



UNIVERSITY OF NAIROBI

SCHOOL OF COMPUTING AND INFORMATICS

**REGIONAL ELECTRONIC MARKETPLACE FRAMEWORK: CASE OF
KENYAN ELECTRONIC COMMERCE.¹**

BY

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Submitted in partial fulfillment of the requirement of a Master of Science Degree in Information
Systems of the University of Nairobi.

DECLARATION

This research project is my original work and where there's work or contributions of other individuals, it has been dully acknowledged. To the best of my knowledge, this research work has not been carried out before or previously presented to any other education institution in the world for similar purposes or forum.

Signature.....

Date.....10/08/2010.....

Peter Ndwiga Muturi

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This research project has been submitted for examination with my approval as the University of Nairobi supervisor.

Signature.....

Date.....14th August 2010.....

Prof. A. J. Rodrigues

DEDICATION

I dedicate this project to my wife **Pauline**, and children **Joan** and **Jonathan** for their unwavering support, encouragement, sacrifice and patience during my difficult times in the course of my studies.

I truly cherish all of you.

May the Almighty God bless you today and forever more.

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My sincere gratitude goes to the supervisor Prof. A. J. Rodrigues for his constant guidance, positive criticism and above all his viable suggestions and priceless advice throughout my project work that tremendously contributed to my success within reasonably short time.

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In addition, I would wish to extend my gratitude to all respondents who sacrificed their time and contributed to my questionnaires and interviews which enabled me get valuable information for the betterment of our society.

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ABSTRACT

Electronic marketplace is a major enabler of electronic commerce. Being the environment in which exchange of goods and services take place, its organization and setup determines the growth of electronic commerce in a given region. With the emergence of digital economy, electronic marketplaces will be the driver of economic growth for developing countries. It will be the tool to enable firms, especially small and medium enterprises (SMEs), in developing countries reduce their cost of operations thereby easing the access to global market. Previous research however points out that developing countries have not yet derived expected benefits from this technology. The adoption, proliferation and maturation of electronic commerce in this region has been slow due to infrastructure, social and cultural challenges.

For developing countries to tap into expected benefits, there is need for creation of a suitable trading environment where this form of business can thrive better. This is achievable through creation of an independent trading exchange or the electronic marketplace. Due to challenges developing countries face, there is need for frameworks that would fit with their current infrastructure, regulatory framework and social cultural perspectives in these countries. Previous research work on this area is scarce and provides only fragmented insights into the area. Mostly it's a generalization of developing countries yet it is clear the challenges faced by each region are different and in some cases, unique to the region. There is need therefore, to consider a given region and domesticate existing frameworks or even develop new ones to fit in the region.

The research problem of this project was designed to investigate and analyzing Kenyan situation on business-to-business and business-to-customer electronic commerce, by looking at the adoption and proliferation of electronic marketplace, their maturation level and coming up with suitable framework that would improve this emerging technology in trading. The research design was a combination of descriptive survey and case study to further understanding of contribution of electronic marketplace in enabling electronic commerce in the region. There was no existing framework that was found suitable in our environment, hence a new one was formulated that resolves identified barriers to use of electronic marketplace for trading. The framework should be adopted as the reference framework for developing and management of sustainable electronic marketplace with a possibility of collaboration among businesses with existing relationship.

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List of Abbreviations

API	Application Programming Interface
B2B	Business-to-Business
B2C	Business-to-Customer
C2C	Customer-to-Customer
CBK	Central Bank of Kenya
CCK	Communication commission of Kenya
CCTLD	Country Code Top Level Domain
CERT	Computer Emergency Response Team
EASsy	East Africa Submarine System
EDI	Electronic Data Interchange
EMP	Electronic Marketplace
ICT	Information Communication Technology
IPR	Intellectual Property Right
NSI	Network Services Interface
OMG	Object Management Group
RM	Reference Model
SEMPER	Secure Electronic Market Place for Europe
SME	Small and Medium Enterprises
SPSS	Statistical Package for the Social Sciences
TEAMS	The East African Marine System

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CHAPTER 1

INTRODUCTION

1.1 Overview

Electronic marketplace is a virtual technology-enabled platform on which buying and selling of goods and services takes place in an electronic trading. It is the enabling environment for electronic commerce. Just as it is in a conventional marketplace, the e-marketplace must provide information, market-making mechanisms and supporting services. The only difference is all these must be done electronically. This brings about some challenges that may not be experienced in conventional market. This includes technological aspect, trust issues and legal framework. This research sought to find out how these dimensions of electronic marketplace related to one another and came up with a framework suitable for Kenyan electronic commerce.

Chapter 1 introduces the problem area and gives the aim and objective of the study as well as the justification. Chapter 2 reviews the related literature and also looks at available frameworks in the world. Based on weaknesses and gaps of existing frameworks, Chapter 3 gives a conceptual framework and discussion of the various dimensions. Chapter 4 details the research methodology used while Chapter 5 is discussion and analysis of the findings. Chapter 6 discusses validate framework and lastly Chapter 7 gives conclusions and recommendations.

1.2 Background Information

Statistics show substantial grow in the usage of Internet in Kenya (CCK¹ Statistics Report quarter 2 for 2009/2010). The report indicates that, 'enhancement of the competition regulatory framework as well as operationalisation of the National Fiber Optic cable is expected to boost Internet penetration.' According to Internet World Stats² (2010) and CCK (2010), there were more than 1.8 billion Internet users worldwide and about 4 million Internet users in Kenya by December 31st 2009. This has opened various opportunities with business experiencing a paradigm shift and making Internet medium of trade. The use of Information and Communication Technologies (ICTs) in both private and public sector is on the increase. The government of Kenya has taken measures meant to encourage use of ICTs in the country like zero rating ICT products, recently passed Kenya Communication (Amendment) Act 2009 and undertaking projects to improve Internet infrastructure for instance, East Africa Submarine System (EASsy) and The East African Marine System (TEAMS) projects. The government has championed use of

¹ Communication Commission of Kenya (CCK) is the regulating body on information and communication matters. The 2nd quarter report 2009/10 covered up to December 2010. (www.cck.go.ke/statistics/, retrieved July 2010)

² Internet World Stats is an international website featuring statistics on internet usage, population and market data for over 233 countries (www.internetworldstats.com, retrieved July 2010)

ICTs in providing electronic services (e-service) through directorate of electronic governance (e-Governance). It is however, use of ICT applications in conducting business that is expected to drive the economy of developing nation like Kenya and reduce the digital divide in the world economy.

One application of these technologies is in the electronic commerce (e-commerce) to support electronic trading. E-commerce can be defined as any form of economic activity conducted over computer-mediated networks (Kinyanjui et al 2002). It may also be defined as 'conducting one or more core business functions internally within organizations or externally with suppliers, intermediaries, consumers, government, and other members of the enterprise environment through the application solutions that run on Internet-based and other computer networks' (Molla et al. 2005).

According to Rodgers, Yen & Chou, (2002) as quoted by Anne Engström and Esmail Salehi-Sangari (2007), a broader and increasingly used concept is *e-business*, which encompasses all electronically based exchanges, both within an organization and with external stakeholders. E-business goes beyond the customers and includes electronically mediated information exchanges with suppliers, employees, and regulatory authorities as well. Laudon and Traver (2002) as quoted by Anne Engström and Esmail Salehi-Sangari (2007), discuss two main approaches to e-commerce: technical and behavioral, and state that none of these dominates research about e-commerce. Behavioral approach has been explored substantially by researchers in Economics, Marketing, Management, and Finance/Accounting disciplines in our region. There however, seem to be limited academic research from technical approach yet technology is the bedrock of e-commerce. We also feel taking purely technological view excluding behavioral aspect of a given region may not resolve challenges faced in a given region. We therefore adopted both aspects with an aim of finding out how available technology may be used in the region with its behavioral aspect to improve the e-commerce environment. By taking both views, the research would solve unresolved issues through past research.

There are two major forms of e-commerce; Business-to-Business (B2B) and Business-to-Customer (B2C). In this region however, only a handful organizations participate in B2B e-commerce. Majority though have a form of B2C albeit in low levels or magnitude of transactions. The growth of B2C is more rapid than the B2B in developing countries like Kenya. It's however the growth of the two that is expected to enable our region tap the benefits of e-commerce technologies.

The two do share the trading platform, the electronic marketplace or online market, which is the focus of this research work. With B2B e-commerce being predicted to be a new driver of economic growth for developing countries, (Humphery et al., 2003), and B2C forming the larger percentage in the region, the two were the face of e-commerce in this study.

The concept of e-commerce in Kenya is still relatively new and as a result, firms, especially small and medium enterprises (SMEs), have not tapped into benefits of the application of Internet technologies in e-commerce. There is a belief that the progress of e-commerce has been hampered by unanticipated technological, organizational, economic, and legal challenges. This is despite some practical steps taken to counter some of these issues, for instance, The Kenya Communication (Amendment) Act 2009 and laying of fiber optic cable by both private and public sector. It may therefore be argued that knowledge about successful approaches in e-commerce is lacking in this region.

Internet-based electronic marketplace (EMP) is a virtual technology-enabled trading space that facilitate the exchange of information, goods, services, and payments among multiple buyers and sellers in electronic transactions. The success of e-commerce largely depends on the organization and operations of the EMP. The fact that e-commerce in the region has not matured to the expectations, is an indicator of some unresolved issues in the electronic marketplace.

1.3 Problem Statement

There has been a lot of research on EMPs in both developed and developing countries. Most of the research work however, deals with assessment of performance of EMPs. Concerning developing countries, the available literature is generalizing observations from case studies, hence not addressing specific nations within developing nations. Also as shown by reviewed literature, most researches are from business management and administration discipline with small portion from Computer Science and Information Systems discipline. This means the orientation taken in most research is not technical but behavioral. There is therefore, need to combine behavioral approach with technical orientation in studying the development and management of EMPs more so in developing country like Kenya with different social and cultural background.

The online market frameworks available in the literature work were developed in developed world environment. They may not be applicable in developing country like Kenya with the current infrastructure, regulatory framework and social cultural perspectives not friendly to these technologies, hence the need to develop framework that fit our environment.

The slow growth in e-commerce and specifically towards collaborations through EMPs in Kenya is a strong indicator of some fundamental issues that need to be resolved. Previous researches

don't seem to have brought revolution in the area, hence the need for more. The belief of inhibitors being insurmountable has made firms not take advantages of changing environments in the area of infrastructure and policy regulations.

The purpose of this research was to analysis Kenyan's e-commerce and more specifically EMPs, with a view of understanding the models/frameworks used in development and management of EMPs, their contributions towards enabling collaboration among firms with existing relationships and then develop a framework fitting Kenyan environment that would deal with currently known challenges.

1.4 Aim and Objectives

1.4.1 Aim

The aim of this research was to enhance growth of e-commerce in Kenyan environment and enhance collaboration among firms with existing relationships.

1.4.2 Objectives

The primary objective of this study was to develop regional E-Marketplace framework that would enhance growth in e-commerce functionalities and usage with possibility of enabling collaboration among businesses with existing relationship.

The study was also expected to achieve the following secondary objectives;

1. Identify social cultural aspects that hinder the proliferation and growth of e-marketplaces in the region
2. Establish the maturation level of EMPs in the region
3. Identify available technology that can be used to enhance adoption and growth of EMPs in the region

1.5 Research Questions

The following questions were used to guide the research as we sought to come up with regional framework:-

1. What are the social-cultural challenges that have to be overcome by implementers of e-marketplaces?
2. What are the enabling technologies used in implementing e-marketplaces?
3. Which are the existing frameworks used as reference in developing and management of e-marketplaces?
4. Which is the most appropriate framework that can be used to address the challenges identified as barriers to growth and usage of e-marketplaces in the region?

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1.6 Justification

Previous research work on e-commerce, integration and collaboration in Kenya have been based on electronic data interchange (EDI) and e-shops. EDI is useful for businesses with well-defined trading relationships, but not for the rapidly growing and changing global marketplace. In these models, point-to-point interfaces are created to support transactions involving replenishment orders for the goods of a previously negotiated contract (Ghenniwa et al, undated). The e-shops are based on providing a self-service storefront with the company's catalogs and product offerings on the Web. Its major concern is making customers responsible for surfing a large number of e-Shop sites for comparisons among the products from different suppliers.

Although the above models attempts to provide an e-business solution, none addresses the creation and leveraging of services and supply operations in a way that seamlessly integrates business entities (customers, suppliers, partners, and competitors) in a dynamic trading community. A very promising business model that can effectively deal with this challenge is E-Marketplace. We view an E-Marketplace as a cooperative distributed system that integrates participating business entities, including consumers, suppliers, and other intermediaries.

1.7 Scope of the study

The study concerns all the aspects or elements of electronic commerce that take place in electronic marketplaces. E-commerce has potential impact on any area of business, from the suppliers' side, the company's infrastructure, company's management processes, the interface with the customers and linkage to the distributors. The various transactions between suppliers and buyers supported by E-commerce and held on E-marketplace will be at the center of this study.

The study will however be restricted to a specific geographical region, the Kenyan market, to take into account the current infrastructure, policies and social cultural aspects of the region where the study will be done.

1.8 Assumptions and Limitations

The study required high level of co-operation from various players. Firstly were firms and organizations in Kenya involved with e-commerce, specifically those participating in an e-marketplace. Secondly, the software vendors who are involved in development and management of EMPs. Lastly but not least, the general public that form the mass market. An assumption was made that the players would indeed cooperate in giving information.

It was desirable to handle east Africa as a trading block but this would require more time and funding. Due to time and financial constraints, the research was limited to Kenyan market.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

With growth being recorded in the adoption and usage of internet in Kenya (CCK 2nd Quarter report, 2009/2010), it may well be said that, the networked readiness index in Kenya is on the increase. Most organizations in Kenya are using Information Communication Technologies (ICTs) to conduct businesses, with a good number of them having computer networks to support their operations. Over the last decade, the use of computer networks and more so, the Internet, for commercial transactions has seen a significant increase. Developments in information technology have enabled, and in some cases have forced, organizations to redefine their business models and to reorient their internal capabilities to exploit business opportunities presented by the Internet. Electronic technologies have revolutionalised how business is done today. Concepts like electronic business (e-business), electronic commerce (e-commerce) and electronic markets (e-markets) have changed the traditional way of doing business in organizations. Though these terms may be used interchangeably in some literature, it's important to understand them and possibly differentiate them.

Laudon and Traver (2002), as well as Turban and King (2003), discussed the advantages of B2B e-commerce, which to large extent applies for B2C, and indicate that its major benefits are that it:

1. Lowers search costs for buyers,
2. Reduces inventory levels and costs,
3. Lowers transaction costs and reduces administrative costs by eliminating paperwork,
4. Improves the quality of products by increasing cooperation among buyers and sellers and reducing quality issues,
5. Decreases product cycle time by sharing designs and production schedules with suppliers
6. Facilitates mass customization,
7. Increases opportunities for collaborating with suppliers and distributors,
8. Creates greater price transparency—the ability to see the actual buy and sell prices in a market.

However, previous research has found that developing countries have not derived the expected benefits from e-commerce (Humphrey et al. 2003). Consequently, there is still doubts about how e-commerce will actually lead firms in developing countries to new trading opportunities (Humphrey et al. 2003, p.i). Thus, understanding e-commerce transactions has become an important issue. This is likely to resolve why the proliferation of e-commerce in Kenya, among other developing countries, has not been very successful.

Like any other trading, e-commerce takes place in a marketplace. The internet-based marketplace or the online marketplace is where most, if not all, of the business transactions take place. To understand e-commerce of a given region, one must seek to understand relevant online market.

2.2 Electronic Technologies

Information technology has enabled traditional activities to be done on digital platform. Electronic technologies have transformed most of activities that were previously done manually to be done electronically. When business is conducted electronically, it becomes electronic business (e-business henceforth). According to Rodgers, Yen & Chou, (2002) as quoted by Anne Engström and Esmail Salehi-Sangari (2007), e-business “encompasses all electronically based exchanges, both within an organization and with external stakeholders. It goes beyond the customers and includes electronically mediated information exchanges with suppliers, employees, and regulatory authorities as well.” Electronic commerce (e-commerce henceforth), is defined as ‘conducting one or more core business functions internally within organizations or externally with suppliers, intermediaries, consumers, government, and other members of the enterprise environment through the application solutions that run on Internet-based and other computer networks’ (Molla et al. 2005). Bontis and De Castro (2000, p. 365) summarize e-commerce as “the buying and selling of goods and services via electronic means,” while Kalakota and Whinston (1996) also include buying and selling of information in the concept (Engström et al 2007).

For both business and commerce to take place, market has to be provided where buyers and seller meet to transact business. Where we have e-business and/or e-commerce, the market must be electronic as well, hence the concept of electronic market (e-market). According to Ivang & Ramanath (2003) as quoted by Engström et al. (2007), e-market may be defined as ‘information system infrastructure that facilitates interaction between engaging parties.’ It is also viewed by other authors as an inter-organizational information system through which multiple buyers and sellers interact to accomplish market-making activities. An e-marketplace is therefore viewed as ‘a networked information system that serves as an enabling infrastructure for buyers and sellers to exchange information, transact, and perform other transaction related activities.’ (Varadarajan et al.2002). According to Bakos and Zwass as quoted by Mook et al., (2008) ‘electronic marketplaces are virtual technology-enabled trading space that facilitates exchange of information, goods, services and payment among multiple buyers and sellers across companies.’ We adopt the view of e-marketplace as a cooperative distributed system that integrates participating business entities, i.e. suppliers, consumer and the intermediaries.

Having looked at the relationship among these technologies, we studied e-commerce and its enabling environment, being e-marketplaces, in Kenya to further research work on how Kenyan firms can exploit opportunities presented by these technologies and related applications. If Kenyan firms are to reap benefits from these technologies, there is need to understand how these technologies can be applied taking into considerations our existing infrastructure, policies, technology and social cultural perspectives.

