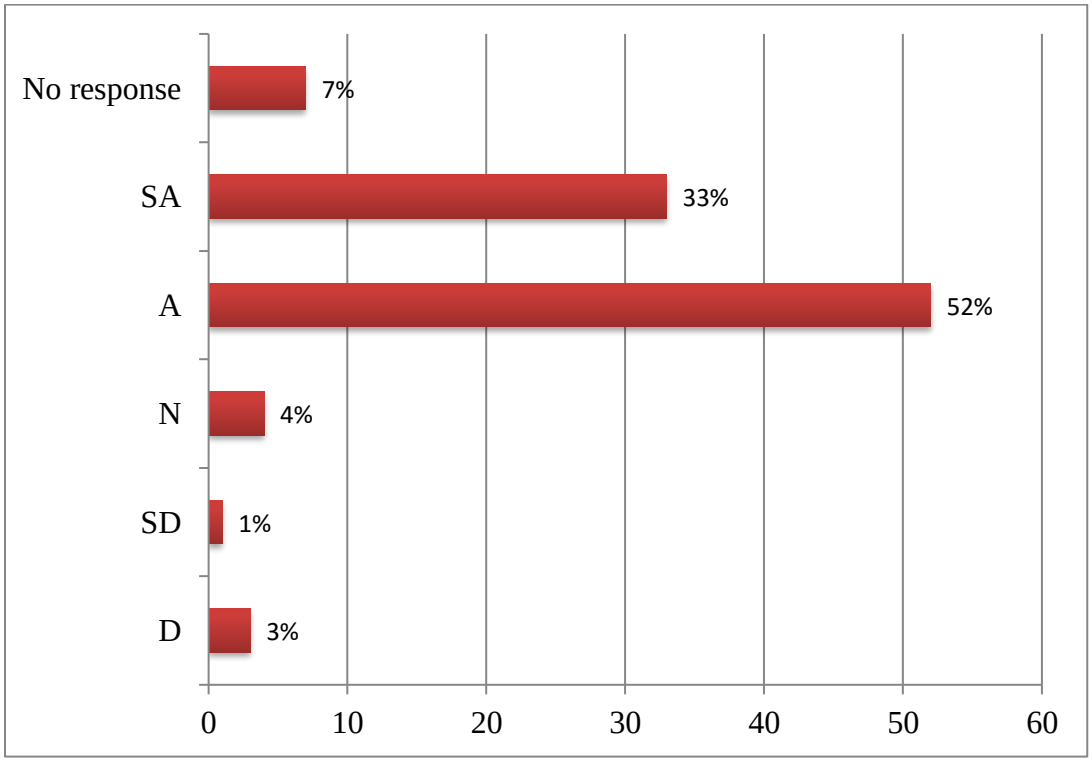

Figure 15: Platform Interaction with Other Users

Key *– Strongly Agree (SA), Agree (A), Neutral (N), Strongly Disagree (SD)*

4.5.4 Preference for Special Operating Electronic Procurement Software

The study further investigated whether the targeted respondents would prefer special operating electronic procurement software. It should be noted that currently on the market, there are different electronic procurement software being used by different organisations. It is imperative that before implementing electronic procurement reforms, organisations make good assessments on the best software applicable to their respective organisation.

Figure 16 below presents descriptive findings on preference or non-preference of any special electronic procurement software. As can be deduced to from in Figure 15 below majority of respondents (46%) were of the view that they would prefer a special type of electronic procurement

software more inclined to defence procurement, only one person strongly disagreed meaning that he/she wouldn't mind using any time electronic procurement software once implemented. While the outcome might seem positive on preference of specific software before implementation, it is important to note there may be a likelihood of change for preference or taste by respondents once particular electronic procurement software is incorporated in an organization's procurement procedures. It is, therefore, imperative that massive and continuous sensitization is carried out the benefits of certain software application to the end users.

