



**ELECTRONIC PROCUREMENT MANAGEMENT AND COST MANAGEMENT IN
THE TELECOM INDUSTRY IN UGANDA: A CASE STUDY OF
AIRTEL UGANDA**

By

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09/MMS PAM/19/055

**A DISSERTATION SUBMITTED TO THE SCHOOL OF MANAGEMENT SCIENCE
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF
THE MASTERS DEGREE IN MANAGEMENT STUDIES (MANAGEMENT) OF
UGANDA MANAGEMENT INSTITUTE**

MARCH 2014

DECLARATION

I hereby declare that this dissertation is a result of my own effort and has never been published and/or submitted for any other degree award to any other University or Institution of higher learning before.

Signature:.....

Esther Bashemaire Martha

.....
Date

APPROVAL

This is to certify that this work has been done under my supervision and submitted for examination with my approval.

Signature:

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Supervisor

Mr. Adrian Beinebyabo

.....

Date

DEDICATION

I dedicate this work to my mother for her encouragement, desire for hard work and success dictated that I had to go to school and more so for further education.

ACKNOWLEDGEMENT

I am greatly indebted to several people whose great support in the entire research process was valuable to me.

The successful completion of this work was because of the professional support and patient guidance of my supervisor, Mr. Adrian Beinebyabo, who tirelessly encouraged and gave me all the guidance every time I needed it.

I am also grateful to my colleagues in the Masters Degree in Management Studies (Management) class of UMI for their support throughout this program. I highly value the discussions we had.

Finally, I would like to thank the people who participated in this study for their valuable information. Without it, I would not have been able to write this dissertation.

Thank you all and may God bless you.

TABLE OF CONTENTS

DECLARATION.....	i
APPROVAL	ii
DEDICATION.....	iii
ACKNOWLEDGEMENT.....	iv
TABLE OF CONTENTS	v
LIST OF TABLES	x
LIST OF FIGURES	xii
LIST OF ABBREVIATIONS	xiii
ABSTRACT.....	xiv
CHAPTER ONE: INTRODUCTION	1
1.1 Introduction.....	1
1.2 Background to the Study.....	1
1.3 Statement of the Problem.....	7
1.4 Purpose of the Study	8
1.5 Objectives of the Study	8
1.6 Research Questions	8
1.7 Research Hypotheses	8
1.8 Conceptual Framework	9
1.9 Significance of the Study	10
1.10 Justification of the Study	11
1.11 Scope of the Study	12
1.11.1 Content scope.....	12
1.11.2 Geographical scope.....	12
1.11.3 Time scope	12
1.12 Operational Definitions.....	12

CHAPTER TWO: LITERATURE REVIEW	14
2.1 Introduction.....	14
2.2 Theoretical Review	14
2.3 E-Procurement Planning and Cost Management	15
2.3.1 Budgeting and cost management	17
2.3.2 Requirements determination and cost management	17
2.4 E-Procurement Supplier Selection and Cost Management.....	18
2.4.1 Specification and cost management.....	19
2.4.2 Methods of source selection and cost management.....	20
2.5 E-Procurement Contract Administration and Cost Management	21
2.5.1 Contract risk management and cost management.....	21
2.5.2 Quality assurance and cost management	22
2.6 E-procurement Environment and Cost Management.....	23
2.7 Summary of Literature	25
CHAPTER THREE: METHODOLOGY	26
3.1 Introduction.....	26
3.2 Research Design.....	26
3.3 Study Population.....	27
3.4 Determination of Sample Size	27
3.5 Sampling Techniques and Procedure.....	28
3.6 Data Collection Methods	28
3.6.1 Questionnaire survey	28
3.6.2 Face-to-face interview	29
3.6.3 Documentary review	29
3.7 Data Collection Instruments	30
3.7.1 Questionnaire	30

3.7.2	Interview schedules.....	30
3.7.3	Document review checklist.....	31
3.8	Data Quality Control (Validity and Reliability of Research Instruments)	31
3.8.1	Validity	31
3.8.2	Reliability.....	32
3.9	Procedure of Data Collection.....	32
3.10	Data Analysis	33
3.10.1	Quantitative Analysis.....	33
3.10.2	Qualitative Analysis.....	33
3.11	Measurement of Variables	34
 CHAPTER FOUR” PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS.....35		
4.1	Introduction.....	35
4.2	Response Rate.....	35
4.3	Background Characteristics of Respondents	36
4.3.1	Gender of Airtel Uganda employees and suppliers	36
4.3.2	Age of Airtel Uganda employees and suppliers	36
4.3.3	Level of education of Airtel Uganda employees and suppliers	37
4.3.4	Years of employees and suppliers associating with Airtel Uganda.....	38
4.4	Descriptive Results on the Independent Variables	38
4.4.1	Descriptive results about e-procurement planning at Airtel Uganda.....	38
4.4.2	Descriptive results about e-supplier selection at Airtel Uganda.....	48
4.4.3	Descriptive results about E-contract administration at Airtel Uganda	55
4.4.4	Descriptive results about e-procurement environment	60
4.6	Testing Hypotheses.....	62

4.6.1	Testing hypotheses one: E-procurement planning has a significant relationship with cost management.....	62
4.6.2	Testing hypothesis two: There is a significant relationship between e-supplier selection and cost management.....	66
4.6.3	Testing hypothesis three: There is a significant relationship between e-contract administration and cost management.....	68
4.6.4	Testing hypothesis four: E-procurement environment moderates the relationship between e-procurement management and cost management.....	71
4.5	Descriptive Results on the Dependent Variable (Cost Management)	73

CHAPTER FIVE: SUMMARY, DISCUSSION, CONCLUSIONS AND

RECOMMENDATIONS.....	75	
5.1	Introduction.....	75
5.2	Summary	75
5.2.1	E-procurement planning and cost management at Airtel Uganda	75
5.2.2	E-supplier selection and cost management at Airtel Uganda	75
5.2.3	E-contract administration and cost management at Airtel Uganda	76
5.2.4	Moderating effect of e-procurement environment on e-procurement management and cost management at Airtel Uganda.....	76
5.3	Discussion	77
5.3.1	E-procurement planning and cost management at Airtel Uganda	77
5.3.2	E- supplier selection and cost management at Airtel Uganda	80
5.3.3	E-contract administration and cost management at Airtel Uganda	83
5.3.4	Moderating effect of E-Procurement Environment the Relationship between E-procurement Management and Cost Management at Airtel Uganda.....	85
5.4	Conclusions.....	86
5.4.1	E-procurement planning and cost management at Airtel Uganda	86

5.4.2	E-supplier selection and cost management at Airtel Uganda	86
5.4.3	E-contract administration and cost management at Airtel Uganda	86
5.4.4	Moderating effect of e-procurement environment on e-procurement management and cost management at Airtel Uganda	87
5.5	Recommendations	87
5.5.1	E-procurement planning and cost management at Airtel Uganda	87
5.5.2	E-supplier selection and cost management at Airtel Uganda	88
5.5.3	E-contract administration and cost management at Airtel Uganda	88
5.5.4	Moderating effect of e-procurement environment on e-procurement management and cost management at Airtel Uganda	88
5.6	Area for Further Research.....	89
REFERENCES.....		90
APPENDICES		i
Appendix I: Questionnaire for staff		
Appendix II: Questionnaire for suppliers		
Appendix III: Interview Schedule		
Appendix IV: Documentary Review Checklist		
Appendix V: Krejcie and Morgan table for determining sample size from a given population		
Appendix VI: Letter of Introduction		

LIST OF TABLES

Table 1: Accessible population and sample size.....	27
Table 2: Validity of questionnaire	31
Table 3: Reliability of variables in the questionnaire	32
Table 4: Response rate	35
Table 5: Gender of Airtel Uganda employees and suppliers	36
Table 6: Age of Airtel Uganda employees and suppliers	37
Table 7: Level of education of Airtel Uganda employees and suppliers.....	37
Table 8: Years of employees and suppliers associating with Airtel Uganda.....	38
Table 9: Findings about budgeting from Airtel Uganda managers and non-management employees	39
Table 10: Findings about requirement determination from Airtel Uganda managers and non-management employees.....	43
Table 11: Findings about specification from Airtel Uganda managers, non-management employees and suppliers	49
Table 12: Findings about methods of source selection from Airtel Uganda managers, non-management employees and suppliers.....	51
Table 13: Findings about contract risk management from Airtel Uganda managers, non-management employees and suppliers.....	55
Table 14: Findings about quality assurance from Airtel Uganda managers, non-management employees and suppliers.....	58
Table 15: Findings about e-procurement environment from Airtel Uganda managers, non-management employees and suppliers.....	60
Table 16: Correlation between e-procurement planning and cost management at Airtel Uganda	63

Table 17: Effect of dimensions of e-procurement planning (budgeting and requirement determination) on cost management	64
Table 18: Correlation between E- supplier selection and cost management at Airtel Uganda	66
Table 19: Effect of dimensions of e-supplier selection (specification and methods of source selection) on cost management.....	67
Table 20: Correlation between e-contract administration and cost management at Airtel Uganda	69
Table 21: Effect of dimensions of e-contract administration (contract risk management and quality assurance) on cost management.....	70
Table 22: Moderating effect of e-procurement environment the relationship between e-procurement management and cost management	72
Table 23: Findings about cost management from Airtel Uganda managers and non-management employees	73

LIST OF FIGURES

Figure 1: <i>Conceptual framework showing the effect of e-procurement management on cost management</i>	9
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LIST OF ABBREVIATIONS

B2B	: Business to Business
CBOs	: Community Based Organizations
CVR	: Content Validity Ratio
ERP	: Enterprise Resource Planning
EU	: European Union
GDP	: Gross Domestic Product
ICT	: Information and Communication Technology
ICTs	: Information and Communication Technologies
IDC	: International Data Corporation
IS	: Information System
IT	: Information Technology
LED	: Local Economic Development
NGOs	: Non-Governmental Organizations
SAQs	: Self-administered questionnaires
SPSS	: Statistical Package for the Social Sciences
TAM	: Technology Acceptance Model
UCC	: Uganda Communications Company
US	: United States
USA	: United States of America
USD	: United States Dollars
AIRTEL	: Uganda Telecommunications Ltd

ABSTRACT

The study sought to examine the relationship between electronic procurement management and cost management in telecommunication industry using a case study of Airtel Uganda. The specific objectives were to examine the effect of e-procurement planning, e-supplier selection and e-contract administration on cost management and find the moderating effect of e-procurement environment on e-procurement management and cost management. The study was carried out using cross sectional case study design employing both qualitative and quantitative approaches. The sample size was 202 respondents from a study population of 360 but response was got from 134 respondents, which was a 66% response rate. Simple random sampling, stratified sampling and purposive sampling were used to select the respondents. Quantitative data was analyzed using descriptive statistics (frequencies and percentages) and inferential statistics (correlation, coefficient of determination and regression). Qualitative data was analyzed using content analysis. Findings revealed a positive strong relationship between e-procurement planning and cost management, a weak positive relationship between e-supplier selection and cost management, a moderate positive relationship between e-contract administration and cost management and that e-procurement environment weakened the effect of e-procurement planning on cost management while it strengthened the effect of e-supplier selection and e-contracts administration on cost management. It was concluded that e-procurement management had a significant effect on cost management at Airtel Uganda. It is recommended that to improve cost management at Airtel Uganda, the telecommunication company should improve its e-procurement planning, e-supplier selection, e-contract administration, internal environment, market environment and in conjunction with the government and Uganda Communications Company (UCC) improve the legal environment and political environment.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

The study investigated the effect of Electronic Procurement Management on Cost Management in the Telecom industry in Uganda using Airtel Uganda as the case study. Electronic Procurement Management was conceived as the independent variable while cost management in telecom industry was the dependent variable. This chapter presents the background to the study, statement of the problem, purpose of the study, research objectives, research questions, research hypothesis, conceptual background, significance of the study, scope of the study and operational definition of terms and concepts.

1.2 Background to the Study

Procurement is recognized as a strategic function, not only because the decisions made by purchasing managers have such a profound influence on overall company performance, but also because businesses have to manage the process that links them with their upstream suppliers (Avery, 2008). Managers have realized that they cannot achieve corporate objectives without the use of Electronic Procurement Management (Houghton, 2003). Electronic procurement management is seen as a strategic resource for reaching high quality levels, fast delivery, flexibility and cost saving (Pearson, 2001). Therefore, an effective management of e-procurement management is central to competitive success of telecommunication industry. Electronic procurement management is thought as a process designed in a way that will achieve certain business benefits which may include product quality, flexibility, dependability, timely delivery and cost reduction. E-procurement Management through improve cost management is vital for enhancing the performance of the purchasing function in an organization.

E-procurement management refers to the use of Internet-based (integrated) information and communication technologies (ICTs) to carry out individual or all stages of the procurement process including search, sourcing, negotiation, ordering, receipt, and post-purchase review (Croom & Brandon-Jones, 2004). While there are various forms of electronic procurement management that concentrate on one or many stages of the procurement process such as e-tendering, e-marketplace, e-auction/reverse auction, and e-catalogue/purchasing, e-procurement management can be viewed more broadly as an end-to-end solution that integrates and streamlines many procurement processes throughout the organization.

Over the last 40 years, while private and public sector organizations have been utilizing Information Technology (IT) systems to streamline and automate their purchasing and other processes, it is only in the past decade that e-procurement management systems have attracted attention especially with regard to cost management. While there is debate about how recently e-procurement management has emerged. (Dai & Kauffman, 2001; Koorn, Smith & Mueller, 2001), there is no doubt that the use of the Internet in e-procurement management provides several advantages over earlier inter-organizational tools. For example, Electronic Data Interchange has been providing automated purchasing transactions between buyers and their suppliers since it was launched in the 1960s. Enterprise Resource Planning (ERP) followed in the 1970s, and then came the commercial use of the Internet in 1980s. It was only in the 1990s that the World Wide Web - the multimedia capability of the Internet - became widely enabled and provided the essential resource for the automation of procurement (Avery, 2008).

The globalization of markets is driven by forces related to the combination of an information based reduction of barriers to international trade, extending to businesses' own domestic market, through improved cost management such as the reduction and convergence of transaction and transport costs (Braga, 2002). The globalizing importance of information and communications technology (ICT) in cost management at the macro and micro levels has long been understood in Australia. Australian investment in ICT is the third highest in the world as a percentage of Gross Domestic Product (GDP) and is recognized as one of its strengths. This investment has placed Australia among the top locations in the world for the availability, quality and cost competitiveness of its ICT workforce (Jones, 2004), consistent with a second ranking behind the United States in e-procurement Management readiness (Kauffman, 2002).

Improvement of procurement processes in business to business (B2B) markets can lower the costs incurred in the identification and subsequent selection of the best suppliers, increase the value of purchases in terms of their price-quality relationship, and lower transaction costs associated with greater process efficiency. These improvements can highly influence supply chain management (Hardaker & Graham, 2000; Lancioni *et al.* 2000). ICT permits the use of electronic technologies for procurement (e-procurement Management), with the latter promoted by the Australian Government as a way of achieving these improvements, arguing that the adoption of e-procurement management has directly affect Australia's competitiveness and prosperity in the 21st century (Lancioni *et al.*, 2000).

Take-up of e-procurement management in the European Union remains stubbornly low despite efforts by authorities to make it more easily available and useable, although IT companies are among the first adopters (Graham, 2009). According to the European

Commission (2009), less than 5% of the total value of procurement budgets is processed electronically. This figure includes re-orders from pre-approved service providers, which may have originally been approved without using e-procurement Management. This has been due to the technical, logistical and administrative complexity of the changeover.

Although much of the resistance to e-procurement management is cultural, uncertainty about authorization and authentication is also a big barrier. The limited use of e-signatures is a huge problem (Cattaneo, 2009). European Commission (2010) report examined the visibility of e-procurement management on public buyers' websites. There has been some significant improvement in this area. High visibility increased from 56% in 2009 to 71% in 2010. Almost all of the 27 European Union (EU) countries plus Croatia, Iceland, Norway, Switzerland and Turkey have a national e-procurement management platform or a procurement portal in place. The two exceptions are Iceland and Greece, but the Greek platform is under construction (Colclough, 2009).

According to the Italian national procurement agency, approximately 4% of Italy's public spending on goods and services is managed with electronic tools. In France, it is just 2.5%. In other countries or regions, this share is substantially higher. The Portuguese government claims online processing of almost all national authorities tenders in 2010. Other countries where e-procurement management affects a higher share of public spending are Ireland, Malta, Estonia and Cyprus (Capgemini, 2008).

Given the potential of using the Internet and other web-enabled technologies to revolutionize the procurement process (Kotzab 2006; Sanders 2007), numerous telecommunication companies worldwide are using e-procurement management in an attempt to improve their

cost management. For example, General Electric in the United States of America (USA) estimates that the company saves more than United States (US) \$10 billion annually through its e-procurement management activities (WyId, 2008).

PAGE Co-op, for example, a purchasing cooperative that buys products and services for 750 newspapers and printing facilities across the U.S., uses an e-procurement management solution powered by PurchasePro to aggregate and fully leverage its members' \$175 million in annual spending. It has also been noted that Denmark's yearly procurement volume amounts to 15 billion United States Dollars (USD) of which a billion USD worth of goods and services are immediately suitable for e-procurement management. Denmark is the first country to have embarked on e-procurement management in Europe (Doip, 2003).

There are many companies that have adopted the use of e-procurement management in South Africa such as PetroSA which provides its suppliers of all sizes access to opportunities and the ability to receive standardized electronic orders, manage complex bidding opportunities, and migrate customer service functions online, thereby reducing the overall cost of sales. According to PetroSA (2008), e-procurement management reduces much of the manual work associated with offline processes and paper-based orders, thus reducing costs related with offline processes. Commerce Zone in South Africa incorporated e-procurement management which had just 91 transactions across its platform in its first year of operation in 2000, by 2008 close to 300,000 line items were procured over the e-procurement management platform and over 26 billion rand worth of purchase orders were through e-procurement Management since 2000.

According to Bouwer (2009), e-procurement management applications have revolutionized the procurement practices of companies in South Africa eliminating many paper-based and labor-intensive processes while ensuring improved cost management. In its 2006 e-procurement management benchmarking report, international research company, Aberdeen Group, reported that enterprises participating in the 2006 benchmark experienced a 36% increase in spend under management; a 75% reduction in requisition-to-order cycles; a 48% decline in requisition-to-order costs; and a 36% reduction in maverick (off-contract) spend. Commerce Zone's experience is that local companies achieve cost savings of around 30% per procurement process as the process moves from manual to electronic.

