



**RESEARCH PROJECT REPORT**

**ON**

**IMPACT OF USER PERCEIVED WEB QUALITY OF  
SERVICE AND NON QUALITY OF SERVICE FACTORS ON  
ADOPTION OF E-SERVICES IN KENYA: CASE STUDY  
B2C ECOMMERCE**

**BY**

**KATHALE MUTINDA PAUL**

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## DECLARATION

This research project is my original work and has not been presented to any university for any award or anywhere else for academic purposes.

Signature Kathale

Date 25/6/2012

Name: Kathale Mutinda Paul

Registration No: P56/P/7295/2005

This research project has been submitted for examination purposes with my approval as University Supervisor.

Signature Ronge

Date 31/07/2012

Name: Ms. Christine Ronge

Lecturer, School of Computing & informatics,  
University of Nairobi

## DEDICATIONS

I dedicate this research project to my dear wife Nancy, my daughter Britney and my son Desmond.

## **ACKNOWLEDGMENT**

I wish to take this opportunity to appreciate the people who contributed to the success of my Masters Research Project.

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**Abstract:**

The growth and advancement of information communication technologies (ICTs) have significantly revolutionized the way companies do their businesses currently. More businesses are adopting use of web sites to gain competitive advantage in marketing their services. At the same time, eservice quality is becoming even more critical for companies to retain and attract customers in the digital age. Since any internet communication channel should integrate service quality, which holds a significant importance to eservice adoption, the purpose of this research was to investigate the extent to which web quality of service influence the adoption of e-commerce among the Kenyan online consumers. Through this, the research attempted to establish the key quality factors in web context that influence user adoption of business to consumer ecommerce. The research further investigated the non quality of service factors that potentially influence the adoption of Electronic Commerce apart from the eservice quality factors. Through this, the primary drivers and inhibitors to E-commerce adoption in Kenya were identified.

The findings revealed that, in context of e-service quality, factor that are related to perceived risk namely privacy, security and e-trust were identified as the key quality factors that affect e-commerce adoption in Kenya. In case of non quality of service factors, perceived risk, legal & legislation environment were found to be key factors to adoption of ecommerce by Kenyan internet users. Other non quality of service factors found to play key role were perceived compatibility and perceived usefulness.

## TABLE OF CONTENTS

LIST OF FIGURES .....	4
LIST OF TABLES.....	5
LIST OF CHARTS.....	7
CHAPTER ONE.....	8
INTRODUCTION .....	8
1.1 Background Information.....	8
1.2 Problem Definition .....	9
1.3 Purpose of study.....	10
1.4 Research objectives.....	10
1.5 Research Significance.....	10
1.6 Scope of the study .....	11
1.7 Research assumptions .....	11
CHAPTER TWO .....	12
LITERATURE REVIEW .....	12
2.1 Eservices .....	12
2.1.1 Characteristics of e-services .....	12
2.1.2 E-services Benefits .....	14
2.1.3 E-Commerce .....	14
2.1.4 E-commerce Benefits.....	15
2.1.5 Challenges of e-commerce.....	16
2.1.6. Factors affecting adoption of Ecommerce in developing countries.....	17
2.2 E-service Quality .....	21
2.2. 1 Traditional Service Quality.....	21
2.2.2 Dimensions of Traditional Service Quality .....	22
2.2.3 E-service Quality definition.....	23
2.2.4 E-service Quality Dimensions .....	24
2.2.5 Models of E-Service Quality Dimensions .....	29
2.2.5.1 E-service quality model .....	29
2.2.5.2 Conceptual Model for Delivering a Quality Web Site.....	31
2.2.5.3 SERVQUAL model .....	32
2.2.5.4 A Framework for Evaluating E-Commerce Web Site Quality model .....	32
2.2.5.5 E-Tail Quality as a Higher Order Factor model .....	33

