

**ADOPTION AND RISKS OF ELECTRONIC PROCUREMENT
AMONG AUTOMATED TELLER MACHINE SOLUTIONS
PROVIDERS IN KENYA**

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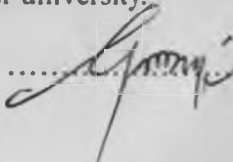
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**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT
OF THE REQUIREMENT FOR THE AWARD OF A DEGREE IN
MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF
BUSINESS, UNIVERSITY OF NAIROBI**

JULY, 2012

DECLARATION

This research proposal is my original work and has not been submitted for any award in any other university.

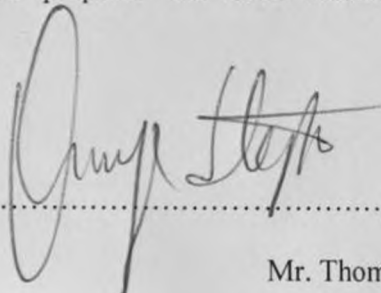
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Declaration by Supervisor

This research proposal has been submitted with my approval as the University Supervisors

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DEDICATION

To my beloved late parents Zablun Ogwang and mother Magadalina Ogina who jumpstarted my life with patience and showed me the importance of education in achieving greater heights.

To my beloved wife Ketty and our children Wesley, Austin and Mama Maggie Tiffany for being an inspiration, moral support and enduring my absence as I struggled to get the work completed.

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To all the teachers, tutors and lecturers who taught me throughout my academic journey. Many thanks for instilling skills and endurance that has made me a better and all rounded person in different spheres.

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My sincere appreciation to respondents for taking their time within their busy business work schedules to attend to interviews and completion the questionnaire.

To all my friend, relatives and fellow students who contributed in one way or another to the fulfilment of this work, many thanks.

Glory to the Almighty Lord for His faithful and enduring mercies

ABSTRACT

The purpose of the study is to examine the extent, risks and the determinants of e-procurement adoption among the ATM solution provider in Kenya. ATM solution provision and the related self service financial solution is being give prominence by financial services providers with major players such as banks consistently increasing offering and encouraging customers to transact directly from the strategically located ATM terminals. The study employs an extended multi method case study method of e-procurement in four automated teller machine solution providers in Kenya. A two stage methodology is adopted, case studies of e-procurement adoption risks issues and a questionnaire on the determinants of e-procurement adoption.

The study finds varied forms of e-procurement is being applied by the organizations prominent of which is e-informing which is indicative of electronic interaction with the procurement environment. Further, the risks of e-procurement adoption were found to be a function of threats, vulnerabilities and business function related. The findings father revealed the determinants of e-procurement to include organizational relating adoption to size, readiness, strategic and supply factors.

In as much as there is strategic advantages in adoption of e-procurement. the study recommends that organizations should not oblivious of the detrimental risks associated with electronic procurement technologies. It is recommended that the adopting organization must develop a clear framework of identifying and mitigating the risks arising. The research is limited to the Automated Teller Machine solution providers yet could have implications for other complex systems of organizations, such as the retail and public sectors therefore e-procurement needs to be considered in other context of policy objectives. Much research on electronic procurement has been done on the context of developed countries. The therefore study contributes to the small but growing studies of e-procurement in a localised country sectors setting.

TABLE OF CONTENTS

Declaration.....	ii
Dedication.....	iii
Acknowledgements.....	iv
Abstract.....	v
Table of Contents.....	vi
List of Tables.....	viii
List of Figures.....	ix
List of Acronyms.....	x
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background of the Study.....	1
1.1.1 Automated Teller Machine Solutions Industry.....	2
1.1.2 Risks of Adopting E-procurement by ATM Solutions Providers.....	4
1.2 Statement of the Problem.....	5
1.3 Objectives of the Study.....	6
1.4 Value of the Study.....	7
CHAPTER TWO: LITERATURE REVIEW.....	8
2.1 Introduction.....	8
2.2 The Development of Internet-Based Procurement Systems.....	8
2.3 Transaction Cost Theory.....	9
2.4 Strategic Networks.....	10
2.5 Electronic Procurement.....	11
2.6 Current use of e-procurement.....	12
2.7 Technology Adoption Theories.....	12
2.7.1 Rogers innovation diffusion adoption Model.....	13
2.7.2 Motivation, opportunity and Ability Model (MOA).....	14
2.7.3 Technology, Organization and Environment (TOE) theory.....	15
2.8 Factors Influencing the Adoption of E-Procurement.....	17
2.9 Challenges to E-procurement Adoption.....	20
2.9.1 Risks in e-Procurement.....	22
2.10 E-Procurement in Kenya.....	25

- 2.11 Summary of Literature Review.....25
- 2.12 Conceptual Framework26
- CHAPTER THREE: RESEARCH METHODOLOGY.....28**
- 3.1 Introduction28
- 3.2 Research Design28
- 3.3 Selection of the Cases.....29
- 3.4 Data Collection29
- 3.5 Data Analysis30
- CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION.....31**
- 4.1 Introduction31
- 4.2 Respondents Profile.....31
 - 4.2.1 Titles of Respondent31
 - 4.2.2 Age of the Respondents32
- 4.3 Company Background33
 - 4.3.1 Organizational ownership34
 - 4.3.2 ATM Brand and Market Share34
 - 4.3.3 ATM solution Provision36
- 4.4 Functions of procurement department.....36
- 4.5 The extent of e-procurement Adoption38
- 4.6 Risks of e-procurement Adoption.....39
- 4.7 Determinants of e-Procurement Adoption40
- 4.8 Discussion of the findings.....40
- CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS.....43**
- 5.1 Summary43
- 5.2 Recommendations.....44
- 5.3 Limitations of the Study44
- 5.4 Suggestions for further research44
- REFERENCES.....45**
- APPENDIX I: INTERVIEW GUIDE.....54**
- APPENDIX II: LIST OF ATM SOLUTION PROVIDERS IN KENYA.....59**

LIST OF TABLES

Table 1:	Titles of Respondents	31
Table 2:	Age of Respondents	32
Table 3:	Proportion of Ownership	34
Table 4:	ATM Brand and Market Share	34
Table 5:	ATM Solution Type	36
Table 6:	Automated Procurement Activities	37
Table 7:	The Extent of e-Procurement	38
Table 8:	Risks of e-Procurement Adoption	39
Table 9:	The Determinants of e-Procurement Adoption	40

LIST OF FIGURES

Figure 1:	Conceptual Framework	26
Figure 2:	ATM Solutions Providers' Market Share	35

LIST OF ACRONYMS

ATM	Automated Teller Machine
B2B	Business to Business
DPS	Desktop Purchasing Systems
EDI	Electronic Data Interchange
EP	Electronic Procurement
EPT	Electronic Procurement Technologies
MRO	Maintenance, Repair and Operations
NCR	National Cash Register
SCM	Supply Chain Management
SRM	Supplier Relationship Management

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Enhanced competitiveness requires that companies ceaselessly integrate within a network of organizations. Firms ignoring this practice are destined to fall behind their rivals (Gimenez and Lourenco, 2008). The integration of companies within a network has led to more emphasis on supply chain management (SCM). SCM is the management of upstream and downstream relationships in order to deliver superior customer value at less cost to the supply chain as a whole (Christopher, 1998).

The integral value of the SCM philosophy is that total performance of the entire supply chain is enhanced when there is simultaneous optimization all the links in the chain as compared to the resulting total performance when each individual link is separately optimized (Burke and Vakkaria, 2002). The impact of information and communication technologies in supply chains and the maturity of e-market place dynamics have led to digitalization of supply chain management functions as a proven model of competitive advantage by firms (Cullen and Webster, 2007).

Within the last decade, procurement process with the supply chains has been transformed into a strategic resource. Procurement is now seen not only as a strategic player in the value chain, but as a major driver in the extended supply chain. There are many reasons for its popularity. Specific drivers may be traced to such areas as trends in global sourcing, emphasis on time to market, product quality based competition, customer uncertainty and the need to improve bottom-line costs (Kalakota and Robinson, 2001).