Deloitte Consulting survey found that telecommunication companies world over expect to save from 5 to 15% of total corporate spending by implementing e-procurement management initiatives. Research firm Aberdeen Group reports that with e-procurement management, Vodafone Hutch transaction processing costs drop by 70%, from an average of \$107 to \$30 per order. Telecommunication experts from Price Waterhouse Coopers and Killen and Associates claim that a 5 to 10% savings in purchasing costs by a telecom company can increase profit margins by 28 to 50%.

In Uganda, some companies have introduced electronic technologies in their procurement with various objectives among which is to improve cost saving. Among these companies is Airtel, a telecommunication company. One of the objectives of adopting e-procurement at Airtel was to improve the management of finances (Airtel Procurement Report, 2010). However, Karan (2010) observed that lack of clear policies is hindering the use of e-procurement at Airtel. It was noted that it is a challenge to build and sustain relationships with entities which are not prepared to go online and small businesses not enabled for e-

procurement. Airtel's financial health in the near term has been weak, as it has not performed well in 2009 as compared to 2008. The revenue for 2009 stood at \$2732.0 million, which declined by 10.9%. It posted a net loss of US\$ 112 million in 2009 as compared to a net profit of US\$ 169 million in the similar period 2008. According to the Airtel management, the losses were primarily due to increased administrative cost during 2009. Failure by Airtel Uganda to adequately come up with proper procurement procedures like e-procurement management will continue to have adverse effects on cost management, which will affect their performance in the competitive telecommunication industry.

1.3 Statement of the Problem

Airtel Uganda recorded a continuous poor cost management in the purchasing function despite the organization's use of e-procurement (Karan, 2010). There was evidence in increased costs of the supplied goods/services/works, which constrained the operations of the organization (Audit Report, 2009). On the other hand, e-procurement management at Airtel Uganda was below expectations due to a lack of understanding of the consequences from non-adoption and link to competitive advantage (Airtel Procurement Report, 2010), a presumption that e-procurement management is mostly for large businesses and the notion that it is too early to assess conclusively. In addition, the adoption process was complex and a tedious intervention (Airtel Procurement Report, 2010). Thus, the problems in the e-procurement management are thought to be contributing to poor cost management at Airtel Uganda. However, there was no evidence linking the two. Thus, this study investigated how e-procurement management affects cost management at AirTel Uganda.

1.4 Purpose of the Study

The study sought to examine the relationship between electronic procurement management and cost management in telecommunication industry using a case study of Airtel Uganda.

1.5 Objectives of the Study

The following objectives guided the study:

- i. To examine the effect of e-procurement planning on cost management at Airtel Uganda.
- ii. To examine the effect of e-supplier selection on cost management at Airtel Uganda.
- iii. To examine the effect of e-contract administration on cost management at Airtel Uganda.
- iv. To find out the moderating effect of e-procurement environment on e-procurement management and cost management at Airtel Uganda.

1.6 Research Questions

The study answered the following research questions:

- i. How does e-procurement planning affect cost management at Airtel Uganda?
- ii. What is the effect of e-supplier selection on cost management at Airtel Uganda?
- iii. What is the effect of e-contract administration on cost management at Airtel Uganda?
- iv. What is the moderating effect of e-procurement environment on e-procurement management and cost management at Airtel Uganda?

1.7 Research Hypotheses

The study tested the following research questions:

- i. E-procurement planning has a significant relationship with cost management at Airtel Uganda.

- ii. There is a relationship with between e-supplier selection and cost management at Airtel Uganda.
- iii. There is a significant relationship with between e-contract administration and cost management at Airtel Uganda.
- iv. E-procurement environment moderates the relationship between e-procurement management and cost management at Airtel Uganda.

1.8 Conceptual Framework

The conceptual framework above illustrates the effect of e-procurement management on cost management where e-procurement management is the independent variable while cost management is the dependent variable. It further envisages e-procurement environment as a moderating variable on the effect of e-procurement management on cost management.

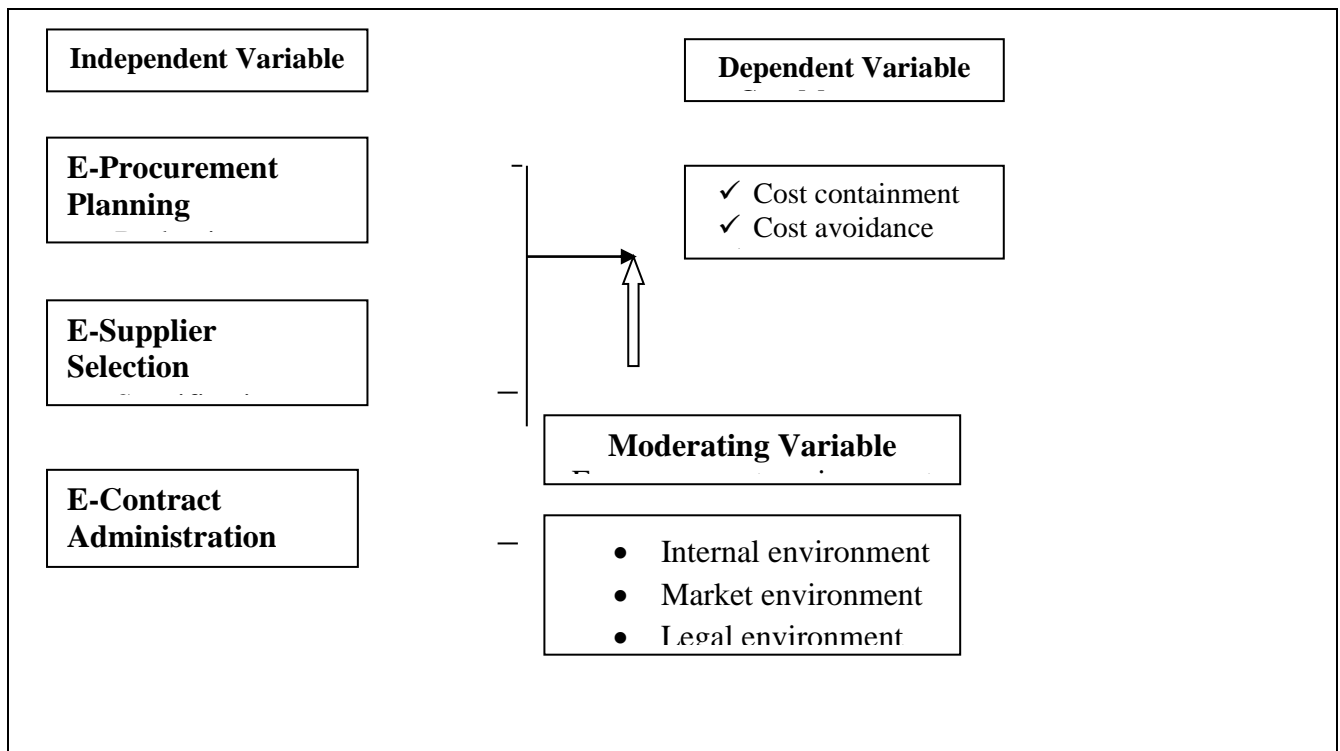


Figure 1: Conceptual framework showing the effect of e-procurement management on cost management

Source: Adopted from Elliff (2000) and modified by the Researcher

From the above conceptual framework, e-procurement management was an independent variable while e-procurement environment was a moderating variable and cost management was a dependent variable. In Elliff's (2000) conceptual framework, there was no e-procurement environment, which in this study is considered. It is conceptualized that if an organization like Airtel Uganda poorly implements e-procurement management in terms of poor e-procurement planning, e-supplier selection and e-contract administration, there will be poor cost management in terms of less cost containment, cost avoidance and cost reduction and vice versa. However, it is conceptualized that e-procurement environment may moderate such a relationship in that the opposite occurs. For example instead of poor e-procurement management leading to poor cost management, the e-procurement environment may lead to better cost management.

1.9 Significance of the Study

The study findings may help Airtel Uganda and telecommunication sector at large to improve the effectiveness of the cost management practices thereby reducing on the impacts of costs on the organizational profitability performance.

The study findings may supplement the existing literature and form the basis for future research in procurement management in the telecommunication industry.

The study findings may help different businesses and individual suppliers to understand the different forms of e procurement management and cost management strategies.

Findings of the study may help policymakers to formulate e-procurement management policies that may help improve cost management in organizations.

1.10 Justification of the Study

The electronic procurement of goods, works, and services has a major impact on the organization's cost management. To a large extent the cost reduction of the organization depends on the management of electronic procurement. The application of sound electronic practices is indispensable, not only for creating dependable and stable markets that are able to attract efficient contractors and suppliers, but also to safeguard the cost-effective use of the organization's funds.

The realization that with managing supplies strategically, firms can save huge amounts of money has led firms to begin to invest in this area of electronic management (Cousins & Spekman, 2003). Thus, more and more attention is placed on electronic purchasing activities in organizations, which has led to the restructuring of purchasing functions and the search for optimal electronic purchasing processes in different product and service categories in different contexts (Parikh & Joshi, 2005; Laios & Moschuris, 2001).

A company's competitiveness and cost effectiveness is highly dependable on how electronic procurement is handled within the company. There is a direct influence on the profits because procurement stands for such a large part of the company's costs. There is also an indirect influence on the profit due to the large part of the internal costs affecting what happens in the interface between the company and its suppliers (Gadde & Hakansson, 2001).

The rationale of this study was based on the fact that the Airtel Uganda has made losses even after adopting electronic procurement. The study therefore sought to establish the contribution of electronic procurement management to the performance of Airtel Uganda.

This will guide Airtel Uganda on where to focus its efforts in the meantime so as to be competitive and meet the stakeholders' expectations.

1.11 Scope of the Study

1.11.1 Content scope

The study was limited to e-procurement management, cost management and e-procurement environment at Airtel Uganda. E-procurement management focused on e-procurement planning, e-supplier selection and e-contract administration. Cost management focused on cost containment, cost avoidance and cost reduction. E-procurement environment focused on the internal environment, market environment, legal environment and political environment.

1.11.2 Geographical scope

The study was conducted at Airtel Uganda headquarters located in Kampala. This is because much of e-procurement was done at headquarter unlike at its branches.

1.11.3 Time scope

The study focused on the period from 2004 to 2013 because this was the period when e-procurement management was introduced at Airtel Uganda and the period when Airtel experienced high procurement related costs.

1.12 Operational Definitions

Cost Management: Cost management refers to the processes by which a company, through a series of accounting procedures, report and monitor the expenses it incurs as a part of the company's budgetary control measures.

Cost reduction: This is meant more production through using the very same parts which will result in profitability in economic scale coupled with reduction of cost price and costs as well.

Cost avoidance: Benefits realized by avoiding a relatively certain future expenditure, although the projected expenditure has not been budgeted or obligated. Cost avoidance is more speculative than cost savings and requires more rigorous justification.

Cost containment: The process by which companies implement new programs or modify existing programs to continuously monitor appropriateness and cost of treatment.

E-procurement Management: This 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 search, sourcing, negotiation, ordering, receipt, and post-purchase review.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Review of related literature involves the systematic identification, location, and analysis of documents containing information related to the research problem being investigated (Mugenda & Mugenda, 2003). This chapter presents the introduction, theoretical review, the actual literature objective by objective and summary of literature indicating the lessons learnt and the gap the study is trying to fill.

2.2 Theoretical Review

Information System (IS) researchers have relied on several theoretical models to explain user acceptance of e-procurement management technology. Based on the theory of reasoned action, the Technology Acceptance Model (TAM) has been the most commonly applied model of IS usage and has received overall empirical support (Vankatesh *et al.*, 2003; Taylor & Todd, 1995). Augmented and modified versions of the model have consistently shown that the core drivers of e-procurement management usage are the perceived usefulness (Davis *et al.*, 1989; Venkatesh *et al.*, 2003; Gefen *et al.*, 2003), the perceived ease of use (Venkatesh *et al.*, 2003; Gefen *et al.*, 2003) and the subjective norm favoring the usage of that IS (Hartwick & Barki, 2003). Usefulness, ease of use and subjective norm as perceived by the corporate buyers are expected to play an important role in web systems usage. These three attributes were relevant to this study in that e-procurement management should consider them to benefit from the e-procurement. However, whether Airtel considered them while implementing its e-procurement was yet to be established by this study. However, when applied to Internet-based application for e-procurement management, theoretical models used

to explain user acceptance should take into consideration specific variables that can inhibit the use of web systems.

The two major concerns discussed in Internet-based IS literature are the perceived lack of security for web-based transactions (Gefen *et al.*, 2003), and the perceived lack of reliability of the network (Metcalfe, 1997). Once they adopt an IS that supports their tasks, users can expect to improve e-procurement management. DeLone & McLean (2003) have shown that the benefits of e-procurement management can be gauged using a wide measures referring to both effectiveness and efficiency. E-procurement management effectiveness has been measured through indicators such as better information, better understanding of the decision context, the number of alternatives considered, decision correctness whereas IT efficiency has been measured through indicators such as time to perform task and time to decision (Gefen *et al.* 2003).

2.3 E-Procurement Planning and Cost Management

The management of e-procurement process is one of the functions that have probably a wider implication in ensuring better cost management because all organizational departments charged with providing services are dependent on this process. The inefficient use of funds can be generated from problems across the entire procurement process-from the definition of the needs and creation of the bidding documents, to a lack of transparency and competition in the process followed for announcements, bidding, evaluation and award of contracts, to poor contract supervision (Harmonizing Donor Practices for Effective Aid Delivery, 1999).

However, the negative cost effects of poor e-procurement planning should not be neglected since the success of the subsequent e-procurement processes depend heavily on how planning

is done. This study investigated the effects of e-procurement planning on cost management; an issue that is increasingly critical amidst the operation of organizations. There cannot be a good e-procurement budget without a plan, and there can be no e-procurement without a budget to fund it. E-procurement planning is a process that consists of many steps and the bottom line is that e-procurement planning is not concerned with future decisions but rather with the future impact of decisions made today (Thai, 2004). This study argues that e-procurement planning has a significant contribution to cost management at Airtel Uganda.

Cost management is primarily concerned with producing outputs for internal information users, using inputs and processes needed to meet management objectives. The cost management system provides cost information to develop strategies, decision making and operational decision for sustainable competitive advantage (Swenson, 1995; Lorenzoni et al, 1999; Nicolaou, 2002; Guan et al, 2009). Cost management system improves demand for increased quality, reduced costs, and on-time delivery (Robin, 1992). Cost management effectiveness is defined as firm emphasizes on low product or service cost in order to provide information usefulness for sustainable competitive advantage (Nicolaou, 2002; Guan et al., 2009).

Tontiset & Ussahawanitchakit (2010) observed that through effective deployment of e-procurement technology, enterprises can reduce transaction costs, reduce or eliminate “maverick” buying and save inventory costs. The empirical findings of Leonard and Cronan (2002) indicate that an e-procurement is more effective than a non-electronic procurement and improves the procurement process in terms of lower inventory carrying cost and lower prices (costs). If this is the case, then what was the problem with Airtels’ e-procurement management? This filled in this gap.

2.3.1 Budgeting and cost management

Budgeting is the systematic allocation of one's or an organization's limited resources (income) to a potentially unlimited number of needs and wants (expenses) (Milani, 2000). Budgeting an organization's income, though oftentimes tedious and difficult to maintain, can help it better control how its income is being spent. Some form of budgeting is a necessity if an organization hopes to meet long-term financial goals. An organization's ability to control debt is often a good measure of the success of its budgeting methods.

Budgeting is one of contemporary management accounting techniques that provides useful economic information for planning, controlling, and promoting coordination and communication to various management hierarchies (Brignall, 1997; Huang & Chen, 2009). Prior researches in management accounting found that successful budgeting application has a significant effect on cost management effectiveness (Haldma & Laats, 2002; Cadez & Guilding, 2008).

2.3.2 Requirements determination and cost management

One of the first steps in the procurement process is to identify requirements. All procurement requirements begin with the perception of a need. At this stage, it is necessary to clearly define the need for better cost effectiveness. According to Bollen (2004), requirements analysis is the process of determining user expectations for an organization's product or service. These features, called requirements, he argued must be quantifiable, relevant and detailed to ensure effective cost management.

Requirement determination is frequently and convincingly presented as one of the most critical phase of cost management of a procurement system, and cost ineffectiveness has been attributed to incomplete and inaccurate requirements determination (Bollen, 2004). The e-procurement system analysts must collect the information about the current system and how users would like to improve their performance with the procurement system. Accurately understanding the users' requirements will help the procurement system developing team deliver a proper system to the end users in limited time and limited budget.

Flynn & Warhurst (2004) argued that for effective cost management, requirements analysis should involve frequent communication with system users to determine specific feature expectations, resolution of conflict or ambiguity in requirements as demanded by the various users or groups of users. Energy should be directed towards ensuring that the final system or product conforms to client needs rather than attempting to mold user expectations to fit the requirements.

2.4 E-Procurement Supplier Selection and Cost Management

E-procurement supplier selection is the process by which the buyer identifies, evaluates, and contracts with suppliers using electronic systems (Beil, 2009). The e-procurement supplier selection process deploys a tremendous amount of a firm's financial resources. In return, firms expect significant cost benefits from contracting with suppliers offering high value. The typical steps of e-procurement supplier selection processes include identifying suppliers, soliciting information from suppliers, setting contract terms, negotiating with suppliers, and evaluating suppliers. How each of the steps is handled affects the cost management of the organization.

Several factors make new suppliers important (de Boer et al, 2001). First, there may exist new suppliers that are superior in some way to a firm's existing suppliers. For example, a new supplier may have developed a novel production technology or streamlined process which allows it to significantly reduce its production costs relative to predominate production technology or processes. Alternatively, a new supplier may have a structural cost advantage over existing suppliers, for example, due to low labor costs. Second, existing suppliers may go out of business, or their costs may be increasing.

According to Hedderich et al (2006), finding a viable new supplier is challenging mainly due to the need to verify the supplier's ability to meet the buyer's myriad requirements. Supplier non-performance on even the most basic level, and for the most simple commodity or task, can have dire cost consequences.