2.3 E-Commerce Adoption in Kenya .....	35
2.3.1 E-service quality and E-Commerce Adoption in Kenya .....	36
2.3.2 E-commerce Adoption models .....	37
2.4 Conceptual Framework .....	45
CHAPTER THREE .....	49
RESEARCH METHODOLOGY .....	49
3.1 Introduction.....	49
3.2 Research Design .....	49
3.3 The target population .....	49
3.4 Sampling and sampling techniques.....	50
3.4.1 Selecting the sampling method:.....	50
3.4.2 Probability sampling:.....	50
3.4.3 Non-probability sampling:.....	51
3.5 Data collection methods and procedure .....	52
3.5.1 Self administered questionnaires .....	52
3.5.2 Literature surveys .....	53
3.5.3 Evaluation of web portals against the E-commerce features .....	54
3.6 Ethical considerations .....	54
CHAPTER FOUR.....	55
DATA ANALYSIS, INTERPRETATION AND DISCUSSION .....	55
4.1 Introduction.....	55
4.2 Questionnaire Reliability Test .....	55
4.3 Analysis of demographic information .....	56
4.5 Online shopping frequency Analysis.....	59
4.6 Factor Analysis on website quality factors .....	61
4.6.1 Communalities .....	61
4.6.2 Total Variance Explained (Eigenvalues and the Number-of-Factors Problem).....	63
4.6.3 Component Matrix .....	64
4.6.4 Comparing Mean Difference of Web quality variables using One Sample T-Test .....	67
4.6.5 Analysis of Website quality factors .....	69
4.7 Factor Analysis on non quality of service E-commerce adoption factors .....	75
4.7.1 Communalities .....	75

4.7.2 Total Variance Explained for non quality of service E-commerce adoption factors...	76
4.7.3 Component Matrix .....	77
4.7.4 Factor Analysis for Non quality of service Ecommerce Adoption factors.....	80
4.8 Level of E-commerce Adoption among the respondents.....	86
4.9 Discussion.....	87
4.9.1 Web quality of service factors that affects e-commerce adoption .....	88
4.9.2 Web quality of service factor affect the adoption of ecommerce in Kenya.....	88
4.9.3 The key web quality of service factors that affect the adoption of ecommerce in Kenya .....	90
4.9.4 Non Eservice Quality Factors of E-commerce Adoption Factors in Kenya.....	93
4.9.5 Overall Key E-commerce Adoption Factors.....	97
CHAPTER FIVE .....	98
SUMMARY FINDINGS, CONCLUSIONS AND RECOMMEDATIONS.....	98
5.1 Introduction.....	98
5.2 Summary findings.....	98
5.3 Conclusions.....	99
5.4 Recommendations for E-commerce Service Providers .....	100
5.5 Recommendations for the Government .....	101
5.6 Limitations of the research.....	101
5.7 Suggestions for further research .....	102
REFERENCES .....	103
Appendix.....	106
Quality of Service Variables/Aspects Frequency Tables .....	106
Non Quality of Service Variables/aspects Frequency Tables.....	111
Research Questionnaire .....	116



## LIST OF FIGURES

Figure 1: Relationship between Perceived risk, user experience and Technology adoption.....	21
Figure 2: E-Service Quality Model.....	30
Figure 3: Conceptual Model for Delivering a Quality Web Site to Satisfy the Customer .....	31
Figure 4: The Relationship among Overall Service Quality, Customer Satisfaction, and Purchase Intension .....	32
Figure 5: A Framework for Evaluating E-Commerce Web Site Quality.....	33
Figure 6: Modeling E-Tail Quality as a Higher Order Factor .....	34
Figure 7: Diffusion of innovations source. ....	40
Figure 8 : Technology Acceptance Model.....	41
Figure 9 : TAM Model on E-commerce Adoption .....	41
Figure 10: Perceived Risk Model on the Adoption of e-Commerce .....	44
Figure 11: E-Commerce Adoption Model (e-CAM) .....	45
Figure 12: The research model .....	48

## LIST OF TABLES

Table 1 : Electronic commerce benefits and challenges .....	17
Table 2: Summary of Service Quality Factors, Source Saha and Zhao (2005: 20), .....	28
Table 3: E-banking future challenges rating and percentage importance in retail banking sector in Kenya, .....	37
Table 4: Definition of Perceived Risk Type .....	42
Table 5: Reliability Statistics for Questionnaire Variables.....	56
Table 6: Gender of the respondents .....	57
Table 7: Distribution of respondent by age.....	57
Table 8: Respondent education level.....	58
Table 9: Internet usage experience .....	58
Table 10: Frequency of internet usage.....	59
Table 11: Place of internet access .....	59
Table 12: If the Respondents have shopped online .....	60
Table 13: Numbers of times shopping online for the last 6 months .....	60
Table 14: Amount spent in online shopping in the last 6 months .....	60
Table 15: Communalities for website quality factors.....	62
Table 16: Total Variance Explained.....	63
Table 17: Component Matrix .....	65
Table 18: web quality factors variables Factor categories.....	67
Table 19: One Sample T-Test Analysis for Web Quality Variables .....	68
Table 20: Security and Privacy .....	70
Table 21: E-Trust .....	71
Table 22: Ease of Use.....	71
Table 23: Availability and Reliability .....	72
Table 24: Responsiveness & Empathy .....	73
Table 25: Ranking of Web Quality Factors .....	73
Table 26: Communalities for non quality of service factors.....	75
Table 27: Total Variance Explained for non quality of service E-commerce adoption factors .....	76
Table 28: Component Matrix for non quality of service E-commerce adoption factors .....	77
Table 29: Non quality of service Ecommerce Adoption factors variables .....	80
Table 30: One Sample T-Test Analysis for Non quality of service Ecommerce adoption Variables .....	80
Table 31: Complexity .....	82
Table 32: Perceived Benefits/Usefulness.....	82
Table 33: Perceived Risk on Products/Services .....	83