E-procurement has been defined as the use of information technologies to facilitate B2B purchase transactions for materials and services (Wu and Ross, 2007). Different forms of technology are appropriate for different procurement activities; six forms of e-procurement have been classified as e-ordering/e-Maintenance Repair Operate (MRO), web-based enterprise resource planning (ERP), e-sourcing, e-tendering, e-reverse auctioning/e-auctioning and e-informing (de Boer and Heijboer, 2002).

According to Hawking et al., (2004), recent technological developments in information systems and information technologies have the potential to facilitate supply chain coordination, and this, in turn, allows the virtual integration of the entire procurement function. The focus of this integration in the context of internet-enabled activities is generally referred to as e-Procurement. Merging these two fields (Procurement and the internet) is a key area of concern for contemporary managers and researchers. Managers have realized that the internet can enhance Procurement decision making by providing real-time information and enabling collaboration between trading partners.

1.1.1 Automated Teller Machine Solutions Industry

Datamonitor report, (2007) asserts that, the ATM solutions market in the emerging economies such Kenya is increasing at a brisk pace. Consumers prefer to handle an increasing number of transactions themselves through self-service devices, and are more likely to do business with companies that make it easier for them to do so. This industry is characterized by rapidly changing technology, evolving industry standards,

frequent new product introductions, price and cost reductions, and increasingly greater commoditization of products, making differentiation difficult.

The ATM solutions include the financial self service terminals and the related hardware support. These terminals include Interior ATMs, Exterior ATMs, Drive-up ATMs, and intelligent deposit terminals. The interior ATM's can be placed in any indoor location such as bank branches or in off-premise locations like supermarkets, shopping centers, or airports (Datamonitor report, 2007). The global leaders in the ATM solutions providers include National Cash Register (NCR), Diebold and Wincor Nixdorf (ATM Marketplace Research, 2009). These multinationals have a representation in Kenya either through subsidiaries or authorized resellers. In Kenya the leading ATM solution providers include NCR, Technology Associates, Electronic Financial Technologies and Copycat Limited. The main customers of these organizations include but not limited to commercial banks, insurance companies, microfinance institutions and savings and credit cooperative societies.

The five main types of factors that appear to influence the adoption of e-procurement-organizational, readiness, supply, strategic and policy factors. The organizational factors that appear to impact on the likely adoption are size and type of operation while readiness factors are informed by management decisions after assessment. In general, lack of readiness has been attributed mainly to human readiness, therefore supply chain management professionals need to ensure their own organization are ready for e-adoption . The relationship in the supply chain as well as the strategic use of e-business

is consideration. Government policies could also be supported by public procurement through both the traditional and e-procurement processes. (Harland et al., 2007)

1.1.2 Risks of Adopting E-procurement by ATM Solutions Providers

Since e-procurement allows suppliers and buyers to interact in an online environment, most procurement managers are of the view that being part of the wider e-commerce is not without risks. These risks are a function of three primary factors: threats; vulnerabilities; and business impact. Combining these provides a standard formula for risk that is often used in security and business continuity planning. E-procurement has had a big impact from all three factors (Ratnasingam, 2007).

Premkumar (2003) describes the risks in e-procurement as hazards, uncertain outcomes or missed opportunities. He assesses that the risks are economic derived from increase transaction costs, technological that are the result of integration, relational risks derived from the failure to address power related issues among trading partners and poor administration practices.

1.2 Statement of the Problem

The growing emphasis on managing the supply chain has drawn managers' attention to the valued-added potential of internet technology to achieve better information, improve bottom-line costs, emphasis on time to market and maximize procurement effectiveness (Puschmann and Alt, 2005). Procurement is considered as a strategic player in the value chain as it represent one of the largest expense the firm's cost structure. The purchase of goods and services represent the single largest cost item for any given enterprise (Hawking and Stein, 2004).

With increased attention to e-commerce and the competitiveness it offers to firms that successfully embrace it, the ATM solution providers are at the forefront in adoption of e-procurement technologies. The drivers of the adoption have been the infrastructural support by the mother companies and the business practices in e-market places protocols. However ATM solution providers being participant in the e-procurement faces the inherent risks that are borne out of the e-commerce environmental uncertainties.

Study by Kheng and Al-Hawandeh, (2002) presented stumbling blocks as the security, privacy of the procurement transaction data as well as the undeveloped laws governing the B2B commerce, Huber et al. (2004) argues that lack of standardization, confidentiality in the electronic exchange environment poses major risks to adoption of electronic procurement. However Lee and Clark (1997) invoked transaction cost economics in pointing out a number of risks with setting up electronic market mechanisms such opportunism, unscrupulous market participants and asset specificity.

ATM solution providers in Kenya recognize the need for digitalization of the procurement function as competitive edge in increasing efficiency hence the bottomline. In spite of the claimed business benefits that can come from embracing e-procurement, the progress has been slow in developing countries due to operational and infrastructural risks associated with its adoption (Pires and Stanton, 2005).

This study in particular examined the following questions in the context of the ATM Solution Providers; what are the risks associated with the adoption of e-procurement, what extent of e-procurement adoption is embraced by the provides and the determinants of e-procurement adoption.

1.3 Objectives of the Study

The general objective was to investigate the adoption and risks associated with e-procurement and the specific objectives were to:

- (a) Determine the risks associated with the Automated Teller Machine Solution providers in Kenya.
- (b) Establish the extent of e-procurement adoption in the Automated Teller Machine solution providers in Kenya.
- (c) Analyze the determinants of e-procurement adoption among ATM solutions providers in Kenya.

1.4 Value of the Study

The study is beneficial to the following groups;

To Supply Chain Managers in Kenya it services as the framework of reference in addressing key success factors and pitfalls associated with the adoption of e-procurement in various industry sectors. This therefore forms the basis of preparedness to deal with inherent challenges in procurement process digitalization. It also forms the policy objective of the procurement practices as a benchmark competitive strategy.

To the researcher it serves as a basis for further research on the subject of electronic procurement in different industries in Kenya and provides the ground for validation of other finding in similar research area.

To the academicians, it adds to the already existing knowledge on electronic marketplaces studies and how electronic procurement plays major role in the efficacy of e-commerce within the supply chain management discipline.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The growth in use of e-commerce in business-to-business markets has been significant adoption of new supply chain-related technology and applications by organizations globally. The procurement function has been particularly affected by this trend with a predicted growth in e-procurement applications covering both transactional buying and strategic sourcing activities. The adoption of e-procurement has become an imperative source of competitive advantages derived from efficiencies in e-marketplaces.

2.2 The Development of Internet-Based Procurement Systems

The applications which form the e-procurement landscape are designed to automate the buying cycle, optimize spend, improve process and workflow, support bidding and tendering and facilitate more effective search for products and services via the internet. It has also been suggested that such technologies will lead to closer collaboration and integration within the supply chain (Johnson and Whang, 2002). Waters (2003), intimates that early initiatives to introduce Internet-based technologies to support procurement concentrated on the automation of highly structured processes. Desktop purchasing systems (DPS) extend traditional EDI systems with user-friendly, browser-based interfaces, increased flexibility, and automated workflow, which are well suited to facilitate end-user empowerment and self-service.

One of the factors behind this development has been the evolution of the procurement function towards a more strategic role in supporting both corporate goals and supply chain objectives. The purchasing expenditure in relation to cost of good sold averages 50 per cent and may be as high as 80 per cent (van Weele, 2005). Therefore integration of information across firms within supply chains is a requirement for efficient, responsive operations (Cooper et al., 1997). The integrated information has been described as the glue that holds supply chains together (Child and Faulkener, 1998).

Harland et al. (2007), argues that based on electronic catalogues as a central data repository, these systems are readily available and well suited to automate highly repetitive activities, as they prevail in the category of process cost-oriented procurement (low-unit value and high-variety items purchased at high frequencies, such as MRO items). In many cases, the operational gains from reduced process costs and lead times allowed procurement departments to reduce their administrative workloads, free time, and resources for strategic sourcing activities.

2.3 Transaction Cost Theory

Economists have classified transaction among and within organizations as firstly those that support coordination between multiple buyers and sellers; that is, market transaction and secondly those that support coordination within the firm as well as the industry value chain (Wigand, 1997). Transaction costs include the costs of searching, bargaining, coordinating, and monitoring, which companies incur when they exchange goods, services, and ideas (Benjamin & Wigand, 1995; Wigand, Picot & Reichwald, 1997).