2.4.1 Specification and cost management

System specification appears to be a critical issue in cost management. The International Data Corporation (IDC) report (2003) highlights the higher costs of e-procurement systems, emphasizing some of the information system (IS)-related issues that inhibit implementation, including software integration. The extent to which an e-procurement system is able to integrate effectively with other information systems, particularly production planning and control and finance systems, is posited by Subramaniam & Shaw (2002) to be a major causal determinant of the cost effectiveness of an e-procurement system.

Rajkumar (2001) also identifies system integration as a critical cost success factor for e-procurement implementation. Lin and Hsieh (2000) use a single case study to highlight the

importance of both web content management and content rationalization as significant issues for e-procurement operation cost management.

2.4.2 Methods of source selection and cost management

The most important job today in purchasing is source selection. Buyers who fail to thoroughly investigate their suppliers have only themselves to blame for their future problems. Systematic sourcing and spot sourcing of goods and services dominate business purchases and are based on corporate strategic marketplace servicing decisions. Buying is through pre-negotiated contracts with qualified suppliers, is relationship oriented and contracts are long term. Spot sourcing is fulfillment of an immediate need, typically of a commoditized item for which it is less important to know the credibility of the supplier (Thomson & Singh, 2001; Chaffey, 2002; Christiaanse, *et al*, 2001).

In today's competitive operating environment, it is impossible to successfully produce low cost, high quality products without satisfactory vendors. Thus, one of the most important purchasing decisions is the selection and maintenance of a competent group of suppliers. The selection of competent suppliers has long been regarded as one of the most important functions to be performed by a purchasing department. For example, Howard Lewis in one of the early purchasing texts stated it is probable that of all the responsibilities which may be said to belong to the purchasing officers, there is none more important than the selection of a proper source. Indeed, it is in some respects the most important single factor in purchasing (Lewis, as cited in Weber et al, 2001).

2.5 E-Procurement Contract Administration and Cost Management

E-procurement contract administration involves those activities performed after a contract has been awarded to determine how well the organization and the contractor performed to meet the requirements of the contract. It encompasses all dealings between the organization and the contractor from the time the contract is awarded until the work has been completed and accepted or the contract terminated, payment has been made, and disputes have been resolved. As such, e-procurement contract administration constitutes that primary part of the procurement process that assures the organization gets what it paid for.

In e-procurement contract administration, the focus is on obtaining supplies and services, of requisite quality, on time, and within budget. The exercise of skill and judgment is often required in contracts administration in order to protect effectively the organization's interest. Several weaknesses have been identified in contract administration practices used by agencies. The principal problem is that contracting officials often allocate more time to awarding contracts rather than administering existing contracts. This often leads to problems in contractor performance and cost overruns. Several other deficiencies have been noted that contribute ineffective cost management such as unclear roles and responsibilities of the contracting officer, excessive backlog in contract closeout and incurred costs audits, improperly trained officials performing contract oversight, unclear statements of work that hinder contractor performance, and inadequate guidance on voucher processing and contract closeout.

2.5.1 Contract risk management and cost management

Contract risk management is the identification, assessment, and prioritization of risks (defined as the effect of uncertainty on objectives, whether positive or negative) followed by

coordinated and economical application of resources to minimize, monitor, and control the probability and/or impact of unfortunate events (Hubbard, 2009) or to maximize the realization of opportunities. Risks can come from uncertainty in financial markets, project failures (at any phase in design, development, production, or sustainment life-cycles), legal liabilities, credit risk, accidents, natural causes and disasters as well as deliberate attack from an adversary, or events of uncertain or unpredictable root-cause.

Risk management has assumed greater prominence in recent years because prudent managers have recognized the cost benefits of managing their own risk exposures rather than relying on insurance as the sole method of protection (Dorfman, 2007). This is because applying Risk Management techniques can substantially reduce the cost of risk.

2.5.2 Quality assurance and cost management

Quality assurance in procurement is a wide-ranging concept, which covers all matters that individually or collectively influence the quality of a product. It is the totality of the arrangements made to ensure that products are of the quality required for their intended use (Knudsen, 2003). Quality assurance therefore incorporates several factors and it is an integral part of all key activities in procurement. The implementation of a quality assurance system in procurement, including systems for prequalification, storage and distribution, may affect costs. However, the benefits of ensuring quality outweigh the cost investment because they reduce the possible losses caused by the purchase and supply of substandard products.

Without a quality assurance system, organizations risk sourcing substandard, counterfeit or contaminated products, leading to complaints about products and product recalls and wastage

of money (Kumar et al, 2005). Such problems affect the credibility of procurement agencies and cause financial losses.

Prequalification of products and manufacturers, purchasing, storage and distribution are complex processes that may involve many offices, procurement agencies, sections or departments and several stages of administration, finance and technical decisions. Thus, support from the offices responsible for quality assurance is crucial for effective cost management (Knudsen, 2003). The efficiency of the procedures depends in great part on the use of a proven method in a consistent manner.

2.6 E-procurement Environment and Cost Management

According to Lewis & Roehrich (2009), similar to other systems, the e-procurement system's ability to accomplish procurement policies/goals is influenced by its environment, and in turn, influences its environment (such as e-procurement may improve socio-economic environment as intended). The environment influencing the e-procurement system includes many types: market, internal environment, legal environment, political environment, and socio-economic and other environment.

According to Walkera & Brammer (2012) , the e-procurement system's ability to accomplish procurement policies or goals is influenced very much by internal forces including interactions between various elements the procurement systems, types of goods, services and capital assets required for an agency's missions, professionalism or quality of procurement and procurement-related workforce, staffing levels (such as ratio of procurement professionals to contract actions) and budget resources, procurement regulations, rules and guidance including internal controls and legislative oversight. Market conditions have a great

influence over the e-procurement system's effort to maximize cost management (Aguilar & Reis, 2008). Moreover, the market determines whether or not socio-economic objectives of procurement are accomplished, whether or not an entity can fulfill its needs; the timeliness of fulfillment; and the quality and costs of purchased goods, services and capital assets.

The legal environment also plays an important role on the effectiveness of e-procurement (Knudsen, 2003). Different from procurement regulations and rules, the legal environment refers to a broad legal framework that governs all business activities including research and development (regulations dealing with safety and health of new products), manufacturing (safety and health regulations at workplace and pollution control), finance (regulations dealing with disclosure of information), marketing (regulations dealing with deception of advertising, disclosure of product characteristics), personnel (regulations dealing with equal opportunity for women and minorities), and contracts. Indeed, most aspects of contracts such as contract requirements, disputes, and breach of contract are governed under the same contract law.

Relating to political environment, in a democracy many individuals, groups, and organizations including trade associations, professional associations, and business firms or companies (commonly known as interest groups) are actively involved in all aspects of the procurement system (Puschman & Alt, 2005). All these may affect the procurement system of an organization and hence its cost management effectiveness. Aguiler et al (2008) claimed that the sourcing process for multiple goods or services usually involves complex negotiations that include a discussion of a products features as well as quality, services and availability issues. As such, there is a need for negotiation to be integrated into the strategic sourcing process.

Kurtzberg & Medvec (1999) stated that there are many elements of a relationship that can be impacted by negotiation such as the relationship between parties, communication and their level of trust. With the involvement of many actors in the negotiation process such as the procurer and supplier, issues influencing negotiation, this research will explore the factors influencing negotiation in the sourcing process between partners in an e-procurement network. By identifying factors influencing negotiation in an e-procurement network, this will help to answer the fourth objective of this study.

2.7 Summary of Literature

The theories linking e-procurement management to cost management were reviewed. Most notable was of theory of reasoned action highlighting why electronic systems have been adopted in procurement. One of the reasons is cost effectiveness. Thus, the theory captures both the independent and dependent variables of this study. The literature review focused on the effect of e-procurement planning, e-procurement supplier selection and e-procurement contracts administration on cost management. Literature shows that if well-handled and implemented, e-procurement planning, e-procurement supplier selection and e-procurement contracts administration can help organizations reduce on procurement costs. Thus, the processes in e-procurement planning, e-procurement supplier selection and e-procurement contracts administration need to be systematic implemented to realize cost reductions. However, this literature was not in context of Airtel Uganda. Thus, it could not be generically used to explain the effect of e-procurement planning, e-procurement supplier selection and e-procurement contracts administration on cost management at Airtel Uganda. The study sought to fill in this gap.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter explains the approaches the researcher used to gain information on the research problem. It describes and discusses the research design, population and sample size/selection, the data collection methods and their corresponding data collection instruments, validity and reliability of instruments, procedure for data collection, data management and analysis procedure as well as steps taken to ensure during the study and measurement of variables.

3.2 Research Design

The study was carried out using cross sectional case study design. This design was adopted in this study because according to Amin (2005), the cross-sectional study enables the study to be carried out at a particular time across categories of respondents without need of follow-up on them thus saving time and resources while the case study helps to provide an in-depth study of the problem within limited time scale. Both qualitative and quantitative approaches were used for data collection and analysis. Using both approaches gave the study more accurate results. The quantitative approach generated numerical data that could be statistically manipulated (Amin, 2005) to understand the effect of e-procurement management on cost management. The qualitative approach generated textual data to provide an in-depth understanding (Amin, 2005) of the effect of e-procurement management on cost management.

3.3 Study Population

The study was carried out at Airtel Uganda headquarters located in Kampala and a total of 260 staffs and suppliers constituted the study population. The breakdown of the population was 1 Chief Executive officer, 6 Heads of Department, 20 Managers, 86 Officers, 37 Assistants and 110 Suppliers.

3.4 Determination of Sample Size

Krejcie & Morgan (1970) produced a table for determining sample size for any population of a defined (finite) size based on this confidence level. Krejcie & Morgan (1970), state that, using this table, as the population increases the sample size increases at a diminishing rate (plateau) and remains, eventually constant at slightly more than 380 cases. Alreck & Settle (1995) provide similar evidence. Krejcie & Morgan (1970) size table was used to determine the sample size as 202. The following table shows the population, sample size and sampling methods.

Table 1: Accessible population and sample size

NO.	Population category	Total Population	Sample Size	Sampling method
1.	Chief Executive officer	1	1	Purposive
2.	Heads of Depart.	6	6	Purposive
3.	Managers	20	15	Simple random
4.	Non-management employees (Officers)	123	94	Stratified
6.	Suppliers for the period 2012/13	110	86	Stratified
TOTAL		260	202	

Source: Population adopted from Airtel Uganda Human resource Department and sample size determined using Krejcie & Morgan (1970) Table as cited by Amin 2005

Therefore, for a study population of 260 the total sample size was 202 respondents. These respondents were obtained from Airtel Uganda and it consisted of staff from different departments and suppliers.

3.5 Sampling Techniques and Procedure

The researcher used non probability sampling which focused on purposive sampling method based on the small sample and the informants' knowledge on the procurement function. Probability sampling methods that were used were simple random and stratified sampling. Simple random sampling involved giving an equal opportunity in the selection of managers where only part of the population of managers participated in the study. Stratified sampling involved dividing the sampling frame into two subsets consisting of non-management employees and suppliers due to the need to give each section / respondent a chance of being selected. The non-probability method used was purposive sampling, which was used to the Chief Executive Officer and Heads of Departments. This method was used on these categories because they held higher positions of responsibility and thus they were more knowledgeable about the activities at Airtel including e-procurement management and cost management. The procedure was preferred due to the population being heterogeneous.

3.6 Data Collection Methods

Three types of data collection methods were used in the study. These included questionnaire survey, face-to-face interview and documentary review.

3.6.1 Questionnaire survey

A questionnaire survey is a research method for collecting information from a selected group of respondents using standardized questionnaires (Saunders et al, 2000). This method involved collecting information from a sample of AirTel staff (managers, officers and assistants) and suppliers in a systematic way. Questionnaire survey were used for these category of respondents to save on time because their number will be big to interview.

3.6.2 Face-to-face interview

Face-to-face interviews were used to collect data from the Chief Executive Officer and Heads of Departments because they were thought to have more knowledge about the issues the study sought and interviews helped the researcher to establish rapport with these categories of respondents and therefore gain their cooperation to obtain in-depth information. They also allowed the researcher to clarify ambiguous answers and obtain in-depth information through probing. Structured-interviews were designed to collect data for this study. Open-ended questions were used so that other valuable questions could emerge from the dialogue between interviewer and interviewee. Structured interviews are the most widely used interviewing formats for qualitative research (DiCicco-Bloom & Crabtree, 2006). In this study, the probing interviewing tactic was used extensively to obtain a deeper explanation of the issue at hand from the respondents. This was largely due to the fact that the respondents often needed stimuli to expand or clarify their own answers and ideas more broadly, so that a broader understanding could be more easily reached later on in the findings of this study.

3.6.3 Documentary review

Secondary data was obtained from AirTel, Libraries and the internet. Sources like journals, articles, reports and books were used in gathering and compiling the information. These documents and reports helped to supplement and substantiate data obtained from other instruments.

3.7 Data Collection Instruments

Three types of data collection instruments were used in the study. These included questionnaires, interview guides and document analysis guides. These are briefly explained in the following subsection.

3.7.1 Questionnaire

Questionnaires are self-administered questions that come in form of structured or close-ended questions and unstructured or open-ended questions (Amin 2005). A comprehensive close-ended questionnaire was used to cover all the aspects of the study variables and was accompanied by a Likert scale response continuum, that is strongly agree, agree, undecided, disagree and strongly disagree. The questionnaires were first pre-tested before going for the actual data collection. The questionnaire was used to enable the respondents to express freely their opinion about the variables under study and because they could read and write in English and thus fill in the questionnaires by themselves without any assistance. Specifically, Self-administered questionnaires (SAQs) were used to collect quantitative data.

3.7.2 Interview schedules

Structured interviews were used to collect information from the Chief Executive Officer, and Heads of Departments. Interviewee physically met respondents and asked questions face-to-face related to e-procurement and cost management of Airtel Uganda. This is because management level employees were agreed to be interviewed, rather than complete a questionnaire. Therefore, an interview provided them with an opportunity to reflect on events without needing to write anything down, and they felt that it was not appropriate to provide sensitive and confidential information to someone they had not met before. This also

provided an opportunity for the interviewee to receive feedback and personal assurance about the way in which information was used (Saunders et al, 2000).

3.7.3 Document review checklist

The study also reviewed existing literature related to the study problem and variables in form of reports, journals and websites to gain information on the topic.

3.8 Data Quality Control (Validity and Reliability of Research Instruments)

3.8.1 Validity

Validity refers to the degree to which an instrument solicits the required information (Amin, 2005). Thus, determining validity ensured that the instruments used yielded relevant and correct data. The instruments to be used were given to two experts to comment on the ambiguity, difficult and relevancy of questions to ensure construct, content and face validity. In addition, content validity ratio (CVR) for the questionnaire was computed as shown in the following table using the following formula.

$$CVR = \frac{\text{No. items rated relevant}}{\text{Total items rated}}$$

Table 2: Validity of questionnaire

Raters	Items rated relevant	Items rate not relevant	Total
Rater 1	47	7	54
Rater 2	44	10	54
Total	91	17	108

Source: Data from field

Thus, applying the formula

$$CVR = \frac{91}{108} = .84$$

The CVRs for the questionnaire was above 0.6, which is recommended by Nunnally (1967) cited by Kent (2001). The questionnaire was considered suitable for collecting data.

3.8.2 Reliability

Reliability is defined as the degree to which the questionnaire produces consistent results if used under the same conditions (Amin, 2005). In this study, reliability was established by pre-testing the questionnaires, where they were pilot tested on 20 respondents in a similar organization, which in this case was AIRTEL. Thereafter, and the collected data was subjected to Cronbach alpha reliability, which is a test of internal consistency. Results of the reliability are presented in the following table.

Table 3: Reliability of variables in the questionnaire

Variable	Alpha	n
E-procurement planning	.940	22
E-supplier selection	.630	12
E-contract administration	.668	13
E-procurement environment	.714	4
Cost management	.842	3

Source: Data from the field

The alphas for the variables in the questionnaire were all above the recommended 0.6 (Nunnally cited by Kent, 2001). Thus, the questionnaire was considered reliable for collecting data.

3.9 Procedure of Data Collection

A letter of authorization from the Uganda Management Institute was provided as a request for permission to conduct the study. A covering letter accompanied the questionnaires explaining the purpose of the study and the questionnaires were distributed directly to the respondents in their respective areas for filling and later were collected. The cover letter was also used to provide access to the interview process, which were done on appointment.

3.10 Data Analysis

Two types of analyses were conducted and these included quantitative and qualitative analyses. The following subsections explain the analyses in detail.

3.10.1 Quantitative Analysis

Quantitative data was collected, edited and coded using the Statistical Package for the Social Sciences (SPSS version 14). Two types of analyses were computed. The first include descriptive statistics (frequencies and percentages) and the second include inferential statistics (correlation, coefficient of determination and regression). The frequencies and percentages were used to determine the respondents' views on each of the study variables. Pearson correlation and coefficient of determination were used to test for significant relationships between the variables. A correlation close to +1 or -1 showed that there was a very strong relationship between the variables whereas a correlation close to 0 showed that there was a weak or no relationship. The sign of the correlation will be used to determine the change in variables. The coefficient of determination was used to determine the magnitude of variance in cost management accounted for by e-procurement management. The significance of the correlation results will determine whether to accept or reject the hypothesis. The regression was used to determine which of the indicators of the independent variables significantly affected the dependent variable.

3.10.2 Qualitative Analysis

In qualitative analysis, content analysis was used to edit the data and reorganize it into meaningful shorter sentences. This was then presented as quotations to supplement the quantitative data in order to have a clearly interpretation of the results.

3.11 Measurement of Variables

Different variables were measured at different levels, (Bell, 1997). Both the nominal and ordinal scales of measurement were used in the questionnaire. The nominal scale of measurement was mainly used in the first part of the questionnaire (demographics) which comprised of items with some common set such as gender or sex, as well as age and qualification of respondents. According to (Mugenda & Mugenda, (1999), nominal scales are assigned only for purposes of identification but do not allow comparisons of the variables being measured.