2.3 Forms of E-Commerce

E-commerce is classified in different ways, commonly distinguished by the nature of the market relationship; that is, who is selling to whom (Anne Engström, & Esmail Salehi-Sangari 2007). Rayport and Jaworski (2001) identified four distinct categories of e-commerce (Figure 2.1): business-to-business (B2B), business-to-consumer (B2C), consumer-to-business (C2B), and consumer-to-consumer (C2C).

Business originating from...	
Business Consumer	
And selling to...	Business
	Consumer
Consumer	B2B
	B2C
Business	C2B
	C2C

Figure 2.1: Four categories of e-commerce (Rayport & Jaworski, 2001, p. 4)

Business-to-business (B2B), in which businesses focus on selling to other businesses, is the largest form of e-commerce. B2B e-commerce has been welcomed as a means of increasing the access of firms, particularly smaller firms, to global markets. According to John Humphrey et al. (2003), ‘business-to-business (B2B) e-commerce is widely believed to promise a radical change in the way that firms trade with one another. B2B e-commerce applications are being promoted as tools that will enable producer firms in developing countries to reduce their costs substantially, thereby easing their access to global markets.’

Out of these categories, the most common ones are the B2B and B2C. It is however B2B e-commerce that has been predicted to be a new driver of economic growth for developing countries, (Humphery et al., 2003). The report from Strategy Analytics (an international research and consulting firm), notes that ‘global B2B e-commerce transactions will grow from \$226 billion in 2001 to \$2.02 trillion in 2006’, (Bellomy 2002 as quoted by Raisinghani et al. 2002). It is from this conviction we feel, we need to develop a regional framework that will enable small and

medium enterprises (SMEs) in Kenya venture into applications that will help them grow with the growing digital economy.

According to research finding by Kinyanjui et. al.,(2002), most firms in the garment industry in Kenya had 'only limited use of B2B e-commerce'. This is despite the fact that most firms were found to be selling their products in external markets, and would therefore be expected to be prime candidates for developing applications of computer-mediated trading. The author notes, 'the firms were participating in B2B e-commerce if the use of e-mail and the Web is included in the definition of B2B e-commerce.' This definition would only be touching on a small aspect of e-commerce which is information exchange. This leaves out very crucial aspects of e-commerce mainly the negotiation and the actual fulfillment of the buying and selling, its associated logistics and payment to be done manually. This clearly is a reflection of the under utilization of the potential presented by e-commerce.

2.4 Electronic Marketplace

According to Raisinghani et al. (2002), the possible forms of online marketplace are point-to-point connections (extranet), or e-marketplaces (Independent Trading Exchange (ITE)). The extranets only works for organizations with well structured long-relationships. This cannot work with dynamic nature of e-commerce experienced in a competitive market which requires adjustment depending on the prevailing circumstances. B2B and B2C e-commerce must therefore use the electronic marketplace. Internet-based electronic marketplaces (EMPs) are "open electronic platforms facilitating activities related to transactions and interactions between multiple companies"(Holzmuller and Schluchter, 2002). As earlier stated, EMPs are virtual technology-enabled trading spaces that facilitate the exchange of information, goods, services, and payments among multiple buyers and sellers across companies.

EMPs are an integral part of conducting business online and are expected to evolve with time providing varying services. They are expected to evolved from pure competitive markets that support buyer/seller aggregation, to supporting transactions, and finally to support integration and collaboration among firms with existing business relationships (Ganesh, 2004). According to Raisinghani et al. (2002), e-marketplaces can be either one-to-many or many-to-many environments. The key pricing mechanisms are fixed/static pricing (i.e., catalog-type/aggregator sales), and dynamic/variable pricing which includes both exchanges and auctions where price is negotiated in real time. An auction is one buyer and many sellers, or one seller and many buyers, whereas an exchange is many buyers and many sellers. Figure 2.2 below illustrates different types of e-marketplaces, where S standards for Seller, M for Marketplace and B for Buyer.

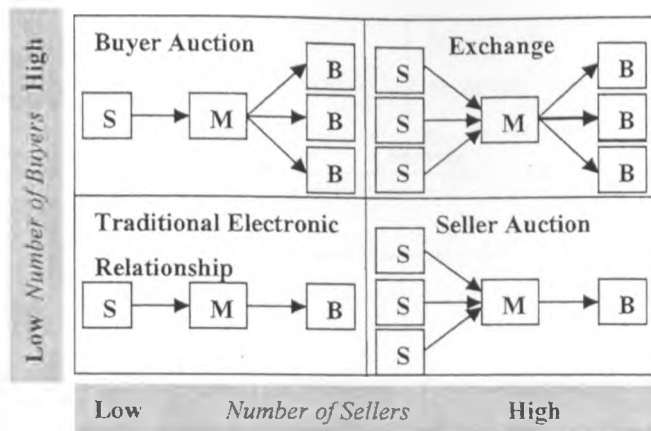


Figure 2.2: Types of E-Marketplaces (Raisinghani et al. 2002)

Most of Kenyans e-marketplaces are either seller auction or buyer auction. Though there has been some substantial growth in e-marketplaces since 2006, when only one was reported to be existing (Sakari 2006), their full potential are yet to be realized. Past research on this area in Kenya focused on critical success factors of e-marketplace (Sakari 2006). Lack of serious proliferation of EMPs and slow rate of evolution towards market exchanges indicate some underlying problems that need to be researched and solved. This is our drive towards a suitable framework to fit Kenyan situation and allow e-marketplaces support integration and collaboration among firms with existing relationship.

According to Raisinghani & Henebeck (2002), e-marketplaces differ fundamentally in four axes:

1. Level of information provided (e.g., price, availability, and range of substitutes).
2. Breadth of services offered (e.g., quality assurance, financing credit risk, and customer support).
3. Type of market-making mechanism (i.e., the way transactions occur, such as Dutch auctions, reverse auctions, real-time transactions, and collaborative negotiations).
4. Enabling technology (e.g., web shopping agents, content management, levels of database, and transaction infrastructure).

The four are therefore considered as the dimensions of electronic marketplace. Figure 2.3 below summarizes these dimensions.

The success and effectiveness of any e-marketplace will heavily rely on how well these axes are developed and managed. We are of the view that enabling technology is the bedrock and determinant of how the rest fairs. Much of the past researches on the area of e-marketplace in Kenya, have not systematically addressed this area. If proper frameworks suitable for our environment are developed, some of the barriers to adoption and proliferation of e-marketplaces would be resolved.

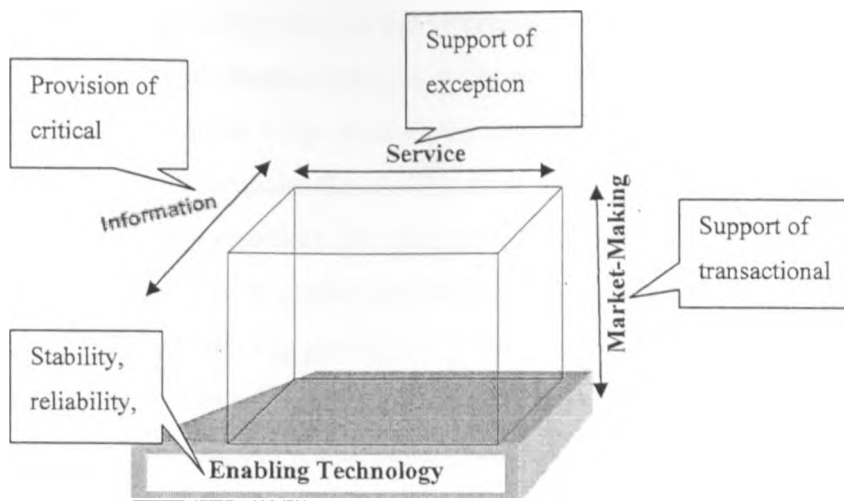


Figure 2.3: Four dimensions of E-Marketplaces (Raisinghani et al. 2002).

The enabling technology determines the stage of maturation of the e-marketplaces. According to the study by Raisinghani & Henebeck (2002), there are four levels of maturation of E-marketplaces (Figure 2.4). The levels are determined by the richness of content and the ability to execute. Below is a framework to demonstrate this:

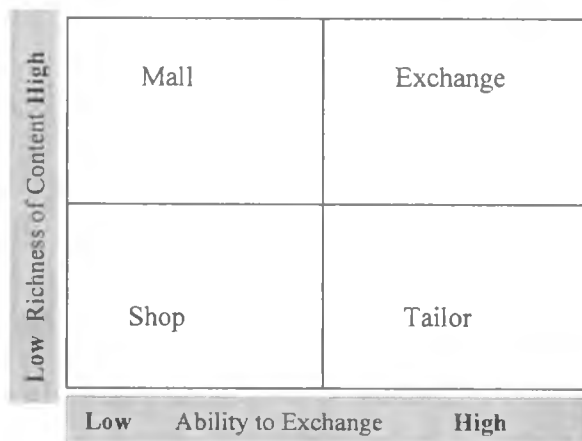


Figure 2.4: Framework for the Evolution of E-Marketplaces (Raisinghani et al. 2002).

The study argues that ‘the ability to execute and the richness of content are key strategic success factors for private and public exchanges.’ It continues to argue that ‘a combination of both can create substantial competitive advantage and can even lead to market domination.’ We do agree with the view and add that the achievement of the two will be made possible by having a stable and reliable framework.

At e-shop level, it’s mostly information searching that is enabled. This is where majority of Kenyan e-marketplaces are. The ‘Tailors’ provide highly custom-built applications, features and functionalities. They allow transactions like dynamic pricing, price negotiations and some post sales services. The ‘Mall’ evolves from richness of content which naturally originates from the

breadth or depth of knowledge that an E-Marketplace provides. It displays electronic catalogs from several suppliers, and charges commission from them for the sales revenue generated at that site. The exchange is attained when both richness and execution ability are achieved providing information, material and financial flows. The study by Raisinghani & Henebeck (2002) argues that ‘exchanges are likely enablers of collaborative commerce applications between different parties.’ This is what we wish to explore and make it a reality in Kenyan environment.

Another framework for studying growth of E-Marketplaces is based on transaction activities, where they are put into two categories; Information searching and negotiation & fulfillment (Wang et al, 2007). The extent to which the activities are done online determine the stage of the e-marketplace. Below is a summary of this framework:

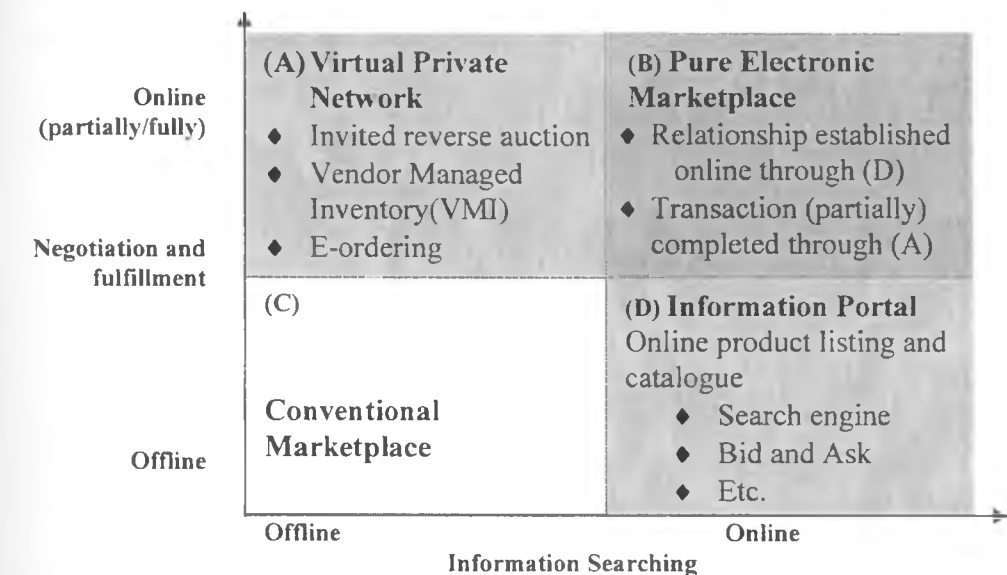


Figure 2.5: Electronic marketplace framework (Wang, S. & Archer, N. 2007).

2.5 Electronic Marketplace Reference Models

A reference model (RM) is a universal generic model that can be used as a blueprint in the development of a field (Becker et. al. 2003). It ‘provides a conceptual framework that should facilitate the creation of domain-specific application models, or descriptions of specific electronic commerce application domains. Such a model should, in turn, provide a foundation for the development of flexible, interoperable, and coherent electronic commerce applications’ (Misic & Zhao undated). There are several RMs proposed so far, but they offer different perspectives and different sets of features. From literature reviewed however, there are two broad categories of RMs for e-commerce;

1. Technically-focused RMs which are based on a layered structure in which factors from different layers collaborate to provide the required functionality, openness, and flexibility (Matook & Vessey, 2008).
2. Business-related RMs which address domains of electronic market.

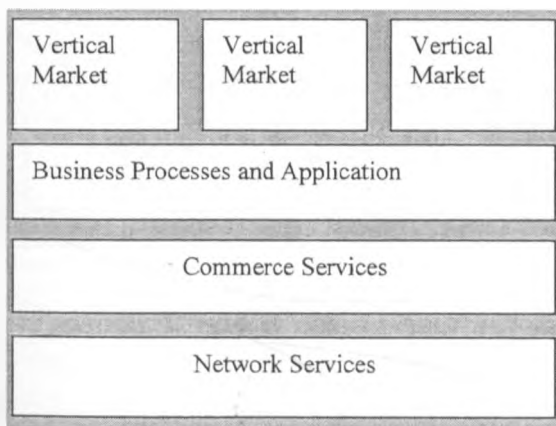
2.5.1 Technically-focused Reference Models

Though there are several proposed models, we wish to focus on three RMs that are from a technological view.

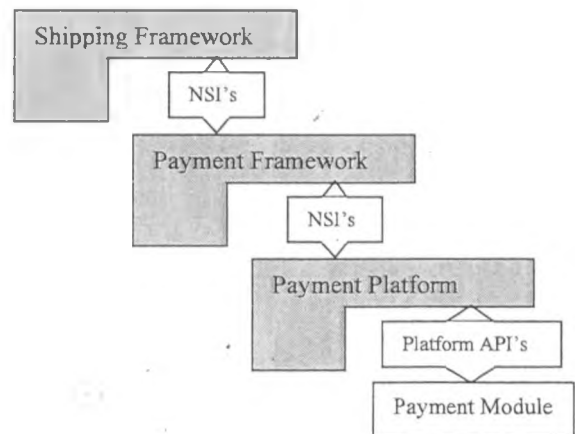
2.5.1.1 The eCo System Framework

The eCo System is an object-oriented architectural framework for Internet commerce that promotes interoperability and reuse of applications and services (Misic & Zhao undated). It uses a layered structure with four general categories:

- a) **Vertical markets layer** - contains services specific to particular Internet markets.
- b) **Business Processes and Applications layer** - contains generic business services common to multiple Internet markets.
- c) **Commerce Services layer** - allow individuals and companies to authenticate themselves and their partners, make payments, collaborate, and participate in Internet markets in any other way.
- d) **Network Services layer** - contains services that enhance the performance, reliability, and security of the net, in order to accommodate different business needs.



(a)



(b)

Figure 2.6: The eCo System: a 'framework of frameworks' (a) and the hierarchical relationship of frameworks (b) (Misic & Zhao undated).

'Each of the eCo System 'frameworks' specifies the core services that all application objects from that layer must provide, a set of messages for requesting the core services, known as the network services interface (NSI), the business objects on which the services operate, and the application

programming interface (API) for any software modules involved in delivering these services’ (Misic & Zhao undated).

2.5.1.2 Object Management Group (OMG) E-Commerce Reference Model

It provides a high-level object-oriented framework for specification of requirements for electronic commerce systems, designed in accordance with OMG's Object Management Architecture – a generic set of components, interfaces, and protocols for distributed object-oriented applications. It is broadly based on the eCo System framework, and it provides a similar multi-layer interoperability framework. Related functional requirements are grouped into a number of containers called facilities. Facilities are, in turn, categorized into market infrastructure services (catalogues, brokerage, and agencies), commerce facilities (such as contract, service management and related desktop facilities, and management and administration of intellectual property rights – IPR), and low level services (these include payment, semantic data facility, profile management, and selection/negotiation).

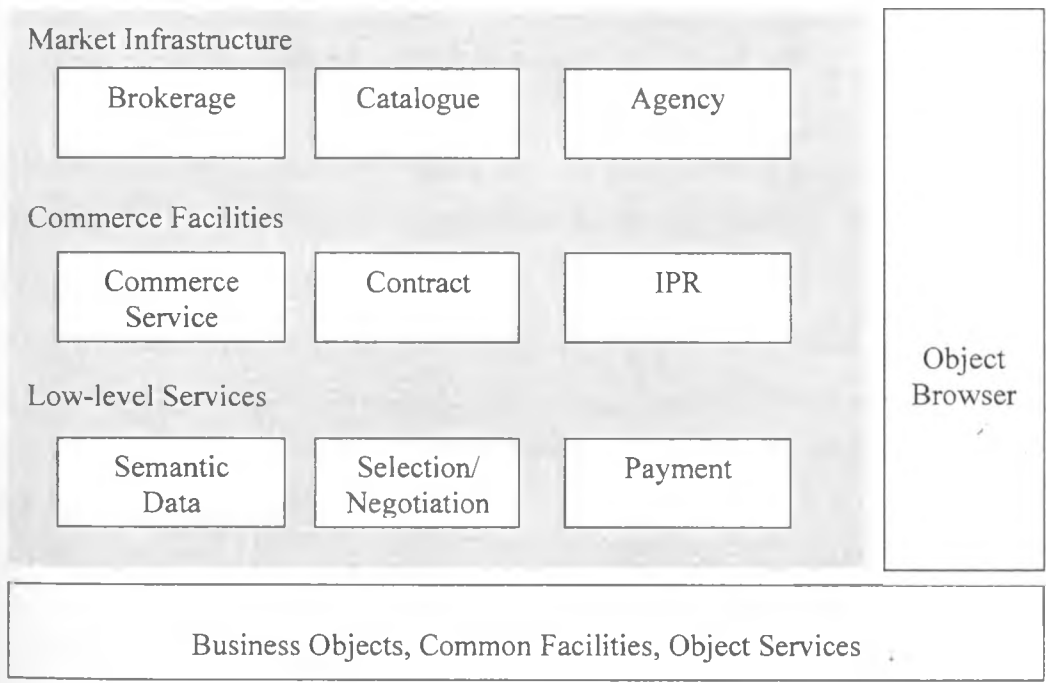


Figure 2.7: OMG E-Commerce Reference Model – principal facilities [Misic & Zhao undated].