The major force driving electronic commerce is the ability of networks to reduce transaction costs (Auger & Gallaugh, 1997; Garcia, 1997). When buyers and sellers can easily locate one another and have a good idea of what they can expect in terms of quality and prices, they are more likely to engage in trade (Garcia, 1997). The ever-increasing and innovative use of the Internet or the Web to conduct business is a clear example of firms' desires to reduce transaction costs (Auger & Gallaugh, 1997; Garcia, 1997). Thanks to information technology, the evolution from separate databases within the firm to linked databases among firms to shared databases among firms, transaction costs, indeed, are falling rapidly (Wigand, 1997). The transaction theory therefore leads to critical assessment of how networks drive electronic procurement.

2.4 Strategic Networks

Strategic networks are defined as the long-range, deliberate, cooperative, and goal-oriented organizational forms among distinct but related organizations that enable such network member organizations to sustain competitive advantage vis-à-vis their competitors outside the network (Jarillo, 1993). Wingand, et al. (1997) emphasized strategic networks as a distinct organizational form; that is, separate from hierarchy and market.

As Powell (1990) assesses, information pass through networks as less thick than information obtained in the market and freer than communication in a hierarchy. Therefore, network organizations combine the advantages of hierarchies, such as better control and coordination of actors, with the advantages of small, independent companies, who have more innovative abilities, tend to be in closer contact with the market and more flexible, with smaller staffs, fewer intermediaries, and lower overhead.

According to Malone et al. (1987), the development of inter-organizational electronic networks would increase the number of buyers and sellers. He asserts that the use of open information systems may be seen to provide greater levels of information to buyers, thereby opening up greater competitiveness among providers. As a result, the lowered coordination costs would encourage more outsourcing, enabling firms to buy goods and services less expensively than by producing them in house (Malone et al., 1987, 1989). Having considered how network supports e-business, it is imperative to specify in detail the current use of e-procurement.

2.5 Electronic Procurement

The scope of e-business includes information exchange, commercial transactions and knowledge sharing between organizations (Croom, 2005), whereas e-commerce focuses only on commercial transactions (Cullen and Webster, 2007). Some of the technologies associated with e-commerce include websites, e-mail, extranets, intranets and electronic data interchange (EDI) (McIvor and Humphreys, 2004). E-procurement has been defined as the use of information technologies to facilitate B2B purchase transactions for materials and services (Wu et al., 2007).

Different forms of technology are appropriate for different procurement activities; six forms of e-procurement have been classified (de Boer et al., 2002), including e-ordering/e-Maintenance Repair Operate (MRO), web-based enterprise resource planning (ERP), e-sourcing, e-tendering, e-reverse auctioning/e-auctioning and e-informing.

2.6 Current use of e-procurement

In the past, there were high expectations of the uptake of e-business using internet technologies (Kehoe and Boughton, 2001). Although the implementation of e-procurement initiatives is not all that new, there is current interest in understanding issues involved in its implementation, especially in a web-enabled environment (Angeles and Nath, 2007).

The study of Davila et al. (2003) demonstrates that there are two types of e-procurement adopters: one group of firms experiments with multiple solutions, whereas the second group commits only to one type of technology. The study also indicates that “follower” firms value the lessons they learn from their more venturesome counterparts who innovate with newer e-procurement technologies. The findings also show encouraging signs of wider adoption of e-procurement as more firms come forward with their pioneering implementation experiences and as more and more firms take internet-enabled supply chain management initiatives more seriously. In Kenya, there is no evidence of study done on electronic procurement.

2.7 Technology Adoption Theories

According to Tornatzky and Klein (1982), technology adoption is a process by which a problem is solved through the assessment and evaluation of alternative solutions. In the case of electronic procurement technologies (EPT), the process is influenced by many organizations, namely organizations that develop the technology, organizations that pioneer its use and advocate for its adoption by their trade partners, and the larger majority that ultimately adopt the technology as a result. Xu et al., (2005) assesses that

since EPT is a multi-faceted phenomenon that may not be easily explained using a single theoretical lens, it is an imperative to identify and combine theoretical explanations provided by different theories on technology adoption to better comprehend the factors that affect organizational adoption of innovation

2.7.1 Rogers innovation diffusion adoption Model

Rogers, (1995) suggests that technology adoption can be the result of the effects of five groups of determinants. The first group focuses on the perceived attributes of the technology. These include relative advantage (how much better the technology is as compared to what it supersedes), compatibility (how well it meets a felt need), and simplicity (how easy the technology is to understand and apply). The second group of determinants considers the effects of the type of decisions involved in adopting an innovation. Essentially, these are manifest of the adopting organization's character, its managerial decision-making style and cultural preferences. For example, in some organizations, adoption decisions can be made through collective votes; whereas, in others, they may be made through authoritative decision making.

Rogers considers communication channels as the third category of determinants. Communication channels are a measure of how well the potential audience is aware of a technology. For example, innovations that are shared through more potent channels (e.g. mass media or word of mouth) have a better chance of becoming broadly adopted technologies. Fourth, the extent of the change agent's efforts measures how hard the innovator tries to sell the idea to the potential user. Here, the change agent may be the developer of the technology or the trading partner advocating for the adoption of EPT

by other members of the supply chain network. Lastly, Rogers emphasizes the nature of the social system by including network connectedness and inter-relationships among users. How large and how interconnected industrial network that the organization operates in can influence decisions as well (Lundblad, 2003).

Although Rogers' model has been used extensively used to explain EPT adoptions, it falls short in detailing the role of other influential factors. In a critique of Rogers' model, Lundblad (2003) provides details on the importance of inter-organizational and systems-related factors and how their exclusion may limit the applicability of the model. To fill in these gaps, Azadegan and Teich, (2010) suggests another prominent theory of innovation adoption, that of motivation, opportunity and ability model (MOA) in the next section.

2.7.2 Motivation, opportunity and Ability Model (MOA)

Studies by Kimberly and Evanisko, (1981) suggest that the extent of innovation adoption is primarily determined by the organization rather than the technology. Individual level adoption models, theorists have attempted to describe technology adoption by placing their emphasis on organizational factors. For example. Theory of reasoned action (Bagozzi et al., 1992), technology acceptance model (TAM) (Davis et al., 1989) and technology acceptance two model (TAM2) (Venkatesh and Davis, 2000). The underlying factors for these models can be categorized as; the organization's motivational factors, the organization's ability factors and other external factors (Mehrtens et al., 2001).

At the core of three groups fall in line with a well-established motivational theory known as MOA. Motivation is based on the internal or external drives that initiate the sequence of events necessary for adoption (Bayton, 1958). For example, organizations can be motivated to improve the efficiency of their procurement process. They can also be motivated to adopt EPT by other organizations; an act that can increase their legitimacy (Grewal et al., 2001) within their operating network or industry. Opportunity reflects favorable circumstances, while ability is the skill and proficiency to leverage the circumstances. Firms that carry the ability to recognize new technologies understand their benefits and have a higher ability to leverage their financial and resource capabilities to implement them (Siemsen et al., 2008). Despite the strengths, there are common shortcomings between MOA and Rogers' diffusion theory that limit their application for explaining a multi-organizational/multi-faceted phenomenon such as that of EPT. Azadegan and Teich (2010) contend that both MOA and Rogers' model seem to marginally note the effect of factors that are outside of the boundaries of the organization. Since firms do not operate alone, their EPT adoption decisions are clearly affected by their trading partners, competitors and other social constituencies.

To appropriately capture these and other inter-organizational and network-related factors, there is need to tap into the third and final innovation adoption theory, that of technology, organizational and environmental (TOE) theory.

2.7.3 Technology, Organization and Environment (TOE) theory

According to Chau and Tam (1997), classical diffusion theories tend to neglect market and industry characteristics as important factors in the adoption decision. Perhaps, an exception is that of the TOE, Tornatzky and Fleischer (1990) explain innovation

adoption decisions through the mutual influence of three categories of factors. The first is the technological context, which in essence are the existing and emerging technologies relevant to the firm. Technologies can be different based on their varying characteristics.

TOE suggests that how distinctive an EPT is from other technologies can affect its adoption. The second category is the organizational context, such as the firm's managerial structure, organizational size and its slack resources. For example, organizations can be more (or less) rule-bound, procedural or formal. Organizations can also be more centrally controlled and hierarchical in directing their resources. The third is TOE's explanation of factors related to the environmental context.