The researcher used ordinal measurement which categorized and ranked the variables being measured example the use of statements such as greater than, less than or equal to (Amin, 2005). The five point likert scale was used to collect opinion data and this was used to measure the stakeholders' belief on the contribution of e-procurement management to cost management at Airtel Uganda using the five scales: - 5= strongly agree; 4 = agree; 3 = undecided; 2 = disagree; 1 = strongly disagree, (Amin, 2005). The numbers in the ordinal scale represented relative position or order among the variables ((Mugenda & Mugenda, 1999; Amin, 2005). Both nominal and ordinal scales measured discreet variables and only the specified numbers such as 1, 2, 3, 4, 5 can occur (Amin, 2005).

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS

4.1 Introduction

This chapter presents, analyzes and interprets the results. It is divided into five major sections. The first section presents results about the response rate. The second section presents results on respondents' background. The third section presents results on E-procurement planning and cost management at Airtel Uganda. The fourth section presents results on E-supplier selection and cost management at Airtel Uganda. The fifth section presents results on E-contract administration and cost management at Airtel Uganda.

4.2 Response Rate

Response rate (also known as completion rate or return rate) in survey research refers to the number of people who answered the survey divided by the number of people in the sample (Johnson & Owens, 2003). It is usually expressed in the form of a percentage. A low response rate can give rise to sampling bias if the non-response is unequal among the participants regarding exposure and/or outcome. In this study, the sample was 202 respondents but the study managed to get 134 respondents. The break down is shown in the following table.

Table 4: Response rate

Category of population	Sampled size	Responses received	Percentage %
Chief Executive officer	1	1	100
Heads of Depart.	6	3	50
Managers	15	9	
Non-management employees (Officers)	94	63	67
Suppliers	86	58	67
TOTAL	202	134	66

Source: Data from the field

Thus, the response rate of 66% was above the recommended 60% response rate (Amin, 2005; Mugenda & Mugenda, 1999). Therefore, the results were considered representative of what would have been obtained from the population.

4.3 Background Characteristics of Respondents

The Airtel Uganda employees and suppliers' background included their gender, education level, tenure and age. Findings are presented in the following sub sections.

4.3.1 Gender of Airtel Uganda employees and suppliers

Airtel Uganda employees and suppliers were asked about their gender. Findings are presented in Table 5.

Table 5: Gender of Airtel Uganda employees and suppliers

Gender	Frequency	Percent
Male	74	56.9
Female	56	43.1
Total	130	100.0

Source: Data from the field

Findings show that most Airtel Uganda employees and suppliers (56.9%) who participated in the study were male compared to the proportion of female Airtel Uganda employees and suppliers. This is attributed to the fact that male Airtel Uganda employees and suppliers are dominant at Airtel Uganda. Thus, the implication of these findings is that information obtained was not gender biased.

4.3.2 Age of Airtel Uganda employees and suppliers

Airtel Uganda employees and suppliers were asked about their age. Findings are presented in Table 6.

Table 6: Age of Airtel Uganda employees and suppliers

Age	Frequency	Percent
Below 20 years	0	0
21-30 years	35	26.9
31-40 years	49	37.7
41-50 years	33	25.4
51-60 years	13	10.0
Total	130	100.0

Source: Data from the field

Findings show that most Airtel Uganda employees and suppliers (73.1%) who participated in the study were aged over 30 years. The implication is that information was obtained from mainly employees and suppliers who were mature in thinking and reasoning. Thus, was considered that most of the Airtel Uganda employees and suppliers applied thinking and reasoning while responding to questions about e-procurement management and cost management.

4.3.3 Level of education of Airtel Uganda employees and suppliers

Airtel Uganda employees and suppliers were asked about their education. Findings are presented in Table 7.

Table 7: Level of education of Airtel Uganda employees and suppliers

Level of education	Frequency	Percent
Diploma and below	54	41.5
Bachelors degree	58	44.6
Masters degree	18	13.8
Total	130	100.0

Source: Data from the field

Findings show that most Airtel Uganda employees and suppliers (58.5%) who participated in the study had a degree and masters degree. This suggests most Airtel Uganda employees and

suppliers who participated in the study were literate and understood issues that were asked. Thus, information obtained was reliable.

4.3.4 Years of employees and suppliers associating with Airtel Uganda

Airtel Uganda employees and suppliers were asked about their tenure. Findings are presented in Table 8.

Table 8: Years of employees and suppliers associating with Airtel Uganda

Tenure	Frequency	Percent
Less than 2 years	27	20.8
2-5 years	57	43.8
5-10 years	34	26.2
Over 10 years	12	9.2
Total	130	100.0

Source: Data from the field

Findings show that most Airtel Uganda employees and suppliers (79.2%) who participated in the study were at Posts for at least two years. Thus, this implies Airtel Uganda employees and suppliers who participated in the study had been at Airtel Uganda for some time and thus knew what happened including issues related to electronic procurement management and cost management. Thus, information obtained from them was dependable.

4.4 Descriptive Results on the Independent Variables

4.4.1 Descriptive results about e-procurement planning at Airtel Uganda

Two dimensions were used to measure e-procurement planning and these were budgeting and requirement determination. Findings about these two dimensions of e-procurement planning are presented in the following sub sections.

4.4.1.1 Budgeting

Airtel Uganda managers and non-management employees were requested to respond to nine items about budgeting by indicating their agreement using a five-point Likert scale as shown in Table 9. The items are presented in the first column of Table 9 and the proportion of Airtel Uganda managers and non-management employees to the responses on each of the items is presented in form of frequencies and percentages in columns 2 to 6. The last column presents the total percentage of Airtel Uganda managers and non-management employees on each of the items. The analysis and interpretation of the findings about budgeting follows the presentation of findings in Table 9.

Table 9: Findings about budgeting from Airtel Uganda managers and non-management employees

Items about budgeting	SA	A	U	D	SD	Total
1. Airtel has budgets for its electronic procurement	2 (3%)	26 (36%)	13 (18%)	18 (25%)	13 (18%)	72 (100%)
2. Electronic procurement planning facilitates budgetary decisions at Airtel	6 (8%)	28 (39%)	7 (10%)	19 (26%)	12 (17%)	72 (100%)
3. Airtel periodically draws budgets for its electronic procurement	5 (7%)	29 (40%)	15 (21%)	16 (22%)	7 (10%)	72 (100%)
4. Electronic procurement planning helps identify major investment spending at Airtel	5 (7%)	24 (33%)	8 (11%)	25 (35%)	10 (14%)	72 (100%)
5. Airtel satisfactorily plans for periodic budgets for its electronic procurement	15 (21%)	37 (51%)	7 (10%)	8 (11%)	5 (7%)	72 (100%)
6. All respective procurement Airtel personnel have had training in budgeting for its electronic procurement	9 (13%)	41 (57%)	10 (14%)	7 (10%)	5 (7%)	72 (100%)
7. All approved Airtel budgets are integrated to electronic procurement plans by the contracts committee	13 (18%)	18 (25%)	22 (31%)	11 (15%)	8 (11%)	72 (100%)
8. Airtel electronic procurement plans spell out well the methods of procurement	6 (8%)	24 (33%)	16 (22%)	12 (17%)	14 (19%)	72 (100%)
9. Airtel procurement officers account for its electronic procurements	21 (29%)	30 (42%)	6 (8%)	7 (10%)	8 (11%)	72 (100%)

Source: Data from the field

Key: SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree, SD = Strongly Disagree

To analyze the findings, Airtel Uganda managers and non-management employees who strongly disagreed and those who disagreed were combined into one category who “opposed” the items. In addition, Airtel Uganda managers and non-management employees who strongly agreed and those who agreed were combined into another category who “concurred” with the items. Thus, three categories of Airtel Uganda managers and non-management employees were compared, which included “Airtel Uganda managers and non-management employees who opposed the items”, “Airtel Uganda managers and non-management employees undecided on the items” and “Airtel Uganda managers and non-management employees who concurred with the items”. Interpretation was then drawn from the comparisons of the three categories as shown in the following paragraph.

Findings in Table 9 show that most Airtel Uganda managers and non-management employees concurred to three items (that is items 5, 6 and 9) compared to Airtel Uganda managers and non-management employees who opposed these items and Airtel Uganda managers and non-management employees who were undecided with these items. For example, on item 5, most managers and non-management employees (72%) concurred that Airtel satisfactorily plans for periodic budgets for its electronic procurement compared to 10% who were not sure and 18% who opposed. This shows that Airtel satisfactorily planned for periodic budgets for its electronic procurement.

On item 6, most managers and non-management employees (70%) concurred that all respective procurement Airtel personnel have had training in budgeting for its electronic procurement compared to 14% who were not sure and 17% who opposed. This shows that all respective procurement Airtel personnel had training in budgeting for its electronic procurement. On item 9, most managers and non-management employees (71%) concurred

that Airtel procurement officers account for its electronic procurements compared to 8% who were not sure and 21% who opposed. This shows that Airtel procurement officers accounted for its electronic procurements.

However, findings show that the percentage of Airtel Uganda managers and non-management employees that opposed six items (that is items 1, 2, 3, 4, 7 and 8) was almost an equal to the percentage of Airtel Uganda managers and non-management employees that concurred to these items. A comparison on these items shows that on item 1, the percentage of managers and non-management employees that opposed that Airtel has budgets for its electronic procurement was 39% while 18% were undecided and 43% concurred. This shows that Airtel did not budgets for its electronic procurement. Furthermore, on item 2, the percentage of managers and non-management employees that opposed that electronic procurement planning facilitates budgetary decisions at Airtel was 47% while 10% were undecided and 43% concurred. This shows that electronic procurement planning did not facilitate budgetary decisions.

It is also shown that on item 3, the percentage of managers and non-management employees that opposed that Airtel periodically draws budgets for its electronic procurement was 47% while 21% were undecided and 32% concurred. This shows that Airtel did not periodically draw budgets for its electronic procurement. Findings also show that on item 4, the percentage of managers and non-management employees that opposed that electronic procurement planning helps identify major investment spending at Airtel was 40% while 11% were undecided and 49% concurred. This shows that electronic procurement planning did not help identify major investment spending at Airtel.

Furthermore, on item 7, the percentage of managers and non-management employees that opposed that all approved Airtel budgets are integrated to electronic procurement plans by the contracts committee was 43% while 31% were undecided and 26% concurred. This shows that not all approved Airtel budgets were integrated to electronic procurement plans by the contracts committee. Lastly, on item 8, the percentage of managers and non-management employees that opposed that Airtel electronic procurement plans spell out well the methods of procurement was 41% while 22% were undecided and 36% concurred. This shows that Airtel electronic procurement plans did not spell out well the methods of procurement.

4.4.1.2 Requirement determination

Airtel Uganda managers and non-management employees were requested to respond to 13 items about requirement determination by indicating their agreement using a five-point Likert scale as shown in Table 10. The items are presented in the first column of Table 10 and the proportion of Airtel Uganda managers and non-management employees to the responses on each of the items is presented in form of frequencies and percentages in columns 2 to 6. The last column presents the total percentage of Airtel Uganda managers and non-management employees on each of the items. The analysis and interpretation of the findings about requirement determination follows the presentation of findings in Table 10.

Table 10: Findings about requirement determination from Airtel Uganda managers and non-management employees

Items about requirement determination	SA	A	U	D	SD	Total
1. A process of determining user expectations for Airtel's electronic product or service is conducted	18 (25%)	38 (53%)	7 (10%)	4 (6%)	5 (7%)	72 (100%)
2. The needs are clearly defined for better cost effectiveness in Airtel's electronic procurement	23 (32%)	35 (49%)	4 (6%)	5 (7%)	5 (7%)	72 (100%)
3. Requirements determination for Airtel's electronic procurement are complete	19 (26%)	34 (47%)	6 (8%)	11 (15%)	2 (3%)	72 (100%)
4. Requirements determination for Airtel's electronic procurement are accurate	21 (29%)	35 (49%)	7 (10%)	5 (7%)	4 (6%)	72 (100%)
5. Information about the current electronic procurement system is usually collected	23 (32%)	29 (40%)	10 (14%)	7 (10%)	3 (4%)	72 (100%)
6. Information about how users would like to improve their performance with the electronic procurement system is usually collected	11 (15%)	40 (56%)	11 (15%)	6 (8%)	4 (6%)	72 (100%)
7. The users' requirements for electronic procurement are accurately understood at Airtel	21 (29%)	35 (49%)	6 (8%)	7 (10%)	3 (4%)	72 (100%)
8. Airtel's requirements analysis for its electronic procurement involves frequent communication with system users to determine specific feature expectations	13 (18%)	33 (46%)	15 (21%)	7 (10%)	4 (6%)	72 (100%)
9. Airtel's requirements analysis for its electronic procurement involves frequent communication with system users to determine resolution of conflict	16 (22%)	39 (54%)	10 (14%)	5 (7%)	2 (3%)	72 (100%)
10. Airtel's requirements analysis for its electronic procurement involves frequent communication with system users to determine ambiguity in requirements	14 (19%)	36 (50%)	11 (15%)	9 (13%)	2 (3%)	72 (100%)
11. Airtel encourages participation of users in determining requirements for its electronic procurement	9 (13%)	34 (47%)	20 (28%)	7 (10%)	2 (3%)	72 (100%)
12. Needs identification for electronic procurement is well conducted at Airtel during requirements determination	14 (19%)	38 (53%)	7 (10%)	8 (11%)	5 (7%)	72 (100%)
13. Procurement and disposal units always help users with previous year's electronic procurement plans and performance	16 (22%)	37 (51%)	5 (7%)	10 (14%)	4 (6%)	72 (100%)

Source: Data from the field

Key: SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree, SD = Strongly Disagree

Findings in Table 10 show that most Airtel Uganda managers and non-management employees concurred to all items compared to Airtel Uganda managers and non-management employees who opposed these items and Airtel Uganda managers and non-management employees who were undecided with these items. A comparison on these items shows that on item 1, most managers and non-management employees (78%) concurred that a process of determining user expectations for Airtel's electronic product or service is conducted compared to 10% who undecided while 13% opposed. This shows that a process of

determining user expectations for Airtel's electronic product or service was conducted. On item 2, most managers and non-management employees (81%) concurred that the needs are clearly defined for better cost effectiveness in Airtel's electronic procurement compared to 6% who undecided while 14% opposed. This shows that the needs were clearly defined for better cost effectiveness in Airtel's electronic procurement. On item 3, most managers and non-management employees (73%) concurred that requirements determination for Airtel's electronic procurement are complete compared to 8% who undecided while 18% opposed. This shows that requirements determination for Airtel's electronic procurement were completed, On item 4, most managers and non-management employees (78%) concurred that requirements determination for Airtel's electronic procurement are accurate compared to 10% who undecided while 13% opposed. This shows that requirements determination for Airtel's electronic procurement are accurate.

On item 5, most managers and non-management employees (72%) concurred that information about the current electronic procurement system is usually collected compared to 14% who undecided while 14% opposed. This shows that the current electronic procurement system was usually collected. On item 6, most managers and non-management employees (71%) concurred that information about how users would like to improve their performance with the electronic procurement system is usually collected compared to 15% who undecided while 14% opposed. This shows that information about how users would like to improve their performance with the electronic procurement system was usually collected. On item 7, most managers and non-management employees (78%) concurred that the users' requirements for electronic procurement are accurately understood at Airtel compared to 8% who undecided while 14% opposed. This shows that the users' requirements for electronic procurement were accurately understood at Airtel.

On item 8, most managers and non-management employees (64%) concurred that Airtel's requirements analysis for its electronic procurement involves frequent communication with system users to determine specific feature expectations compared to 21% who undecided while 16% opposed. This shows that Airtel's requirements analysis for its electronic procurement involved frequent communication with system users to determine specific feature expectations. On item 9, most managers and non-management employees (76%) concurred that Airtel's requirements analysis for its electronic procurement involves frequent communication with system users to determine resolution of conflict compared to 14% who undecided while 10% opposed. This shows that Airtel's requirements analysis for its electronic procurement involved frequent communication with system users to determine resolution of conflict

On item 10, most managers and non-management employees (69%) concurred that Airtel's requirements analysis for its electronic procurement involves frequent communication with system users to determine ambiguity in requirements compared to 15% who undecided while 16% opposed. This shows that Airtel's requirements analysis for its electronic procurement involved frequent communication with system users to determine ambiguity in requirements. On item 11, most managers and non-management employees (60%) concurred that Airtel encourages participation of users in determining requirements for its electronic procurement compared to 28% who undecided while 13% opposed. This shows that Airtel encouraged participation of users in determining requirements for its electronic procurement. On item 12, most managers and non-management employees (72%) concurred that needs identification for electronic procurement is well conducted at Airtel during requirements determination compared to 10% who undecided while 18% opposed. This shows that needs identification

for electronic procurement was well conducted at Airtel during requirements determination. On item 13, most managers and non-management employees (73%) concurred that procurement and disposal units always help users with previous year's electronic procurement plans and performance compared to 7% who undecided while 20% opposed. This shows that procurement and disposal units always helped users with previous year's electronic procurement plans and performance.

4.4.1.3 Interview findings about e-procurement planning

Interview findings shade more light about Airtel Uganda's e-procurement planning. For example, when asked to rate Airtel's electronic procurement planning and why rated so, the following were the responses:

It is not good. This is because it seems there is no proper policy for e-procurement planning and if it is there, it has not been shared by management (Interview with Head of Department, 3rd June 2013).

Thus, it is shown that policy is like in Airtel's e-procurement planning. A second interviewee responded thus

It is fifty-fifty. I am not satisfied with it because there is too little that has been done for it to be effective. Some staff do not have the competence (Interview with Head of Department, 4th June 2013).

This particular interviewee did not mention what should have been done but at least pointed out lack of competences. The third interviewee had this says,

Planning for e-procurements such as flexi cards, phones has not been appreciated by Airtel. The company incurs a lot of operational costs and thus low profit margins. This is because poor e-procurements planning at Airtel. Hence, this leaves a lot to be

desired by Airtel to improve its e-procurements planning (Interview with Head of Department, 5th June 2013).

The findings show that there are stock outs due to poor e-procurement planning. The fourth interviewee had this to say about e-procurements planning at Airtel,

It appears like they do not plan. For example, some airtime denominations run out and stay out of stock for a while. There is a lot of delay between placing an order and receipt of stock. Some items cannot be stocked out and invoices are not ready. Some stock issued out is sometimes not activated (Interview with Head of Department, 6th June 2013).