Table 34: Perceived Compatibility .....	83
Table 35: Legal and Legislation Environment .....	84
Table 36: Ranking of E-commerce Adoption Factors .....	84
Table 37: Overall Ranking of Both web Quality of service and Non Quality of service E-commerce Adoption factors .....	85
Table 38: Level of Ecommerce adoption .....	87
Table 39: Ranking of Web Quality Factors .....	88
Table 40: Ranking of web quality aspects/variables by importance .....	91
Table 41: Ranking of Non Quality of Service E-commerce Adoption Factors.....	93
Table 42: Ranking of Non Quality of Service E-commerce Adoption variables by importance .....	94
Table 43: Overall Ranking of Both web Quality of service and Non Quality of Service E-commerce Adoption factors .....	97

## LIST OF CHARTS

Chart 1: Internet penetration in Kenya, (Source: CCK) .....	35
Chart 2: Ranking of Web quality factors .....	74
Chart 3: Ranking of E-commerce Adoption Factors Graphically .....	85
Chart 4: Overall Ranking of Both web Quality of service and Non Quality of service E-commerce Adoption factors .....	86
Chart 5: Adoption level of E-commerce by Kenyans.....	87
Chart 6: Ranking of Web quality factors graphically .....	89
Chart 7: Ranking of Non Quality of Service E-commerce Adoption Factors .....	93

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background Information

With the rapid development of information and communication technology, Internet and World Wide Web (WWW) have become important tools in business, which has a major impact on business world. Internet has significantly revolutionized the way companies do their businesses. In the initial stages of Internet adoption price differentiation was used as basis for winning customers by providing service at lower prices to online customers. However with an increasing number of companies participating in the Internet market, the initial price advantages in online service have nullified, and low price has become a minimum qualification to compete in the Internet market.

As a mean of adopting ecommerce, businesses have developed web sites to enable organizations to conduct business using Internet technology. There are several important, pragmatic drivers that motivate organizations to implement e-commerce systems. Numerous and significant benefits accrue to those companies that adopt this technology including: lower transaction cost, unlimited access to markets all over the world, providing new services and products to customers, and remaining competitive.

In e-commerce, the web site is the main medium of business communication and transactions between a business and its consumers. On web sites, businesses advertise their goods and services, provide catalogs of their goods, sell goods and services, provide technical support, and obtain feedback from their customers. The web site provides avenues for public relation, marketing, marketing research, and means of payment. Therefore the quality of the web site becomes very core to success of the e-commerce.

Research has shown that there is a very strong link between eservice quality and adoption of ecommerce. In Kenyan context, Thomas Ombati (2010) in his findings revealed that, secure services as the most important dimension of eservice in banking industry, followed by convenience, efficiency, ability to set up accounts so that the customer can perform transactions immediately, accuracy of records, user friendly, ease of use, complaint satisfaction and accurate transactions.

A general observation in Kenya shows that there has been good penetration of internet technology in Kenya. There are approximately 10.2 million internet users in Kenya (CCK, 2011). However little information is available on the level of adoption of ecommerce in Kenya.

Majority of Internet users have embraced communication information based internet services such as emails, information browsing and social network. Very few internet users use transactional based services such e-payments.

Currently, despite many studies concerning traditional service quality, relatively few studies have been conducted in the Internet context, and even less on online service quality. This study focuses on how Kenyan online users perceive eservice quality and how this encourages or discourages them to use web eservices.

In the current market of online services, e-service quality not only potentially increase the attractiveness, hit rate, customer retention, and positive word of mouth, but also maximizes the online competitive advantage of e-commerce. Thus e-service quality has become one of the key determinants of the success for online retailing. There is need to establish methods for improving quality to achieve competitive advantage and build customer satisfaction. This will in turn promotes the adoption of the e-service delivery technologies by Kenyan users.

However it is important to note that in Kenya, eservice is just one of the major factors of ecommerce adoption. Therefore there're is need for the research to identify other drivers and inhibitors of ecommerce in Kenya. This concern forms core of this research project.