TOE distinguishes how the industry, competitors, government and other near and far institutions can influence the adoption decision. For example, a relevant technology support infrastructure and the competitive characteristics of the industry are two environmental aspects that are important determinants of innovation adoption. Relevant technology support infrastructure determines the degree of access that the firm has to skilled labor and supply firms that can provide technical support services for the adopted technology. Firms operating in markets with an abundance of support infrastructure will have a more uncomplicated and less-costly adoption. Competitive characteristics are factors such as the concentration in an industry, uncertainty in the market or product lifecycle. These factors can affect how a firm has to respond to adopting available technologies to effectively compete in its industry.

The strength of TOE is in its ability to provide further specificity on how various network-based factors can affect adoption decisions (Azadegan and Teich, 2010). However, despite TOE's potency in well establishing the importance of industry level factors, it falls short in effectively differentiating the effects of trade partners. For example, TOE does not distinguish the effects that the trade partners' influence may have on the adoption decision. It is for this reason that the next section leverages these paradigms to develop an interlocked framework that helps better explain the factors that influence innovation adoption.

2.8 Factors Influencing the Adoption of E-Procurement

In seeking to explain differences in e-procurement adoption between organizations, several factors are identified in the literature. There are five main types of factor that appear to influence the adoption of e-procurement – organizational, readiness, supply, strategic and policy factors.

The main organizational factors that appear to impact on the likely adoption of e-procurement are size and type of operation. E-Procurement is more evident in bigger organizations than smaller. Small to medium enterprises (SMEs) often lag behind larger organizations in e-procurement adoption (ISM/Forrester Research, 2003).

Reasons for this include owners' attitude, resource poverty, limited IT infrastructure, limited knowledge and expertise with information systems (Harland et al., 2007). However, e-procurement can be viable for SMEs through web-based enterprise cooperations (Berlak and Weber, 2004) or if the SMEs can see the business case for e-adoption (Harland et al., 2007).

Some types of organizational operations seem to lend themselves to e-procurement. The use of e-procurement applications often goes hand-in-hand with repetitive purchases from suppliers, reducing human intervention and paperwork and often resulting in improved performance for buyers and suppliers (Melville et al., 2004; Sanders, 2005; Subramani, 2004). Routinization and repetition in the procurement system will increase the efficiency in this process and result in a higher level of electronic integration between buyers and suppliers (Choudhury et al., 1998). Make-to-order supply chains differ from make-for-stock supply chains, impacting on implementation of e-business (Gosain et al., 2005). High volume operations with substantial logistics, requiring regular tracking of items are more likely to use e-procurement (Lancioni et al., 2000). Operations with high usage of MRO supplies are more likely to use e-procurement (Croom, 2000). The B2B e-commerce solution is likely to vary with the number of buyers and suppliers, their connectivity and the purpose of trading (Cullen and Webster, 2007).

Organizational readiness and external pressure impact on e-business strategy (Mehrtens et al., 2001). Many firms are experiencing a number of major problems in implementing e-business projects, due to hasty decisions in the presence of considerable media and software vendor hype, and often no theoretical basis behind the determination of which applications are most appropriate (Cox et al., 2001). To attain the greatest benefits, purchasing processes should be evaluated and improved before adopting e-procurement tools (Presutti, 2003). Internet technologies enable integration with trading partners, yet amplify the need for fundamental organizational change (Power and Singh, 2007). B2B seller competence depends on change disposition (Rosenzweig and Roth, 2007).

Lack of readiness has been attributed mainly to human readiness (Osmonbekov et al., 2002). Internal barriers to e-adoption are more significant than customer or supplier barriers (Frohlich, 2002), suggesting supply management professionals need to ensure their own organizations are ready for e-adoption (Hartley et al., 2006). E-procurement is more likely to be beneficial in dispersed supply chains as it helps coordination (Liao et al., 2003). Different actors in supply chains have got different power, legitimacy and urgency to implement e-procurement and e-procurement can have an effect on trust in supply chain relationships (Gattiker et al., 2007; Klein, 2007).

Lack of assistance and the structural inertia of large organizations in supply chains can be a disincentive to implement e-business (Zhu et al., 2006). Different industries show different propensities to e-procurement adoption, related to existing use of information exchange infrastructures prior to the advent of the internet (Cagliano et al., 2005). The greatest benefits of e-business occur when its application is fully integrated throughout the supply chain (Currie, 2000). Some literature has pointed to the possibilities of greater integration and collaboration across e-business-supported supply chains (Croom, 2005; McIvor and Humphreys, 2004). E-procurement is more likely to be adopted if it is perceived that suppliers have capability to deal with it; there are difficulties in integrating information systems across firm boundaries in supply chains if suppliers lack capability (Bagchi and Skjoett-Larsen, 2003).

The strategic use of e-business has been considered in several studies, and how e-business strategy aligns with the overarching business strategy of a firm (Harland et al., 2007). The internet will only become a powerful source of competitive advantage if it is

integrated in firms' overall strategies (Porter, 2001). The role of IT has evolved from a productivity tool to a more strategic level (Wu et al., 2003). An e-business strategy should specify the aims, goals and context of the application (Soliman and Youssef, 2001); these choices should be aligned with other organizational and managerial choices, and integrated with the organization's processes (Graham and Hardaker, 2000). These studies suggest that if organizations are being strategic in their e-procurement adoption, they may have a specific e-procurement strategy, and that this will align with broader organizational strategy.

Public procurement can be used to support broader government policies, both through traditional and e-procurement processes. Electronic procurement in the public domain can be seen as a policy tool to support the delivery of public procurement policy, improving transparency and efficiency (Carayannis and Popescu, 2005; Croom and Brandon-Jones, 2005). E-procurement can assist a government in the way it does business by reducing transaction cost, making better decisions and getting more value (Panayiotou et al., 2004). E-procurement adoption and usage in the EU and US public sector is being encouraged (Carayannis and Popescu, 2005; Reddick, 2004).

2.9 Challenges to E-procurement Adoption

A number of recent studies have also looked into difficulties faced by firms in launching e-procurement. In a recent survey of 102 international active e-marketplaces and procurement service providers, Huber et al. (2004) found the following perceived barriers to electronic procurement; Firstly, a wait-and-see attitude among firms in selecting e-marketplaces and procurement service providers; Secondly, Concerns over security and

confidentiality of the data needed to be exchanged in electronic environments; Thirdly, Reluctance to share data with trading partners; Fourthly, the non-feasibility of custom-made products for pooling initiatives; Fifthly, Lack of standardization; and Lastly, Uncertainty over trust and commitment among trading partners.

Day et al. (2003) however noted users' reluctance to be subjected to significant changes in business processes as a major barrier to the implementation of e-procurement systems. Saeed and Leith (2003) examined buyers' perceptions of e-procurement risks and arrived at three dimensions: Firstly, transaction risks resulting from wrong products purchased due to incomplete or misleading information; Secondly, Security risks resulting from unauthorized penetration of trading platforms and failure to protect transaction related data while being transmitted or stored; and lastly, privacy risks arising from inappropriate information collection and information transparency.

Yen and Ng (2002) found that both buyer and seller firms considered the following prohibitive and discouraging; Firstly, the costs and development time required to setup online procurement systems, enabling these systems, and meeting workforce requirements of such systems; Secondly, lack of adequate security measures to protect data; and Lastly, trust issues between buyers and sellers. Managers of the seller firms also cited attitudinal resistance to change stemming from a number of concerns; Firstly, the uncertainty over its ability to gain the expected return on investment to cover development costs; Secondly, the work required to enforce business process changes called for by these systems; and Lastly, worker apprehensions about being replaced by automated procurement systems.

2.9.1 Risks in e-Procurement

E-procurement provides the basic infrastructure to allow suppliers and buyers to interact in an online environment. Despite its growth risks associated with e-procurement were predominantly caused by weak operating procedures that evolved during the development process, deficiencies in e-procurement protocols, and a myriad of technology related problems (Vaidyanathan and Devaraj, 2003). Further, a host of e-procurement risks arose from accidental or erroneous processing of business transactions. For example, services were threatened by internal factors due to lack of standards, regulations and/or an efficient support system (Reshaur and Turner, 2000) suggest that risks can be viewed as hazards, uncertain outcomes, or missed opportunities.