The above interviewee also echo problems of stock out due to poor e-procurement planning. As for the fifth interviewee, the response in respect to e-procurements planning at Airtel was as follows,

Airtel's e-procurements planning is terrible. I would say there is no planning. There is no forecasting (Interview with Head of Department, 7th June 2013).

This interviewee raised the of lack of forecasting in Airtel's e-procurement planning, which explains the stock outs. In response, the sixth interviewee had this say,

I am satisfied with e-procurement planning at Airtel is given priority and it is efficiently handled by the management team (Interview with Head of Department, 8th June 2013).

The seventh interviewee responded thus,

E-procurement planning at Airtel is good. This is because costs are estimated and taxes are planned (Interview with Chief Executive Officer, 10th June 2013).

Despite, the shortcomings in Airtel's e-procurement, this interviewee indicated benefits realized due to e-procurement planning. These findings, therefore, show that e-procurement planning is not done well at Airtel.

4.4.2 Descriptive results about e-supplier selection at Airtel Uganda

Two dimensions were used to measure e-supplier selection and these were specification and methods of source selection. Findings about these two dimensions of e-supplier selection are presented in the following sub sections.

4.4.2.1 Specification

Airtel Uganda managers, non-management employees and suppliers were requested to respond to six items about specification by indicating their agreement using a five-point Likert scale as shown in Table 11. The items are presented in the first column of Table 11 and the proportion of Airtel Uganda managers, non-management employees and suppliers to the responses on each of the items is presented in form of frequencies and percentages in columns 2 to 6. The last column presents the total percentage of Airtel Uganda managers, non-management employees and suppliers on each of the items. The analysis and interpretation of the findings about specification follows the presentation of findings in Table 11.

Table 11: Findings about specification from Airtel Uganda managers, non-management employees and suppliers

Items about specification	SA	A	U	D	SD	Total
1. Airtel's specifications for its electronic procurement describe the best requirements	25 (19%)	70 (54%)	22 (17%)	8 (6%)	5 (4%)	130 (100%)
2. Airtel's specifications for its electronic procurement are according to the nature of requirements	15 (12%)	37 (28%)	28 (22%)	34 (26%)	16 (12%)	130 (100%)
3. Airtel's service providers adhere to all specifications for its electronic procurement	10 (8%)	40 (30%)	36 (28%)	30 (23%)	14 (11%)	130 (100%)
4. Airtel's specifications for its electronic procurement identify quality and operational characteristics	37 (28%)	69 (54%)	11 (8%)	11 (8%)	2 (2%)	130 (100%)
5. Airtel's specifications for its electronic procurement require the ability of the end user to accurately and concisely describe the product or service required	17 (13%)	36 (28%)	34 (26%)	33 (25%)	10 (8%)	130 (100%)
6. Airtel's officials always inspect to verify that goods, equipment or services conform to specifications for its electronic procurement	13 (10%)	39 (30%)	25 (19%)	38 (29%)	15 (12%)	130 (100%)

Source: Data from the field

Key: SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree, SD = Strongly Disagree

Findings in Table 11 show that most Airtel Uganda managers, non-management employees and suppliers concurred to two items (that is items 1 and 4) compared to Airtel Uganda managers, non-management employees and suppliers who opposed these items and Airtel Uganda managers, non-management employees and suppliers who were undecided with these items. A comparison on these items shows that on item 1, most managers, non-management employees and suppliers (73%) concurred that Airtel's specifications for its electronic procurement describe the best requirements while 17% were undecided and 10% opposed. This shows that Airtel's specifications for its electronic procurement described the best requirements. On item 4, most managers, non-management employees and suppliers (82%) concurred that Airtel's specifications for its electronic procurement identify quality and operational characteristics while 8% were undecided and 10% opposed. This shows that Airtel's specifications for its electronic procurement identified quality and operational characteristics

However, findings show that the percentage of Airtel Uganda managers, non-management employees and suppliers that opposed four items (that is items 2, 3, 5 and 6) was almost an equal to the percentage of Airtel Uganda managers, non-management employees and suppliers that concurred to these items. A comparison on these items shows that on item 2, the percentage of Airtel Uganda managers, non-management employees and suppliers concurred that Airtel's specifications for its electronic procurement are according to the nature of requirements was 40% while 22% were undecided and 38% opposed. This shows that sometimes, Airtel's specifications for its electronic procurement were according to the nature of requirements. On item 3, the percentage of Airtel Uganda managers, non-management employees and suppliers concurred that Airtel's service providers adhere to all specifications for its electronic procurement was 38% while 28% were undecided and 34% opposed. This shows that sometimes, Airtel's service providers adhered to all specifications for its electronic procurement. On item 5, the percentage of Airtel Uganda managers, non-management employees and suppliers concurred that Airtel's specifications for its electronic procurement require the ability of the end user to accurately and concisely describe the product or service required was 41% while 26% were undecided and 33% opposed. This shows that sometimes, Airtel's specifications for its electronic procurement required the ability of the end user to accurately. On item 6, the percentage of Airtel Uganda managers, non-management employees and suppliers concurred that Airtel's officials always inspect to verify that goods, equipment or services conform to specifications for its electronic procurement was 40% while 19% were undecided and 41% opposed. This shows that sometimes, Airtel's officials inspected to verify that goods, equipment or services conformed to specifications for its electronic procurement.

4.4.2.2 Methods of source selection

Airtel Uganda managers, non-management employees and suppliers were requested to respond to six items about methods of source selection by indicating their agreement using a five-point Likert scale as shown in Table 12. The items are presented in the first column of Table 12 and the proportion of Airtel Uganda managers, non-management employees and suppliers to the responses on each of the items is presented in form of frequencies and percentages in columns 2 to 6. The last column presents the total percentage of Airtel Uganda managers, non-management employees and suppliers on each of the items. The analysis and interpretation of the findings about methods of source selection follows the presentation of findings in Table 12.

Table 12: Findings about methods of source selection from Airtel Uganda managers, non-management employees and suppliers

Items about methods of source selection	SA	A	U	D	SD	Total
1. Airtel thoroughly investigates their suppliers for its electronic procurement	16 (12%)	38 (30%)	20 (15%)	42 (32%)	14 (11%)	130 (100%)
2. Systematic sourcing and spot sourcing of goods and services dominate Airtel's business purchases in its electronic procurement	14 (11%)	70 (54%)	25 (19%)	18 (14%)	3 (2%)	130 (100%)
3. Systematic sourcing and spot sourcing in electronic procurement are based on Airtel's strategic marketplace servicing decisions	7 (5%)	32 (25%)	33 (25%)	42 (33%)	16 (12%)	130 (100%)
4. At Airtel, buying during electronic procurement is through pre-negotiated contracts with qualified suppliers	13 (10%)	29 (22%)	30 (23%)	39 (30%)	19 (15%)	130 (100%)
5. Airtel selects a competent group of suppliers during its electronic procurement	12 (9%)	41 (31%)	27 (21%)	32 (25%)	18 (14%)	130 (100%)
6. Airtel maintains a competent group of suppliers during its electronic procurement	4 (3%)	27 (21%)	29 (22%)	56 (43%)	14 (11%)	130 (100%)

Source: Data from the field

Key: SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree, SD = Strongly Disagree

Findings in Table 12 show that most Airtel Uganda managers, non-management employees and suppliers concurred to one item (that item 2) compared to Airtel Uganda managers, non-management employees and suppliers who opposed this item and Airtel Uganda managers, non-management employees and suppliers who were undecided with this item. Findings on this item shows that the percentage of Airtel Uganda managers, non-management employees

and suppliers that opposed was 16% while the percentage that was undecided was 19% and the percentage of that concurred ranged was 65%. Therefore, findings show that systematic sourcing and spot sourcing of goods and services dominated Airtel's business purchases in its electronic procurement.

However, findings show that most Airtel Uganda managers, non-management employees and suppliers opposed one item (that item 6) compared to Airtel Uganda managers, non-management employees and suppliers who concurred this item and Airtel Uganda managers, non-management employees and suppliers who were undecided with this item. Findings on this item shows that the percentage of Airtel Uganda managers, non-management employees and suppliers that opposed was 54% while the percentage that was undecided was 22% and the percentage of that concurred ranged was 24%. Therefore, findings show that Airtel did not maintain a competent group of suppliers during its electronic procurement.

Lastly, findings show that the percentage of Airtel Uganda managers, non-management employees and suppliers that opposed four items (that is items 1, 3, 4 and 5) was almost an equal to the percentage of Airtel Uganda managers, non-management employees and suppliers that concurred to these items. A comparison on these items shows that on item 1, the percentage of Airtel Uganda managers, non-management employees and suppliers that concurred that Airtel thoroughly investigates their suppliers for its electronic procurement was 42% while 15% were undecided and 43% opposed. Thus, findings show that sometimes, Airtel thoroughly investigated their suppliers for its electronic procurement. On item 3, the percentage of Airtel Uganda managers, non-management employees and suppliers that concurred that systematic sourcing and spot sourcing in electronic procurement are based on Airtel's strategic marketplace servicing decisions was 30% while 25% were undecided and

45% opposed. Findings show that sometimes, spot sourcing in electronic procurement was based on Airtel's strategic marketplace servicing decisions. On item 4, the percentage of Airtel Uganda managers, non-management employees and suppliers that concurred that at Airtel, buying during electronic procurement is through pre-negotiated contracts with qualified suppliers was 32% while 23% were undecided and 45% opposed. Thus, findings show that sometimes, buying during electronic procurement was through pre-negotiated contracts with qualified suppliers. On item 5, the percentage of Airtel Uganda managers, non-management employees and suppliers that concurred that Airtel selects a competent group of suppliers during its electronic procurement was 40% while 21% were undecided and 39% opposed. Thus, findings show that sometimes, Airtel selected a competent group of suppliers during its electronic procurement.

4.4.2.3 Interview findings about e-supplier selection

Interview with key informants revealed the following about e-supplier selection at Airtel. They were requested to rate Airtel's supplier selection during electronic procurement and why rated so. The following were the responses:

It is good. Once the buyer has identified potential suppliers, the next step in supplier selection is to formally request that the suppliers provide information about their goods or services (Interview with Chief Executive Officer, 10th June 2013).

The findings show that at Airtel, there is a process for selecting suppliers and with such a process in place, the selection of suppliers would be satisfactory. However, this was not the case as revealed in interviews with other key informants who indicated shortcomings in the selection of suppliers as shown in the following.

Supplier selection is still wanting. In most cases, not all bidders are granted equal opportunities in Airtel's procurement, the procedure applied in Airtel's procurement is

not objective, and some companies do not take part in Airtel's tenders regardless of nationality (Interview with Head of Department, 4th June 2013).

The implications of these findings are that there is discrimination in supplier selection.

Another head of department echo similarly as shown in the following:

I am not satisfied the selection of suppliers at Airtel. This is because not all Airtel's suppliers are evaluated under same criteria. Airtel does not provide fair opportunities to qualified suppliers to compare for contracts to offer the best prices, quality and services, and the Airtel's qualification procedure are not clearly and exhaustively described (Interview with Head of Department, 7th June 2013).

Another head of department had this to say,

Supplier selection sometimes is poor because Airtel's rules and procedures are not adhered to, Airtel 's procedure for reviewing complaints filed by unsuccessful candidates is ineffective, there was no genuine competition in Airtel's procurement and all Airtel's procurements are not conducted to deliver best value for money.

Thus, the implication of these findings is that the competitive bidding lacked in Airtel's supplier selection process.

4.4.3 Descriptive results about E-contract administration at Airtel Uganda

Two dimensions were used to measure e-supplier selection and these were specification and methods of source selection. Findings about these two dimensions of e-supplier selection are presented in the following sub sections.

4.4.3.1 Contract risk management

Airtel Uganda managers, non-management employees and suppliers were requested to respond to seven items about contract risk management by indicating their agreement using a five-point Likert scale as shown in Table 13. The items are presented in the first column of Table 13 and the proportion of Airtel Uganda managers, non-management employees and suppliers to the responses on each of the items is presented in form of frequencies and percentages in columns 2 to 6. The last column presents the total percentage of Airtel Uganda managers, non-management employees and suppliers on each of the items. The analysis and interpretation of the findings about contract risk management follows the presentation of findings in Table 13.

Table 13: Findings about contract risk management from Airtel Uganda managers, non-management employees and suppliers

Items about contract risk management	SA	A	U	D	SD	Total
1. All Airtel's electronic procurement activity are monitored	2 (2%)	50 (38%)	33 (25%)	28 (22%)	17 (13%)	130 (100%)
2. Airtel has sufficient personnel to monitor its electronic procurements	5 (4%)	48 (37%)	28 (22%)	33 (25%)	16 (12%)	130 (100%)
3. Suppliers supply as per Airtel's specifications during its electronic procurement	15 (12%)	62 (47%)	19 (15%)	25 (19%)	9 (7%)	130 (100%)
4. Service providers adhere to all Airtel's specifications during its electronic procurement	17 (13%)	57 (43%)	14 (11%)	32 (25%)	10 (8%)	130 (100%)
5. Identification of risks in Airtel's electronic procurement is satisfactorily handled	19 (15%)	53 (40%)	17 (13%)	27 (21%)	14 (11%)	130 (100%)
6. Assessment of risks in Airtel's electronic procurement is satisfactorily handled	15 (12%)	48 (36%)	20 (15%)	32 (25%)	15 (12%)	130 (100%)
7. Prioritization of risks in Airtel's electronic procurement is satisfactorily handled	20 (15%)	67 (52%)	11 (8%)	19 (15%)	13 (10%)	130 (100%)

Source: Data from the field

Key: SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree, SD = Strongly Disagree

Findings in Table 13 show that most Airtel Uganda managers, non-management employees and suppliers concurred to four items (that is items 3, 4, 5 and 7) compared to Airtel Uganda managers, non-management employees and suppliers who opposed these items and Airtel Uganda managers, non-management employees and suppliers who were undecided with these items. A comparison on these items shows that on item 3, most managers, non-management employees and suppliers concurred (59%) that suppliers supply as per Airtel's specifications during its electronic procurement while 15% were undecided and 26% opposed. Thus, findings show that suppliers supplied as per Airtel's specifications. On item 4, most managers, non-management employees and suppliers concurred (56%) that service providers adhere to all Airtel's specifications during its electronic procurement while 11% were undecided and 33% opposed. Thus, findings show that suppliers adhered to all Airtel's specifications during its electronic procurement. On item 5, most managers, non-management employees and suppliers concurred (55%) that identification of risks in Airtel's electronic procurement is satisfactorily handled while 13% were undecided and 32% opposed. Thus, findings show that identification of risks in Airtel's electronic procurement was satisfactorily handled. On item 7, most managers, non-management employees and suppliers concurred (62%) that prioritization of risks in Airtel's electronic procurement is satisfactorily handled while 8% were undecided and 25% opposed. Thus, findings show that prioritization of risks in Airtel's electronic procurement was satisfactorily handled.

However, findings show that the percentage of Airtel Uganda managers, non-management employees and suppliers that opposed three items (that is items 1, 2 and 6) was almost an equal to the percentage of Airtel Uganda managers, non-management employees and suppliers that concurred to these items. A comparison on these items shows that on item 1, the percentage of Airtel Uganda managers, non-management employees and suppliers that

concluded that all Airtel's electronic procurement activity are monitored was 40% while 25% were undecided and 35 opposed. Thus, findings show that sometimes, all Airtel's electronic procurement activity was monitored. On item 2, the percentage of Airtel Uganda managers, non-management employees and suppliers that concluded that Airtel's has sufficient personnel to monitor its electronic procurements was 41% while 22% were undecided and 37 opposed. Thus, findings show that sometimes, Airtel had sufficient personnel to monitor its electronic procurements. On item 6, the percentage of Airtel Uganda managers, non-management employees and suppliers that concluded that assessment of risks in Airtel's electronic procurement is satisfactorily handled was 48% while 15% were undecided and 37 opposed. Thus, findings show that sometimes, assessment of risks in Airtel's electronic procurement was satisfactorily handled.

4.4.3.2 Quality assurance

Airtel Uganda managers, non-management employees and suppliers were requested to respond to six items about quality assurance by indicating their agreement using a five-point Likert scale as shown in Table 14. The items are presented in the first column of Table 14 and the proportion of Airtel Uganda managers, non-management employees and suppliers to the responses on each of the items is presented in form of frequencies and percentages in columns 2 to 6. The last column presents the total percentage of Airtel Uganda managers, non-management employees and suppliers on each of the items. The analysis and interpretation of the findings about quality assurance follows the presentation of findings in Table 14.

Table 14: Findings about quality assurance from Airtel Uganda managers, non-management employees and suppliers

Items about quality assurance	SA	A	U	D	SD	Total
1. All Airtel's electronic procurement activity are monitored to ensure that products/services are of the quality required for their intended use	20 (15%)	56 (44%)	11 (8%)	34 (26%)	9 (7%)	130 (100%)
2. Airtel has sufficient personnel to monitor implementation of its electronic procurement as per services/products requirement.	30 (23%)	43 (33%)	15 (12%)	22 (17%)	20 (15%)	130 (100%)
3. Suppliers supply as per Airtel's specifications during its electronic procurement	26 (20%)	38 (30%)	20 (15%)	21 (16%)	25 (19%)	130 (100%)
4. Airtel's staff is involved in assessing the quality of products/services electronically procured	33 (25%)	40 (32%)	25 (19%)	21 (16%)	11 (8%)	130 (100%)
5. Most electronically procured Airtel's goods and services are of poor quality	29 (22%)	22 (17%)	21 (16%)	20 (15%)	38 (30%)	130 (100%)
6. Organizational political interference always compromised the quality of Airtel's electronically procured goods, services and works	23 (18%)	21 (16%)	27 (21%)	13 (10%)	46 (35%)	130 (100%)

Source: Data from the field

Key: SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree, SD = Strongly Disagree

Findings in Table 14 show that most Airtel Uganda managers, non-management employees and suppliers concurred to four item (that item 1, 2, 3 and 4) compared to Airtel Uganda managers, non-management employees and suppliers who opposed this item and Airtel Uganda managers, non-management employees and suppliers who were undecided with this item. A comparison on these items shows that, on item 1, most managers, non-management employees and suppliers (59%) concurred that all Airtel's electronic procurement activity are monitored to ensure that products/services are of the quality required for their intended use while 8% were undecided and 33% opposed. Therefore, findings show that all Airtel's electronic procurement activity were monitored to ensure that products/services were of the quality required for their intended use. On item 2, most managers, non-management employees and suppliers (56%) concurred that Airtel has sufficient personnel to monitor implementation of its electronic procurement as per services/products requirement while 12% were undecided and 32% opposed. Therefore, findings show that Airtel had sufficient personnel to monitor implementation of its electronic procurement as per services/products requirement. On item 3, most managers, non-management employees and suppliers (50%) concurred that suppliers supply as per Airtel's specifications during its electronic

procurement while 15% were undecided and 35% opposed. Therefore, findings show that suppliers supplied as per Airtel's specifications during its electronic procurement. On item 4, most managers, non-management employees and suppliers (57%) concurred that Airtel's staff is involved in assessing the quality of products/services electronically procured while 19% were undecided and 24% opposed. Therefore, findings show that airtel's staff was involved in assessing the quality of products/services electronically procured.