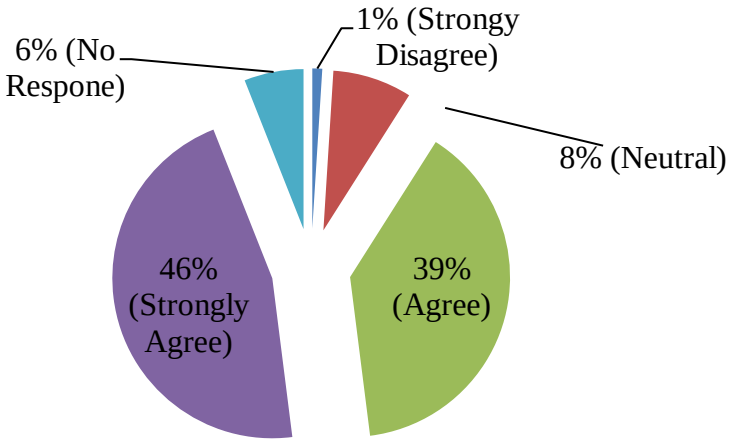

Figure 16: Preference for Special Operating Software

4.5.5 Electronic Procurement Relevance in Relation to Job Description

On relevance of electronic procurement (E-procurement) in relation to job description, the following result findings were established; 46% of the majority respondents strongly disagreed (SD) that E-procurement had no relevancy in relation to their job description, 41% agreed (A), with the least being 8% who disagreed (D) that E-procurement would be relevant to their job description while 5% were neutral. Change management once embedded in the adoption of the new system makes the transition easier because once employees feel their jobs or roles threatened it becomes an uphill battle to implement something that will in actuality yield positive results if implemented.

Therefore, a well-executed campaign must be put in place before the system is fully implemented for ease of ownership and acceptance which will in turn result in organisational benefits. These research findings are tabulated in Table 4.12 below.

Table 1. 15: Electronic Procurement in Relation to Job Description

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	8	8.0	8.0	8.0
	Neutral	5	5.0	5.0	13.0
	Agree	41	41.0	41.0	54.0
	Strongly Disagree	46	46.0	46.0	100.0
	Total	100	100.0	100.0	

4.6 Correlation Coefficient and P-Values

Correlation and P-Values test were analysis using the Technology Acceptance Model. Correlation analysis is used to establish if there exists relationship between two or more variables which lies between strong negative correlation and perfect positive correlation. Correlation coefficient was tested on perceived ease of use, intention to use and usefulness.

4.6.1 Zambia Air Force Personnel Ready to Embrace Electronic Procurement Systems, Electronic Procurement Job Enhancement and Task Completion and Regular Usage of Electronic Procurement Platform with Other Users

The variables in Table 4.13 on Zambia Air Force personnel's readiness to embrace electronic procurement systems (Implementation readiness) and platform usage regularly to interact with other users (intention to use) have a significant value of greater than 0.05 which means the alternative hypothesis is rejected as the ($P=0.650040 < 0.05$). Therefore, there is no relationship between perceived usefulness and intention as they do not affect implementation of electronic procurement at Zambia Air Force. Furthermore, the correlation between electronic procurement enhancement of job performance and task completion and platform usage regularly to interact with other users found a significant value is less than 0.05. Which means the null hypothesis was rejected. This showed that perceived usefulness and intention to use have a strong association with

the implementation of E-procurement at ZAF. The above findings are presented graphically below in Table 4.13 below.

Table 1. 16: ZAF Personnel Ready to Embrace EPS, EPJE and Task Completion and Regular Usage of Electronic Procurement Platform with Other Users

		Zambia Air Force personnel ready to embrace electronic procurement systems	Electronic procurement would enhance job performance & task completion	Regularly usage of use platform to interact with other users
ZAF personnel ready to embrace Electronic procurement systems	Pearson Correlation	1	-.020	-.047
	Sig. (2-tailed)		.842	.650
	N	100	100	97
Electronic procurement would enhance job performance & task completion	Pearson Correlation	-.020	1	.212*
	Sig. (2-tailed)	.842		.037
	N	100	100	97
Regularly usage of the platform to interact with other users	Pearson Correlation	-.047	.212*	1
	Sig. (2-tailed)	.650	.037	
	N	97	97	97

*. Correlation is significant at the 0.05 level (2-tailed).