Economic risks are derived from increased transaction costs. Transaction costs consist of cost for exchanging information and a coordination cost which is the total of the search costs for finding the right supplier or buyer (Premkumar, 2003). Transaction costs occur in an uncertain environment. (Christiaanse and Markus (2002) suggest that transaction costs over emphasizes communication and brokerage effects (Malone, 1987) to the expense of integration effects; thereby ignoring potential shifts in network relationships. Contracting costs include the cost of negotiation as well as legal and administrative costs incurred in creating an enforceable contract that satisfies both trading parties (Premkumar, 2003).

Sklar (2001) suggests that as e-procurement continues to evolve, the key component for their survival will be their ability to sustain global e-commerce liquidity and efficiency through trust-based transaction and settlement solutions. Technological risks are the

result of integration issues, incompatible applications and security issues associated with the volatile internet environment. Technological risks impact suppliers forcing them to adopt different technological solutions provided by the buyers (also known as technology squeeze). New and untested e-procurement applications create scalability, security problems, and availability issues (Vaidyanathan and Devaraj, 2003).

Further, poor business practices create administrative threats in the form of password sniffing, data modification, spoofing, and repudiation. Likewise, a variety of standards and operating procedures caused mounting confusion and resistance among suppliers. Suppliers who have attempted to outsource their business applications and hoped to reduce their costs and maintain their profit margins have experienced the risks of outsourcing their critical business processes to different firms with different procedures (Gulledge and Mason, 2000).

The lack of bargaining power from relationship-specific investment and opportunistic behaviors produce implementation risks. Suppliers have attempted to implement the same technological path as buyers, but instead experienced the risk of continued investment in new technologies and additional integration costs. Further, they experienced increased operational risks associated with the lack of technical knowledge of the system that in turn created further expenses on training (Wise and Morrison, 2000).

Owing to a proliferation of technological solutions, maintaining uniform standards in the management and business processes has become a major challenge (Cuny and Richardson, 2001). The firm's exposure to risks increased when disparate services from

diverse technologies and standards are used. In other words, risks associated with e-procurement are usually derived from poor business practices that arise from applying weak standards which lead to technology implementation problems (Vaidyanathan and Devaraj, 2003). This means that when business models of the original manufacturer are not aligned with the certified and non-certified resellers, the original manufacturers will be exposed to various new risks which could mean a loss of revenue.

Relational risks are derived from the failure to address power related issues among trading partners (Christiaanse and Markus, 2002). In addition, Santos and Perogianni (2001) suggest that competition, standardization, and a lack of trust causes relational risks. For a firm to focus on dyadic relationships usually means that interdependencies that are among a series of related trading relationships may be missed. Transparency of prices reduces the power of sellers in the e-procurement. An imbalance of power will reduce trust among business partners.

Lack of trust leads to operation risks when one partner may misrepresent or withhold information from the other partner. Similarly, buyers could form coalitions and counter the bias of supplier owned systems by collecting the data and reformatting it to meet their own needs. Some of the challenges relating to competition include the misuse of trading agreements, exchange of information problems or restriction of freedom of suppliers and/or buyers to participate on equal terms, thereby leading to collaboration risks (Le, 2002).

2.10 E-Procurement in Kenya

According to the Public Procurement Oversight Authority Act, (2005) assessment of procurement systems in Kenya, various organizations recognize the importance of digitalization. Developing countries in Africa such as Kenya and other regions face a competitive disadvantage because their businesses have difficulty accessing the internet (Finance & Development, 2005). Developing countries whose policies promote economic growth and private sector competition have experienced higher internet intensities (Dasgupta et al., 2005). A country's degree of development impacts on internet usage, and degree of development can be viewed in terms of a country's status in the world, level of democracy, foreign investment, manufacturing exports, and trade share (Crenshaw and Robison, 2006; Santora, 2006). Factors impacting on the diffusion of e-commerce in developing countries include infrastructure in areas such as Information Technology and telecommunications, commercial, government and legal, social and cultural factors, transportation and minimum disposable income (Javalgi and Ramsey, 2001; Murillo, 2001).

2.11 Summary of Literature Review

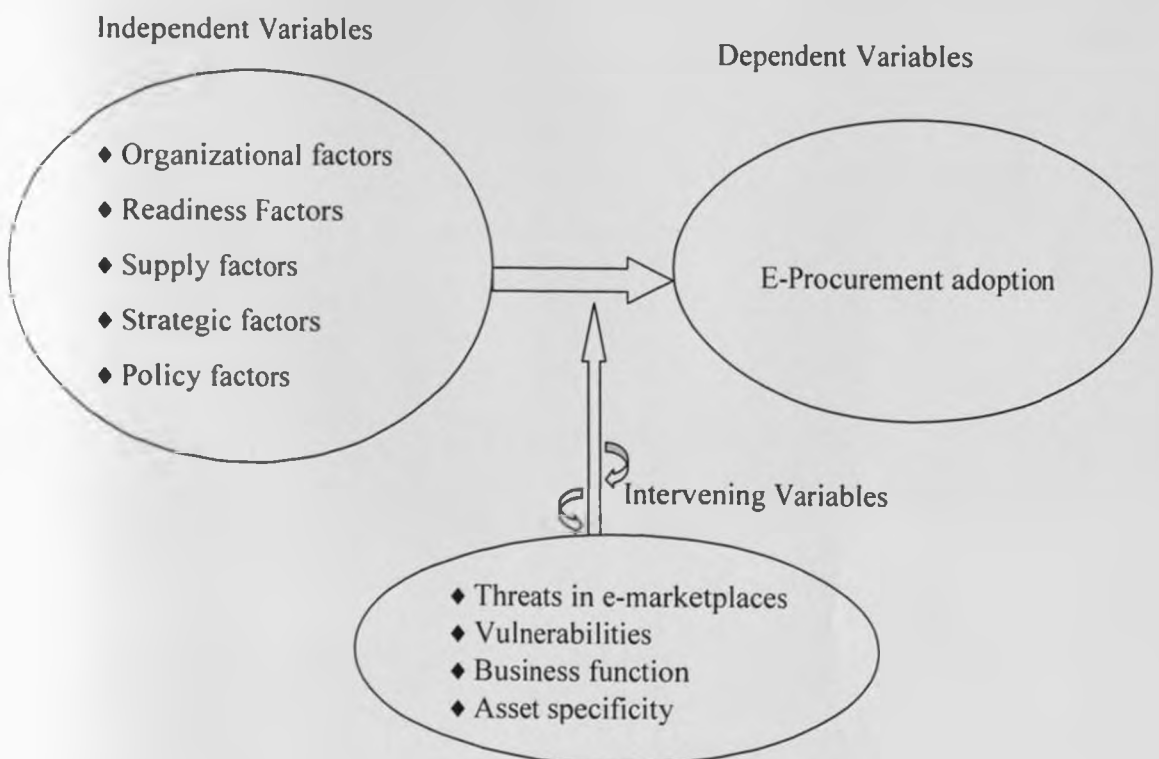
The growth in use of e-commerce in business-to-business markets has necessitated the adoption of new supply chain-related technology and applications by organizations globally. One of the factors behind this development has been the evolution of the procurement function towards a more strategic role in supporting both corporate goals and supply chain objectives (van Weele, 2005). The development of internet based procurement systems have been in the ascendancy in that past decade (Heijden, 2003). Organizations are developing predefined networks and Information technology

infrastructures to facilitate smooth flow of information in various fields in the organization. The companies adopting e-procurement also face various other facilities and infrastructural challenges which span from costs to employee implementation resistance. In the Kenyan context, there has been no empirical evidence of study on the risks of e-procurement adoption in spite of competitive advantages emanating from its successful implementation in the maturing e-marketplaces worldwide.

2.12 Conceptual framework

There are various determinants of e-procurement adoption by organization. Figure 1 below describes the how these factors impact the overall digitalization of the procurement function.