## **1.2 Problem Definition**

Web technology has been a growing phenomenon all over the world with the growth of internet technology and especially among countries with well developed infrastructure. Kenya has not been an exception especially with landing of fiber optic cable. The adoption of internet usage has been well embraced by most Kenyans. The research problem can be described as follows:

- There exist fundamental benefits to internet users on embracing eservices such as online shopping. These benefits include avoiding crowd, lower prices, ease of comparing prices and products, avoiding the inconvenience of traveling to shops and wider selection of products on the internet. However, most online Kenyans use web technology for services such as information searching, emails, news and social network.
- Few Kenyans shop online. Majority of internet users are not willing to embrace transactional based eservice technologies such as online shopping, internet banking and online subscription.

Previous researches indicate that factors such as privacy, security, convenience, availability, performance, trust and experience influence the user behavior on adoption of eservices. In context of service providers who are the web site owners, most of the web sites are not

interactive, they are not ecommerce enabled, and customer's perception of online services and how customers assess their online service quality have not been factored when designing the web sites. Also, online shoppers also want their credit cards, personal information and details of transactions secure from unauthorized use. This constitutes eservice quality issue which is very important for adoption of eservices.

Research was needed to establish the key quality factors in eservices and the extent to which these factors influence the adoption of ecommerce in Kenya. Moreover, the research needed to recognize the role of non quality of service factors related to adoption of ecommerce.

### **1.3 Purpose of study**

The purpose of this study was to investigate the extent to which web quality of service (QoS) influence the adoption of eservice technologies among Kenyans with specific focus on business to consumer ecommerce (B2C). Its aim was to establish the key quality factors (KQFs) of web site quality and the extent to which they influence adoption of eservices such as ecommerce. The research further attempted to identify the non quality of service factors that influence positively or negatively the adoption of ecommerce.

### **1.4 Research objectives**

Specific research objectives were:

- (i) To identify web quality of service factors that affects e-commerce adoption.
- (ii) To establish the extent to which each web quality of service factor affect the adoption of ecommerce in Kenya.
- (iii) Identify the key web quality of service factors that affect the adoption of ecommerce in Kenya.
- (iv) Identify the non quality of service factors affect the adoption of ecommerce in Kenya.

### **1.5 Research Significance**

The findings of this study are of great significance to both online companies and online consumers in Kenya. The findings will address the constraints hindering the adoption of eservices by most Kenyan online consumers. It will help online service providers incorporate user perception of web quality of service as an integral component of their online systems. Both functional quality of service features such as web design quality and non function quality of

service features such as privacy, availability, e-trust, performance, reliability and convenience will be addressed in the research. The results of the study will help the online companies implement web portals which meet the ecommerce requirements. Through this consumer confidence will be increased and hence motivation to adopt eservice technologies. This will in turn help both online businesses and consumers enjoy the full benefits which come with the advancement of internet and eservice technologies.

### **1.6 Scope of the study**

This research project focused on adoption factors related to transactional based web services such as E-commerce, Internet banking, online subscription or any high risk web services. It is these services where the users shy off embracing the technology. The research did not consider basic web services such as information search and emails because these services have been well embraced by most online users. The research aimed to understand the perception of Kenyan internet users on shopping from both local and international web portals.

### **1.7 Research assumptions**

The research assumed that there has been good penetration of internet technology in the country and most respondents had no challenge of using the internet technologies. The expectation was that they have basic skills on using internet.



## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Eservices**

E-services or Electronic services refer to services delivered over the Internet. E-service includes the service element of e-tailing, customer support, and service delivery. A definition of Eservice constitutes three important components - service provider, service receiver and the channels of service delivery (i.e., technology). It is important to note that Internet is the main channel of e-service delivery while other classic channels include telephone, call center, public kiosk, mobile phone and television.

In eservices there is no direct contact between service provider and consumers. In this case websites become the “moment of truth” between customers and the company offering the services. As a result the websites (user-interface) determine to high extent how the service is delivered to the customers.

Eservice can also be defined as an interactive, content-centered and Internet based customer services, driven by the customer and integrated with related organizational customer support processes and technologies with the goal of strengthening customer service provider relationship. E-Service is characterized by the fact that the service is accessible with electronic networks and the service is consumed by a person via the Internet.

Example of eservices include :e-commerce, e-banking services, e-insurance services, e-financial advise services, hotel e-booking services, flight/railway e-ticket services, packaged tour e-services, real estate e-services and food take-away e-services.

#### **2.1.1 Characteristics of e-services**

E-Services are characterized by four unique features which make them different from other service technologies. The eservices are: intangible, perishable, heterogeneous, and inseparable. The eservices characteristics cannot be measured using traditional quality assurance methods since these methods are for products that are tangible, homogeneous and separable from their production and consumption.