However, findings show that the percentage of Airtel Uganda managers, non-management employees and suppliers that opposed two items (that is items 5 and 6) was almost an equal to the percentage of Airtel Uganda managers, non-management employees and suppliers that concurred to these items. A comparison on these items shows that on item 5, the percentage of managers, non-management employees and suppliers that concurred that most electronically procured Airtel's goods and services are of poor quality was 39% while 16% were undecided and 45% opposed. Thus, findings show that sometimes, electronically procured Airtel's goods and services were of poor quality. On item 6, the percentage of managers, non-management employees and suppliers that concurred that organizational political interference always compromised the quality of Airtel's electronically procured goods, services and works was 34% while 21% were undecided and 45% opposed. Thus, findings show that sometimes, organizational political interference always compromised the quality of Airtel's electronically procured goods, services and works.

4.4.3.3 Interview findings about e-contract administration

Interview findings revealed the following when key informants were asked to rate Airtel's e-contract administration during electronic procurement and why they rated so.

Contract administration is not very effective. Airtel's contracts were not awarded on fair basis, Airtel did not give a fair opportunity to potential service/goods providers, and service/goods of providers were not fairly and honestly treated at Airtel (Interview with Head of Department, 5th June 2013).

4.4.4 Descriptive results about e-procurement environment

Airtel Uganda managers, non-management employees and suppliers were requested to respond to four items about e-procurement environment by indicating their agreement using a five-point Likert scale as shown in Table 15. The items are presented in the first column of Table 15 and the proportion of Airtel Uganda managers, non-management employees and suppliers to the responses on each of the items is presented in form of frequencies and percentages in columns 2 to 6. The last column presents the total percentage of Airtel Uganda managers, non-management employees and suppliers on each of the items. The analysis and interpretation of the findings about e-procurement environment follows the presentation of findings in Table 15.

Table 15: Findings about e-procurement environment from Airtel Uganda managers, non-management employees and suppliers

Items about e-procurement environment	SA	A	U	D	SD	Total
1. Internal environment in which Airtel electronically procures its goods and services is favorable	22 (17%)	19 (15%)	26 (20%)	18 (14%)	45 (34%)	130 (100%)
2. Market environment in which Airtel electronically procures its goods and services is favorable	28 (22%)	24 (18%)	19 (15%)	10 (8%)	49 (37%)	130 (100%)
3. Legal environment in which Airtel electronically procures its goods and services is favorable	29 (22%)	26 (20%)	12 (9%)	14 (11%)	49 (38%)	130 (100%)
4. Political environment in which Airtel electronically procures its goods and services is favorable	23 (18%)	18 (14%)	22 (17%)	20 (15%)	47 (36%)	130 (100%)

Source: Data from the field

Key: SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree, SD = Strongly Disagree

Findings in Table 15 show that most Airtel Uganda managers, non-management employees and suppliers opposed one item (that is items 4) compared to Airtel Uganda managers, non-management employees and suppliers who opposed these items and Airtel Uganda managers, non-management employees and suppliers who were undecided with these items. It is shown that the percentage of Airtel Uganda managers, non-management employees and suppliers that opposed was 51% while the percentage that was undecided was 17% and the percentage of that concurred was 32%. Thus, findings show that political environment in which Airtel electronically procured its goods and services was unfavorable.

However, findings show that the percentage of Airtel Uganda managers, non-management employees and suppliers that opposed three items (that is items 1, 2 and 3) was almost an equal to the percentage of Airtel Uganda managers, non-management employees and suppliers that concurred to these items. A comparison on these items shows that the percentage of Airtel Uganda managers, non-management employees and suppliers that concurred that internal environment in which Airtel electronically procures its goods and services is favorable was 32% while 20% were undecided and 48% opposed. The percentage of Airtel Uganda managers, non-management employees and suppliers that concurred that market environment in which Airtel electronically procures its goods and services is favorable was 40% while 15% were undecided and 45% opposed. The percentage of Airtel Uganda managers, non-management employees and suppliers that concurred that legal environment in which Airtel electronically procures its goods and services is favorable was 42% while 9% were undecided and 49% opposed. From these comparisons, it can be seen that the percentage of Airtel Uganda managers, non-management employees and suppliers that opposed these items is almost the same as the percentage of Airtel Uganda managers, non-management employees and suppliers that concurred the items. Thus, findings show that

sometimes, the internal environment, market environment and legal environment in which Airtel electronically procured its goods and services were favorable.

The following is the overall interpretation of the findings in the previous two paragraphs in terms of Airtel Uganda's e-procurement environment. It is shown that most Airtel Uganda managers, non-management employees and suppliers had a negative opinion to one item about e-procurement environment while approximately half of the managers, non-management employees and suppliers had a negative opinion to three items about e-procurement environment and another had a positive opinion to these three items. Thus, this implies that e-procurement environment was fairly good at Airtel Uganda.

After establishing the descriptive findings on Airtel Uganda managers and non-management employees' views on each of the variables, the next step was to test the hypotheses using inferential statistics. Findings are presented in section 4.6.

4.6 Testing Hypotheses

4.6.1 Testing hypotheses one: E-procurement planning has a significant relationship with cost management

4.6.1.1 Correlation and coefficient of determination analysis

Spearman rank order correlation coefficient (*rho*) was used to determine the strength of the relationship between e-procurement planning and the cost management at Airtel Uganda. The coefficient of determination was used to determine the magnitude of variance in cost management accounted for by e-procurement planning. The significance of the coefficient (*p*) was used to test the hypothesis by comparing *p* to the critical significance level at (0.05). Table 16 presents the test results for the first hypothesis.

Table 16: Correlation between e-procurement planning and cost management at Airtel Uganda

	E-procurement planning
Cost management at Airtel Uganda	$\rho = .754$ $\rho^2 = .569$ $p = .001$ $n = 72$

Source: Data from the field

Findings show that there was a positive strong correlation ($\rho = .754$) between e-procurement planning and cost management at Airtel Uganda. Since the correlation does imply causal-effect as stated in the first objective, the coefficient of determination, which is a square of the correlation coefficient ($\rho^2 = .569$), was computed and expressed as a percentage to determine the variance in cost management due to e-procurement planning. Thus, findings show that e-procurement planning accounted for 56.9% variance in cost management. These findings were subjected to a test of significance (p) and it is shown that the significance of the correlation ($p = .001$) is less than the recommended critical significance at 0.05. Thus, the relationship was significant. Because of this, the hypothesis “*E-procurement planning has a significant relationship with cost management*” was accepted.

The implication of these findings is that the strong correlation implied that a change in e-procurement planning was related to a big change in cost management at Airtel Uganda. The positive nature of the correlation implied that the change in e-procurement planning and cost management at Airtel Uganda was in the same direction whereby better e-procurement planning was related to better cost management at Airtel Uganda and vice versa.

4.6.1.2 Regression analysis

A further analysis using regression was conducted to determine the effect of the two dimensions of e-procurement planning (that is budgeting and requirement determination) on cost management. Findings are presented in the following table.

Table 17: Effect of dimensions of e-procurement planning (budgeting and requirement determination) on cost management

<i>Regression Statistics</i>	
Multiple R	0.914
R Square	0.835
Adjusted R Square	0.830
Standard Error	1.303
Observations	72

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	593.9	297.0	174.9	0.000
Residual	69	117.2	1.7		
Total	71	711.1			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.06	0.54	0.12	0.908
Budgeting	0.39	0.03	15.67	0.000
Requirements determination	-0.03	0.02	-1.57	0.120

Source: Data from the field

Findings show a very strong linear regression coefficient (Multiple R = .914) between dimensions of e-procurement planning (budgeting and requirement determination) on cost management. In order to determine the effect of the dimensions of e-procurement planning (budgeting and requirement determination) on cost management, the regression coefficient was squared (R Square = .835) and then adjusted (Adjusted R Square = .830) to take into consideration the deviations of points that fall off the linear line. The Adjusted R Square (.830) was then expressed as a percentage to determine the effect of the dimensions of e-procurement planning (budgeting and requirement determination) on cost management. Thus, findings show that the dimensions of e-procurement planning (budgeting and requirement determination) accounted for 83.0% variance in cost management.

These findings were subjected to Analysis of Variance (Anova) test in order to accept or reject them. The Anova test shows that at degree freedom 2 and 69 ($df = 2, 69$), the fisher's ratio ($F = 174.9$) had significant value of .000, which was less than the critical significance at .05. This indicated an acceptable error in the findings in the previous paragraph and hence confidence in the findings. Thus, it was concluded that the dimensions of e-procurement planning (budgeting and requirement determination) contributed to 83.0% variance in cost management.

However, since the 83.0% variance in cost management was a combined effect of the dimensions of e-procurement planning (budgeting and requirement determination), the coefficients were used to determine which of the dimensions of e-procurement planning (budgeting and requirement determination) significantly affected cost management. This was achieved by comparing the significant values of the coefficients (the p-values) to the critical significant value at .05. P-values equal or less than .05 indicated that that dimension significantly affected cost management while p-values greater than .05 indicated that that dimension did not significantly affect cost management and the lesser the p-value the more the dimension affected cost management. Thus, from the table, it is shown that only budgeting significantly affected cost management at Airtel Uganda, because it had a p-value (.000), which was less than the critical significance at .05. Requirement determination did not significantly affect cost management because it had a p-value (.120), which was greater than the critical significance at .05.

4.6.2 Testing hypothesis two: There is a significant relationship between e-supplier selection and cost management

4.6.2.1 Correlation and coefficient of determination analysis

Spearman rank order correlation coefficient (*rho*) was used to determine the strength of the relationship between e-supplier selection and the cost management at Airtel Uganda. The coefficient of determination was used to determine the magnitude of variance in cost management accounted for by e-supplier selection. The significance of the coefficient (p) was used to test the hypothesis by comparing p to the critical significance level at (0.05). Table 18 presents the test results.

Table 18: Correlation between E- supplier selection and cost management at Airtel Uganda

	E- supplier selection
Cost management at Airtel Uganda	$rho = .311$ $rho^2 = .097$ $p = .008$ $n = 72$

Source: Data from the field

Findings show that there was a weak positive correlation ($rho = .311$) between e-supplier selection and cost management at Airtel Uganda. The coefficient of determination ($rho^2 = .097$), shows that e-supplier selection accounted for 9.7% variance in cost management. These findings were subjected to a test of significance (p) and it is shown that the significance of the correlation ($p = .008$) is less than the recommended critical significance at 0.05. Thus, the effect was significant. Because of this, the hypothesis “*There is a significant relationship between e-supplier selection and cost management*” was accepted.

Thus, the implication of the findings was that the weak correlation implied that a change in e-supplier selection was related to a small change in cost management at Airtel Uganda. The

positive nature of the correlation implied that the change in e-supplier selection and cost management at Airtel Uganda was in the same direction whereby better e-supplier selection was related to better cost management at Airtel Uganda and vice versa.

4.6.2.2 Regression analysis

A further analysis using regression was conducted to determine the effect of the two dimensions of e-supplier selection (that is specification and methods of source selection) on cost management. Findings are presented in the following table.

Table 19: Effect of dimensions of e-supplier selection (specification and methods of source selection) on cost management

<i>Regression Statistics</i>					
Multiple R		0.334			
R Square		0.111			
Adjusted R Square		0.086			
Standard Error		3.026			
Observations		72			

<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	79.3	39.6	4.3	0.017
Residual	69	631.9	9.2		
Total	71	711.1			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	2.93	2.15	1.36	0.178
Specification	0.14	0.11	1.35	0.183
Methods of source selection	0.21	0.12	1.76	0.084

Source: Data from the field

Findings show a weak linear regression coefficient (Multiple R = .334) between dimensions of e-supplier selection (specification and methods of source selection) on cost management. The Adjusted R Square (.086) shows that the dimensions of e-supplier selection (specification and methods of source selection) accounted for 8.6% variance in cost management.

These findings were subjected to Analysis of Variance (Anova) test in order to accept or reject them. The Anova test shows that at degree freedom 2 and 69 ($df = 2, 69$), the fisher's ratio ($F = 4.3$) had significant value of .017, which was less than the critical significance at .05. This indicated an acceptable error in the findings in the previous paragraph and hence confidence in the findings. Thus, it was concluded that the dimensions of e-supplier selection (specification and methods of source selection) contributed to 8.6% variance in cost management.

However, since the 8.6% variance in cost management was a combined effect of the dimensions of e-supplier selection (specification and methods of source selection), the coefficients were used to determine which of the dimensions of e-supplier selection (specification and methods of source selection) affected most cost management. Thus, from the table, it is shown that none of dimensions of e-supplier selection (specification and methods of source selection) singularly had a significant effect on cost management at Airtel Uganda, because they had p-values (.183 and .084), which were greater than the critical significance at .05.

4.6.3 Testing hypothesis three: There is a significant relationship between e-contract administration and cost management

4.6.3.1 Correlation and coefficient of determination analysis

Spearman rank order correlation coefficient (*rho*) was used to determine the strength of the relationship between e-contract administration and the cost management at Airtel Uganda. The coefficient of determination was used to determine the magnitude of variance in cost management accounted for by e-contract administration. The significance of the coefficient

(p) was used to test the hypothesis by comparing p to the critical significance level at (0.05).

Table 20 presents the test results.

Table 20: Correlation between e-contract administration and cost management at Airtel Uganda

	E-contract administration
Cost management at Airtel Uganda	$rho = .590$ $rho^2 = .348$ $p = .001$ $n = 72$

Source: Data from the field

Findings show that there was a moderate positive correlation ($rho = .590$) between e-contract administration and cost management at Airtel Uganda. The coefficient of determination ($rho^2 = .348$), shows that e-contract administration accounted for 34.8% variance in cost management. These findings were subjected to a test of significance (p) and it is shown that the significance of the correlation ($p = .001$) is less than the recommended critical significance at 0.05. Thus, the effect was significant. Because of this, the hypothesis “*There is a significant relationship between e-contract administration and cost management*” was accepted.

Thus, the implication of the findings was that the moderate correlation implied that a change in e-contract administration was related to a moderate change in cost management at Airtel Uganda. The positive nature of the correlation implied that the change in e-contract administration and cost management at Airtel Uganda was in the same direction whereby better e-contract administration was related to better cost management at Airtel Uganda and vice versa.

4.6.3.1 Regression analysis

A further analysis using regression was conducted to determine the effect of the two dimensions of e-contract administration (that is contract risk management and quality assurance) on cost management. Findings are presented in the following table.

Table 21: Effect of dimensions of e-contract administration (contract risk management and quality assurance) on cost management

<i>Regression Statistics</i>	
Multiple R	.790
R Square	.624
Adjusted R Square	.613
Standard Error	1.968
Observations	72

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	443.9	222.0	57.3	.000
Residual	69	267.2	3.9		
Total	71	711.1			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	1.61	1.15	1.39	.168
Contract risk management	.45	.04	10.60	.000
Quality assurance	-.10	.06	-1.61	.112

Source: Data from the field

Findings show a strong linear regression coefficient (Multiple R = .790) between dimensions of e-contract administration (contract risk management and quality assurance) on cost management. The Adjusted R Square shows that the dimensions of e-contract administration (contract risk management and quality assurance) accounted for 61.3% variance in cost management.

These findings were subjected to Analysis of Variance (Anova) test in order to accept or reject them. The Anova test shows that at degree freedom 2 and 69 (df = 2, 69), the fisher's ratio (F = 57.3) had significant value of .000, which was less than the critical significance at .05. This indicated an acceptable error in the findings in the previous paragraph and hence

confidence in the findings. Thus, it was concluded that the dimensions of e-contract administration (contract risk management and quality assurance) contributed to 61.3% variance in cost management.

However, since the 61.3% variance in cost management was a combined effect of the dimensions of e-procurement planning (contract risk management and quality assurance), the coefficients were used to determine which of the dimensions of e-procurement planning (contract risk management and quality assurance) significantly affected cost management. Thus, from the table, it is shown that only cost risk management significantly affected cost management at Airtel Uganda, because it had a p-value (.000), which was less than the critical significance at .05. Quality assurance did not significantly affect cost management because it had a p-value (.112), which was greater than the critical significance at .05.

4.6.4 Testing hypothesis four: E-procurement environment moderates the relationship between e-procurement management and cost management

A partial coefficient (*rho*) was used to determine the strength of the relationship between e-procurement environment, e-procurement planning, e-supplier selection, e-contract administration and cost management at Airtel Uganda. The coefficient of determination was used to determine the magnitude of variance in cost management accounted for by e-procurement environment, e-procurement planning, e-supplier selection and e-contract administration. The significance of the coefficient (p) was used to test the hypothesis by comparing p to the critical significance level at (0.05). Table 22 presents the test results.