Figure 1: Conceptual Framework



E-procurement adoption as discussed in the literature can be seen to stem from several factors. These factors includes; organizational factors that are determined by size and capabilities of the firm, the readiness factors which is attributed to human readiness, supply factors being the capability of the supplies to implement and the trust in the supply chain relationships, strategic factors which signifies the competitive advantage deliverable by the technology and policy factors which describes the laid down policy of service delivery. Factors including threats, vulnerabilities, and business function and asset specificity are intervening variables since successful e-procurement implementation is not devoid of the inherent risks in e-marketplaces. Asset specificity factor is determination of the infrastructural requirement that enables the technology to succeed

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the researcher outlines the methods employed to achieve the objectives of the study and thereby answer the research questions outlined in Chapter One. This chapter, therefore, discusses the following aspects of research that the study extensively utilized: research design, selection of the cases, research instruments, data collection and procedure, and data analysis.

3.2 Research Design

The researcher embraced a case study. According to Yin (1994), case research is particularly suitable for new or developing areas of practice where knowledge of the phenomenon is limited or not well documented.

Dubois and Araujo, (2007) clarifies that such case study research allows a level of intimacy with the subjects under study, which compensates for the low number of examples explored and the resulting issue of generalization of results.

The ATMS solution providers possess some common characteristics such as operations structures supporting the core competencies functions of product design and engineering, systems support and contract maintenance as well as software and media competence. They are at some stages make of usage of e-procurement and deploying a range of e-procurement applications (Smart, 2010).

3.3 Selection of the Cases

The researcher selected four Automated Teller Machine solution providers in Kenya this formed the cases of the study. The selected cases are National Cash Register (NCR), Technology Associates, Electronic Financial Solution and Copycat Limited. These cases are selected as they possessed the potential to be particularly revelatory and offered deep levels of research access (Eisenhardt and Graebner, 2007).

The aim of this research was to demonstrate the extent of e-procurement adoption and implementations, to uncover the risk factors resulting from the adoption and determine the determinants of its adoption.

3.4 Data Collection

The study involved collecting primary data by way of unstructured personal interviews and probing techniques as well as questionnaires investigating the determinants of e-procurement adoption. A minimum of three respondents drawn from the supply chain and two from information and communication technology function will be used in each of the four organizations. The respondents were managers who owned projects or are close enough to e-procurement initiatives to give valid responses, that is, those involved in the initial setup and/or ongoing management as well as senior executives. The interviews were recorded and the resulting transcripts coded for further analysis. Prior arrangement was made with the appropriate respondents to ensure their availability and convenience to take up the interview promptly.

3.5 Data Analysis

The study involved both qualitative and quantitative, the researcher therefore made use triangulation technique (Easterby-Smith et al., 2002) to study the phenomenon from different perspectives to achieve reliability and validity. The researcher used descriptive statistics to establish the various determinants to e-procurement adoption. The data was subjected to statistical analysis, using the Statistical Package for the Social Sciences (SPSS). A series of tests suitable for a small sample ($N=20$) was conducted to examine relationships between independent and dependent variables. The researcher also used content analysis techniques based on the suggestions of Miles and Huberman (1994) to address the risks and extent of e-procurement adoption. Thereafter the researcher undertook cross-case analysis to compare and contrast results, leading to synthesis of key themes. Study by Walker and Harland, 2008 successfully applied the method in their study on e-procurement issues, influences and impact on the United Nations (UN). The interview responses were supplemented with documents and records from within the four firms. The objective will be to provide, thorough empirical evidence, valid insights into an area where little research evidence existed in the Kenyan context.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter documents the findings of the adoption and risks of electronic procurement in the four firms which formed the selection of cases for the study. The findings are presented in two distinct stages. Stage one will involve individual organizations' case studies addressing the risks and extent of e-procurement adoption. The organization formed distinct cases grouped as; Case A- represented NCR Kenya Limited, Case B- represented Copycat Kenya, Case C- represented Technology associates and Case D- represented Electronic Financial Technologies. Stage two will constitute the analysis of questionnaire investigating the determinants of e-procurement adoption by the ATM solution providers.

4.2 Respondents Profile

4.2.1 Titles of Respondent

The researcher sought to find out the respondents' job titles were tabulated as shown table below;

Table 1: Titles of Respondents

Title Description	Case A	Case B	Case C	Case D
Supply Chain Manager	1	1	1	1
Procurement Manager	-	1	1	1
Logistics Manager	1	-	-	-
Procurement Supervisors	1	1	1	1
IT System Manager	1	1	1	1
Total	4	4	4	4

Source: (Researcher, 2012)

The research findings indicated that all the firms had the supply chain manager as the head of supply chain function in the organization. The 4 supply chain managers were interviewed in the organization. The Procurement manager title was prevalent in cases B, C and D while similar function was structured as the Logistics Manager for case A. each of the firm had the procurement supervisor and IT systems manager titles respectively.

Regarding the educational qualification, all the managers in the 4 firms has at least university degrees in different fields with case A having master degree level of education. For the procurement supervisor function, cases A, B and D had degree holders as supervisors while case C had a diploma holder for similar position.

4.2.2 Age of the Respondents

The researcher sought to find out the respondents' ages across the four firms. The results were tabulated below;

Table 2: Age of Respondents

Years	Respondents Age							
	Case A	%	Case B	%	Case C	%	Case D	%
18-25	0	0%	1	25%	1	25%	2	50%
26-35	2	50%	1	25%	0	0%	1	25%
36-45	1	25%	1	25%	2	50%	1	25%
46 and Over	1	25%	1	25%	1	25%	0	0%
Total	4		4		4		4	

Source: (Researcher, 2012)

The research findings indicated that 50% of the respondents in case A were between the ages of 26-35 while the age group of between 36-45 and over 46 years were evenly distributed at 25% each. Case B had respondents evenly distributed at 25% at every age group while case C had respondents between 36-45 years leading with 50%. Case D had 50% of respondents between the ages of 18-25 years being having the highest representation of younger employees.

4.3 Company Background

The researcher sought to find details on the core background of the ATM solution providers and the details were documented and narratives deduced as below;

NCK Kenya Limited which formed the case A of the study is a wholly owned subsidiary of NCR Corporation with headquarters in Duluth, Georgia in The United states of America. Globally the organization turnover exceeded US\$ 5.4 billion for the year ended December 2011. The company is publicly quoted in the New York exchange with share currently trading at US\$ 22. The local subsidiary had a turnover of US\$ 6 million for the same period. NCR is currently the leading manufacture and seller of ATM and related solutions world wide. The company was incorporated in Kenya in 1959.

Copycat Kenya limited which forms Case B was incorporated in Kenya as a private limited company in 1984 with main focus on office automation equipments. The firm currently operates in 5 countries. The company has its headquarters in Nairobi and is currently an authorized reseller of Diebold ATM solutions. Technology Associate which forms Case C was founded in 1991 and operates in 5 countries and has headquarterd in Nairobi. The firm deals in Wincor ATMs originating from Germany. Electronic Financial Technologies which formed our final case D was founded in 2005 and has developed ATM technology in the model of use and pay. The company also deals in Wincor brand of ATM.

4.3.1 Organizational ownership

The researcher sought to find out the percentage distribution of firms' ownership and the results were tabulated as below;

Table 3: Proportion of ownership

Description	Firm Ownership		
	Percentage Ownership		
	Local	Foreign	Total
Case A	0%	100%	100%
Case B	100%	0%	100%
Case C	100%	0%	100%
Case D	50%	50%	100%

Source: (Researcher, 2012)

The research findings indicated that, Case A is wholly owner foreign company while Cases B and C are 100% owned locally, Case D is 50% locally owned and 50% foreign owned.