The object browser and navigator facility (available to all facilities, regardless of the layer they belong to) introduces an extendible framework for the inspection, presentation and execution of electronic commerce entities.

Since the model is based on an object-oriented systems architecture, each facility is handled as a real object offering interfaces to other objects.

2.5.1.3 Secure Electronic Market Place for Europe (SEMPER)

The model is based on the unified concept of ‘business items’: payments, credentials, and documents or statements.

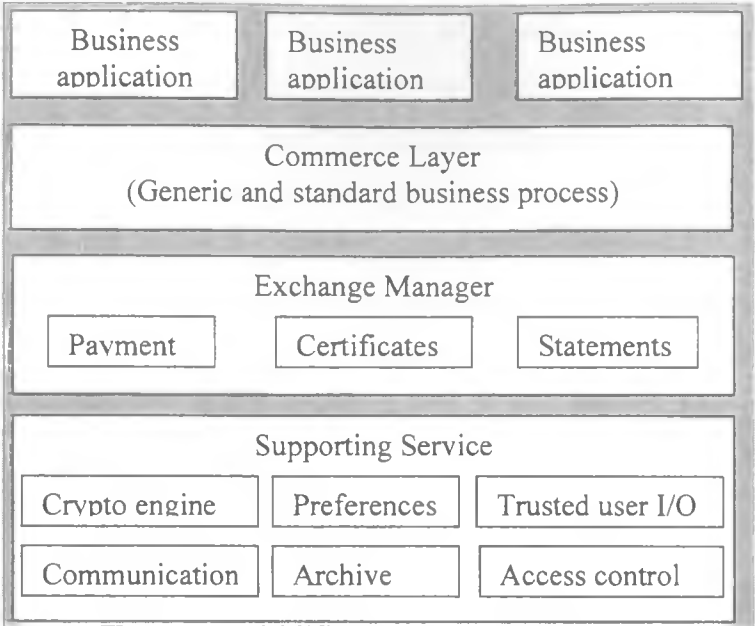


Figure 2.8: The SEMPER architecture [Misic & Zhao undated].

The SEMPER architecture is deliberately kept as open and extendible as possible, which is why its specification is independent of any particular distributed systems architecture.

2.5.2 Business-related Reference Model

The most widely used model is the Schmid and Lindemann’s reference model for electronic markets since it addresses the domain of electronic markets. The RM conceptualizes different aspects of electronic markets as views. Views represent an important characteristic of the reference model for electronic markets.

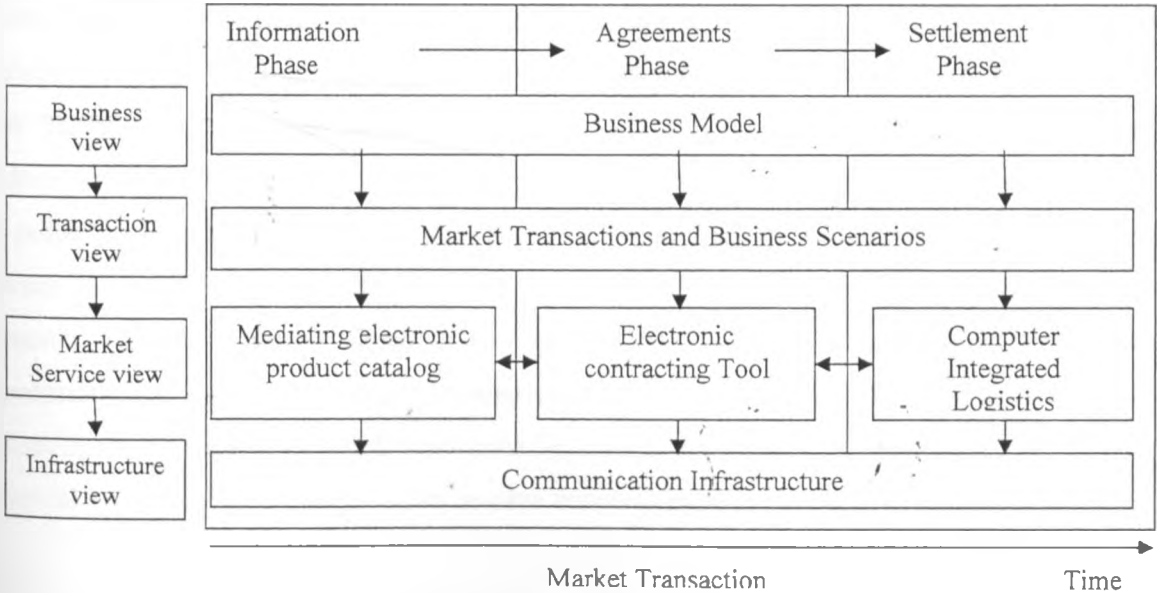


Figure 2.9: Reference Model for Electronic Markets (Schmid & Lindemann 1998)

All the models reviewed have been developed and proposed in environments that are very different from those in developing countries like Kenya. Their emphasis is on technology dimension as the backbone of other dimensions of EMP. That is possible in developed world since they have access to state of the heart technology. In developing countries like Kenya however, we face a serious challenge in access and use of technology. As a result we have some additional challenges that must be handled differently. It is our considered view that applying these models in our context may not give expected results. We therefore wish to use them as the basis for further study to come up with regional framework fitting Kenyan environment. We however wish to adopt SEMPER as the preferred RM in this research. The selection is based on the wide usage of the framework in Europe, which gives an impression it has been tested and proven, hence it can be said to be reliable.

2.5.3 Online Trust Framework

According to research by Mahadevan, B. and Venkatesh, N. S., (2000) on e-commerce in India, which is also a developing country, the slow penetration of e-commerce was due to poor infrastructure and trust issues. According to the authors, 'A 1998 Business week survey showed that privacy is the number one consumer issue facing the Internet'. The survey further established that, '78% of online users would use Internet more and 61% of non-users will begin using the Internet if privacy practices were disclosed.' The author goes on to argue that, 'in online transactions, online consumers often perceive a lack of control over the access others have to their personal information during the online navigation process. Absence of robust mechanisms for addressing online trust increases the risk of trade and creates more friction in the market.' We absolutely share the same opinion. It is therefore our considered proposition that trust is another pillar for establishing a strong EMP that would enhance growth of e-commerce in our region. Without trust, potential EMP participants will shy away from the market hence deterring the growth. Our proposed framework must therefore address the issue of how to build trust.

The framework by Mahadevan, B. and Venkatesh, N. S., (2000) on building trust further underscores the importance of legal framework in fostering trust in EMP. The participants need to be protected from unscrupulous players and be assured there exist judicial mechanisms to give redress in case any of the participating parties feel offended. Information technology being such a dynamic field, it is always ahead of law in any given society. There is therefore need for appropriate policies to be in place to supplement existing laws to guide E-Commerce market transactions and code of conduct. Traditionally, legal frameworks are country specific. However, a typical E-Commerce transaction can involve business entities cutting across several countries. It

is from this point of information we hold a proposition that policies must be an important pillar to EMP of any given region.

Mahadevan, B. and Venkatesh, N. S., (2000) suggested online trust has four dimensions as shown below.



Figure 2.10 Dimensions of Online Trust (Mahadevan, B. and Venkatesh, N. S., 2000)

This framework captures a very important aspect of electronic marketplace especially in developing countries. However, the framework subject is only one of the dimensions that is necessary in developing and management of an EMP. We therefore find it does not represent the full picture of electronic marketplace.

From the reviewed work, we have not found any existing framework or model that can be applied directly in our region. We therefore need to come up with one that fits our environment. In coming up with the framework, we will extract ideas from the existing ones to formulate a new one, that we think will best serve Kenyan environment.

CHAPTER 3

THE CONCEPTUAL FRAMEWORK

3.1 Deriving the Conceptual Framework

We wish to combine research findings of Raisinghani & Henebeck (2002), and Wang, S. & Archer, N., (2007). What Raisinghani et al., (2002) refers to service and market-making matches with what Wang et al., (2007) calls negotiation and fulfillment. They both agree on the information dimension. We therefore take Information, Service and Market-Maker as key dimensions of any EMP. These however must be resultant of some interplay of some other dimensions, one of them being technology, as evidently depicted by Raisinghani & Henebeck (2002) in figure 2.1. Since in developing countries like Kenya technology is one of the challenges we face, we are of the view that EMPs must have other pillars to support them if they are to be successful. This is where we make reference to Mahadevan, B. et al., (2000) framework.

We advanced a proposition that Technology, Trust and Policy are the dimensions whose interplay determines the Service, Market-Maker and Information of a given online market place. The sustainability of the electronic marketplace is then determined by a number of factors, key among them, maturation level, size of online community, market liquidity and ownership & governance structures. This is diagrammatically represented below.

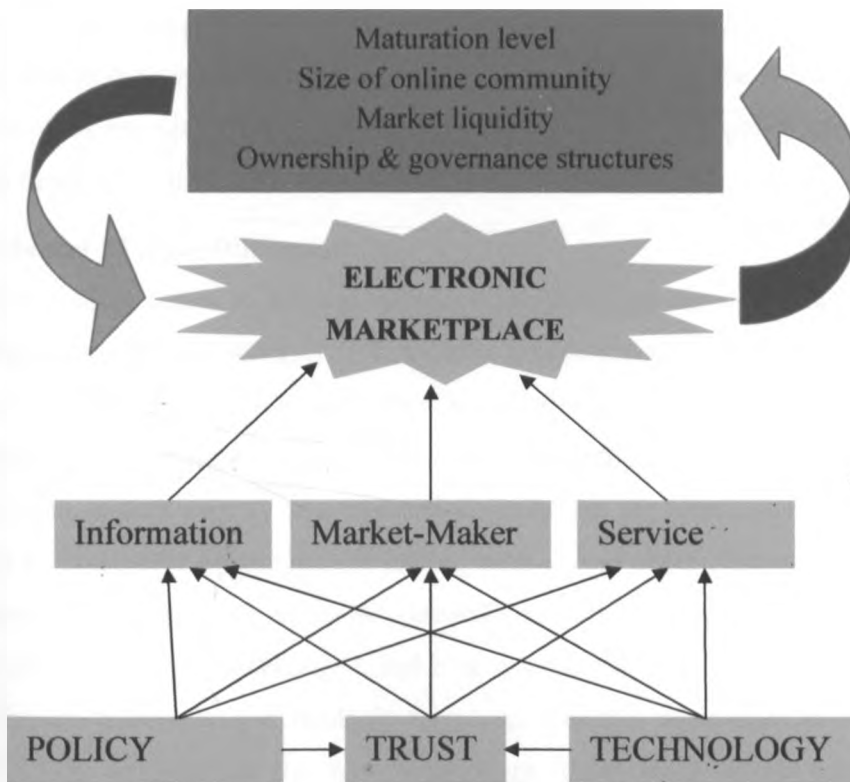


Figure 3.1: Conceptual Regional Electronic Marketplace ,

In our conceptual framework, Electronic Marketplace is creation of interplay between six dimensions. We have however categorized them into two. One category comprise of Information, Market-Maker and Service. These dimensions must be backed by the second category namely Technology, Policy and Trust. We wish to explain what is entailed in each of the dimensions to form the basis of examining whether necessary components of each dimension exist in our region.

3.2 Information Dimension

The decision to sell or buy in any market depends on the information available to both parties. It is therefore important for correct and timely information be availed to market participants for them to make right decisions. This is why information is such an important dimension in any market. For online market, participating parties don't meet physically, and may not even know each other. This places more demand on the dimension. The parties rely on information on the Electronic Marketplace to make decision. The dimension may be assessed based on;

- ✓ The level or depth of the information provided.
- ✓ The ease of access to the information
- ✓ The authenticity of the information
- ✓ Preservation of the intellectual property rights

Good marketplace should provide in depth information that is easy to access in terms of time spent in searching, cost and technicality involved in attaining the information. The dimension must ensure the information does not get corrupted between the sender and the receive and the sender does not falsify the information. This is where proper policy and technology must be in place to see to it all these factors are observed.

3.3 Market-Making Dimension

Market making refers to the way in which the forces of demand and supply allocate resources through a system of markets. Historically, markets relied on physical mechanisms for their operation. Products, buyers, and sellers were collocated at a physical facility such as a store or centralized marketplace. Negotiations were conducted in person, products were available for inspection, and all aspects of a transaction (including payment and receipt of the actual product) could be completed on site usually ending with a hand shake. The introduction of new electronic market mechanisms is changing the possibilities for how buyers and sellers find each other, how product information is exchanged, and how negotiation occurs. The mechanisms however should not deviate extremely and suddenly from practices that were there in the physical market. For participants to embrace the new technology, there need to be some resemblance of the mechanisms they were used to, then slowly they can adopt new methods. It therefore means, for

given region, one has to make appropriate choices in regard to the market making mechanism to adopt what participants will be comfortable with. There are a number of market-making mechanisms used in online market. They include;

3.3.1 Catalog Model

Online Catalog is an Internet-based presentation of a set of items available for purchase, including description, price, and ordering information. The idea is to collect the catalog data of every supplier in a particular industry and places it on one central Web resource to make it easy for the buyer to access the information.

This creates value by aggregating suppliers and buyers. It works best in industries characterized by fragmented buyers and sellers who transact frequently for relatively small-ticket items. The catalog model also works well when most purchasing takes place with prequalified suppliers and with predefined business rules, and the occasional purchase requires searching across a number of smaller suppliers. Finally, it works best for situations where demand is predictable, and prices do not fluctuate too frequently.

3.3.2 Auction Models

An auction refers to a public sale of goods or services in which prospective purchasers bid against each other until the highest price (or lowest in case of reverse auction) is reached. In an auction, the price is neither set nor arrived at by negotiation, but is discovered through the process of competitive and open bidding. There are two major types of auction; (1) Forward/regular auction in which several buyers bid for one seller's good(s) or service(s) and (2) Reverse auction in which several sellers bid for one buyer's order. An auction is complete (and a binding contract is created) when a bid is accepted by the seller or the buyer (as the case may be).

In a forward/regular auction, purchasers are allowed to place a *bid* on an item, which is the amount they are willing to pay in order to buy the item. The person who places the highest bid usually ends up with the item. With a reverse auction, however, the opposite is true. More specifically, the buyer advertises a need for an item or service. Sellers then place bids for the amount they expect to be paid in order to perform such a service or provide such an item. Generally, the seller who places the lowest bid will win the job or sell the item

The auction models create value by spatial matching of buyers and sellers. They work best in industries or settings where one-of-a-kind, non-standard, or perishable products or services need to be bought or sold among businesses that have very different perceptions of value for the product.

3.3.3 Exchange Models

Public Exchanges are trading venues open to all interested parties (many sellers and many buyers) that use a common technology platform and that are usually run by third parties or industry consortia. These exchanges are global in nature, operate 24/7, and connect large communities of buyers and sellers, primarily within the B2B sector.

Exchanges create value by temporal matching of supply and demand. They require a real-time, bid-ask matching process, market wide price determination, as well as a settlement and clearing mechanism.

3.3.4 Barter Models

This refers to trading goods or services in exchange for other goods or services, rather than for money. The models create value by matching two parties that possess reciprocal assets within an asset class or across asset classes.

3.4 Service Dimension

Bakos (1998) categorized market functions into three major services namely;

1. Matching of buyers and sellers
2. Facilitating exchange of Information, goods, services and payments associated with market transactions
3. Providing institutional infrastructure, such as a legal and regulatory framework, that enables the efficient functioning of the market.

The author continues to argue that, “in a modern economy, the first two functions are provided by intermediaries, while the institutional infrastructure is typically the province of governments.” In our case, the third function is being considered as a major pillar of EMP. Our service dimension therefore, focuses on the first two functions.

We wish to agree with Bakos (1998), that, the “ process of matching buyers’ demand with sellers’ product offerings has three main components: determining product offerings, search, and price discovery.” The market needs to aggregate different products, provide easy and faster means of searching for price and product information as well as matching seller offerings with buyer preferences. The market must then provide a suitable mechanism of arriving at the final price of products.

On facilitating of transactions, the service has two components: logistics and payments. Logistics deals with delivery of information, goods or services to the buyer. The traditional market may not have this as an issue since the buyer is there physically and once s/he receives the product or

service immediately. In EMP, this has to be well organized and secure. The buyer needs assurance the products or service will be delivered as agreed.

The payment or settlement is an important issue. The payee need assurance the payment will reach intended recipient without alterations or manipulation. The mode of payment need also be less cumbersome and affordable.

The three dimensions (Information, Market-Maker & Services) are the building blocks of any market, and hence, the way they are handled will determine the adoption and growth of a given region. We are of the view that, the implantation of these dimensions heavily relies on other of an EMP we put in. These are Policy, Trust and Technology. The availability and level of these category two dimensions vary from region to region hence the need for regional frameworks.