Table 22: Moderating effect of e-procurement environment the relationship between e-procurement management and cost management

Control Variables	Dependent variable	Independent variables		
E-procurement environment		E-procurement planning	E-supplier selection	E-contract administration
	Cost Management	$r_p = .751$ $\rho^2 = .564$ $p = .000$ $df = 69$	$r_p = .335$ $\rho^2 = .112$ $p = .004$ $df = 69$	$r_p = .655$ $\rho^2 = .429$ $p = .000$ $df = 69$

Findings show that when e-procurement environment was controlled the strength of the relationship between e-procurement planning and cost management decreased while the strength of the relationship between e-supplier selection and cost management and e-contracts administration and cost management increased. For example, the strength of the relationship between e-procurement planning and cost management decreased from .754 (see Table 12) to .751 (see above Table 19). The strength of the relationship between e-supplier selection and cost management increased from .311 (see Table 14) to .335 (see above Table 19). The strength of the relationship between e-contracts administration and cost management increased from .590 (see above Table 17) to .655 (see above Table 19). The coefficient of determinations ($\rho^2 = .564$, $\rho^2 = .112$ and $\rho^2 = .429$) show that e-procurement planning, e-supplier selection and e-contract administration accounted for 56.4%, 11.2% and 42.9% variance in cost management, respectively. These findings were subjected to a test of significance (p) and it is shown that the significances of the correlations ($p = .000$, $p = .004$ and $p = .000$) are less than the recommended critical significance at 0.05. Thus, the hypothesis that “*E-procurement environment moderates the relationship between e-procurement management and cost management*” was accepted.

4.5 Descriptive Results on the Dependent Variable (Cost Management)

Airtel Uganda managers and non-management employees responded to three items about cost management at Airtel Uganda by indicating their agreement using a five-point Likert scale as shown in Table 23. The items are presented in the first column of Table 23 and the proportion of Airtel Uganda managers and non-management employees to the responses on each of the items is presented in form of percentages in columns 2 to 6. The last column presents the total percentage of Airtel Uganda managers and non-management employees on each of the items. The analysis and interpretation of the findings follows the presentation of findings in Table 23.

Table 23: Findings about cost management from Airtel Uganda managers and non-management employees

Items about cost management	SA	A	U	D	SD	Total
1. Costs containment during electronic procurement has been realized at Airtel	2 (3%)	26 (36%)	13 (18%)	18 (25%)	13 (18%)	72 (100%)
2. Cost avoidance during electronic procurement has been realized at Airtel	6 (8%)	28 (39%)	7 (10%)	19 (26%)	12 (17%)	72 (100%)
3. Cost reduction during electronic procurement has been realized at Airtel	5 (7%)	29 (40%)	15 (21%)	16 (22%)	7 (10%)	72 (100%)

Source: Data from the field

Key: SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree, SD = Strongly Disagree

Findings show that the percentage of Airtel Uganda managers and non-management employees that opposed the three items was almost equal to the percentage of Airtel Uganda managers and non-management employees that concurred to these items. A comparison on these items shows that on item 1, the percentage of managers and non-management employees that concurred that costs containment during electronic procurement has been realized at Airtel was 39% while 18% were undecided and 43% opposed. This shows that sometimes, costs containment during electronic procurement was realized at Airtel Uganda. On item 2, the percentage of managers and non-management employees that concurred that cost avoidance during electronic procurement has been realized at Airtel was

47% while 10% were undecided and 43% opposed. This shows that sometimes, cost avoidance during electronic procurement was realized at Airtel Uganda. On item 2, the percentage of managers and non-management employees that concurred that cost reduction during electronic procurement has been realized at Airtel was 47% while 21% were undecided and 32% opposed. This shows that sometimes, cost reduction during electronic procurement was realized at Airtel Uganda.

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary, discussion, conclusions and recommendations according to the objectives of the study. It is divided into four major sections. The first section presents the summary. The second section presents the discussion. The third section presents the conclusions. The fourth section presents the recommendations.

5.2 Summary

5.2.1 E-procurement planning and cost management at Airtel Uganda

There was a positive strong relationship between e-procurement planning and cost management at Airtel Uganda whereby better e-procurement planning was related to better cost management at Airtel Uganda and vice versa. In other words, an improvement in e-procurement planning was related to a big improvement in cost management at Airtel Uganda and vice versa. In addition, the study established that the dimensions of e-procurement planning (budgeting and requirement determination) accounted for 83.0% variance in cost management. However, only one dimension of e-procurement planning (budgeting) significantly affected cost management while the other dimension (requirement determination) did not significantly affect cost management. Overall, descriptive findings indicated that e-procurement planning was not effective at Airtel Uganda and at the same time, cost management was not good.

5.2.2 E-supplier selection and cost management at Airtel Uganda

There was a weak positive relationship between e-supplier selection and cost management at Airtel Uganda whereby better e-supplier selection was related to better cost management at

Airtel Uganda and vice versa. In other words, an improvement in e-supplier selection was related to a small improvement in cost management at Airtel Uganda and vice versa. In addition, the study established that the dimensions of e-supplier selection (specification and methods of source selection) accounted for 8.6% variance in cost management. However, none of dimensions of e-supplier selection (specification and methods of source selection) singularly had a significant effect on cost management at Airtel Uganda. Overall, descriptive findings indicated that e-supplier selection was poor at Airtel Uganda. This contributed to poor cost management.

5.2.3 E-contract administration and cost management at Airtel Uganda

There was a moderate positive relationship between e-contract administration and cost management at Airtel Uganda whereby better e-contract administration was related to better cost management at Airtel Uganda and vice versa. In other words, an improvement in e-contract administration was related to a moderate improvement in cost management at Airtel Uganda and vice versa. In addition, the study established that the dimensions of e-contract administration (contract risk management and quality assurance) accounted for 61.3% variance in cost management. However, only cost risk management significantly affected cost management at Airtel Uganda while quality assurance did not significantly affect cost management. Overall, descriptive findings indicated that e-contract administration was poor at Airtel Uganda. This contributed to poor cost management.

5.2.4 Moderating effect of e-procurement environment on e-procurement management and cost management at Airtel Uganda

Findings show that when e-procurement environment was controlled the strength of the relationship between e-procurement planning and cost management decreased while the

strength of the relationship between e-supplier selection and cost management and e-contracts administration and cost management increased. E-procurement planning, e-supplier selection and e-contract administration accounted for 56.4%, 11.2% and 42.9% variance in cost management, respectively. Thus, this showed that e-procurement environment weakened the effect of e-procurement planning on cost management while it strengthened the effect of e-supplier selection and e-contracts administration on cost management.

5.3 Discussion

5.3.1 E-procurement planning and cost management at Airtel Uganda

The findings relating to the positive relationship between e-procurement planning and cost management at Airtel Uganda emphasizes the importance of e-procurement planning in the procurement process of an organization. This is because the findings revealed that improvement in e-procurement planning was related to improvements in cost management in an organization.

These findings of this study support authors (such as Thai, 2004; Swenson, 1995; Lorenzoni, Shank & Silvi, 1999; Nicolaou, 2002; Guan, Hanson, & Mowen, 2009) who emphasized e-procurement management relevancy in the efficient use of organizational funds. The findings of this study agree with Thai (2004) who argued that there negative cost effects of poor e-procurement planning. In addition, the findings of these study concur with Tontiset & Ussahawanitchakit (2010) who observed that through effective deployment of e-procurement, enterprises can reduce transaction costs, reduce or eliminate “maverick” buying and save inventory costs.

Findings of this study support Ageshin (2001) who emphasized that procurement planning assists agencies to identify opportunities to achieve better value for money outcomes and realize more cost efficient procurement process, through e-procurement. Thus, procurement plans need to be clear and succinct so that any reader should be able to understand the agency's procurement objectives, how these link to its service delivery outcomes and what initiatives are planned.

This study established Airtel satisfactorily planned for periodic budgets for its electronic procurement, all respective procurement Airtel personnel had training in budgeting for its electronic procurement and Airtel procurement officers accounted for its electronic procurements. Going by the positive nature of the relationship that was established in this study, under these actions helped Airtel to reduce on its costs in procurement. This is because Milani (2000) argued that budgeting an organization's income, though oftentimes tedious and difficult to maintain, can help it better control how its income is being spent. This is line with Aguilar and Reis (2008) who observed that periodic and better procurement planning will result in cost savings.

In addition, findings showed that a process of determining user expectations for Airtel's electronic product or service was conducted, the needs were clearly defined for better cost effectiveness in Airtel's electronic procurement and requirements determination for Airtel's electronic procurement were complete. These findings show that Airtel adhered to Bollen's (2004) advice that organizations should always determine user expectations and that these features, called requirements, must be quantifiable, relevant and detailed to ensure effective cost management. Furthermore, findings show that requirements determination for Airtel's electronic procurement was accurate, information about the current electronic procurement

system and about how users would like to improve their performance with the electronic procurement system was usually collected. Base on Bollen's (2004) argument, the findings of this study suggest the accurate requirements determination helped the Airtel improve its cost management. According to Bollen (2004), cost ineffectiveness has been attributed to incomplete and inaccurate requirements determination. In addition, findings show that the users' requirements for electronic procurement were accurately understood at Airtel, Airtel's requirements analysis for its electronic procurement involved frequent communication with system users to determine specific feature expectations, resolution of conflict and ambiguity in requirements. This is in line with Flynn & Warhurst (2004) who emphasized the importance communication during requirements determination for effective cost management. This is because communication helps to determine specific feature expectations and hence resolution of conflict or ambiguity in requirements as demanded by the various users or groups of users (Flynn & Warhurst, 2004). Lastly, findings show that Airtel encouraged participation of users in determining requirements for its electronic procurement, needs identification for electronic procurement was well conducted at Airtel during requirements determination and procurement and disposal units always helped users with previous year's electronic procurement plans and performance. It argued that these contributed positively to the cost management at Airtel. For example, various academicians have emphasized the importance of stakeholder participation in achieving objectives of an organization. Njunwa (2010) opined that stakeholder participation is very important tool any process that affect stakeholders arguing that for an organization to achieve its objectives requires ensuring that stakeholders are involved in its processes.

Findings showed that sometimes, Airtel had budgets for its electronic procurement, electronic procurement planning facilitated budgetary decisions at Airtel and Airtel drew budgets for its

electronic procurement. Thus, these findings suggest that Airtel did not effectively utilize budgets to improve its cost management. Budgeting is one of contemporary management accounting techniques that provides useful economic information for planning, controlling, and promoting coordination and communication to various management hierarchies (Brignall, 1997; Huang & Chen, 2009). Moreover, budgeting information can be used to evaluate managerial performance. Effective budget preparation helps to plan and control objectives of the firm, and the resulting budget serves as a mutually agreed upon control device for monitoring the activities of the various sub-units (Kren, 1992). The view of the budget as a blueprint for action gives rise to the typical role attributed to it in the control function. Control involves the steps taken by management to achieve the goals set down at the planning stage (Garrison et al., 2008). Furthermore, findings show that sometimes, electronic procurement planning helped identify major investment spending at Airtel, approved Airtel budgets were integrated to electronic procurement plans by the contracts committee and Airtel electronic procurement plans spelt out well the methods of procurement. Because of this, it argued that these compromised cost management at Airtel. Basheka (2004) argues that procurement planning is one of the primary functions of procurement with a potential to contribute to the success of an organization's operations. He argues that effective procurement planning is an important route towards securing the right service to be delivered to the public cost effectively.

5.3.2 E- supplier selection and cost management at Airtel Uganda

Findings relating to the positive relationship between e-supplier selection and cost management established in this study support Snow (2000) was of the view that on-going supplier review and selection affects the overall cost value of the organization. Furthermore, the findings of this study support Weber, Current & Benton (1991) who emphasized that the

objective of e-supplier selection in e-procurement strategies is to reduce supplier costs. This is because suppliers play a significant role in the delivery of quality services/products since purchased materials and services represent a big percentage of the costs in most organizations.

Findings of this study concur with Humphreys et al. (1998) and Weber et al. (2000) who were of the view that the effective selection of suppliers in e-procurement management is very important to the success of a firm. This is because it reduces the costs of the firm, hence effective cost management by the firm. Thus, firms/companies in order to attain the goal of low cost have to increasingly consider better e-supplier selection approaches. According to Bhutta & Huq (2002), these approaches require to understanding the procuring company's and suppliers' strengths and weaknesses.

The findings of this study support Iloranta & Pajunen-Muhonen (as cited in Mäki, 2012) who observed that e-procurement activities have a relation to the organization's economic performance in terms of organization's total costs. He argued that this correlates directly with how the supplier relations are controlled and utilized for the benefit of the organization. In addition, the findings of this study support Kagnicioglu (2006) who opined that suppliers' selection is a critical activity of e-procurement management in a supply chain due to the key role of supplier's performance on cost in achieving the objectives of a supply chain. Proper supplier selection significantly reduces the purchasing costs and improves corporate competitiveness (Ghodsypour & O'Brien, 2001).

Findings showed that Airtel's specifications for its electronic procurement described the best requirements and identified quality and operational characteristics. Because of this, it argued

in this study that this contributed positively to Airtel's cost management. The International Data Corporation (IDC) report (2003) emphasized that system specification appears to be a critical issue in cost management. Thus, poor requirements and quality and operational characteristics would lead ineffective cost management. Findings further showed that systematic sourcing and spot sourcing of goods and services dominated Airtel's business purchases in its electronic procurement. Thus, given the positive relationship that was established in study, these e-supplier selection activities contributed to better cost management at Airtel. This argument is based on Garfamy (2004) who observed that true sourcing represents one method can be used to obtain the world-class performance levels that are needed to meet future challenges. Thus, systematic sourcing and spot sourcing of goods and services is a strategic weapon for effective cost management (Humphreys et al., 1998). Consequently, it is important to evaluate suppliers according to criteria that reflect the organization's aspect of the sourcing decision.

Findings showed that sometimes, Airtel's specifications for its electronic procurement were according to the nature of requirements and Airtel's service providers adhered to all specifications for its electronic procurement. Furthermore, sometimes, Airtel's specifications for its electronic procurement require the ability of the end user to accurately and concisely described the product or service required and Airtel's officials inspected to verify that goods, equipment or services conformed to specifications for its electronic procurement. In addition, findings showed that sometimes, Airtel thoroughly investigated their suppliers for its electronic procurement and systematic sourcing and spot sourcing in electronic procurement were based on Airtel's strategic marketplace servicing decisions. In addition, sometimes, buying during electronic procurement was through pre-negotiated contracts with qualified suppliers and Airtel selected a competent group of suppliers during its electronic

procurement. Lastly, findings showed that Airtel did not maintain a competent group of suppliers during its electronic procurement. Thus, given the positive relationship that was established in study, this e-supplier selection activity contributed to poor cost management at Airtel. Thus, given the positive relationship that was established in study, these e-supplier selection activities compromised cost management at Airtel. This is because de Boer, Labro & Morlacchi (2001) observed that to improve cost management, the buyer may have to look deeply into the supplier's organization to ensure the supplier is capable and competent to meet the buyer's specifications. Furthermore, Garfamy (2004) argued similarly by saying to rigorously check the supplier's capabilities the buyer must: (i) request samples of supplier products and test them to ensure conformance to the buyer's requirements, (ii) visit the supplier's production facility and interview line workers and engineers to ensure that all members of the supplier team understand the critical features of the product in their charge.

5.3.3 E-contract administration and cost management at Airtel Uganda

The study established that that suppliers supplied as per Airtel's specifications and adhered to all Airtel's specifications during its electronic procurement and Airtel's staff was involved in assessing the quality of products/services electronically procured. In such a situation, it is argued in this study that suppliers supplying as per Airtel's specifications and adhering to all Airtel's specifications during its electronic procurement contributed positively to cost management at Airtel. This is because Davison & Wright (2004) expounded on the challenges in procurement management to include suppliers' relationship to the procurement process and the criteria for successful contracting and emphasized that one of the challenges was wrong products as a result of failure to adhere to specifications

In addition, it was established that identification of risks in Airtel's electronic procurement and prioritization of risks in Airtel's electronic procurement were satisfactorily handled. As such, it is argued in this study that identification of risks in Airtel's electronic procurement and prioritization of risks in Airtel's electronic procurement contributed positively to cost management at Airtel. This is because Dorfman (2007) was of the view that applying risk management techniques can substantially reduce the cost of risk. According to Saunders (2000), successful and efficient contract management practices are those that manage the risk and potential liabilities to the buyer thus improving cost management.

Findings showed that sometimes, all Airtel's electronic procurement activity was monitored, Airtel had sufficient personnel to monitor its electronic procurements and assessment of risks in Airtel's electronic procurement was satisfactorily handled. In addition, findings showed that all Airtel's electronic procurement activity were monitored to ensure that products/services were of the quality required for their intended use and Airtel had sufficient personnel to monitor implementation of its electronic procurement as per services/products requirement. Thus, these findings show that monitoring of procurement activities was not effective at Airtel, because this, it argued that cost management at Airtel was compromised. This is because Prager (1994) contends that proper and effective management and monitoring of contracts helps reduces procurement cost thus achieving cost effectiveness (within budget). Rendon & Snider cited in Rendon (2010) affirm that the quintessence of contract management evolves the monitoring of providers' performance. Helsby & Kaizer (2003) contends that enterprises should do more to prevent costly procurement by actively evaluating and estimating the obstacles that maybe encountered in the process of execution and that these measures should be closely supported by ongoing monitoring.

However, findings of this study showed that sometimes, electronically procured Airtel's goods and services were of poor quality and organizational political interference always compromised the quality of Airtel's electronically procured goods, services and works. Yet successful contract management is about procurement of the right item right quality (Thai, 2004). Prager (1994) argued that proper and effective management of procurements helps improve the quality of goods and services, which in turn leads to effective cost management because financial resources are not wasted on poor quality goods and services. On the other hand best value theory by Ellis and Garry (1990) emphasizes accounting for and pursuing the aspirations of local stakeholders by attempting to attain the highest quality cost effectively.

5.3.4 Moderating effect of E-Procurement Environment the Relationship between E-procurement Management and Cost Management at Airtel Uganda

Findings showed that political environment in which Airtel electronically procured its goods and services was unfavorable. However, findings showed that sometimes, the internal environment, market environment and legal environment in which Airtel electronically procured its goods and services were favorable.

These findings concur with Dzever (2001) who observed that among the several factors that impact e-procurement management and cost management is the impact of environmental factors such as market structure, technology, economic and culture. He argued that it is thus by having a correct understanding of these factors that one can fully appreciate the decision process of organizational buyers in a wider perspective. Davison and Wright (2004) further argued that some of the challenges to procurement management are due to the environment outside the control of all stakeholders.