4.6.2 Internet Usage Experience, Electronic Procurement Promoting Interdepartmental Collaboration and Fostering Teamwork and Need for further Training in Information Technology

Hypothesis usually shows a relationship between two or more variables. Any significant value is 0.05 or below which means that the null hypothesis is accepted. The variables above showed promotional of interdepartmental collaboration and need for further training have a significant value less than 0.05 as the (P= 0.012276 < 0.05) which means the null hypothesis is accepted.

Therefore, perceived ease of use and intention to use has a significant effect on implementation of E-procurement at Zambia Air Force. Correlation on internet usage experience and need for further training have a significant value less than 0.05 as the (P= 0.006717 < 0.05) which means the null hypothesis is accepted. This, furthermore, agrees with the findings above on perceived ease of use and intention to use has a significant effect on implementation of E-procurement at ZAF. These findings are tabulated in Table 4.14 below.

Table 1. 17: Internet Usage Experience, Electronic Procurement Promoting Interdepartmental Collaboration and Need for further Training in IT

		Internet usage experience	Electronic procurement promotion of interdepartmental collaboration and fostering teamwork	Need for further training in information technology
Internet usage experience	Pearson Correlation	1	.023	.272**
	Sig. (2-tailed)		.821	.007
	N	99	99	98
Electronic procurement promotion of interdepartmental collaboration and fostering teamwork	Pearson Correlation	.023	1	.251*
	Sig. (2-tailed)	.821		.012
	N	99	100	99
Need for further training in information technology	Pearson Correlation	.272**	.251*	1
	Sig. (2-tailed)	.007	.012	
	N	98	99	99

*. Correlation is significant at the 0.05 level (2-tailed).

4.6.3 Electronic Procurement Promotes Interdepartmental Collaboration and Foster Teamwork, Need for Further Training in Information Technology

The variables tabulated in Table 4.15 below showed electronic procurement usage promotes interdepartmental collaboration, foster teamwork and general knowledge of computers have significant values less than 0.05 as the ($P=0.037906 < 0.05$) which means the null hypothesis is accepted. Perceived usefulness and perceived ease to use has a significant effect on implementation of E-procurement at Zambia Air Force.

And the correlation on general knowledge of computers and need for further training in information and technology have a significant value less than 0.05 as the ($P=0.003020 < 0.05$) which means the null hypothesis is accepted. This shows that perceived ease of use and intention to use has a significant effect on implementation of E-procurement at Zambia Air Force.

In conclusion the correlation tests showed that the null hypothesizes were accepted. They showed that perceived ease of use and intention to use had a significant effect on implementation of E-procurement at ZAF, perceived usefulness and intention to use has significant effect on implementation of E-procurement at ZAF and finally perceived usefulness and perceived ease to use has a significant effect on implementation of E-procurement at Zambia Air Force.

Table 1. 18: Electronic Procurement Promotes Interdepartmental Collaboration and Foster Teamwork, Need for Further Training in Information Technology

		Electronic procurement would promote interdepartmental collaboration & foster teamwork	Need for further training in informational technology	General knowledge of computers
Electronic procurement would promote interdepartmental collaboration & foster teamwork	Pearson Correlation	1	.251*	.208*
	Sig. (2-tailed)		.012	.038
	N	100	99	100
Need for further training in information technology	Pearson Correlation	.251*	1	.295**
	Sig. (2-tailed)	.012		.003
	N	99	99	99
General knowledge of computers	Pearson Correlation	.208*	.295**	1
	Sig. (2-tailed)	.038	.003	
	N	100	99	100

*. Correlation is significant at the 0.05 level (2-tailed).