4.3.2 ATM Brand and Market Share

The researcher sought to find out the ATM solutions providers' percentage market share and the results were tabulated as below;

Table 4: ATM Brand and Market Share

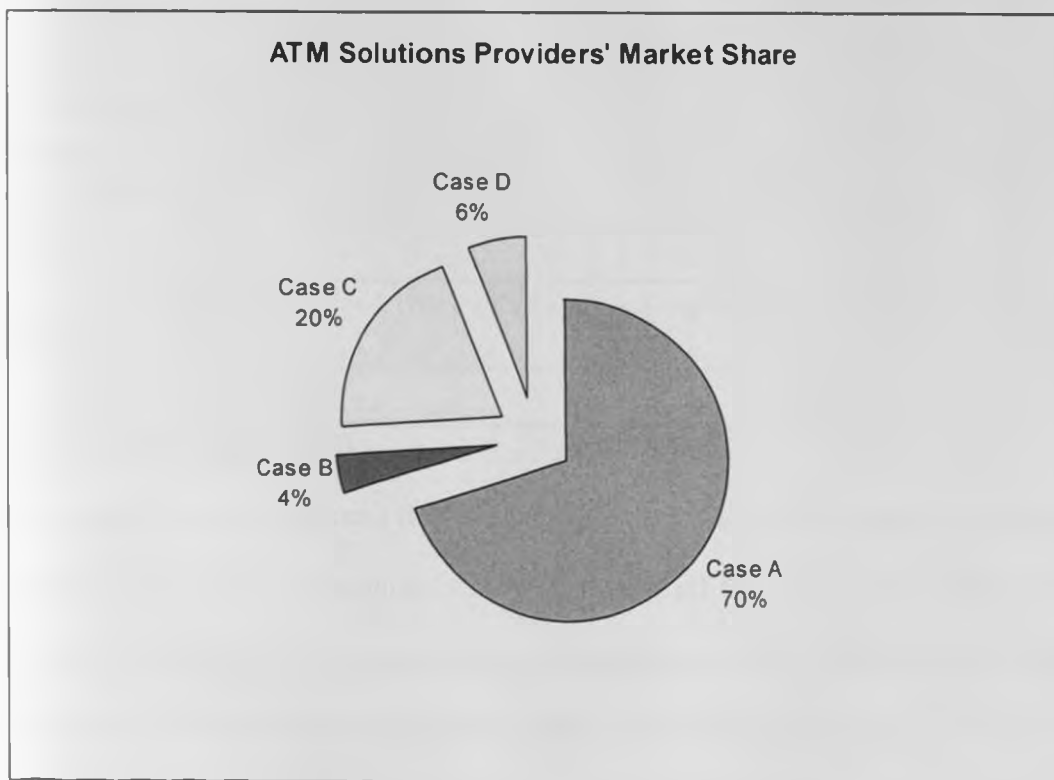
Description	ATM Brand and Market Share	
	ATM Brand	Market Share
Case A	NCR	70%
Case B	Diebold	4%
Case C	Wincor	20%
Case D	Wincor	6%
	Total	100%

Source: (Researcher, 2012)

The research findings indicated that, Case A deals in NCR brand and command market share of 70% in Kenya. Case B deals in Diold brand and commands 4% of the market share. Case C & D both deals in Wincor brand and commands market share of 20% and 6% respectively.

The market share is further illustrated in the pie chat below;

Figure 2: ATM Solution Providers' Market Share



Source: (Researcher, 2012)

4.3.3 ATM solution Provision

The researcher sought to find out the variations of solutions provisions by the firms and the results were indicated in the chart below;

Table 5: ATM Solution Type

Description	ATM Solutions Provided			
	ATM Hardware	Software	Maintenance	Consumables
Case A	✓	✓	✓	✓
Case B	✓	✓	✓	✗
Case C	✓	✓	✓	✗
Case D	✓	✓	✓	✗

Source: (Researcher, 2012)

The research findings indicated the solutions being provided by the respective firms that represents the cases for the study. Case A provided all the major ATM solutions that included provision of the hardware equipments themselves, the related software, contract maintenance as well as the consumables such as the ATM printing papers. Cases B, C and D do not provide consumables, rather independent third parts offers them to the customers directly.

4.4 Functions of procurement department

The researcher sought to find details on the activities of the procurement function of the ATM solution providers and the details were documented and narratives deduced as below;

The respondents intimated for case A that the major functions for the department included, sourcing, negotiation, contracting, order management, storage and physical distribution management, material handling and information management.

For Case B, respondents indicated sourcing, negotiation, lead-time management, supplier relationship management (SRM) as the main functions of the procurement department in the firm. Respondents for case C described the functions to include sourcing, negotiations, supplier information management as well as liaison with the user department .In case C, respondents mentioned sourcing, contracting, Maintenance and repair operate (MRO), supplier information management and budgeting as the main functions of the department.

When respondents on the four cases were asked on whether the procurement functions and element of automation, all the respondents answered to the affirmative, however the degree of implementation and usage of the same varied for each organization. Therefore the respondents were further asked specific areas of procurement that were automated and the results were presented on the table below;

Table 6: Automated Procurement Activities

Description	Sourcing	Negotiation	Contracting	MRO	Order Management	Information Management
Case A	✓	✗	✓	✓	✓	✓
Case B	✓	✗	✗	✗	✓	✓
Case C	✓	✗	✓	✓	✓	✓
Case D	✓	✗	✓	✗	✗	✓

Source: (Research, 2012)

The research findings indicated that, all the respondents for all the cases confirmed that the sourcing function is largely automated while negotiation function was largely not automated due to the structure of interactions between parties involved. For the Maintenance, repair and operate respondents indicated that the activity was largely not automated for cases B and D while cases and C indicated that the activity was largely automated. Contracting activities were largely automated for cases A, C and D while for case B respondents affirmed that the activities were largely not automated. Order Management activities were largely automated for cases A, B and C while case D indicated that the activity was largely not automated. Further, for all cases respondents indicated that information management activity was largely automated.

4.5 The Extent of e-procurement Adoption

The researcher sought to find out the extent of e-procurement adoption, the results were synthesized and tabulated as below;

Table 7: The Extent of e-procurement Adoption

Cases	Forms	Platform
Case A	The firm widely uses e-ordering, e-MRO, e-informing, e-sourcing and Oracle ERP system.	Supported by the internet and integrated software related suites.
Case B	The firm widely e-auction and e-reverse auctioned-informing, e-ordering and SAP ERP.	Supported by internet and integrated software suites.
Case C	The firm widely uses e-ordering, e-tendering, and e-informing and SAP ERP system.	Supported by internet and integrated software suites.
Case D	The firm widely uses e-ordering, e-informing and e-MRO with Microsoft based systems.	Supported by internet and integrated software suites.

Source: (Researcher, 2012)

The research findings indicated that all the firms uses mainly internet as the platform supporting the current e-procurement forms. Case A, B and C uses integrated ERP systems to manage the e-procurement operations while case D uses Microsoft customized tools to support the function. The respondents in all the four cases indicated the importance of information flow and in all the cases e-informing is predominant.

4.6 Risks of e-procurement adoption

The researcher sought to find out the risks that are related to e-procurement adoption and the results were summarized and tabulated below;

Table 8: Risks of e-procurement Adoption

Cases	Risks	Sources
Case A	Security and privacy, undeveloped laws governing B2B commerce, lack of standardization in e-commerce platforms.	Internal and external
Case B	Infrastructural set up cost, data security issues, resistance to change, the digital divide.	Internal and external
Case C	Opportunism, transaction costs, lack of trust among participants, lack of management support.	Internal and external
Case D	Inequalities among traders, privacy issues, unscrupulous market participants	External

Source: (Researcher, 2012)

The research findings indicated that security and privacy concerns are evident from all the cases. Respondents in case A intimated that weak laws as well as difference in platforms poses the greatest risk while respondents for case B indicated infrastructural costs related risks and asset specificity, they also invoked the resistance by implementers as risk. Respondents for case C indicated that opportunism in e-marketplaces, lack of

trust among market participants as well as motivation by management are risk to e-procurement adoption while respondents for case C are of the view that some market participants are unscrupulous and uneven strength among players.

4.7 Determinants of e-Procurement Adoption

The researcher sought to find out the key determinants of e-procurement adoption, the results were tabulated, analyzed and presented below;

Table 9: Determinants of e-Procurement Adoption

Variables	Number	Percentage of 16 Respondents	Discussion Indicator
Organizational factors			
Number of employees in the organization	4	25%	X
Type of organization	10	63%	++
Readiness factors			
ATM solution providers ready for e-procurement initiative	13	81%	+++
Lack of IT capabilities	3	19%	X
Trust relationships with suppliers not strong	10	63%	++
Security problem	10	63%	++
Supply factors			
Procurement budget	4	25%	X
Geographical spread of the supplier	3	19%	X
Number of employees authorized to procure	3	19%	X
Strategic factors			
Existence of procurement strategy	14	88%	+++
IT strategy for e-procurement	10	63%	++
Documented procurement strategy	4	25%	X
Constraints external rather than internal	9	56%	+
Policy factors			
e-procurement strategy is essential to deliver future providers' strategy and policy	5	31%	X
	4	25%	X

Key: +++,++ and + discussed while X is considered less significant therefore not discussed
Source: (Researcher, 2012)

The research findings indicated that various factors determine the susceptibility of an organization adopting e-procurement. The results above related to 16 respondents from the 4 organizations under the study. From the result grouped into organizational, readiness, supply strategic and policy factors analyzed respondents. The findings can be interpreted to signify that the type of organization is an important determinant of e-procurement adoption. The study by Walker and Harland, 2008 had similar finding in their examination of practices of e-procurement in the United Nation selected departments. The ATM solution providers considered readiness factors especially the firms' readiness towards e-procurement initiatives. The study further suggests that the existences of procurement strategy, IT strategy for the function as well as external constraints are important strategic factors that determine adoption e-procurement.