It is only at the moment of consumption (i.e., during the service encounter) that the e-service delivers value to the customer, and it is during the service encounter that customer decisions to purchase are reinforced. This means that it is the performance of the service during the service encounter that matters most to the customer. Thus, the characteristics of services become the predominate constraints to their success and failure in a marketplace.

The eservices characteristics are discussed below:

### **Intangibility**

Intangibility is described as the most important of e-service characteristics. Fundamentally it is the basis for separating services from durable goods. Intangibility is often cited as the source of the other characteristics.

Intangible means lacking material qualities, and so not able to be touched or seen and services literature emphasizes intangibility as a defining service characteristic. Services are intangible because their values are realized through activities, benefits or satisfactions. E-services are intangible in that they do not exist until the very moment of consumption, i.e., the service encounter.

E-services are intangible performances, not durable objects or goods. After the interaction with the provider the customer does not have ownership due to its intangibility. Intangibility extends not only to the service itself, but many times to the actual value or outcome the service delivers.

Because e-services are intangible customers look for signs or evidence of service quality. They will draw inferences about the quality of a service from the place, people, equipment, communication, material, symbols and prices that they see. The service provider has to manage these abstract elements to make the service more concrete. This intangible nature makes e-services difficult to measure, control, or validate – not only for the service provider, but also for the service customer. From the point of view of the e-service customer, an e-service is a means to an end; the value of the service is indirect and only appears when the customer is able to accomplish or realize the outcome the service facilitates.

### **Heterogeneity**

E-services are highly variable, as the service performance depends heavily on who provides it and when and where it is provided. Heterogeneity is the extent to which variations of something are possible or that all occurrences are identical to each other.

Services are heterogeneous in that performance may vary across providers, across employees from the same provider, and even with the same service employee.

The heterogeneous nature of e-services and service encounters creates a situation ripe for variability in quality that can quickly become untenable. The heterogeneous characteristics of services require strong process and management control in order to deliver consistent performance. Capability (i.e., the ability of a resource to perform an activity at a desired level consistently) is a primary contributor to variability. Therefore, provider organizational capability has a direct impact upon heterogeneous e-services by virtue of variability.

### **Perishability**

E-services are perishable in that the service provider cannot capture, store, reuse, inventory, pause, or correct the service after its construction. Perishability also extends the value of the service and that failure to provide adequate service capacity, availability, or continuity can result in lost opportunities for both customers and providers.

E-services only have value when they are produced and consumed, so they are always perishable. Perishability is often primarily the concern of the service provider because the consumer only becomes aware of the issue when there is insufficient supply and they have to wait for service. Essentially, this characteristic relates to capability (e.g., capacity, availability, continuity, and security) aspects of the resources of the system delivering the e-service.

### **Inseparability**

E-service production and consumption is inseparable: simultaneously produced and consumed, e-services deliver the value provided upon demand. There is no e-service if there are no customers.

Inseparability is related to the delivery perspective of an e-service. The realized service performance and thus the quality of the service is produced during the delivery process.

Consumers produce demand and stimulate the production and requirement for e-services.

### **2.1.2 E-services Benefits**

Adoption of E-services offers benefits to both consumers and the service providers. Some of these benefits include: accessing a greater customer base, broadening market reach, lowering of entry barrier to new markets and cost of acquiring new customers, alternative communication channel to customers, increasing services to customers, enhancing perceived company image, gaining competitive advantages and potential for increasing customer knowledge.

### **2.1.3 E-Commerce**

E-commerce can be defined as any economic or business activity that uses ICT-based applications to enable the buying and selling of products and services and to facilitate the transaction of business activities between and among organizations and individuals. This includes using ICTs to facilitate the flow of products between businesses and consumers, e.g. marketing, ordering, payment, delivery, and searching for suppliers. Zwasse's (1996) definition of e-commerce is adopted describing internet commerce as: "the sharing of business information, maintaining business relationships and conducting business transactions by means of Internet-based technology".

Three main categories comprise e-commerce: business-to-business (B2B), business-to-consumer (B2C), and business-to-government (B2G). B2B applications include electronic marketplaces, which are forums that bring together businesses to exchange goods and services as well as offer value-added services, e.g. handling of online payments, exchange of documents, etc. B2B also includes email between entrepreneurs to exchange price and product information, companies using the Internet to check for supplier prices and order goods, building company web sites, and banks and financial service companies adopting online payment systems and practices. B2C applications often overlap with B2B applications, particularly in areas like electronic retailing marketplaces. Other examples include companies developing web sites to showcase their products, setting up virtual malls to offer a wide range of consumer goods, enabling consumers to purchase goods online, and creating online customer service centers. B2G entails government agencies publicizing their procurement requests online and having companies bid for the procurement contract electronically.