4.7 Conclusion

From the data collected and analyzed of the 100 respondents, it is evident that the E-procurement system received positive attributes from the intended users. The responses received from respondents are positive towards its introduction. Majority of the respondents agreed to the positive impact it would have on the operations. It would improve interdepartmental collaboration'

enhance job and task completion, foster teamwork, among others. Most of the respondents believed the E-procurement was not relevant to their job description, while this might be a threat it also presents an opportunity to educate the respondents on the importance electronic and highlight the gains it comes with rather the perceived negative subjective ideas. Similarly, most people perceive automation and innovation as a catalyst for job loses which brings in the concept of inculcating change management of mindsets to assure the affected people.

Furthermore, most respondents prefer a customized operating system for their day-to-day operation of E-procurement; this entails that during the implementation phase, consideration should be taken to inquire which among the various operating systems is of high preference by the users and should be cost effective to meet the end users' needs. Change management has to be well implemented to enable a smooth transition for the success of any reform. The need for further training for all personnel to be using the system can-not be over emphasized as personnel need to be kept current with the latest innovations and technologies available on the market as well as enhancing their efficiency.in conclusion majority of the respondents agreed to use the E-procurement system once implemented. However, while there is optimism and enthusiasm from the end users if management does not provide the necessary resources and infrastructure needed it will be impossible to implement electronic procurement reform.

The correlation tests result on the variables revealed that most of the variables had significant values less than 0.05 which meant that the null hypothesizes were rejected. In this case perceived ease of use and intention to use has a significant effect on implementation of E-procurement at ZAF, perceived usefulness and intention to use has significant effect on implementation of E-procurement at ZAF and finally perceived usefulness and perceived ease to use has a significant effect on implementation of E-procurement at ZAF. The study can, therefore, conclude that the findings were strong related to the Technological Acceptance Model factors; implementation readiness, intention to use, perceived usefulness and ease to use which affected implementation of E-Procurement at Zambia Air Force.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter outlined the summary, conclusion and recommendations emanating from the research findings and discussions. The objectives of this dissertation were as follows:

i. To determine the factors affecting the adoption of the electronic procurement implementation at the Zambia Air Force (ZAF) based on the *Technology Acceptance Model (TAM).*
ii. Based on the Technology Acceptance Model (TAM) recommend solutions that will address factors affecting successful implementation of electronic procurement at Zambia Air Force.

5.2 Summary of the Study

5.2.1 Implementation Readiness

To attain the greatest benefits, procurement processes should be evaluated and improved before adopting E-procurement tools (Presutti, 2003). Internet technologies enable integration with trading partners yet amplify the need for fundamental organizational change (Power and Singh, 2007). B2B seller competence depends on change disposition (Chakravorti, 2008). The study findings revealed that Zambia Air Force was not doing much to implement electronic procurement.

5.2.2 Internal Organisational Support

The continuous drive towards organizational efficiency and lowering the cost to conduct business is also driving the adoption of E-procurement (Martinez, 2006). Previous research has highlighted a number of internal factors influencing adoption of E-procurement: staffing levels, training in new technologies; encouragement from management and other departments especially Information Technology; sufficient financial and resource backing (Ahmed, 2009); and adequate budget allocations to ensure all requirements are met. It is proposed that internal organizational support will have a positive influence on usage of E-procurement. Zambia Air Force needs full organizational support to be able implement electronic procurement successfully.

5.3 Conclusion

Factors Affecting Electronic Procurement at Zambia Air Force

The speed of adoption of an e-procurement initiative is directly related to change management. Although change management can be the least expensive aspect of an e-procurement implementation, it is critical for the project's success. With change management issues becoming more substantial as stakeholders needs increase, more attention must be given to such issues (Vaidya et al, 2006). A plan for managing change must be in place to ensure a smooth roll-out and consider elements such as training of users and gathering feedback. In addition, help desk systems or call centers, online help and frequently asked questions should be readily available on the online e-procurement portal (Panda and Sahu, 2012).