3.5 Technology Dimension

This is what makes the difference between conventional markets and the electronic markets. Technology provides new platform and new ways of doing the usual market activities. It transforms the ordinary activities in a conventional market into electronic form. This presents the electronic market with both new opportunities as well as threats. The technology must support the three dimensions of electronic marketplace discussed. It determines how information is presented and accessed, the market-making mechanisms to be used and services available in a given market. It is for this reason we argue, technology is the bedrock of the electronic market. The availability, acceptability and affordability of technology in a given region will greatly determine the electronic marketplace that can be established in the region. It's definitely not the only pillar, but it's a core one. We seek to explore the currently available technology in our region, how the participants (potential and real), view them in terms of acceptability and affordability. We will be seeking to use the available technology to strengthen, popularize and demystify electronic marketplace.

3.6 Policy/legal Dimension

Any game without rules and regulations can never be a fair game. Electronic Marketplace must also operate within laws, regulations and policies of a given region. This is to ensure that participating parties are safe guarded from malpractices, fraud and unfair play from other parties. The technology must operate within the legal framework of a given region. This framework must first and foremost recognize digital materials as admissible in law. The law must recognize digital signatures and certificates as well as other forms of identification. In addition, the law must provide for dispute resolution mechanisms and ensure the rights of participating parties are not

violated. The legal factor is usually the responsibility of the government of a given region together with bodies recognized in the law.

In our case, we will be exploring how existing laws, regulations and policies may be used to enhance the EMP. We will also be seeking to highlight the weaknesses that need to be worked on to make electronic commerce more acceptable and preferred mode of doing business.

3.7 Trust Dimension.

Market participants must trust each other as well as the marketplace itself. We argue that, trust is the glue that bid the entire framework together, without which, the marketplace will exist but will not have participants. Trust for conventional marketplace is easy to build since the participants are meeting physically, can see, touch and feel the products and services being offered for sale. On EMP, parties don't know each other, may be far apart and must only rely on the information available on the market in making decision to buy or sell the product or service. Trust therefore becomes a critical factor each marketplace must work on.

We will be seeking to establish how social cultural issues of our region contribute towards trust and come up with means that can boost trust and confidence levels of the participants. This we belief will change how e-commerce and EMP is viewed in this region, and thereby revolutionalise electronic commerce.

According to Mahadevan et. al, (2000), issues to be dealt with regarding trust are;

- ✓ Security issues
- ✓ Privacy and confidentiality issues
- ✓ Marketplace participant issues
- ✓ Credibility assessment issues

The author argues to counter these issues, the marketplace must build a strong brand equity, increase richness and depth of offering as well as have good ownership and governance structures.

The six dimensions may be summarized as shown in table 3.1 below.

Table 3.1 The Framework Dimensions

DIMENSION	COMPONENTS	DESCRIPTION
Technology	Accessibility	The ease with which participants can access and use a given technology to transact business. Affordability is key.
	Acceptability	Perception and attitude of users.
	Security	Concerns confidentiality, authenticity and generally safety of both users and information.
Trust	Brand Equity	More known and respected brands will be trusted more. Established brands can be used.
	Ownership & Governance	Formal groupings will be trusted more than individuals. They are considered more stable.
	Richness & depth of offering	The completeness of information and transparency of service provider.
Law/Policy	Digital materials	Recognition of digital materials as admissible in court of law. Examples include digital signatures and other form of identification.
	Dispute resolution	Mechanism to resolve disputes when parties disagree in an online transaction.
Information	Ease of access	Ease of locating information required to make decision whether to buy or sell.
	Depth	The completeness of information and the details provided.
	Accountability	Need for non-repudiation.
Market-Maker	Pricing mechanism	Are the prices static or dynamic? Mode of settling on final price.
	Interaction mode	Digital interaction between buyer and seller. Could be in form of email or live chats.
Service	Buyer/seller matching	Provides for buyer and seller to match their enquiry/search with provision of service.
	Payment	Modes of fulfilling financial obligations to complete a transaction.
	Delivery/shipment	How goods/service reach intended destination.

The literature reviewed has shown the e-marketplace is the environment that determines the growth of e-commerce. It has also shown the enabling technology, trust and legal/policy as the bedrock of the development and management of the e-marketplace. There is however no available systematic research in Kenya to show the relationship between these dimensions and their influence on functionalities and usage of e-marketplaces.

This research sought to explore factors related to e-marketplace in Kenyan environment that determine level of adoption and usage of e-marketplace. The conceptual framework is to be validated by collecting data from the market in an attempt to find out whether it reflects facts on the ground.

CHAPTER 4

RESEARCH METHODOLOGY

4.1 Research Design

In this research, e-marketplaces are viewed as enablers of e-commerce. The research was aimed at collecting information about peoples' attitudes, opinions and habits in relation to e-commerce particularly affecting development and management of e-marketplaces. It sought to find out how available technology and infrastructure can be used to enhance e-commerce in Kenyan social cultural environment. The design of the research therefore was a combination of descriptive survey and case study. The findings of our research were used to validate the conceptual e-marketplace framework for Kenyan environment.

4.2 Target Population and Sampling Technique

The target population for our research was the business organizations in Kenya, their customers and software vendors who develop web applications used in the e-commerce. The focus was on the small and medium enterprises (SMEs) and the customer they target mainly being mass market and business enterprises forming B2C and B2B respectively.

Through a stratified random sampling approach on clustered regions, a sample was drawn from Nairobi and its surrounding suburban zones such as Athi River, Thika, Kiambu, and Karen-Ngong.

4.2.1 Sampling Frame

Where time and resources allow, a research should take as big a sample as possible, since this would ensure reliability of the results (Mugenda & Mugenda 2003). Indeed it is desirable to use the entire population whenever possible. In most cases however, researchers have to work with a sample that is as representative as possible to ensure similar results would be obtained even when the entire population is used. The discrepancy between the sample characteristics and the population characteristics is known as sampling error. The smaller the sample, the bigger the sampling error (Mugenda & Mugenda 2003). It is therefore very important to identify the minimum sample size which will give results within acceptable sampling error margin. Both Mugenda & Mugenda (2003) and Kothari (2004) suggest a statistical formula for arriving at a sample size to be;

$$n = \frac{z^2 * p * q}{e^2}$$

where:

n = the desired sample size

z = the standard normal deviate at the required confidence level.

p = the proportion in the target population estimated to have characteristics being measured.

$q = 1 - p$

e = the level of statistical significance set

Kothari (2004) goes on to argue that the formula is suitable in case of infinite population in the universe. In case of finite population, the formula may be changed to;

$$n = \frac{z^2 * p * q * N}{e^2 * (N-1) + z^2 * p * q}$$

Whereby:

- n is the estimate of our sample size
- z is the area under the normal curve as per the table of normal curve. Given the confidence level of 95.5%, z is 2.005.
- N is the estimated population of the target respondents about.
- p the proportion in the target population estimated to have characteristics being measured or based on past experience and $q = 1 - p$. In our case, p was assumed to be 0.02 hence giving q as 0.98
- e is acceptable error, in our case, the estimate should be within 2% (0.02) of the true value.

To arrive at the value of N , the estimated population of the target respondents, we were guided by estimates from Communication Commission of Kenya quarterly sector statistics report for 2nd quarter covering October to December 2009/2010. As of 31st December 2010, the estimate indicated Kenya had 3,995,664 Internet users. We based our estimate on this but raised the figure to 5,000,000 to cater for duration of January to June 2010. The sample size was therefore given by;

$$\begin{aligned} n &= \frac{(2.005)^2 * 0.02 * 0.98 * 5,000,000}{(0.02)^2 * (4,999,999) + (2.005)^2 * 0.02 * 0.98} \\ &= 393962.45 / 2000.078 \\ &= 196.97 \end{aligned}$$

The minimum acceptable number of respondents was taken to be approximately 200.

For the questionnaire targeting SMEs, we were unable to estimate the numbers due to the nature of their setup. We therefore targeted ten (10) SMEs in every region we collected data.

4.3 Research Instruments

In order to collect data that is representative and reliable, four forms of data collection tools were used, namely questionnaire, interview, document study and direct observation.

4.3.1 Questionnaires

This method was used to reach a wider number of respondents from various regions. The choice of the method was based on its wide reach, cost effectiveness, minimal biasness and anonymity which is likely to encourage respondents to give more reliable information. Questionnaires were designed and distributed to target respondents in regions chosen. A pilot was done first before the final questionnaires were distributed.

Two sets of questionnaires were prepared targeting Small and Medium Enterprises in Kenya and the general public. A five (5) point Likert type questions was adopted. The questionnaire largely used closed-ended questions with only a few open-ended. This was mainly to enable analysis of the data collected easier and manageable. Closed-ended questions are faster in answering and coding in statistical applications used in analyzing data. Where necessary however, open-ended questions were introduced to allow respondents to express themselves.

In order to measure validity and reliability, a peer review on the instrument was conducted and there after piloting was carried out. The initial questionnaire used for piloting, returned a Cronbach alpha coefficient of between 0.3 and 0.6, which was lower than the recommended 0.7 and above. After fine tuning of the instrument, the coefficient improved to average of 0.8 which is above the minimum required of 0.7.

4.3.2 Interviews

Personal interviews were carried out to selected few targets to verify data that was collected through questionnaires and other methods. The method allowed us to probe more and deal with issues that were not dealt with by the questionnaires.

The interviews targeted developers and major players in the industry. This is because, they are not many to justify a survey.

4.3.3 Document study

Existing frameworks used in other parts of the world were studied, compared with what is currently happening in our region and developed new framework suitable for our region.

Reports from Communication Commission of Kenya as well as world Internet Stats were also studied.

4.3.4 Observation

Existing electronic marketplaces in Kenya were visited and analyzed with an aim of finding out how they are structured, their functionalities and their maturation levels. Some of the visited site

include; Find.co.ke, maduqa.com, uzanunua.com, enrekenya.com, mamamikes.com, pewahewa.com

4.4 Data Analysis

Once data was collected, we employed SPSS, a statistical application, to analyze and draw conclusions. The findings were used to develop a framework befitting our region and hope it will spur growth of e-commerce through strengthening of its enabling environment which, in our view, is e-marketplaces.

CHAPTER 5

FINDINGS, ANALYSIS AND INTERPRETATIONS

5.1 Introduction

The purpose of going out to collect data was to understand the general perception and awareness about electronic marketplace in Kenya. In this chapter, the research findings are presented following interpretation of the data we collected from general public, small and medium enterprises, as well as the developers of electronic marketplace. This data captured the opinions, attitudes and suggestions of all stakeholders of electronic marketplace. The findings are mainly presented using parametric statistical methods such as frequency tables, cross tabulations, regression analysis and correlation matrices.

5.2 Data Processing and Analysis

Data processing involves editing, coding, classification and tabulation of the collected raw data while analysis refers to computation of certain measures from the coded data in order to get patterns or relationship among data groups. In the survey, a total of 230 questionnaires were administered to general public individuals and 65 to small and medium enterprises in the selected zones. The first step was to examine all the questionnaires in order to eliminate the incomplete and the wrongly filled ones. The elimination process left us with 221 general public and 61 SMEs valid questionnaires which translated to 96.1% and 93.8% respectively.

5.3 Data Coding

In order to analyze the data using SPSS Statistical software, two codebooks were constructed; one for the general public questionnaires and the other for SMEs' questionnaires. For closed and Likert-type perception question, numbers were assigned for each choice provided. For open-ended questions, we scanned through all questionnaires to identify common themes. It is from these themes that we coded the patterns.

5.4 Reliability and Validity Testing

The first step in data analysis was to test for reliability and validity of data collection instruments. Validity refers to the extent we are measuring what we hope to measure (and what we think we are measuring). Reliability on the other hand, is concerned with questions of stability and consistency - does the same measurement tool yield stable and consistent results when repeated over time. For a research to be useful, measurement tools that are both reliable and valid should be used. The questions should yield consistent responses when asked multiple times - this is

reliability. Similarly, the questions should get accurate responses from respondents - this is validity.

5.4.1 Validity Test

A valid measure should satisfy four criteria. We did test our tools using the four criteria, and the results were satisfactory. The four are;

5.4.1.1 Face Validity

This criterion is an assessment of whether a measure appears, on the face of it, to measure the concept it is intended to measure. It only requires an intuitive judgment. This was done by categorizing questions into sections each targeting an area in research problem. This made it easy to very quickly see what the questionnaire is meant to be measuring.

5.4.1.2 Content Validity

Content validity concerns the extent to which a measure adequately represents all facets of a concept. It is a non-statistical type of validity that involves the systematic examination of the test content to determine whether it covers a representative sample of the behaviour domain. Such validity testing is done by a panel of experts who review the specifications of selected items. Through their recommendation, the content validity of a test can be improved. This was done during the piloting of the questionnaires. Necessary adjustments were then done following input of chosen pilot sample.

5.4.1.3 Construct Validity

Construct validity refers to the totality of evidence about whether a particular operationalization of a construct adequately represents what is intended by theoretical account of the construct being measured. It concerns the extent to which a measure is related to other measures as specified by theory or previous research. Such lines of evidence include statistical analyses of the internal structure of the test including the relationships between responses to different test items.

5.4.1.4 Criterion-Related Validity

Criterion-related validity applies to instruments that have been developed for usefulness as indicator of specific trait or behavior, either now or in the future.

5.4.2 Reliability Test

There are two ways that reliability is usually estimated namely test/retest and internal consistency. The idea behind test/retest is that, when a researcher administers the same measurement tool multiple times - asks the same question, follows the same research procedures, etc., he/she should obtain consistent results, assuming that there has been no change in whatever is being measured.

On the other hand, internal consistency estimates reliability by grouping questions in a questionnaire that measure the same concept.

Internal consistency test for reliability was used, employing Cronbach Alpha coefficient method. Using this method, the minimum proposed coefficient is 0.7. The closer the coefficient is to 1, the better, meaning the tool’s reliability is good.

The questionnaires had three main sections relating to technology, trust and policy/legal framework. In the questionnaire targeting general public, the three sections returned Cronbach Alpha coefficients of 0.8070, 0.8501, 0.7468 respectively. For the questionnaire targeting small and medium enterprises (SMEs), the three sections returned Cronbach Alpha coefficients of 0.7345, 0.8131, 0.7311 respectively. In both questionnaires, all sections returned alpha coefficient higher than the minimum recommended of 0.7. Therefore the results demonstrate that the questionnaires were reliable measurement instruments. Below are sample SPSS test output showing the reliability test obtained.

```
***** Method 1 (space saver) will be used for this analysis*****
```

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)				
Item-total Statistics				
	Scale	Scale	Corrected	
	Mean	Variance	Item-	Alpha
	if Item	if Item	Total	if Item
	Deleted	Deleted	Correlation	Deleted
Q21LITER	46.1765	82.5733	.7163	.7798
Q22NET	46.1086	82.3972	.7345	.7789
Q23NETAC	45.7783	83.8733	.5978	.7857
Q25SURFP	47.2624	83.9035	.4343	.7948
Q26ICONS	46.5701	86.0644	.5414	.7905
Q27ICOST	46.5113	86.2783	.5025	.7921
Q24ACMOD	47.8733	89.9566	.2885	.8037
Q28MMTS	46.8326	85.3946	.3088	.8058
Q29MMAMT	47.8145	87.9427	.2545	.8083
Q210EBT	47.0633	81.3869	.5518	.7858
Q210CARD	47.1267	84.9293	.4057	.7968
Q210MMT	46.3801	89.4549	.2473	.8070
Q31EMPAW	47.0136	82.8407	.6015	.7844
Q32EMVIS	47.7195	84.2573	.4278	.7952
Q33CHALL	47.5520	89.3666	.1724	.8160
Q34PRICE	47.7104	90.1067	.1489	.8174