5.4 Conclusions

5.4.1 E-procurement planning and cost management at Airtel Uganda

This study showed e-procurement planning plays a significant central role in an organization's cost management. Therefore, e-procurement planning is one of the primary functions of procurement with a potential to contribute to the success of Airtel procurement operations and improved cost management. Nevertheless it appears that good e-procurement planning is not done as often as it should be at Airtel Uganda and this might be the case for other organizations in Uganda. This study revealed the critical strengths and limitations of procurement planning at Airtel ranging from the process, through the expected practices and the actors to be involved.

5.4.2 E-supplier selection and cost management at Airtel Uganda

Findings of this study showed that effective e-supplier selection is very important to the success of an organization such as Airtel. Companies in order to attain the goals of low cost have to consider better supplier selection approaches such as describing better specifications, adhering to specifications, ability of the end user to accurately and concisely describe the product or service required, verification of conformity of goods, equipment or services to specifications, involving of stakeholders in sourcing of goods and services, and use of competent group of suppliers.

5.4.3 E-contract administration and cost management at Airtel Uganda

The study has underlined key determinants and constraints to effective contract administration at Airtel Uganda and hence the desire to minimize them cannot be emphasized. Among the major determinants to effective contract administration were suppliers supplying as per Airtel's specifications and identification and prioritization of risks

in Airtel's electronic procurement. Among the constraints to effective contract administration at Airtel Uganda were ineffective monitoring of Airtel's electronic procurement activity, insufficient personnel to monitor electronic procurements, ineffective assessment of risks in Airtel's electronic procurement, procurement of poor quality goods and services and organizational political interference in electronic procurements. Thus, it can be concluded that the constraints to effective contract administration at Airtel Uganda outnumber the determinants to effective contract administration.

5.4.4 Moderating effect of e-procurement environment on e-procurement management and cost management at Airtel Uganda

Findings show that when e-procurement environment was controlled the strength of the relationship between e-procurement planning and cost management decreased while the strength of the relationship between e-supplier selection and cost management and e-contracts administration and cost management increased. This shows that e-procurement environment plays a positive role in enhancing the relationship between e-procurement planning and cost management but not the relationship between e-supplier selection and cost management and relationship between e-contracts administration and cost management.

5.5 Recommendations

5.5.1 E-procurement planning and cost management at Airtel Uganda

The management of Airtel Uganda should improve its procurement budgeting in its e-procurement planning to enhance its cost management. Specifically, Airtel should always have budgets for its electronic procurements to facilitate budgetary decisions, approved Airtel budgets should be integrated to electronic procurement plans by the contracts committee and Airtel electronic procurement plans should spell out well the methods of procurement.

5.5.2 E-supplier selection and cost management at Airtel Uganda

The management of Airtel Uganda should improve its e-supplier selection to enhance its cost management. This will be realized if Airtel's specifications for its electronic procurement are according to the nature of requirements, Airtel's service providers adhere to all specifications for its electronic procurement, the end user accurately and concisely described the product or service required and Airtel's officials inspect to verify that goods, equipment or services conform to specifications for its electronic procurement.

5.5.3 E-contract administration and cost management at Airtel Uganda

The management of Airtel Uganda should improve in its e-contract administration to enhance its cost management. To achieve this, the focus should be on cost risk management. Specifically, all Airtel's electronic procurement activity should be monitored, Airtel always have sufficient personnel to monitor its electronic procurements and assessment of risks in Airtel's electronic procurement should be systematically handled following well laid down policies and procedures.

5.5.4 Moderating effect of e-procurement environment on e-procurement management and cost management at Airtel Uganda

The Airtel's e-procurement environment should be improved for it to enhance its e-procurement management and cost management. In particular, the government should provide a favorable political, market and legal environment in which Airtel electronically procured its goods and services. Stability in political and market conditions of the country will enable costs of goods and services procured to reduce. A better legal environment will act as a deterrent to those who want to engage in practices that can be costly to Airtel

procurement activities. In addition, the Management of Airtel should improve the internal environment by adopting conducive procurement policies/goals, encouraging good interactions between various elements the procurement systems at Airtel through sensitization and consultation about what is missing or required, encouraging professionalism through sensitization and punishing unprofessional behavior and increasing procurement staff. market environment and legal environment

5.6 Area for Further Research

This study focused on the effect of only three aspects of e-procurement management (e-procurement planning, e-supplier selection and e-contract administration) on cost management. However, other studies can focus on other aspects of e-procurement management (such as e-procurement coordination, e-procurement control and e- procurement monitoring and evaluation to mention some) on cost management.

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APPENDICES

Appendix I: Questionnaire for staff

Dear Respondent,

I am a participant of Uganda Management Institute pursuing a Masters Degree in Management studies. My study topic is “**Electronic Procurement Management and Cost Management In The Telecom Industry In Uganda: A Case Study Of Airtel Uganda.** This questionnaire is designed to collect information purely for academic purposes. Your unique position as a stake holder in Airtel Uganda places you in a class of people with valuable knowledge about outsourcing and service delivery. It is for this reason that you are kindly requested to give your honest opinion of the questions or statements in this questionnaire.

All information will be treated with utmost confidentiality.

Thank you in advance for your time and effort.

Yours sincerely,

Bashemaire Esther

Research Student

Section A: Demographics

Please put a tick (✓) inside the box that corresponds to your answer.

1. Gender Male Female
2. Age bracket Below 20 years 21-30 years
 31-40 years 41-50 years
 51-60 years Over 61 years
3. Highest level of education:
 Diploma and below Bachelors degree
 Masters degree PhD and others
5. Years of associating with the Airtel Uganda as a staff:
 Less than 2 years 2-5 years
 5-10 years over 10 years

In the subsequent sections, use scales provided to tick or circle a number that describes your opinion on each statement.

Key: Strongly agree = 1, agree = 2, Undecided = 3, disagree = 4, Strongly disagree = 5.

Section B: E-procurement planning

B 1) Budgeting

Items about budgeting	SA	A	U	D	SD
1. Airtel has budgets for its electronic procurement	5	4	3	2	1
2. Electronic procurement planning facilitates budgetary decisions at Airtel	5	4	3	2	1
3. Airtel periodically draws budgets for its electronic procurement	5	4	3	2	1
4. Electronic procurement planning helps identify major investment spending at Airtel	5	4	3	2	1
5. Airtel satisfactorily plans for periodic budgets for its electronic procurement	5	4	3	2	1
6. All respective procurement Airtel personnel have had training in budgeting for its electronic procurement	5	4	3	2	1
7. All approved Airtel budgets are integrated to electronic procurement plans by the contracts committee	5	4	3	2	1
8. Airtel electronic procurement plans spell out well the methods of procurement	5	4	3	2	1
9. Airtel procurement officers account for its electronic procurements	5	4	3	2	1

B 2) Requirements determination

Items about requirement determination	SA	A	U	D	SD
1. A process of determining user expectations for Airtel's electronic product or service is conducted	5	4	3	2	1
2. The needs are clearly defined for better cost effectiveness in Airtel's electronic procurement	5	4	3	2	1
3. Requirements determination for Airtel's electronic procurement are complete	5	4	3	2	1
4. Requirements determination for Airtel's electronic procurement are accurate	5	4	3	2	1
5. Information about the current electronic procurement system is usually collected	5	4	3	2	1
6. Information about how users would like to improve their performance with the electronic procurement system is usually collected					
7. The users' requirements for electronic procurement are accurately understood at Airtel	5	4	3	2	1
8. Airtel's requirements analysis for its electronic procurement involves frequent communication with system users to determine	5	4	3	2	1

specific feature expectations					
9. Airtel's requirements analysis for its electronic procurement involves frequent communication with system users to determine resolution of conflict	5	4	3	2	1
10. Airtel's requirements analysis for its electronic procurement involves frequent communication with system users to determine ambiguity in requirements	5	4	3	2	1
11. Airtel encourages participation of users in determining requirements for its electronic procurement	5	4	3	2	1
12. Needs identification for electronic procurement is well conducted at Airtel during requirements determination	5	4	3	2	1
13. Procurement and disposal units always help users with previous year's electronic procurement plans and performance	5	4	3	2	1

Section C: E-supplier selection

C 1) Specification

Items about specification	SA	A	U	D	SD
1. Airtel's specifications for its electronic procurement describe the best requirements	5	4	3	2	1
2. Airtel's specifications for its electronic procurement are according to the nature of requirements	5	4	3	2	1
3. Airtel's service providers adhere to all specifications for its electronic procurement	5	4	3	2	1
4. Airtel's specifications for its electronic procurement identify quality and operational characteristics	5	4	3	2	1
5. Airtel's specifications for its electronic procurement require the ability of the end user to accurately and concisely describe the product or service required	5	4	3	2	1
6. Airtel's officials always inspect to verify that goods, equipment or services conform to specifications for its electronic procurement	5	4	3	2	1

C 2) Methods of source selection

Items about methods of source selection	SA	A	U	D	SD
1. Airtel thoroughly investigates their suppliers for its electronic procurement	5	4	3	2	1
2. Systematic sourcing and spot sourcing of goods and services dominate Airtel's business purchases in its electronic procurement	5	4	3	2	1
3. Systematic sourcing and spot sourcing in electronic procurement are based on Airtel's strategic marketplace servicing decisions	5	4	3	2	1
4. At Airtel, buying during electronic procurement is through pre-negotiated contracts with qualified suppliers	5	4	3	2	1
5. Airtel selects a competent group of suppliers during its electronic procurement	5	4	3	2	1
6. Airtel maintains a competent group of suppliers during its electronic procurement	5	4	3	2	1

SECTION D: E-Contract Administration

D 1) Contract risk management

Items about contract risk management	SA	A	U	D	SD
1. All Airtel's electronic procurement activity are monitored	5	4	3	2	1
2. Airtel has sufficient personnel to monitor its electronic procurements	5	4	3	2	1
3. Suppliers supply as per Airtel's specifications during its electronic procurement	5	4	3	2	1
4. Service providers adhere to all Airtel's specifications during its electronic procurement	5	4	3	2	1
5. Identification of risks in Airtel's electronic procurement is satisfactorily handled	5	4	3	2	1
6. Assessment of risks in Airtel's electronic procurement is satisfactorily handled	5	4	3	2	1
7. Prioritization of risks in Airtel's electronic procurement is satisfactorily handled	5	4	3	2	1

D 2: Quality assurance

Items about quality assurance	SA	A	U	D	SD
1. All Airtel's electronic procurement activity are monitored to ensure that products/services are of the quality required for their intended use	5	4	3	2	1
2. Airtel has sufficient personnel to monitor implementation of its electronic procurement as per services/products requirement.	5	4	3	2	1
3. Suppliers supply as per Airtel's specifications during its electronic procurement	5	4	3	2	1
4. Airtel's staff is involved in assessing the quality of products/services electronically procured	5	4	3	2	1
5. Most electronically procured Airtel's goods and services are of poor quality	5	4	3	2	1
6. Organizational political interference always compromised the quality of Airtel's electronically procured goods, services and works	5	4	3	2	1

Section F: E-Procurement Environment

Items about procurement environment	SA	A	U	D	SD
1. Internal environment in which Airtel electronically procures its goods and services is favorable	5	4	3	2	1
2. Market environment in which Airtel electronically procures its goods and services is favorable	5	4	3	2	1
3. Legal environment in which Airtel electronically procures its goods and services is favorable	5	4	3	2	1
4. Political environment in which Airtel electronically procures its goods and services is favorable	5	4	3	2	1

Section G: Cost Management

Items about cost management	SA	A	U	D	SD
1. Costs containment during electronic procurement has been realized at Airtel	5	4	3	2	1
2. Cost avoidance during electronic procurement has been realized at Airtel	5	4	3	2	1
3. Cost reduction during electronic procurement has been realized at Airtel	5	4	3	2	1

Thank you very much

Appendix II: Questionnaire for suppliers

Dear Respondent,

I am a participant of Uganda Management Institute pursuing a Masters Degree in Management studies. My study topic is “**Electronic Procurement Management and Cost Management In The Telecom Industry In Uganda: A Case Study Of Airtel Uganda.**” This questionnaire is designed to collect information purely for academic purposes. Your unique position as a stake holder in Airtel Uganda places you in a class of people with valuable knowledge about outsourcing and service delivery. It is for this reason that you are kindly requested to give your honest opinion of the questions or statements in this questionnaire.

All information will be treated with utmost confidentiality.

Thank you in advance for your time and effort.

Yours sincerely,

Bashemaire Esther
Research Student

Section A: Demographics

Please put a tick (✓) inside the box that corresponds to your answer.

1. Gender Male Female
2. Age bracket Below 20 years 21-30 years
- 31-40 years 41-50 years
- 51-60 years Over 61 years
3. Highest level of education:
- Diploma and below Bachelors degree
- Masters degree PhD and others
5. Years of associating with the Airtel Uganda as a service provider:
- Less than 2 years 2-5 years
- 5-10 years over 10 years

In the subsequent sections, use scales provided to tick or circle a number that describes your opinion on each statement.

Key: Strongly agree = 1, agree = 2, Undecided = 3, disagree = 4, Strongly disagree = 5.

Section B: E-supplier selection

B 1) Specification

Items about specification	SA	A	U	D	SD
1. Airtel's specifications for its electronic procurement describe the best requirements	5	4	3	2	1
2. Airtel's specifications for its electronic procurement are according to the nature of requirements	5	4	3	2	1
3. As Airtel's service providers, I adhere to all specifications for its electronic procurement	5	4	3	2	1
4. Airtel's specifications for its electronic procurement identify quality and operational characteristics	5	4	3	2	1
5. Airtel's officials always inspect to verify that goods, equipment or services conform to specifications for its electronic procurement	5	4	3	2	1

B 2) Methods of source selection

Items about methods of source selection	SA	A	U	D	SD
1. Airtel thoroughly investigates their suppliers for its electronic procurement	5	4	3	2	1
2. At Airtel, buying during electronic procurement is through pre-negotiated contracts with qualified suppliers	5	4	3	2	1
3. Airtel selects a competent group of suppliers during its electronic procurement	5	4	3	2	1
4. Airtel maintains a competent group of suppliers during its electronic procurement	5	4	3	2	1

SECTION C: E-Contract Administration

C 1) Contract risk management

Items about contract risk management	SA	A	U	D	SD
1. All Airtel's electronic procurement activity are monitored	5	4	3	2	1
2. As a supplier, I supply as per Airtel's specifications during its electronic procurement	5	4	3	2	1
3. As a service provider, I adhere to all Airtel's specifications during its electronic procurement	5	4	3	2	1
4. Identification of risks in Airtel's electronic procurement is satisfactorily handled	5	4	3	2	1
5. Assessment of risks in Airtel's electronic procurement is satisfactorily handled	5	4	3	2	1

6. Prioritization of risks in Airtel's electronic procurement is satisfactorily handled	5	4	3	2	1
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C 2: Quality assurance

Items about quality assurance	SA	A	U	D	SD
1. All Airtel's electronic procurement activity are monitored to ensure that products/services are of the quality required for their intended use	5	4	3	2	1
2. Most electronically procured Airtel's goods and services are of poor quality	5	4	3	2	1
3. Organizational political interference always compromised the quality of Airtel's electronically procured goods, services and works	5	4	3	2	1

Section D: E-Procurement Environment

Items about procurement environment	SA	A	U	D	SD
1. Internal environment in which Airtel electronically procures its goods and services is favorable	5	4	3	2	1
2. Market environment in which Airtel electronically procures its goods and services is favorable	5	4	3	2	1
3. Legal environment in which Airtel electronically procures its goods and services is favorable	5	4	3	2	1
4. Political environment in which Airtel electronically procures its goods and services is favorable	5	4	3	2	1

Thank you very much

Appendix III: Interview Schedule

Dear Respondent,

I am a student of Uganda Management Institute pursuing a Masters Degree in Management studies. My study topic is “**Electronic Procurement Management and Cost Management In The Telecom Industry In Uganda: A Case Study Of Airtel Uganda**”. This questionnaire is designed to collect information purely for academic purposes. Your unique position as a stake holder in Airtel Uganda places you in a class of people with valuable knowledge about outsourcing and service delivery. It is for this reason that you are kindly requested to give your honest opinion of the questions or statements in this questionnaire.

All information will be treated with utmost confidentiality.

Thank you in advance for your time and effort.

Yours sincerely,

Bashemaire Esther
Research Student

1. How would rate Airtel’s electronic procurement planning and why would you rate so?
2. What is your opinion about Airtel’s budgeting with regard to electronic procurement activities and how are satisfied with it?
3. During electronic procurement, how is process of determining user expectations for Airtel’s product or service handled?
4. How has Airtel’s electronic procurement planning affected its cost management?
5. How would rate Airtel’s supplier selection during electronic procurement and why would you rate so?
6. What is your opinion about Airtel’s electronic procurement specification and how are satisfied with it?
7. During during electronic procurement, how is process of selecting suppliers for Airtel’s handled?
8. How has Airtel’s supplier selection for its electronic procurement affected its cost management?
9. How would rate Airtel’s contract administration during electronic procurement and why would you rate so?
10. What is your opinion about Airtel’s contract risk management during electronic procurement and how are satisfied with it?

11. How is process of quality assurance at Airtel's handled during electronic procurement?
12. How has Airtel's supplier selection during electronic procurement affected its cost management?

Thank you very much

Appendix IV: Document Review Checklist

Dear Sir/Madam,

I am a student of Uganda Management Institute pursuing a Masters Degree in Management studies. My study topic is **“Electronic Procurement Management and Cost Management In The Telecom Industry In Uganda: A Case Study Of Airtel Uganda.** This documentary review checklist is designed to collect information purely for academic purposes. I kindly request to assist me by availing the documents listed below pertaining to my research. All information will be treated with utmost confidentiality.

Minutes about e-procurement planning

Minutes about e-supplier selection

Minutes about e-contract administration

Minutes about e-procurement environment

Minutes about e-cost management

Reports about e-procurement planning

Reports about e-supplier selection

Reports about e-contract administration

Reports about e-procurement environment

Reports about e-cost management

Brochures about e-procurement planning

Brochures about e-supplier selection

Brochures about e-contract administration

Brochures about e-procurement environment

Brochures about e-cost management

Newsletters about e-procurement planning

Newsletters about e-supplier selection

Newsletters about e-contract administration

Newsletters about e-procurement environment

Newsletters about e-cost management

Appendix V: Krejcie and Morgan table for determining sample size from a given population

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: "N" is population size
 "S" is sample size.

Appendix VI: Letter of Introduction