#### **2.1.4 E-commerce Benefits**

E-commerce offers many advantages over traditional paper-based commerce. It provides the customer with more choices and customization options by better integrating the design and production processes with the delivery of products and services (Richardson, 2007). The consumer enjoys a wider choice of products and services at lower prices, as well as certain convenience (no unnecessary trips, no restricted business hours). Because of the interactive nature of e-commerce, an advantage for business produces an advantage for consumers and vice versa, thus contributing to the growth and development of this revolutionary means of exchange. Ecommerce decreases the time and cost of shopping and expands the marketplace from local and regional markets to national and international markets with minimal capital outlay, equipment, space, or staff. It permits for just-in-time production and payments. Businesses reduce overhead and inventory through increased automation and reduced processing times (Al-Kibsi et al., 2001). Evans and Wurster, (1997) acknowledge that e-commerce allows both customers and suppliers to reduce the transaction costs significantly and enables information to reach more people without sacrificing the richness of the content.

Through automated information, e-commerce enables production of reliable, shareable historical database of design, marketing sales, and payment information. One great thing is that due to automation, it facilitates increased customer responsiveness; including on-demand delivery. Online money transactions can be useful, easing the administrative burden on the customer

service answering information-based enquiries currently common. Monetary transactions can be processed. Billing can be done instantly electronically, conducted and monitored. Anyone between the seller and the buyer is in big trouble. E-commerce has already successfully invaded territories of middlemen (Gates, 1995).

The use of ICT for the reorganization of internal administration transactions, communications, and interrelationships and for easy information flow and transfer offers considerable opportunity to increase the company capacity. Intranets allow different departments to share databases of common customers and to pool skills and capacities of their members for problem solving.

Further, e-commerce improves communication channels and provides a virtual interactive environment where the suppliers and customers can exchange information and products. (Zhang and Tang, 2006) believe that e-commerce improves the communications among partners along a value chain and offers an integrated business model by which companies can be more responsive and flexible to the changing markets and customers' requirements .

### **2.1.5 Challenges of e-commerce**

E-commerce, in general, is referred to as an “enabler”, but on the other hand it should also be regarded as a challenge and a peril in itself (Ndou, 2004). Paré (2001) argues that the application of, and access to, technologies such as the public Internet and the World Wide Web are unlikely to reduce transaction costs sufficiently to reduce the barriers to the entry into global markets by firms in developing countries. A summary of benefits and challenges of electronic commerce are shown in table below.

**Table 1 : Electronic commerce benefits and challenges**

<b>PERCEIVED BENEFITS</b>	<b>PERCEIVED CHALLENGES</b>
Potential to increase in business sales	Virus attacks
Unlimited store hours (24/7/365)	Speeds
Potential to increase in company profits	Pornography
Brand awareness	Impolite content
Expand geographical reach	Data integrity
Allow small market reach or target niche	Hacking
Customer loyalty	Privacy
Create new relationship opportunities	Network reliability
Multiple revenue streams	Expenses
Potential to decrease costs	Lack of regulatory laws
Provides variety	Political will
Democratic working environment	Lack skilled resources

(Source: Paul Kipkech & Nixon Muganda, 2009)

### **2.1.6. Factors affecting adoption of Ecommerce in developing countries**

This section of research aims to review relevant accumulated knowledge and available literature on factors affecting adoption of ecommerce in developing countries. Several relevant topics have been reviewed and organized based on context and integrative reviews categories. An overview about ICTs and Internet activity in developing countries are initially presented followed by a discussion about adopter characteristics and sort of most important factors that have a notable impact on adoption.

#### **New Technology Adopter Characteristics**

According to Rogers (2003), the adopter of a new technology is typically younger, has a good income and appropriate level of education and more reactive to new innovation than the non-adopter. Rogers (2003) also indicates that innovative individuals have positive attitudes, ability to communicate with others and a high level of social participation. He concluded that adopters are younger, wealthy, usually have a good level of education, and possess more social mobility than those who adopt innovations later.

Demographic or socio-economic variables such as *age, education, income* and even *occupation* significantly helped to explain differences between the adopters and non-adopters.