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~
```

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)	
Reliability Coefficients	
N of Cases =	221.0
N of Items = 16	
Alpha =	.8070

Figure 5.1 Reliability analysis of the general public questionnaire

***** Method 2 (covariance matrix) will be used for this analysis *****

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

		Mean	Std Dev	Cases
1.	Q42SAFET	3.0000	1.2247	61.0
2.	Q43VETIN	3.4754	1.2859	61.0
3.	Q44SHARE	2.5902	1.5956	61.0
4.	Q45EBT	2.9672	1.2243	61.0
5.	Q45CARDS	2.8361	.9862	61.0
6.	Q45MMT	3.6230	1.1279	61.0

Correlation Matrix

	Q42SAFET	Q43VETIN	Q44SHARE	Q45EBT	Q45CARDS	Q45MMT
Q42SAFET	1.0000					
Q43VETIN	.6985	1.0000				
Q44SHARE	.5458	.5271	1.0000			
Q45EBT	.4446	.5817	.5476	1.0000		
Q45CARDS	.6761	.6144	.4544	.5338	1.0000	
Q45MMT	.1689	.1486	.1442	.0512	.2581	1.0000

N of Cases = 61.0

Statistics for	Mean	Variance	Std Dev	N of
Scale	18.4918	29.2874	5.4118	Variables
				6

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
Q42SAFET	15.4918	20.0208	.7086	.6175	.7541
Q43VETIN	15.0164	19.4497	.7216	.5914	.7494
Q44SHARE	15.9016	18.3568	.6133	.4223	.7803
Q45EBT	15.5246	21.0536	.5995	.4695	.7783
Q45CARDS	15.6557	21.8295	.7037	.5568	.7650
Q45MMT	14.8689	25.8825	.1858	.0842	.8554

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

Reliability Coefficients 6 items

Alpha = .8131 Standardized item alpha = .8168

Figure 5.2 Reliability analysis of the SMEs questionnaire

5.5 Detailed analysis of responses from General Public.

In this section, a detailed analysis of the responses obtained from the 221 valid responses from general public that should represent the mass market participants in Electronic Marketplace is given. The general public represents a business-to-customer (B2C) market, which indeed should form the largest market in EMP. To make the data representative, the target group was segmented

according to gender, age, level of education and income levels to take care of various interests in the market. Below is more detailed analysis.

5.5.1 Demographic analysis of the respondents

Respondent Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not stated	4	1.8	1.8	1.8
	Male	128	57.9	57.9	59.7
	Female	89	40.3	40.3	100.0
	Total	221	100.0	100.0	

Table 5.1 Gender distribution

The distribution of questionnaires was balanced on the gender, but male respondent were more willing to participate than female respondents. There were a few cases where respondents did not state their gender. The representation based on gender is however quite satisfactory.

It is our considered view that people of different age groups embrace and use technology differently. The distribution therefore tried to capture adults of various age groups. Majority however were between 18 and 50 years.

Respondent age in Years

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not stated	22	10.0	10.0	10.0
	18-30	109	49.3	49.3	59.3
	31-50	76	34.4	34.4	93.7
	51 & Above	14	6.3	6.3	100.0
	Total	221	100.0	100.0	

Table 5.2: Age distribution

The respondents also represented all levels of education meaning the findings from the data are not skewed in relation to education status. Majority of the respondents were however holders of post secondary certificate or Diploma. We can infer the literacy level in the country is reasonably good.

Respondent education level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not stated	9	4.1	4.1	4.1
	Primary	5	2.3	2.3	6.3
	Secondary	19	8.6	8.6	14.9
	Certificate/Diploma	104	47.1	47.1	62.0
	Graduate	55	24.9	24.9	86.9
	Postgraduate	29	13.1	13.1	100.0
	Total	221	100.0	100.0	

Table 5.3: Education level distribution

The respondents also represent a varied income levels and we sought to establish how this variable affects adoption and use of technology. The data indicates more than 56% earn KSh. 35,000 and below per month.

Monthly income in KSh.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not stated	32	14.5	14.5	14.5
	<=20,000	61	27.6	27.6	42.1
	20,001 - 35,000	63	28.5	28.5	70.6
	35,001 - 50,000	28	12.7	12.7	83.3
	Above 50,000	37	16.7	16.7	100.0
	Total	221	100.0	100.0	

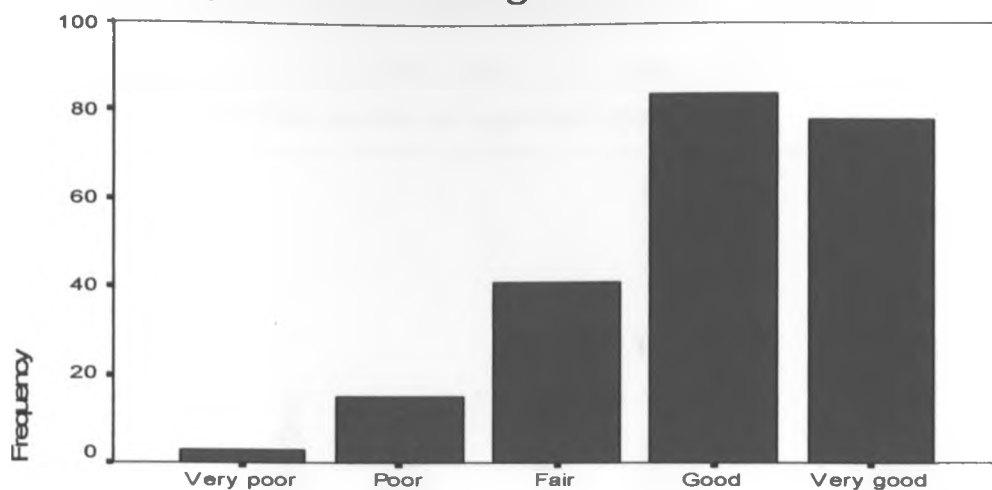
Table 5.4: Income level distribution

5.5.2 Technology Dimension

It has already been shown in the literature reviewed that technology is the bedrock of electronic commerce and its enabling environment, the electronic marketplace. The research sought to establish whether the region has access to technology on which Electronic Marketplace runs and how participants were using the that technology in relation to electronic trading. We specifically sought to establish the computer and Internet literacy levels, how respondents in the region access the Internet, their perception about its cost and speed of connectivity and their awareness concerning EMPs. The researches sought to establish available modes of payment available and acceptable in the region. On this, we sought to establish the willingness of Kenyan population to do online payments using bank transfers, credit/debit cards and also mobile money transfer.

The research shows majority of respondents are either good or very good in using the internet. The survey found out 73.3% of the respondents consider themselves either good or very good in using the net. This is a good indicator that the mass market can actually be reached. It was established 60.6% of people living in Nairobi and it sub ups access internet on daily basis mainly using computers at workplaces and their mobiles phones. Form this, it can be infered that most organizations do have internet connectivity. This is confirmed by survey of SMEs. It proved 77% of SMEs have got internet connectivity. It was noted a number of respondents are using mobile phones to browse. This represents a significant market that can be targeted by implementers of electronic marketplace. Figures 5.3 and 5.4 shows the distribution on computer literacy and Internet access variables. The high number of respondents accessing Internet daily could be attributed to mode of accessing the Internet and the place of access. Majority were using both computer and mobile phone as mode of access, while workplace topped the place of access. Table 4.6 summarizes the relationship between mode of access and place of access. Those who indicated place of access as ‘others’, specified learning institution as where they surf from.

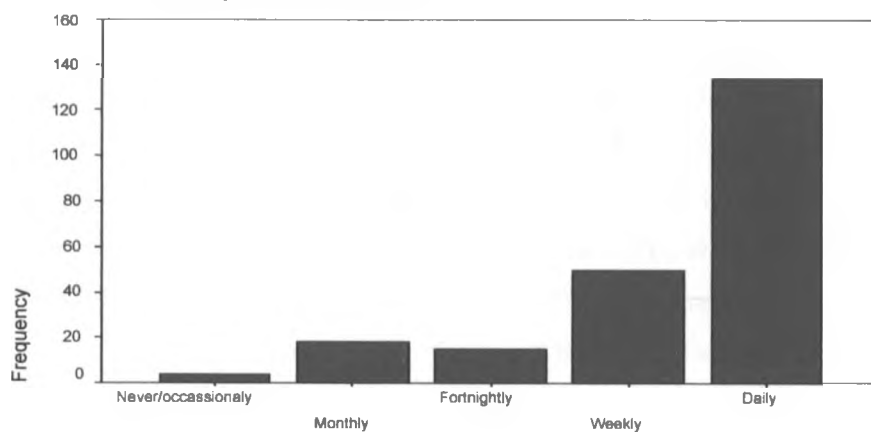
Competence in using Internet.



Competence in using Internet.

Figure 5.3 rating of internet usage competence.

Frequency of Internet access



Frequency of Internet access

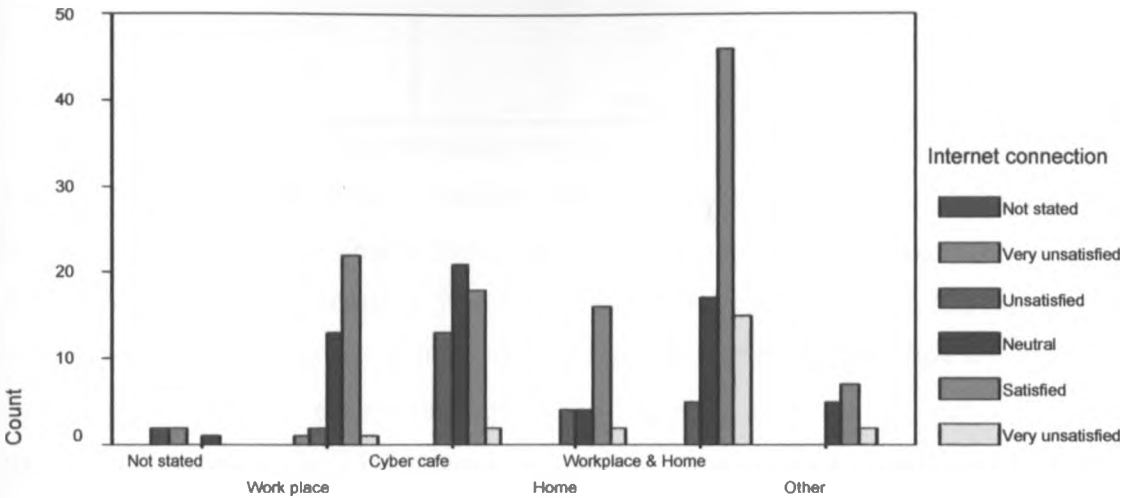
Figure 5.4Internet access frequency.

Count

		Place of surfing mostly						Total
		Not stated	Work place	Cyber cafe	Home	Workplace & Home	Other	
Frequency of Internet access	Never/occasionally	2	0	1	1	0	0	4
	Monthly	2	5	7	4	0	0	18
	Fortnightly	1	1	9	0	4	0	15
	Weekly	0	3	23	9	12	3	50
	Daily	0	30	14	12	67	11	134
Total		5	39	54	26	83	14	221

Table 5.5: Frequency of Internet access Vs. Place of surfing Crosstabulation.

On the satisfaction levels of the internet connectivity, majority responded that they were satisfied with the connection speeds available to them. Those browsing from workplace, home or both, did indicate they are satisfied with internet speeds. For those surfing mostly from the cyber, the difference between unsatisfied, neutral and satisfied is marginal.



Place of surfing mostly
Figure 5.5 Place of surfing verses Internet speeds satisfaction

The cost of the internet is still considerably high according to the survey. A total of 51.1% consider the costs either high or very high. It was however noted a few who think the cost is low. This could be attributed to the ongoing promotions from mobile service providers and other players in the industry. Some mobile service providers are currently charging KSh.1,000 for one month unlimited internet access. It is however expected that with the introduction of the optic fiber cables, the cost of Internet connectivity will be lowered and widen the reach.

The table below gives a summary of our finding.

Table 5.6: Internet connectivity cost visa viz bandwidth size

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not stated	2	.9	.9	.9
	Very low	3	1.4	1.4	2.3
	Low	13	5.9	5.9	8.1
	Fair	90	40.7	40.7	48.9
	High	71	32.1	32.1	81.0
	Very high	42	19.0	19.0	100.0
	Total	221	100.0	100.0	

On the awareness of the electronic marketplace concept, 66% indicated fair or high. This is however not reflected when we asked how often they visit sites dealing with buying and selling of products and services online. 25.8% indicated they have never visited such sites, while 43.9% occasionally visits such sites. The frequency tables below show more details on same.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	57	25.8	25.8	25.8
	Occasionally	97	43.9	43.9	69.7
	Monthly	21	9.5	9.5	79.2
	Fortnightly	21	9.5	9.5	88.7
	Weekly	22	10.0	10.0	98.6
	Daily	3	1.4	1.4	100.0
	Total	221	100.0	100.0	

Table 5.7: Visits to sites with online buying and selling.

From the interviews conducted to validate data, we established majority of them know much about electronic marketing. This is mainly advertising, but no actual trading taking place. This is only part of electronic marketplace. This confirms our opinion given during literature review, that Kenyan electronic marketplace is at electronic shop level of maturation. This was shown clearly when small and medium enterprises were asked about the contents of their website. Majority responded that their sites give information only with a few with free downloads.

It was also established only a few who have transacted online, with 71.5% having never bought or sold anything through the online market.

We sought to establish main challenges to online trading in the region. The major one was lack of trust with the process at 29.9%. A close figure at 25.3% a piece, considered payments mode and the entire process complicated. This confirms trust as an important pillar for EMP framework.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not stated	19	8.6	8.6	8.6
	Complicated process	56	25.3	25.3	33.9
	Expensive process	15	6.8	6.8	40.7
	Payment Modes	56	25.3	25.3	66.1
	Don't trust process	66	29.9	29.9	95.9
	Others	9	4.1	4.1	100.0
	Total	221	100.0	100.0	

Table 5.8: Challenges with transacting in EMP

To establish the modes of payment used for e-transactions, those who have bought or sold anything electronically were selected, and sought to know how the payment was done. Majority used electronic bank transfers at 42.6% and 21.3% used credit/debit cards. Surprisingly, 16.4% used cash/cheque, which is more common in brick and mortar transactions.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not stated	2	3.3	3.3	3.3
	Cash/Cheque	10	16.4	16.4	19.7
	Mobile Money Transfer	9	14.8	14.8	34.4
	Credit/debit cards	13	21.3	21.3	55.7
	Bank Transfer	26	42.6	42.6	98.4
	Others	1	1.6	1.6	100.0
	Total	61	100.0	100.0	

Table 5.9: Mode of payment used in e-transaction

The confidence levels of various modes of payment that may be used in e-transactions was also sought.

	Confidence in Electronic Bank Transfer payment mode	Confidence in Credit/Debit cards payment mode	Confidence in Mobile Money Transfer payment mode
	%	%	%
Not stated	.5%	1.4%	.9%
Very Low	19.5%	14.5%	5.0%
Low	11.8%	18.1%	7.2%
Neutral	24.4%	32.1%	24.4%
High	32.1%	19.5%	33.0%
Very High	11.8%	14.5%	29.4%

Table 5.10: Payment mode Confidence levels

It is clear from the above table, the preferred mode of payment is mobile money transfer. The payment mode of an EMP for the region should therefore integrate payment using mobile money in the web. This may be supported by the frequency of how respondents use money mobile transfer services. Only 3% of respondents have not used this service.

The graph below shows the preferred modes of market-making by the respondent.

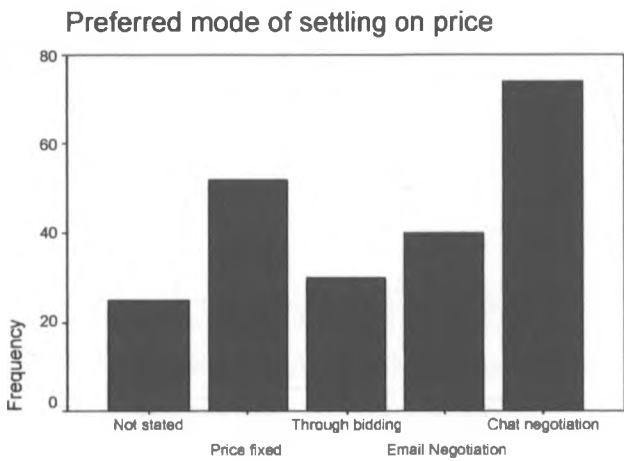


Figure 5.6 preferred mode of market-making(Negotiations)

A total of 51.6% prefer negotiation either through email (18.1%) or live chats (33.5%). This is understandable since in the brick and mortar system, participants negotiate and they definitely wish to carry it over. This is also viewed as a way of giving the process human face.

To assess whether technology component has impact on the use of EMP, we did correlation analysis. To interpret the strength of relationship from the value of Pearson correlation (r), we adopted Cohen (1998) guidelines. The author suggests absolute value of r in the range of 0.10 to 0.29 represent small strength, 0.30 to 0.49 is medium while 0.50 to 1.0 is large. From the

correlations shown in the table below, there is positive relationship between Internet literacy and satisfaction levels and use of EMPs.

		Competence in using Internet.	Frequency of Internet access	Internet connection satisfaction	Awareness of EMP concept.	Frequency of visiting EMPs	Ever transacted using EMP?
Competence in using Internet.	Pearson Correlation	1	.731(**)	.543(**)	.479(**)	.276(**)	.188(**)
	Sig. (2-tailed)		.000	.000	.000	.000	.005
	N	221	221	221	221	221	221
Frequency of Internet access	Pearson Correlation	.731(**)	1	.520(**)	.376(**)	.270(**)	.105
	Sig. (2-tailed)	.000		.000	.000	.000	.120
	N	221	221	221	221	221	221
Internet connection satisfaction	Pearson Correlation	.543(**)	.520(**)	1	.322(**)	.340(**)	.124
	Sig. (2-tailed)	.000	.000		.000	.000	.065
	N	221	221	221	221	221	221
Awareness of EMP concept.	Pearson Correlation	.479(**)	.376(**)	.322(**)	1	.503(**)	.379(**)
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	221	221	221	221	221	221
Frequency of visiting EMPs	Pearson Correlation	.276(**)	.270(**)	.340(**)	.503(**)	1	.424(**)
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	221	221	221	221	221	221
Ever transacted using EMP?	Pearson Correlation	.188(**)	.105	.124	.379(**)	.424(**)	1
	Sig. (2-tailed)	.005	.120	.065	.000	.000	
	N	221	221	221	221	221	221

** Correlation is significant at the 0.01 level (2-tailed).

Table 5.11: Technology and EMP usage correlation

From the above table we can infer that the more competent they are in using the internet, the more regular they browse. The satisfaction level and frequency of browsing also showed a strong positive relationship. The visits to EMP are strongly dependant on the awareness of the concept. There is need therefore to create awareness of using the internet to do business in the region.

5.5.3 Trust Dimension

Lack of trust has already being cited as one of the major challenge in usage of EMP in the region. We sought to find out some of the contributing factors toward low trust levels. Firstly they consider information on the EMP easily to be manipulated. Majority (at 72.4%) are not sure or consider information unsafe. This explains why only a few are using EMP to trade. There is need therefore for them to be assured the technology behind EMP is safe enough.

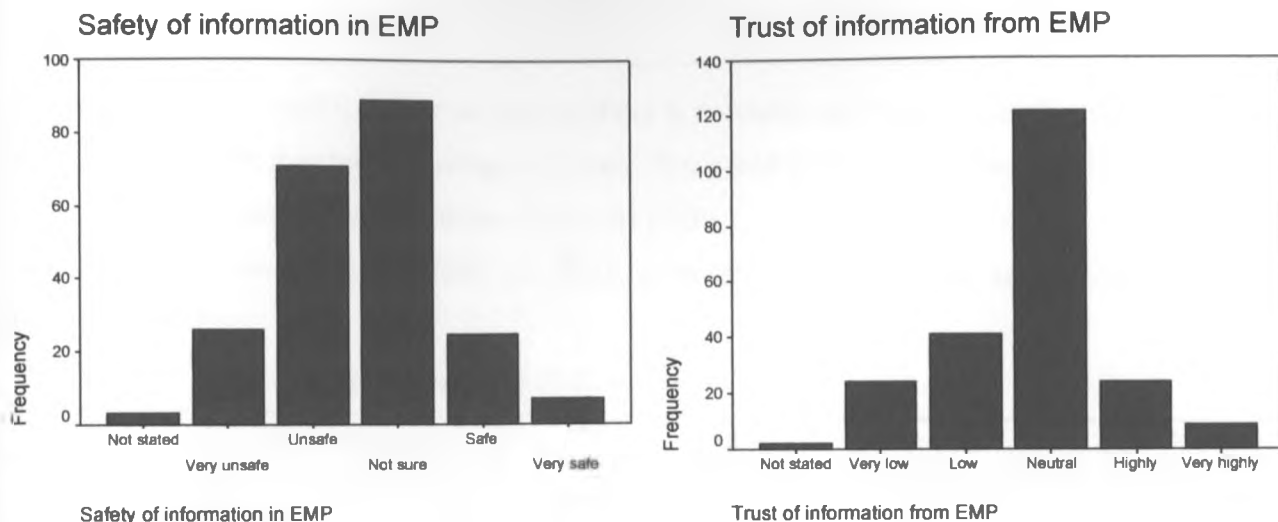
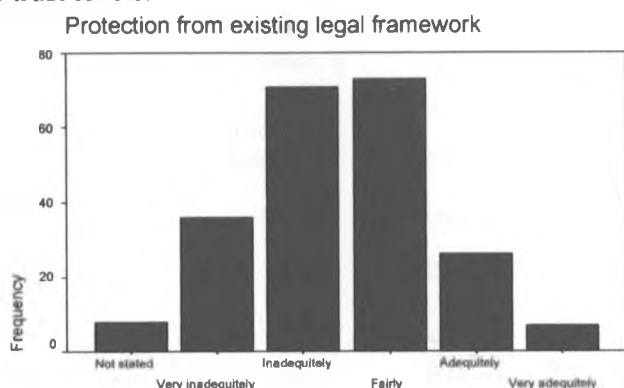


Figure 5.7 EMP trust levels

The policy/legal framework is the other aspect we sought to establish whether it has influence on the trust levels.

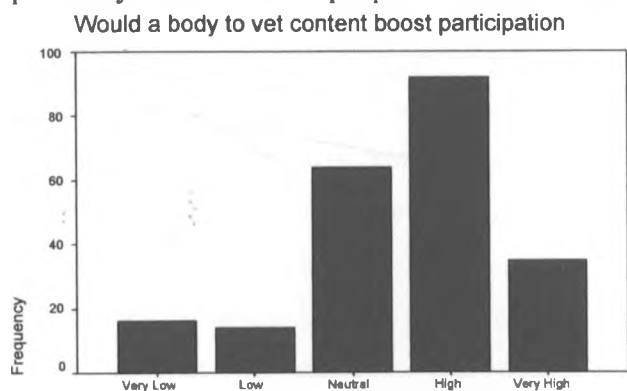


Protection from existing legal framework

Figure 5.8 Legal protection perceptions

Evidently, majority feel inadequately or fairly protected by the current legal framework. This definitely lowers the trust levels with the users.

It was however established that should there be a body to vet the content and operations of EMPs, it would positively influence more people to do e-transactions.



Would a body to vet content boost participation

Figure 5.9 extent a vetting body would have towards EMP usage

The perception of the public is that as long as there is no check and balances on the electronic trading, some players may take advantage of others. This could be handled by having a body that will be using trust marks as identification of genuine EMPs.

The relationship between use of EMP and trust issues may be summarized using correlation analysis table below.

Table 5.12: EMP usage and trust levels Correlations

		Frequency of visiting EMPs	Ever transacted using EMP?	Protection from existing legal framework	Safety of information in EMP	Trust of information from EMP	Would a body to vet content boost participation
Frequency of visiting EMPs	Pearson Correlation	1	.424(**)	.499(**)	.443(**)	.552(**)	.359(**)
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	221	221	221	221	221	221