The study concluded that ZAF is not doing much to implement electronic procurement. Furthermore, the study revealed that there is lack of adequate facilities to enable electronic implementation as well as the need for personnel to be trained further in E-procurement usage. Additionally, there was lack of top management support towards electronic procurement implementation**.**

Factors that can Help Electronic Procurement Implementation Based TAM Extension Model

The researcher modified the Technology Acceptance Model (TAM) after analysis of the research findings to come up with an extended TAM that could be of help in the implementation of electronic procurement at Zambia Air Force:

i. The research model outlines that Zambia Air Force should make electronic procurement implementation a policy to aid in the successful implementation.

ii. The research model further outlines that Zambia Air Force should invest in the information technology infrastructure that can facilitate successful implementation of electronic procurement.

iii. The research model also highlights the need to inculcate change mindset as well further training personnel for easy acceptance of the electronic implementation reforms.

The study thus concluded that that electronic procurement has not been implemented due to several factors despite the respondents in some cases having stated their readiness and willingness to

embrace electronic procurement. Additionally, findings revealed that electronic procurement can be implemented at Zambia Air Force when the identified factors are worked on. Figure 17 shows the modified Technology Acceptance Model for use by Zambia Air Force to aid in the implementation of E-procurement.

Modified Technology Acceptance Model for Zambia Air Force Electronic Procurement Implementation