Madden and Savage (2000) found that the individuals who tended to use the Internet early in Australia were young males, with high level of income and education. Choudrie and Dwivedi (2005) also confirmed that the economic status for individuals influences their ability to own and then use a technology. Moreover, Rogers (2003) showed that demographic attributes play an important role in predicting adoption and that economic status (income) is highly correlated to initial adoption. Rogers, in his diffusion of innovation (DOI) theory proposes that new technologies are initially adopted by those who have more resources.

### **Diffusion of Innovation**

According to Rogers (2003), diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system. Moreover, innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption. Rogers (2003) classified five characteristics of an innovation that can affect people's rate of adoption as follows:

1. *Relative advantage*: the degree to which an innovation is perceived as better than the idea it supersedes. Relative advantage is mostly referred to in terms of expediency, saving of money, effort and time, and reduced inconvenience in using or adopting an innovation. In the e-service context, users may perceive a relative advantage in accessing the Internet and use its website services from any location and at any time of the day. Online services present other advantages for the organizations in addition to providing continuous access. They potentially contribute to valuable promotions of the company; enhance the quality and speed of customer services; create competitive advantages; entice shoppers and encourage customer interaction; support core business functions that are integral to business strategy; and provide new business opportunities by increasing market presence and facilitating online purchasing.
2. *Compatibility*: the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters. On e-service, especially in field of e-commerce, studies have shown that compatibility has a significant influence on the intention to adopt. As a result, it is expected that individuals who perceive e-services to be compatible with their experience, culture and language will be more likely to adopt.
3. *Complexity*: the degree to which an innovation is perceived as difficult to understand and use. A significant number of studies found that complexity or

ease of use has an important effect on users' intentions to use or to adopt a new technology. In the on line context perceived ease of use was found to affect e-service adoption significantly, reflecting the importance of the role of the ease of use variable on adoption of e-services.

4. *Trialability*: the degree to which an innovation may be experimented with on a limited basis. Trialability assumes that individuals who have had a great deal of opportunity to try the innovation are more likely to adopt it rather than those who did not try it, because the trial of the innovation provides a way for the potential adopters to be confident that the results of using this innovation meet their expectation. In the e-service context, trialability can be viewed as the ability to access and surf the Internet and trial its websites services. This will reduce the worries and fears about using or adopting the Internet and its website services as a new technology
5. *Observability*: the degree to which the results of an innovation are visible to others. In the e-service context, observability can be viewed by measuring people's knowledge about the e-service and its benefits. This knowledge could be gained by using public media such as newspapers or TV. If this knowledge is easy to gain and share between individuals and e-service benefits are apparent, adoption should follow. Consequently, it is presumed that observability has an effect on the adoption of e-service as a new technology.

Rogers (2003) also proposed that innovations with high relative advantage, observability, trialability, compatibility, and less complexity will be adopted more quickly than other innovations.

### **Perceived Risk**

As users interact with a new technology, they will learn the usefulness as well as the risks associated with the technology. Technology Acceptance Model (TAM) proposes that an increase in perceived usefulness leads to a greater intention to use. This study extends this proposition to infer that perceived risk influences the actual usage of the Internet. While there are other factors affecting consumers' adoption behavior on the Internet, perceived risk is an impediment to the repatronage and purchase on the Internet. In brief, perceived risk may influence the attitude and behavior of consumers towards the Internet services

Perceived risk is defined as an assessment of uncertainties or lack of knowledge about the distribution of potential outcomes and the uncontrollability of outcome attainment. In the case of



purchasing on the Internet, it is possible that consumers may perceive disclosing their credit card information as risky, and they have no control over this. Chellappa and Pavlou (2002) describe information security as the subjective probability with which consumers believe that their personal information will not be viewed, stored or manipulated during transit or storage by inappropriate parties, in a manner consistent with their expectations. Indeed, uncertainties about how their financial information is treated by merchants will increase perceived risk associated with online transactions.

Perceived high-risk activity includes online banking where consumers assume greater risk transferring funds from their bank accounts to third party accounts, pay their utility bills or make inter-bank loan repayments and so forth. A medium risk activity includes online reservation, which involves the disclosure of consumers' financial account or credit card information, but no transaction will take effect unless one appears physically before the service provider in order to confirm a purchase. On the other hand, information searching is considered as low risk activity since it does not involve any disclosure of financial related information. Hence, consumers who adopt high-risk activities for example, online banking can be considered as having higher risk tolerance than those who use the Internet for online reservation and information search.

#### **Users' Level of Experience and Web site features**

It is believed that a well managed web portal may lead to increased profits and that profitability correlates to choosing the right consumers. That is, better understanding of users' expectations and perceived value is indeed crucial. In essence, as users assimilate a new technology, they tend to have a higher level of expectations of that particular technology. For example, as users are more experienced in information searching, the process becomes much easier the next time. As a result, information searching becomes common and users tend to look for other new added-value services from a search engine. In other words, the higher the expectations, the higher the satisfaction judgments of a service. Ward and Lee (2003) found that more experienced Internet users tend to be more successful in information searching and are less-brand reliant, hence less loyal.