Ever transacted using EMP?	Pearson Correlation	.424(**)	1	.195(**)	.147(*)	.360(**)	.212(**)
	Sig. (2-tailed)	.000		.004	.029	.000	.002
	N	221	221	221	221	221	221
Protection from existing legal framework	Pearson Correlation	.499(**)	.195(**)	1	.580(**)	.556(**)	.498(**)
	Sig. (2-tailed)	.000	.004		.000	.000	.000
	N	221	221	221	221	221	221
Safety of information in EMP	Pearson Correlation	.443(**)	.147(*)	.580(**)	1	.621(**)	.357(**)
	Sig. (2-tailed)	.000	.029	.000		.000	.000
	N	221	221	221	221	221	221
Trust of information from EMP	Pearson Correlation	.552(**)	.360(**)	.556(**)	.621(**)	1	.471(**)
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	221	221	221	221	221	221
Would a body to vet content boost participation	Pearson Correlation	.359(**)	.212(**)	.498(**)	.357(**)	.471(**)	1
	Sig. (2-tailed)	.000	.002	.000	.000	.000	
	N	221	221	221	221	221	221

** Correlation is significant at the 0.01 level (2-tailed).

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

Clearly there is a very strong positive relationship between trust of information in EMP and the frequency of visits. Likewise, if there is a body to vet the content of EMPs, more people would trust them and would increase their level of participation in online transactions. We also wish to point out the impact of law/policy to the trust. The correlation shows a strong positive relationship. This validates our preposition that regulation plays an important role in enhancing trust levels Of EMP participants.

5.5.4 Policy and Legal Dimension

Firstly, it was established most respondents don't know much about policies and law related to electronic commerce.

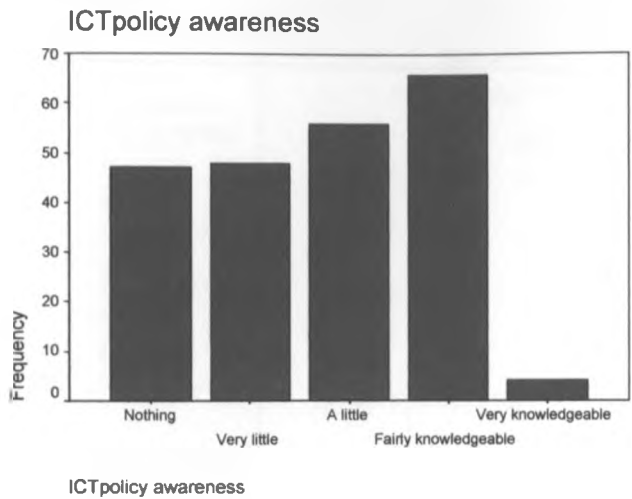


Figure 5.10 Legal/Policy awareness

However, there is a perception that the current law and policies are not adequate to deal with challenges of electronic commerce. It was noted that should a good legal framework be put in place, it would make more people trade electronically. A total of 64.0% would be involved more in electronic transactions with assurance of proper law/policies. Currently though, the public need to be educated on the existing policy and law on electronic commerce. The table below gives a summary of our finding.

Table 5.13: How proper legal framework would increase level of participation in EMPs.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very low	5	8.2	8.2	8.2
	Low	7	11.5	11.5	19.7
	Not sure	10	16.4	16.4	36.1
	High	27	44.3	44.3	80.3
	Very high	12	19.7	19.7	100.0
	Total	61	100.0	100.0	

The impact of good legal/policy framework is clearly captured by table 5.14 below. It is clear there is strong relationship between good legal/policy with level of trust, payment modes and general use of EMPs. As observed, only a few are conversant with existing legal/policy framework. This calls for some campaign to create awareness on existing framework. The reason is that, even if there is good framework and the public is not aware of it, they will continue shying away from the use of the technology.

Table 5.14: Correlations between laws, trust and use of EMPs

		Impact of good legal framework	Trust of information from EMP	Confidence in Electronic Bank Transfer payment mode	Confidence in Credit/Debit cards payment mode	Frequency of visiting EMPs
Impact of good legal framework	Pearson Correlation	1	.464(**)	.376(**)	.207(**)	.400(**)
	Sig. (2-tailed)		.000	.000	.002	.000
	N	221	221	221	221	221
Trust of information from EMP	Pearson Correlation	.464(**)	1	.316(**)	.248(**)	.552(**)
	Sig. (2-tailed)	.000		.000	.000	.000
	N	221	221	221	221	221
Confidence in Electronic Bank Transfer payment mode	Pearson Correlation	.376(**)	.316(**)	1	.546(**)	.140(*)
	Sig. (2-tailed)	.000	.000		.000	.038
	N	221	221	221	221	221
Confidence in Credit/Debit cards payment mode	Pearson Correlation	.207(**)	.248(**)	.546(**)	1	.149(*)
	Sig. (2-tailed)	.002	.000	.000		.027
	N	221	221	221	221	221
Frequency of visiting EMPs	Pearson Correlation	.400(**)	.552(**)	.140(*)	.149(*)	1
	Sig. (2-tailed)	.000	.000	.038	.027	
	N	221	221	221	221	221

** Correlation is significant at the 0.01 level (2-tailed).

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

5.6 Detailed analysis of responses from SMEs

To get a complete picture of the research problem, data from small and medium enterprises (SMEs) was collected to be able to compare their view with those of mass market. SMEs should be the largest beneficiary of use of EMPs, either as a B2B or B2C. Of interest also was to establish what could SMEs and mass market be perceiving differently that may be locking the potential of B2C in the region. To find leads to these among other issues, questionnaire were used to get data from 61 different SMEs that were spread across a number of sectors.

5.6.1 Technology Dimension

Of all the SMEs sampled, 80.3% have computer network and 77% have internet connectivity. The satisfaction of the internet connectivity is considerably satisfactory which concurs with what general public survey indicated. The infrastructure for EMP is therefore laid down and functional. Table 5.15 shows details of the findings.

Table 5.15: Level of Satisfaction with connection speeds

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not stated	3	4.9	4.9	4.9
	Unsatisfied	3	4.9	4.9	9.8
	Fair	14	23.0	23.0	32.8
	Satisfied	23	37.7	37.7	70.5
	Very Satisfied	9	14.8	14.8	85.2
	Not applicable	9	14.8	14.8	100.0
	Total	61	100.0	100.0	

It was established that 85.2% of the sampled SMEs have websites available on the Internet. However, majority of these sites (68.8%) contain information and free downloads. Meaning, the websites are information portals.

Website content classification

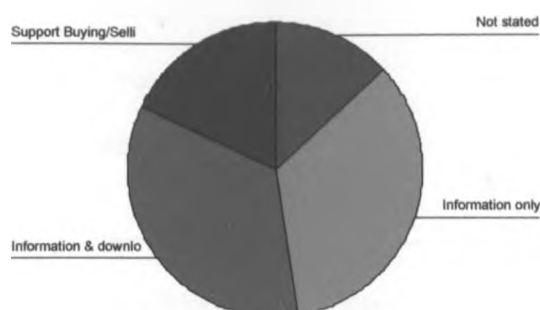


Figure 5.11 Website content classifications

It was however noted that SMEs have transacted using EMPs more. A total of 49.2% have either sold or bought something electronically. As expected, SMEs are more aware about EMPs than general public. This may be attributed to more exposure, as well as the fact that, an institution can easily trust another institution than an individual would.

The awareness about EMPs is however not as high as would be expected. 31.1% indicated their awareness is low, an equal percentage said it is fair, while 21.3% said it is high. Asked their main challenge(s) in implementing electronic market place in Kenya, majority (at 32.8%) responded that the process is complicated and expensive. The perception that the process is complicated may be associated with the low awareness. Indeed 13.1% were very specific they lacked awareness about the process. Table 4.16 contains the details.

This is confirmed when we rephrased the question on what challenges they have in using EMP to trade. Once more process complications and costing topped at 26.2% a piece closely followed by trust at 23.0%.

Table 5.16: Challenges in implementing EMP in Kenya

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not stated	13	21.3	21.3	21.3
	Illiteracy	3	4.9	4.9	26.2
	Fear of unknown	5	8.2	8.2	34.4
	Trust related	8	13.1	13.1	47.5
	Awareness	8	13.1	13.1	60.7
	Process complications/expensive	20	32.8	32.8	93.4
	Slow Network connectivity	4	6.6	6.6	100.0
	Total	61	100.0	100.0	

Table 5.17: Challenge in using EMP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not stated	1	1.6	1.6	1.6
	Cumbersome process	16	26.2	26.2	27.9
	Process Expensive	16	26.2	26.2	54.1
	Mode of payment complicated	11	18.0	18.0	72.1
	Don't trust process	14	23.0	23.0	95.1
	Others	3	4.9	4.9	100.0
	Total	61	100.0	100.0	

We sought to analyze relationships of various issues concerning EMPs as perceived by the SMEs.

Table 5.18: Correlations between existing Website and EMP awareness and usage

		EMP awareness rating	EMP usage in transacting business	Website content classification	Ever used EMP to buy or sell?
EMP awareness rating	Pearson Correlation	1	.554(**)	.315(*)	.394(**)
	Sig. (2-tailed)		.000	.013	.002
	N	61	61	61	61
EMP usage in transacting business	Pearson Correlation	.554(**)	1	.311(*)	.195
	Sig. (2-tailed)	.000		.015	.132
	N	61	61	61	61
Website content classification	Pearson Correlation	.315(*)	.311(*)	1	.309(*)
	Sig. (2-tailed)	.013	.015		.015
	N	61	61	61	61
Ever used EMP to buy or sell?	Pearson Correlation	.394(**)	.195	.309(*)	1
	Sig. (2-tailed)	.002	.132	.015	
	N	61	61	61	61

** Correlation is significant at the 0.01 level (2-tailed).

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

Obviously there is a strong positive relation between EMP awareness and usage of the same. There is also a significant positive relationship between the websites organizations have in terms of content and the awareness as well as participation in electronic marketplace. We can conclude therefore, organizations with e-shops are more likely to buy from other e-shops.

5.6.2 Trust and Legal/Policy Dimension

Similar to the findings with general public, the level of trust with SMEs for EMP is generally low. A total of 36.1% consider them unsafe with 26.2% not sure about the safety. 37.7% however consider them safe. From their response, they seem very supportive of an establishment of an independent body to vet the content in EMP. With such a body, 39.3% says it would increase they participation to a high extent while 21.3% said it would increase their level of participation at a very high extent. Interestingly, they seem split almost into two halves on willingness to share information with other SMEs in the same sector. This may explain why SMEs are going it alone in establishing e-shops as opposed to coming together to form a complete EMP. Table 5.19 shows the extent an independent body to vet EMP would influence participation, while table 5.20 shows willingness by SMEs to share information in EMP.

Table 5.19: Impact of having a EMP vetting body towards trust

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not stated	1	1.6	1.6	1.6
	Very low	5	8.2	8.2	9.8
	Low	8	13.1	13.1	23.0
	Not sure	10	16.4	16.4	39.3
	High	24	39.3	39.3	78.7
	Very high	13	21.3	21.3	100.0
	Total	61	100.0	100.0	

Table 5.20: SMEs Willingness to share information in EMP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not stated	5	8.2	8.2	8.2
	Very unwilling	16	26.2	26.2	34.4
	Unwilling	9	14.8	14.8	49.2
	Not sure	7	11.5	11.5	60.7
	Willing	17	27.9	27.9	88.5
	Very willing	7	11.5	11.5	100.0
	Total	61	100.0	100.0	

From correlation coefficients shown in table 5.21 below, there is a .very strong positive relationship between perceived safety of EMPs and willingness to share information among SMEs. Meaning the safer EMPs are perceived, the more the willingness to share information and possibly have collaborations. Similarly, there is positive correlation between perceived safety of EMPs and the level of usage of EMPs in transacting business. But there seems to be no significant relationship between EMP usage and willingness to share information.

Table 5.21: Correlations between EMP usage, trust levels and willingness to share information

		EMP usage in transacting business	safety of information in EMP	Willingness to share information in EMP
EMP usage in transacting business	Pearson Correlation	1	.440(**)	-.011
	Sig. (2-tailed)		.000	.931
	N	61	61	61
safety of information in EMP	Pearson Correlation	.440(**)	1	.546(**)
	Sig. (2-tailed)	.000		.000
	N	61	61	61
Willingness to share information in EMP	Pearson Correlation	-.011	.546(**)	1
	Sig. (2-tailed)	.931	.000	
	N	61	61	61

** Correlation is significant at the 0.01 level (2-tailed).

This only underscores the proposition that trust is a key component of the proposed framework.

The impact of proper legal framework towards use of EMPs is great as summarized below.

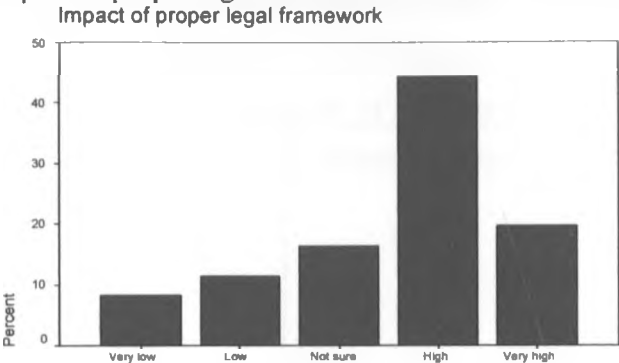


Figure 5.12 Impact of good legal framework towards EMP participation.

Majority respondents said presence of good legal framework would increase their level of participation to a high extent. The correlation table below underscores this point.

Table 5.22: Correlations between EMP safety, Law/Policy and willingness to share information

		safety of information in EMP	Willingness to share information in EMP	Current law/policy protection rating	Rating of current law
safety of information in EMP	Pearson Correlation	1	.546(**)	.663(**)	.484(**)
	Sig. (2-tailed)		.000	.000	.000
	N	61	61	61	61
Willingness to share information in EMP	Pearson Correlation	.546(**)	1	.358(**)	.152
	Sig. (2-tailed)	.000		.005	.242
	N	61	61	61	61
Current law/policy protection rating	Pearson Correlation	.663(**)	.358(**)	1	.497(**)
	Sig. (2-tailed)	.000	.005		.000
	N	61	61	61	61
Rating of current law	Pearson Correlation	.484(**)	.152	.497(**)	1
	Sig. (2-tailed)	.000	.242	.000	
	N	61	61	61	61

** Correlation is significant at the 0.01 level (2-tailed).

There exist a very strong positive relationship between perceived level of trust and good laws/policies.

Mode of payment was cited by both the public and SMEs as one of the hindering factor in conducting e-commerce in the region. We sought to know the confidence levels of various modes of payment from both sides. The public gave payment through mobile money transfer a very high confidence rating with a total of 62.4% saying they have high or very high confidence in it. Bank transfers come second with 43.9% approval while credit/debit cards approval stood at 34.0%. Similar trend was reflected by SMEs. Mobile money transfer got 59.0% approval, bank transfers and credit/debit cards got 32.8% and 27.8% respectively. Asked their preferred payment mode, 44.3% of SMEs choose mobile money transfer. Clearly, there is need to integrate mobile money transfer into EMPs in the region as the choice of payment for online transactions.

Table 5.23: Preferred Mode of payment for e-transactions by SMEs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Cash/Cheque	8	13.1	13.1	13.1
	Mobile Money Transfer	27	44.3	44.3	57.4
	Credit Cards	8	13.1	13.1	70.5
	Bank transfer	18	29.5	29.5	100.0
	Total	61	100.0	100.0	

On mode of market-marking (pricing mechanism), both the public and SMEs prefer some form of negotiations. Majority of SMEs would prefer using e-mails followed by live chats while the mass market prefers live chats for negotiations.

Table 5.24: Preferred mode of settling on price by SMEs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not stated	2	3.3	3.3	3.3
	Fixed price	10	16.4	16.4	19.7
	Bidding	10	16.4	16.4	36.1
	Negotiate using Emails	21	34.4	34.4	70.5
	Negotiate using live chat	17	27.9	27.9	98.4
	Others	1	1.6	1.6	100.0
	Total	61	100.0	100.0	

Table 5.25: Preferred mode of settling on price by general public

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not stated	25	11.3	11.3	11.3
	Price fixed	52	23.5	23.5	34.8
	Through bidding	30	13.6	13.6	48.4
	Email negotiation	40	18.1	18.1	66.5
	Live chat negotiation	74	33.5	33.5	100.0
	Total	221	100.0	100.0	

5.7 Findings of Observations carried out on existing EMPs in Kenya.

To establish what is currently taking place as far as electronic marketplace is concerned in the region, a number of them were visited to find out how they operate. The following were identified;

- | | |
|--|--|
| a) http://find.co.ke/ | e) http://www.enrakenya.com/ |
| b) http://www.maduqa.com/ | f) http://www.mamamikes.com/ |
| c) http://www.uzanunua.com/ | g) http://www.sokonet.co.ke/ |
| d) http://www.pewahewa.com/ | |

It was observed that not all this that are listed as EMPs can complete all the transactions online. Quite a big number are giving information and then you send an email to the merchant. There are however a few that were complete like pewahewa and enrakenya. Both were using mobile money transfer to complete the transaction. For pewahewa, the product (Music), is delivered online through downloads. Enrakenya uses post office and currier services as well as physical delivery of the products (books).

Mamamikes seem to be targeting a different market. It was established that, the target is Kenyan in Diaspora who would be shopping for good to be delivered in Kenya. This is evident by the fact that pricing is done in foreign currency. The mode of payment is credit cards through paypal system.

In all the cases, prices are fixed. This goes against the wishes of majority who want to negotiate either using emails or live chat. Some EMPs have made the process lengthy which may turn out to be complicated to some users. Considering also the cost of internet access is slow and expensive, the long process may put potential users off.