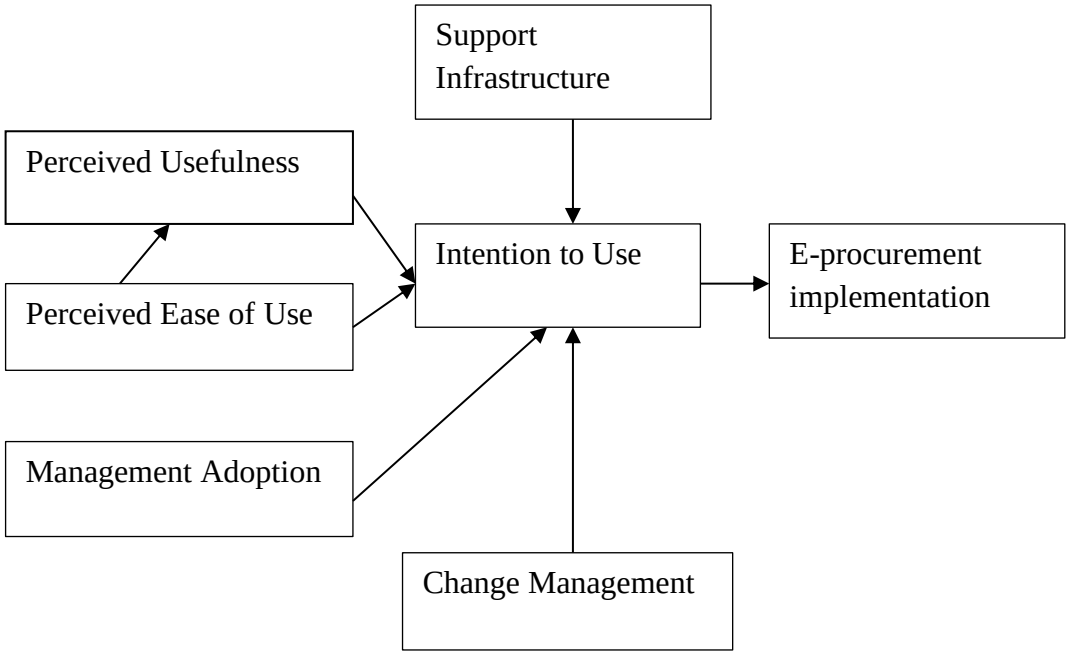

Figure 17: Modified TAM for Zambia Air Force Electronic Procurement System

From the findings, there is need for an enabling environment for the E-procurement to be a success at Zambia Air Force. One of the identified gaps was the need for availability of infrastructure at ZAF. E-procurement cannot be realised if the necessary infrastructure is not available. Furthermore, upper management must adopt and own the system themselves before it can be brought down to the lower and middle management. Lastly, change management is an important tool to use to enable everyone to understand and appreciate the E-procurement system. People must be educated on the positive effects the system brings and to rather not feel threatened by its introduction, which might create resistance. The modified Technology Acceptance Model in figure 18, if used correctly, can enable a smooth implementation of an E-procurement system.

5.4 Recommendation

For successful implementation of electronic procurement at Zambia Air Force, the following are some of the recommendations that management can use to aid with E-procurement implementation:

i. Create awareness on electronic procurement through continuous learning interactive programs such as workshops and refresher courses.
ii. Ensure all the necessary electronic procurement pre-requisite are in place for successful implementation of the reform and promoting top ZAF leadership inter-departmental collaboration to foster E-procurement implementation.
iii. Zambia Air Force should collaborate with other Defence Forces both within and outside the country with interest in the implementation of electronic procurement.
iv. Supplier Enablement - Zambia Air Force should work in collaboration with its main suppliers such as Chia National Aero-Technology (CATIC) to create a system that is efficient and mutually integrated.

5.5 Additional Study Areas for Future Research

i. The extent to which the maturity of an organization affects uptake of E-procurement
ii. The effect of country geographical location on the uptake of E-procurement.
iii. Political influence on E-procurement implementation.
iv. Change management in E-procurement.
v. The relationship between E-procurement and transparency enhancement.

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APPENDICES

APPENDIX 1: QUESTIONNAIRE

The University of Zambia

Graduate School of Business

Factors affecting successful implementation of electronic procurement at Zambia Air Force based on the technology acceptance model

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Clara Kabwela Kademaunga (Student ID: GSB151658)

MSc. Operations, Projects & Supply Chain Management

For further information or any queries, kindly get in touch on 0976320456

Dear Respondent,

I am a student at the University of Zambia in my final stage pursuing an MSc in Operations, Projects & Supply Chain Management. As partial fulfillment for the award of a Master's degree, I am conducting a baseline study on: **"*Factors affecting successful implementation of electronic procurement at Zambia Air Force based on the Technology Acceptance model (TAM).*"**

You have been purposefully sampled to provide information for the topic indicated above. The information being collected is purely for academic purposes as such, it will be treated with maximum confidentiality. Subsequently, you are not supposed to indicate your name or any personal information that could lead to the revelation of your identity.

Your co-operation will be greatly appreciated.

For more information or any queries, kindly get in touch with the following:

Project Supervisor: Dr. Jackson Phiri (0966 693 731) or

Associate Director: Dr. Bupe Mutono Mwanza (Email: getrude.mutono-mwanza@unza.zm)

SURVEY QUESTIONNAIRE

Department/ Section:……....

SECTION A: BIO DATA			
No.	**QUESTIONS**	**CODING** **PLEASE TICK [✓]**	**OFFICIAL USE ONLY**
1	Gender	1. Male [ ] 2. Female [ ]	[ ]
2	Age	1. 18 – 25 [ ] 2. 26 – 35 [ ] 3. 36 – 45 [ ] 4. 46 – 55 [ ] 5. Above 55 [ ]	[ ]
3	Highest level of education	1. Above Masters [ ] 2. Masters [ ] 3. University Degree [ ] 4. Diploma [ ] 5. Certificate [ ] 6. Secondary [ ]	[ ]
4	Marital status	1. Married [ ] 2. Single [ ] 3. Divorced [ ] 4. Separated [ ] 5. Widowed [ ]	[ ]
5	How long have you served in ZAF?	1. Below 5 years [ ] 2. 5 – 9 years [ ] 3. 10 – 14 years [ ] 4. 15 – 19 years [ ] 5. 20 – 24 years [ ] 6. 25 – 29 years [ ] 7. Above 30 years [ ]	[ ]