4.8 Discussion of the findings

The findings of the study brought out various key tenets that are comparable to related studies in the procurement discipline. The research findings indicated that the main risks associated with the adoption of e-procurement in automated teller machine solutions providers are functions of threats, vulnerabilities and business activities. In contrast there is much evidence in the literature that the risks of e-procurement and hence the stumbling blocks are security and privacy related (Kheng and Al-Hawandeh, 2002). Further important observations indicated the issue of trust among the e-market partners as a major risk, this findings concurs with literature documentation of reluctance by the firms to embrace e-procurement due to the unscrupulous nature of the marketplace (Lee, 2002)

In each of the cases of the study, respondents were in unison in asserting that the extent of e-procurement adoption hinges on internet enablement and as supporting platform. There is evidence that the firms used amalgamated tools driven by infrastructural capability. The study shows that Case B and Case C made use of ERP systems to augment with the basic e-market place tools which ranges from electronic information transfers among players to Microsoft based suites (de Boer et al., 2002). This evidences the fact that the firms uses information technologies to facilitate B2B purchase transaction for materials and services (Wu et al., 2007)

In seeking to explain differences in e-procurement adoption between among ATM solution providers in the cases, several determinants were identified in the literature. There are five major determinants that appear to influence the adoption of e-procurement – organizational, readiness, supply, strategic and policy factors. The main organizational factors that appear to determine e-procurement adoption the type and size of the organization Small to medium enterprises (SMEs) seems to lag behind larger organizations in e-procurement adoption (ISM/Forrester Research, 2003). There is further evidence that readiness and external pressure impact on e-business strategy (Mehrtens et al., 2001). The ATM solution providers are ready for the e-procurement initiative. The solution providers appear to be on a strategic intent to implement e-procurement with the main factors raised being; the existence of procurement and information technology strategies. The internet will only become a powerful source of competitive advantage if it is integrated in firms' overall strategies (Porter, 2001). The role of IT has evolved from a productivity tool to a more strategic level (Wu et al., 2003).

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

Procurement has been considered as the strategic player in supply chain management function in any organization. Procurement is now seen as a major drive of extended supply chain, the reason for its popularity can be traced to global sourcing, emphasis on time to market and competitive pressures. Electronic-procurement is emerging as a business imperative of the supply chain to remain competitive and improve the bottom-line.

The inherent e- business risks in form of threats, vulnerabilities and business function seem to be an impediment to successful implementation. The ATM solution providers in an attempt to adopt e-procurement are not immune to these risks. The risks are viewed as hazards, uncertain outcomes or missed opportunities. Privacy and security issues ranked highest as the main risks associated with the adoption. The second tier risks included, lack of standardization and laws governing B2B transaction. The ATM solution providers find that the competitiveness arising from e-procurement adoption has pit holes that need to be examined carefully to assure successful implementation.

ATM solution providers had various extent and forms of e-procurement adoption from the most simple as e-informing which the respondents dissected to mean dissemination of procurement information to and from the suppliers as well as some sophisticated internet based forms supported by web based ERP systems. The determinants of e-procurement adoption are macro and micro in nature and hinge on organizational, readiness, supply, strategic and policy factors.

5.2 Recommendations

From the results in the case study, it is an imperative for the ATM Solution providers and other organization with strategic intent in adopting e-procurement to assess key micro and macro capabilities and pitfalls before implementation. There is need for the organizations ensure that information technology asset specificity and relevant resources are clearly and meticulously examined before embarking on e-procurement adoption to avoid execution failures. While the determinants of e-procurement are unique to organizations in different firms' circumstances, the strategic purpose needs to be weighted according to relevant importance. In essence therefore it is an imperative to address key factors of influence which includes the size of the organization, readiness, supply, strategic and policy.

5.3 Limitations of the Study

The research had several limitations which included the information disclosure on what the respondents indicated confidential information in nature and some ATM solution providers consider some as of competitive importance. The research also faced multiple interview postponement due the busy work related schedules of the respondents. Further some respondents may have been biased a situation that is inherent in interviews

5.4 Suggestions for further research

The case studies focused on four ATM solution providers in Kenya and examined risk, extent and determinants of e-procurement adoption, however these four organizations primarily procure goods and services overseas and hence the susceptibility to adhere to trends in e- business trends as best practice, therefore an empirical study may need to carried out in other sectors of the economy that primarily procure goods and services locally. Further a research may be carried out to asses how e-procurement affects policy objectives of firms in Kenya.

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APPENDIX I: INTERVIEW GUIDE

SECTION A: BACKGROUND INFORMATION

1. Please state your name?

2. Please state your age?

3. What is your official title?

4. What is your highest academic qualification?

5. How long have you been with this firm?

6. State the department/division you belong in the organization?

SECTION B: ORGANIZATIONAL PROFILE

7. Please state the name of your company?

8. State whether the organization is locally or foreign owned?

9. Indicate in percentage the extent of foreign or local ownership?

10. Which brand of Automated Teller Machine (ATM) does your organization sell or service?-----

11. Please state the ATM solutions being provided by your organization?-----

12. Indicate whether the ATM solution technologies are locally or foreign, if both please state the extent in percentages?-----

13. For how long has your organization been in existence?

14. Please state the number of employees in your organization

15. Under which department is procurement function in your organization?

16. Please state the approximate turnover of your organization in Millions of Shillings per annum?

17. How long has your organization been in operation?

18. What is the annual purchasing budget in your organization in Kenya Shillings?

SECTION C: PROCUREMENT ACTIVITIES

1. Which specific activities are carried out by the procurement function in your organization?

2. How many employees are directly involved in the purchasing function?

3. Are all the procurement activities automated Yes [] No []

4. Please specify specific areas in which electronic procurement used?

5. Which platform (s) in your organization supports electronic procurement?

6. What type of electronic procurement system is used by your organization?

7. State the whether material sourcing in your organization is local or international? If both please indicate percentage of each?

8. Please state precisely the greatest risks that you consider a challenge to e-procurement implementation in your organization?-----

9. Please mention whether the risks mentioned above are internal or external to your organization?-----

10. Which Enterprise Resource Planning (ERP) system is employed by your organization?

11. Describe the level and extent of usage of e-procurement in your organization?

12. What would you consider the driver of e-procurement adoption in your organization?

SECTION C: DETERMINANTS OF E-PROCUREMENT ADOPTION

13. Please circle the number that best describes the determinant of e-procurement adoption in your organization by choosing; 1 least considered determinant and 5 least considered determinants.

- | | | | | | |
|---------------------------|---|---|---|---|---|
| A. Organizational factors | 1 | 2 | 3 | 4 | 5 |
| B. Readiness factors | 1 | 2 | 3 | 4 | 5 |
| C. Supply factors | 1 | 2 | 3 | 4 | 5 |
| D. Strategic factors | 1 | 2 | 3 | 4 | 5 |
| E. Policy factors | 1 | 2 | 3 | 4 | 5 |

APPENDIX II: LIST OF ATM SOLUTION PROVIDERS IN KENYA

NAME	ADDRESS	HEAD OFFICE	
		LOCATION	
	P.O BOX 30217-	AGIP	
NCR KENYA LIMITED	00100	HOUSE,NAIROBI	
	P.O BOX 49872-	ESSAR	
COPYCAT KENYA LIMITED	00100	HOUSE,NAIROBI	
TECHNOLOGY ASSOCIATES LIMITED	P.O BOX 43457-	EDEN SQUARE,	
	00100	NAIROBI	
ELECTRONIC FINANCIAL SOLUTIONS	P.O BOX 2649-	AMBANK HOUSE,	
	00100	NAIROBI	