Another observation made is that most of these EMPs are run by individuals or private companies that are not much known. This could be a contributing factor to low trust in the process.

CHAPTER 6

THE VALIDATED FRAMEWORK

6.1 Introduction

This chapter contains the discussions and framework validation. In chapter three section 3.1, a proposed draft framework consisting of six dimensions of an online marketplace namely **Policy, Trust, Technology, Information, Market-Maker** and **Services** was given. It was suggested the interplay of Policy, Trust and Technology determines the Services, Market-Maker and Information of a given electronic marketplace (Figure 3.1). To validate the framework, data from the participants of electronic marketplace was collected, targeting general public who represent the mass market or B2C as well as SMEs representing B2B market segment.

The purpose of the study was to find out factors that hinder adoptability of electronic marketplace in Kenya especially by SMEs and how to overcome challenges that discourage implementation of EMPs, being enablers of e-commerce. Finally, the researchers intended to develop a regional electronic marketplace framework suitable to Kenyan environment.

6.2 Current State of Electronic Marketplace in Kenya.

Electronic Marketplace is not a completely new concept in Kenya. However the rate of adoption and proliferation of this technology in doing business is what has seen snail pace growth. The maturity level of this technology has stagnated at some point. As was shown from survey findings, most business organizations have computer networks and they have a website accessible on the Internet. The websites however, mainly only give information about the organization and what it sells. In other words, most websites available are information portals. This is just one aspect of what electronic marketplace is all about. A marketplace must support other aspects like negotiations and pricing, as well as payment. This is where there seem to be major handles. We however did identify a few fully functional electronic marketplaces though there are a number of challenges they have to overcome for them to be successful.

The research findings indicated a number of issues the market participants feel need to be addressed in order to open up the adoption and usage of this technology. The finding validated the conceptual framework that was proposed in chapter three. Currently, the technology dimension is comparatively performing better considering it was established most firms have basic infrastructures necessary for adoption of the technology. With good numbers having Internet connectivity and the satisfaction levels of the internet speeds being satisfactory, this is a good starting point. It was also established that Internet access of general public was considerably high, with a good number using mobile phones to access the internet. Further, it

was established that with urban and suburban population, 98.2% have mobiles phones, with 91% of those with mobile phone registered with mobile money transfer. 89.1% of this population is also banked with commercial banks. This means a proper online payment methods can be worked out for them.

The two most challenging dimensions are trust and legal framework. From the findings, the legal framework plays a pivotal role in building the trust. Since the technology is always ahead of law, proper policies and regulations should be developed to bridge the gap. Mean time, awareness campaign on the existing policies and laws should be mounted to set stage for the adoption of this technology.

The findings of the survey indicated that if there was a legal body to vet the content and operations of EMP, it would greatly improve trust levels and by extension, participation in electronic transactions. We sought the position and role of communication commission of Kenya (CCK), being the industry regulator, in creating favourable environment for electronic transactions.

The CCK, through Kenya Communication (Amendment) Act 2009 is empowered to be the ICT industry regulator. The act empowers the commission to facilitate electronic commerce in the country. The act specifically requires the commission to “promote public confidence in the integrity and reliability of electronic records and electronic transactions”. Further the commission should “develop sound frameworks to minimize the incidence of forged electronic records and fraud in electronic commerce and other electronic transactions”. The act does recognize digital signatures and other digital identification methods, and sets up a basis of legal framework to govern electronic transactions.

The commission was in the process of formulating a framework that will guide the electronic transactions and be used to formulate proper laws related to the technology. The commission was putting in place several mechanisms aimed at building user confidence in the use of electronic transactions. Their approach is twofold: having secure trading platform and secure payment platform. The trading platform is mainly seen as the websites where information is disseminated and negotiations take place. In an effort to make the platform secure, the commission is setting up a national Computer Emergency Response Team (CERT). The roles of CERT will include;

- ✓ Coordinate and monitor cyber security and crime activities.
- ✓ Artifact handling
- ✓ Awareness creation in the public domain
- ✓ Research

The commission was also working on establishing local certification body(ies) which would be issuing merchants with digital certifications as a way of identifying formally registered and recognized firms. The commission would then put up awareness campaign to the public on how to check for these digital certifications. This is expected to improve the participant confidence level since it would be easy to identify genuine merchants from unscrupulous ones. The commission also plans to campaign for adoption of country code top level domain (CCTLD), i.e. .ke, as the preferred choice. This is because the regulator for CCTLD in the country, Kenic, must have profile for all users, hence making it possible to identify and make follow up with merchants in case of any breach of regulations or in case of any need arising.

The commission plan of action is very much in line with the proposed framework. The legal framework and trust issues would have been addressed substantially thereby setting stage for establishment of a vibrant electronic marketplace in Kenya. Having merchant use digital signatures will play the role of vetting body for firms involved in EMPs. This will give participants confidence in transacting electronically as was proven by the survey.

On secure payment platform, the commission in conjunction with central bank of Kenya (CBK), would regulate modes of payment to be used in electronic transactions. This in our opinion is already in operation in that, banks and now new entrant, mobile money transfer service providers are regulated by the CBK. But the commission together with CBK would be seeking means of making sure all payment platforms are secure and working within stipulated regulations.

As was revealed by the survey, mobile money transfer is more preferred as means of payment in electronic transactions. There already exist a locally designed system that integrates this mode of payment in online transaction. The ipay, done by intrepid data systems and it is already in operation with pewahewa.com using it to handle its online payments.

It was established most EMPs were run and operated by individuals who remain largely anonymous. Most of them give very scanty details about themselves or the company. This does raise suspicion among market participants leading to lack of trust. In the proposed framework, we did mention ownership and governance as important factor in sustainability of EMP. Indeed we wish to add that it contributes greatly towards building of trust. It is harder to trust an individual whom you don't know. But it is relatively easier to have trust in an institution or a firm. As a component of trust dimension, we mention brand equity as core in building trust. Once more it is easier for a firm to establish brand equity than an individual would do.

6.3 Validated Framework

The finding of the research validated the framework that was proposed. The Framework is however refined by adding awareness component that very strongly came out as an important factor in making impact of the dimensions felt. Further, it was established the term ‘Policy’ is not legally binding, and hence was changed to ‘Regulation’ which encompasses both law and policies. The validated Regional Electronic Marketplace framework is therefore as shown below.

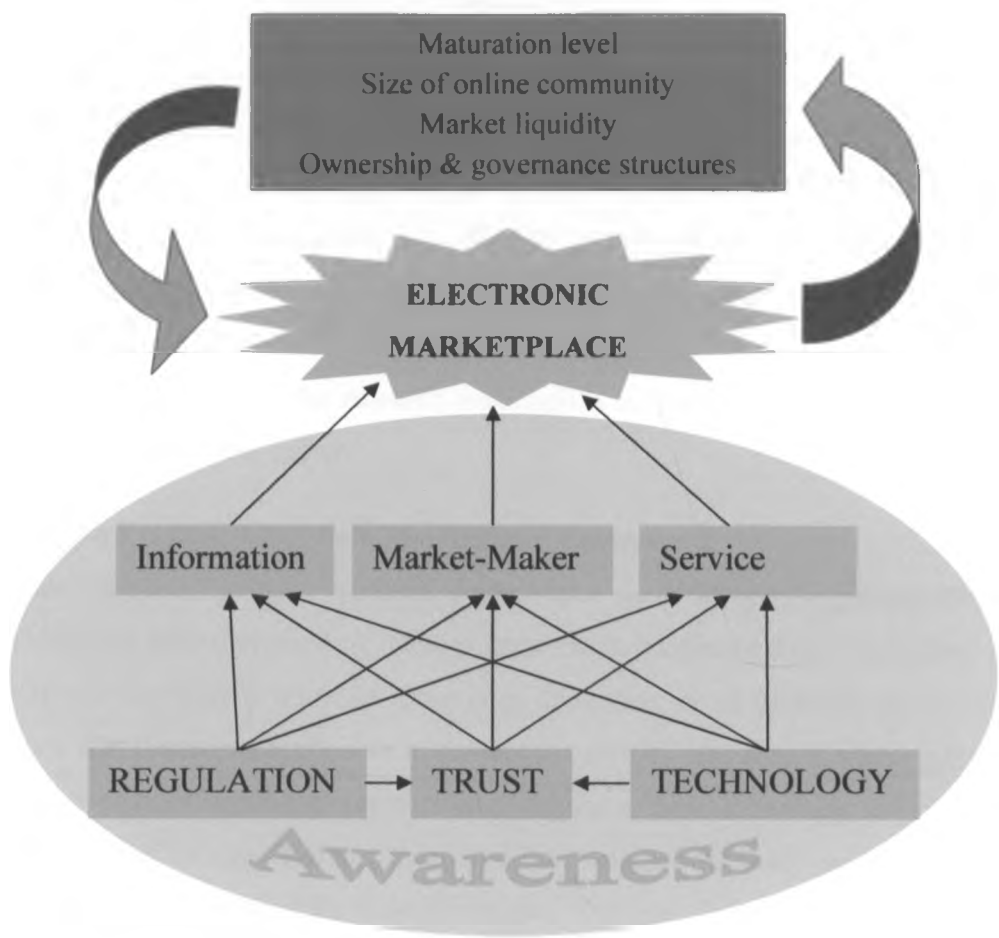


Figure 6.1 Regional Electronic Marketplace Framework.

The awareness on these dimensions is expected to unlock the potential in the region. The government has bestowed CCK with the responsibility to create the awareness and ensure the platform on which these transactions take place is safe. The private sector should also come in to heighten campaign on awareness creation. Greater awareness is expected to attract more participants into the market which in turn will solve size of online community and market liquidity problems, hence making the Electronic Marketplace stable and vibrant.

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

7.1 Achievements

The primary objective of the study was to develop a Regional Electronic Marketplace Framework that will enhance growth in e-commerce functionalities and usage with possibility of enabling collaboration among businesses with existing relationship.

The study was also expected to achieve the following secondary objectives;

1. Identify social cultural aspects that hinder the proliferation and growth of e-marketplaces in the region
2. Establish the maturation level of EMPs in the region
3. Identify available technology that can be used to enhance adoption and growth of EMPs in the region

Based on the findings, the research successfully achieved all its objectives and the following conclusions have been drawn.

7.1.1 The Regional Electronic Marketplace Framework

In the literature review, various frameworks used in the implementation of electronic marketplace were discussed. A number from the development world were cited and observation made that they heavily relied on technology dimension as the backbone of the framework. It was argued that it was not applicable in developing country like Kenya where infrastructure is poor and the cost of acquiring some of the recommended technology is prohibitive. This was therefore cited as a gap that needed to be filled. Another discussed was from developing country and it highlighted trust as the main dimension. The legal framework was said to be a component of building trust. As much as we agreed with the view, a weakness was found in isolating trust and legal framework from the technology dimension. None of these frameworks therefore would be applied in this region. A new framework was formulated comprising of six dimensions namely: Technology, Trust, Regulation, Information, Market-Maker and Service. Technology, Trust and Regulation play a major role in determining Information, Market-Maker and Service. Lack of awareness in various aspects of electronic transactions was noted to be prevalent. This was added to the framework. Figure 6.1 gives a diagrammatic representation of the framework. This framework would deal effectively with known challenges of electronic transactions in the region.

7.1.2 Social Cultural Hindrances

One of the secondary objectives was to identify social cultural hindrances to EMP adoption and proliferation in the region. The main hindrance was lack of trust in the process. Having being used to human interactions in a conventional marketplace, it becomes hard to trust a system where market participants don't meet or even know one another. The major concerns are confirming authenticity of information provided, misuse of information provided by participants for malicious purpose or even fraud, and getting good value for money.

This is where the legal framework would come in handy. When participants know there is legal backing in what they are doing, the confidence level will definitely be high and this would attract more participants. The participants also need assurance there is good dispute resolution mechanism to deal with any disagreements that may occur in the process of electronic transactions. The Kenyan government seem keen to promote the confidence levels through legislation as was seen in having CCK to come up with regulations geared towards this course. The Kenya Communication (Amendment) Act 2009, largely tries to tackle this issue.

7.1.3 EMP Maturation levels

The survey found out most websites in the country are information portals. However, a few that support transactions were identified. The level of online information searching is quite high. On the contrary, ability to exchange is very low. To start with, most EMPs have fixed prices with no form of buyers expressing their opinions. The survey however indicated majority buyers prefer some form of negotiation either through the email or live chats. A few EMPs were using emails to get orders from buyers but none uses live chat. On modes of payment, they mainly used either credit cards or mobile money transfer.

To quicken the achievement of this goal, there is need for more cooperation and collaboration by the market players. The ownership and governance structures of EMPs need to be improved.

7.1.4 Technology to enhance EMP adoption

The major challenge in electronic transaction was coming up with secure and acceptable payment platform. The lack of trust already cited may be resulting from lack of faith in payment platforms used in the EMP. Globally, use of credit/debit cards is very common in electronic transactions. The survey however showed participants in the region have plastic money apathy when it comes to electronic transactions. They instead prefer using mobile money transfer to pay for goods and services in online Market.

The other challenge was in shipment of physical goods. The physical address of Kenyan mass market was not well structured like it is in developed countries. It may therefore be very difficult to deliver physical goods to the right destination once bought. Digital products may not have this problem since they may be downloaded and saved at a point accessible by the user. Delivery therefore poses a hindrance to operations of EMP in the region. After exploring a number of options, post office parcel service was considered suitable to serve the purpose. This was in consideration of wide coverage of postal office services. This could be supplemented by courier service providers in some areas.

7.2 Recommendations

From the literature reviewed, it was clear that with the emergence of digital economy, electronic Marketplace, being the platform for electronic commerce, will be the driver of economic growth for developing countries. It is expected to enable firms, especially small and medium enterprises reduce their cost of operations thereby easing access to global market. It should therefore be the goal of every business to venture into this technology of doing business.

The research survey findings show a good level of preparedness in terms of platform necessary to transact business. The hindrances towards adoption and proliferation of this technology have also been highlighted. In consideration to information from CCK discussed in chapter 6, we are confident the validated framework addresses all the concerns currently seen as hindering adoption and proliferation of EMPs in the region.

We therefore recommend the adoption of this framework as the reference framework of development, implementation and management of electronic marketplace in Kenyan environment.

7.3 Further Research Work

In this research, it was established the EMPs available in the region required users to visit different sites in search of what they wish to buy. It would be desirable to have one gateway to various goods and services to minimize users having to remember various domain names in order to get what they wish to buy. This would require interoperability of E-Commerce applications, services, and platforms arguably the most important and vexing issue in realizing the vision of a global Internet marketplace. We recommend further research in this line. We also recommend further research on how B2B Electronic Marketplace can be used to enhance collaboration among firms with existing relationship.