SECTION B: IMPLEMENTATION READINESS			OFFICIAL USE ONLY
1	Is it feasible to introduce the electronic procurement system in ZAF?	1. Yes [ ] 2. No [ ] 3. I don't know [ ]	[ ]
2	Are Zambia Air Force personnel ready enough to embrace the electronic procurement system?	1. Yes [ ] 2. No [ ] 3. I don't know [ ]	[ ]
3	Is the Zambia Air Force doing much to implement the electronic procurement?	1. Yes [ ] 2. No [ ] 3. I don't know [ ]	[ ]
4	What is your internet usage experience?	1. Under 1 year [ ] 2. 1 – 3 years [ ] 3. 3 – 5 years [ ] 4. Above 5 years [ ]	[ ]
5	How many hours do spend on the internet on a daily basis?	1. Less than 1 hour [ ] 2. 1 – 3 hours [ ] 3. 3 – 5 hours [ ] 4. Above 5 hours [ ]	[ ]
6	How would you describe your general knowledge about computers?	1. very poor [ ] 2. Poor [ ] 3. Moderate [ ] 4. Good [ ] 5. Very Good [ ]	[ ]

SECTION C: PERCEIVED USEFULNESS, EASE OF USE AND INTENTION TO USE ELECTRONIC PROCUREMENT **SD – Strong Disagree / D – Disagree / N – Neutral / A –Agree/ SA – Strongly Agree**							
PERCEIVED USEFULNESS AND EASE OF USE		**D**	**SD**	**N**	**A**	**SA**	**OFFICIAL USE ONLY**
1	Electronic procurement would enhance job performance and task completion.	1	2	3	4	5	[ ]
2	Electronic procurement can be easily implemented in ZAF.	1	2	3	4	5	[ ]
3	Electronic procurement would reduce costs and enhance transparency.	1	2	3	4	5	[ ]
4	Electronic procurement would promote inter departmental collaboration and foster team work.	1	2	3	4	5	[ ]
5	Electronic procurement enhances Buyer / Supplier relationships	1	2	3	4	5	[ ]
	INTENTION TO USE	**D**	**SD**	**N**	**A**	**SA**	
1	Would you consider using electronic procurement?	1	2	3	4	5	[ ]
2	Is there need for further training in information technology to aid with electronic procurement usage?	1	2	3	4	5	[ ]
3	Would you use the platform regularly to interact with other users?	1	2	3	4	5	[ ]
4	Would you prefer special operating software for electronic procurement?	1	2	3	4	5	[ ]
5	Would electronic procurement be relevant to your job description?	1	2	3	4	5	[ ]
6	Is there Support From Top Level Management?	1	2	3	4	5	[ ]
7	Availability of Facilities: Computers and gadgets?	1	2	3	4	5	[ ]

APPENDIX 2: TIME SCALE

Data collection and subsequent analysis will be conducted for a period of four months as shown in the table below:

MONTH	ACTIVITY	REMARKS
October	Data Collection	
November	Data Collection	
December	Data Entry (SPSS)	
January	Data Analysis and Submission	
June	Analysis and Submission	

APPENDIX 3: BUDGET

The proposed budget for this research is as tabulated below:

S/N	ITEMS	COSTS	REMARKS
01	Transport costs	K3,000.00	Fuel
02	Air time	K 400.00	
03	Stationery	K1,000.00	Printing/ Binding
04	Internet	K 400.00	Bundles
05	Incidentals	K 500.00	
	Total Costs	**K5,300.00**	For four months