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Appendix 1: General Public Questionnaire



SURVEY QUESTIONNAIRE FOR GENERAL PUBLIC INDIVIDUALS

SERIAL NO

INTRODUCTION

We are carrying out a research on Electronic Marketplace (EMP), which is the platform for electronic commerce, entitled: **Regional Electronic Marketplace framework: Case of Kenyan Electronic Commerce**. This questionnaire is part of our research survey designed to gather general information to find out the extent of functionalities and usage of Electronic Marketplace in conducting e-commerce and the challenges that discourage its adoptability by Kenyan firms especially Small and Medium Enterprises (SMEs) with a view of developing a framework that will enhance growth of e-commerce in the region.

The research is purely academic, confidential and will solely be used for that purpose. Your details or data provided will not be passed to any third party without prior permission. The serial number on the questionnaire will only be used to help use track and follow-up the distributed questionnaires.

DD	MM	YY	HH	MM	HH	MM
Responding date [] [] []		Start time [] []		Ending time [] []		
1. Demographic Details (This is for analysis only)						
1.1 Gender [] Male. [] Female			1.2 Age in years [] 18-30. [] 31-50. [] 51 & above			
1.3 Level of Education: [] Primary. [] Secondary. [] Certificate/Diploma. [] Graduate. [] Postgraduate			1.4 Monthly income (in KSh.): [] Below 20,000. [] 20,000 – 35,000. [] 35,001 – 50,000. [] Above 50,000			
1.5 Do you have a mobile phone(s)? [] No.(Skip 1.6) [] Yes. (State service provider(s))						
1.6 Are you registered with any of the mobile money transfer service providers? [] No. [] Yes.						
1.7 Do you have an active bank account with any commercial bank? [] No. [] Yes.						
2. Technology access and use						
2.1 How would you rate your computer literacy level? [] Very Poor. [] Poor. [] Fair. [] Good. [] Very Good.						
2.2 How would you rate your level of competence in using the Internet? [] Very Poor. [] Poor. [] Fair. [] Good. [] Very Good.						
2.3 How often (on average) do you access the Internet? [] Never. [] Monthly. [] Fortnightly. [] Weekly. [] Daily.						
2.4 What is your most common mode of accessing the Internet? [] Computer. [] Mobile Phone [] Computer & Mobile Phone. [] Others. (Specify)						

2.5 Where do you mostly surf/browse from? [] Workplace. [] Cyber café. [] Home. [] Workplace & Home. [] Others(specify)_____
2.6 Rate your satisfaction level with the Internet connection availability to you. [] Very Unsatisfied. [] Unsatisfied. [] Neutral. [] Satisfied. [] Very Satisfied.
2.7 How do you rate the cost of Internet connectivity in Kenya in relation to bandwidth allocation? [] very low. [] Low. [] Fair. [] High. [] Very high.
2.8 How often (on average) do you send/receive money through mobile money transfer services? [] Never. [] Occasionally. [] Monthly. [] Fortnightly. [] Weekly. [] Daily.
2.9 What is your average amount in KSh., in your mobile money transfer transactions? [] Less than 2,000. [] 2001 – 5000. [] 5001 -10000. [] 10001 – 20000. [] 20001 – 35000
2.10 How is your confidence rating for the following payment modes in an online transaction? Very low. Low. Neutral. High. Very High. a) Electronic bank transfer. [] [] [] [] [] b) Credit/Debit card. [] [] [] [] [] c) Mobile Money transfer. [] [] [] [] []
3. Electronic MarketPlace (EMP) – this is a virtual technology-enabled trading space that facilitates the exchange of information, goods, services and payments among multiple buyers and sellers. Instead of buyers and sellers meeting physically like it is in traditional market, in EMP the Internet provides an online marketplace where trading takes place.
3.1 How would you rate your knowledge relating to the concept of Electronic MarketPlace (EMP)? [] Very low. [] Low. [] Fair. [] Good. [] Very good.
3.2 How often do you visit website(s) that handles buying and selling of goods and/or services online? [] Never. [] Occasionally. [] Monthly. [] Fortnightly. [] Weekly. [] Daily.
3.3 What is your main challenge in buying and/or selling goods/services using the online marketplace? [] Process is complicated. [] Process is expensive. [] Complicated payment modes. [] Don't trust the process. [] Others.(Specify)_____
3.4 Which is/would be your most preferred method of settling on final price for online transaction(s)? [] Fixed Prices. [] By bidding. [] Negotiation using E-Mails. [] Negotiation by live chatting. [] Others. (Specify)_____
3.5 Have you ever bought or sold anything using the online marketplace? [] No. (Skip 3.6) [] Yes.
3.6 What mode of payment have you mostly used to pay in the online transaction(s)? [] Cash/ Cheque. [] Mobile money transfer. [] Credit/Debit card. [] Bank transfer. [] Others.(Specify)_____
3.7 Have you had a dispute arising from online transaction? [] No. (Skip 3.8 & 3.9). [] Yes.
3.8 Describe the nature of dispute(s). _____
3.9 How was the dispute resolved? _____

4. Trust Issues in Electronic Marketplace

4.1 Is the information provided in electronic marketplaces adequate for you to make a decision whether to buy or sell anything? ☐ No. ☐ Yes.

4.2 With the current e-commerce environment, would you sell your product/service on the online market? ☐ No. (State reason) _____ ☐ Yes.

4.3 Would you give your personal information in a website if asked to? ☐ No. ☐ Yes.

If not, state the reason. _____

4.4 In an online transaction, how adequately do you feel protected by the existing legal framework?

☐ Very inadequately. ☐ Inadequately. ☐ Fairly. ☐ Adequately. ☐ Very adequately

4.5 In your opinion, how safe is the information in the Electronic Marketplace from manipulation?

☐ Very Unsafe. ☐ Unsafe. ☐ Not Sure. ☐ Safe. ☐ Very Safe.

4.6 To what extent do/would you belief the information provided in the Electronic Marketplace?

☐ Very low. ☐ Low. ☐ Neutral. ☐ Highly. ☐ Very highly.

4.7 If there was a legal and credible body to vet information and content in the Electronic Marketplace, to what extent would it incresease your level of participation?

☐ Very low. ☐ Low. ☐ Neutral. ☐ Highly. ☐ Very highly.

4.8 To what extent is your satisfaction in regards to safeguarding your privacy in online transactions?

☐ Very unsatisfied. ☐ Unsatisfied. ☐ Not sure. ☐ Satisfied. ☐ Very satisfied.

5. Policy and Legal Issues in EMP

5.1 How much do you know about the ICT policy governing the online transactions in Kenya?

☐ Nothing. ☐ Very little. ☐ Little. ☐ Fairly knowledgeable. ☐ Very knowledgably.

5.2 How would you rate the current law/policy on e-commerce in addressing legal issues adequately ?

☐ Very poor. ☐ Poor. ☐ Not sure. ☐ Good. ☐ Very good.

5.3 To what extent does the current legal framework (policy) provide for online dispute resolution mechanism? ☐ Very poor. ☐ Poor. ☐ Not Sure. ☐ Good. ☐ Very good.

5.4 If a proper legal framework on electronic transactions was put in place, to what extent would it make you participate in the transactions? ☐ Very low. ☐ Low. ☐ Not sure. ☐ Highly. ☐ Very highly.

5.5 In your opinion, what has not yet been properly addressed by the current legal framework?

Appendix 2: SMEs Questionnaire



SURVEY QUESTIONNAIRE FOR SMALL & MEDIUM ENTERPRISES (SMEs)

SERIAL NO _____

INTRODUCTION

We are carrying out a research on Electronic Marketplace (EMP), which is the platform for electronic commerce, entitled: **Regional Electronic Marketplace framework: Case of Kenyan Electronic Commerce**. This questionnaire is part of our research survey designed to gather general information to find out the extent of functionalities and usage of Electronic Marketplace in conducting e-commerce and the challenges that discourage its adoptability by Kenyan firms especially Small and Medium Enterprises (SMEs) with a view of developing a framework that will enhance growth of e-commerce in the region.

The research is purely academic, confidential and will solely be used for that purpose. Your details or data provided will not be passed to any third party without prior permission. The serial number on the questionnaire will only be used to help us track and follow-up the distributed questionnaires.

DD	MM	YY	HH	MM	HH	MM
Responding date [] [] []		Start time [] []		Ending time [] []		
1. Demographic Details (This is for analysis only)						
1.1 Sector the firm belong to: [] Education. [] Manufacturing. [] Banking. [] Health. [] ICT. [] Agricultural. [] Hospitality. [] Others (Specify) _____				1.2 Position held currently _____ _____		
1.3 Gender [] Male. [] Female.			1.4 Age in years. [] 18-30. [] 31-50. [] 51 & above			
1.5 Level of Education: [] Primary. [] Secondary. [] Certificate/Diploma. [] Graduate. [] Postgraduate						
2. Technology access and usage						
2.1 Do you have an organizational computer network? [] No. (Skip 2.2) [] Yes.						
2.2 Do you have Internet connectivity in your organization? [] No. (Skip 2.3) [] Yes.						
2.3 Rate your satisfaction with the Internet connection in your organization. [] Very Unsatisfied. [] Unsatisfied. [] Fair. [] Satisfied. [] Very Satisfied.						
2.4 How would you rate the level of computerization and/or computer usage in your organization? [] very low. [] Low. [] Fair. [] High. [] Very high.						
2.5 How would you rate computer and Internet literacy levels of workers in the organization? [] Very Poor. [] Poor. [] Fair. [] Good. [] Very Good.						
2.6 How do you rate the cost of Internet connectivity in Kenya in relation to bandwidth allocation? [] very low. [] Low. [] Fair. [] High. [] Very high.						

3. Electronic MarketPlace (EMP) – this is a virtual technology-enabled trading space that facilitates the exchange of information, goods, services and payments among multiple buyers and sellers. Instead of buyers and sellers meeting physically like it is in traditional market, in EMP the Internet provides an online marketplace where trading takes place.

3.1 As an organization, do you have a website accessible on the Internet? ☐ No. (Skip 3.2). ☐ Yes.

3.2 How would you classify the content in your organization's website? ☐ Information only.
☐ Information & Free downloads. ☐ Goods & Service for Sale. ☐ Others.(Specify)_____

3.3 To the best of your knowledge, has the organization ever bought or sold anything using Electronic Marketplace? ☐ No. ☐ Yes.

3.4 How would you rate the awareness of Electronic Marketplace (EMP)/ online market in Kenya?
☐ Very Low. ☐ Low. ☐ Fair. ☐ High. ☐ Very High.

3.5 How would you rate the level of Electronic Marketplace usage in transacting business in Kenya?
☐ Very Low. ☐ Low. ☐ Fair. ☐ High. ☐ Very High.

3.6 How would you rate Kenyan Electronic Marketplaces in terms of richness in content and ability to exchange/trade?

	Very Low	Low	Fair	High	Very High
a) Richness of Content.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Ability to buy/sell.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.7 To what extent are the following activities done online in the Kenyan Electronic Marketplaces?

	Very Low.	Low.	Fair.	High.	Very High.
a) Information searching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Transaction negotiation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Payment for transaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.8 What is/would be your most preferred mode of settling on prices in an electronic transaction?
☐ Fixed Prices. ☐ Bidding. ☐ Negotiation using EMails. ☐ Negotiation by chatting.
☐ Others. (Specify)_____

3.9 What is/would be your most preferred mode of payments in electronic transactions?
☐ Cash/Cheque. ☐ Mobile Money Transfer. ☐ Credit/Debit Cards. ☐ Bank transfer.
☐ Others.(Specify)_____

3.10 What is your main challenge in buying and/or selling goods/services using the online marketplace?
☐ Process is complicated. ☐ Process is expensive. ☐ Complicated payment modes.
☐ Don't trust the process. ☐ Others.(Specify)_____

3.11 What challenge(s) have you faced in implementing Electronic Marketplace in Kenya?

4. Trust Issues in Electronic Marketplace (EMP)

4.1 Are there any trust marks used in Kenyan Electronic Marketplaces to distinguish the genuine EMPs?
☐ No. ☐ Not sure. ☐ Yes.

4.2 In your opinion, how safe is the information in the Electronic Marketplace from manipulation?
☐ Very Unsafe. ☐ Unsafe. ☐ Not Sure. ☐ Safe. ☐ Very Safe.

4.3 If there was a legal and credible body to vet information and content in the Electronic Marketplace, to what extent would it increase your level of participation?
☐ Very low. ☐ Low. ☐ Not sure. ☐ Highly. ☐ Very highly.

4.4 Rate your organization's willingness to share information with others in the same sector in an Electronic Marketplace. ☐ Very unwilling. ☐ Unwilling. ☐ Not sure. ☐ Willing. ☐ Very willing.

4.5 How is your confidence rating for the following payment modes in an online transaction?

Very low. Low. Neutral. High. Very High.

d) Electronic bank transfer. ☐ ☐ ☐ ☐ ☐

e) Credit/Debit card. ☐ ☐ ☐ ☐ ☐

f) Mobile Money transfer. ☐ ☐ ☐ ☐ ☐

4.6 Have you had a dispute arising from electronic transaction(s)? ☐ No. (Skip 4.7 & 4.8) ☐ Yes.

4.7 Briefly describe the nature of the dispute. _____

4.8 How was the dispute resolved? _____

5. Policy and Legal Issues in EMP

5.1 In an online transaction, how adequately do you feel protected by the existing legal framework?
☐ Very inadequately. ☐ Inadequately. ☐ Fairly. ☐ Adequately. ☐ Very adequately

5.2 How would you rate the current law/policy on e-commerce in addressing legal issues adequately?
☐ Very poor. ☐ Poor. ☐ I don't know ☐ Good. ☐ Very good.

5.3 To what extent does the current legal framework (policy) provide for online dispute resolution mechanism? ☐ Very poor. ☐ Poor. ☐ Not Sure. ☐ Good. ☐ Very good.

5.6 If a proper legal framework on electronic transactions was put in place, to what extent would it make you participate in the transactions? ☐ Very low. ☐ Low. ☐ Not sure. ☐ Highly. ☐ Very highly.

5.5 In your opinion, what has not yet been properly addressed by the current legal framework?

Appendix 3: CCK 2nd Quarter 2009/2010 statistics on Internet usage in Kenya.

4. DATA AND INTERNET SERVICE

4.1 Subscribers and Internet Users

As at the end of the Q2 09/10 there were close to 2 million internet subscriber in the country. This is an increase of 6.2 per cent from the previous quarter and more than 3-fold increase in the same period of the previous year. The growth in the number of data/internet subscribers is as shown in table 12.

Table 12: Data/Internet Subscribers

	Q2 09/10	Q1 09/10	% Change (+/-)	Q2 08/09	Annual % change (+/-)
Fixed data/internet subscribers	8,349	8,299	0.6	8,434	-1.0
Mobile data/internet subscribers	1,981,048	1,864,991	16.8	398,190	404.1
Wireless Subscribers	8,435	7,329	15.1	6,751	24.9
Total wireless subscribers including mobile data/internet	1,989,397	1,864,991	6.7	401,398	395.6
Total internet subscribers	1,997,832	1,880,619	6.2	409,832	387.5
Estimated number of internet users ²	3,995,664	3,761,238	6.2	3,359,552	18.4

Source: CCK, operators returns

It is to be noted that most of the internet subscribers are from mobile data/internet services.

The period under review witnessed some positive growth in the number of internet users to reach almost 4 million, a 6.2 per cent increase from the previous quarter and 10.4 per cent increase in the same period of the previous year.

Appendix 4: Internet World Statistics

World Internet Users and INTERNET USAGE STATISTICS The Internet Big Picture Population Stats

WORLD INTERNET USAGE AND POPULATION STATISTICS

World Regions	Population (2009 Est.)	Internet Users Dec. 31, 2000	Internet Users Latest Data	Penetration (% Population)	Growth 2000- 2009	Users % of Table
<u>Africa</u>	991,002,342	4,514,400	86,217,900	8.7 %	1,809.8 %	4.8 %
<u>Asia</u>	3,808,070,503	114,304,000	764,435,900	20.1 %	568.8 %	42.4 %
<u>Europe</u>	803,850,858	105,096,093	425,773,571	53.0 %	305.1 %	23.6 %
<u>Middle East</u>	202,687,005	3,284,800	58,309,546	28.8 %	1,675.1 %	3.2 %
<u>North America</u>	340,831,831	108,096,800	259,561,000	76.2 %	140.1 %	14.4 %
<u>Latin America/Caribbean</u>	586,662,468	18,068,919	186,922,050	31.9 %	934.5 %	10.4 %
<u>Oceania / Australia</u>	34,700,201	7,620,480	21,110,490	60.8 %	177.0 %	1.2 %
WORLD TOTAL	6,767,805,208	360,985,492	1,802,330,457	26.6 %	399.3 %	100.0 %