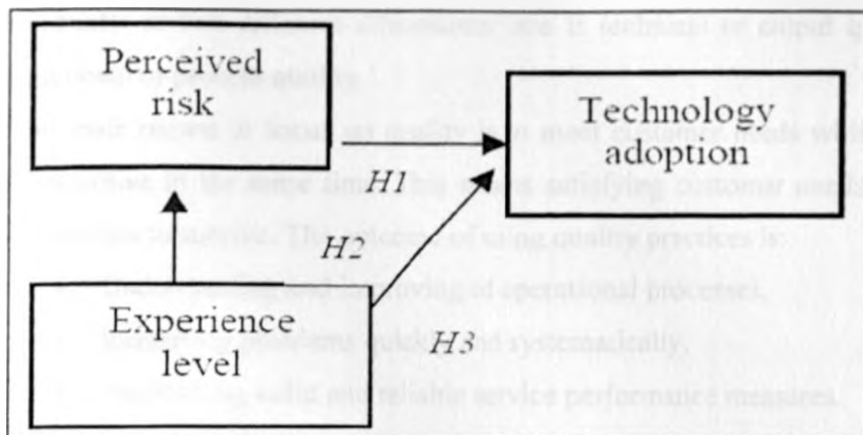


Figure 1: Relationship between Perceived risk, user experience level and Technology adoption.

### E-Service Quality

E-service quality can be seen as a representation of the entire service delivered through the online service providers. Characteristics such as age, gender, income level, and experience and technology tendency may affect the customer perceptions and evaluations of the service and consumer satisfaction. Therefore, service quality on the Internet is part of the consumer shopping experience and affects the overall satisfaction level; therefore, numerous studies found that e-service quality is highly related to consumer satisfaction. There is a significant relationship between e-service quality and e-service adoption in general. Service quality has been found to be an important input to customer satisfaction. Customer satisfaction is a short-term transaction specific measure, whereas service quality is an attitude formed by a long-term overall evaluation of a performance. Although, service quality and customer satisfaction are separate constructs but according to Parasuraman et al., (1988) there is a close relationship between them.

## 2.2 E-service Quality

### 2.2.1 Traditional Service Quality

Service quality involves a comparison of expectations with performance. According to Lewis and Booms (1983) service quality is a measure of how well a delivered service matches the customers' expectations. Generally the customer is requesting a service at the service interface where the service encounter is being realized, and then the service is being provided by the provider and in the same time delivered to or consumed by the customer. According to Gronroos (1982), total service quality is customer's perception of difference between expected service and perceived service. He described service quality of the service

encounter as two different dimensions: one is technical or output quality and the next one is functional or process quality.

The main reason to focus on quality is to meet customer needs while remaining economically competitive in the same time. This means satisfying customer needs is very important for the enterprises to survive. The outcome of using quality practices is:

- Understanding and improving of operational processes.
- Identifying problems quickly and systematically.
- Establishing valid and reliable service performance measures.
- Measuring customer satisfaction and other performance outcomes.

Service quality is a business administration's term and describes the degree of achievement of an ordered service. In this connection, objective and subjective service quality can be distinguished.

- Objective service quality is the concrete measurable conformity of a working result with the previous defined benefit; since the measurability is remarkable dependent on the definition's accuracy, a measurable quality criterion easily can turn out as a subjective one.
- Subjective service quality is the customers perceived conformity of the working result with the expected benefit; this perception is overlaid with the customers' original imagination of the service and the service provider's talent to present his performance as a good one.

### 2.2.2 Dimensions of Traditional Service Quality

Personal needs and past experience creates an expectation of the service. The perceived service is compared with the expected service by the customer. This leads to the perceived service quality as a result. Between the expected and the perceived service can appear a gap if the perceived service does not match with the expected service. Factors which influence the appearance of this gap have been interest of study by different researchers.

Parasuraman, Zeithaml and Berry (1985) identified ten determinants of service quality that may relate to any service: tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding the customer, and access.

Later Berry and Parasuraman identified 5 dimensions to cover the human elements in service quality. These dimensions for service quality are:

- *Tangibles*: deals with the appearance of physical facilities, equipment, personnel and communication materials.

- *Reliability*: deals with the dependability, and accuracy of service.
- *Responsiveness*: deals with the ability to provide prompt services and support to customers.
- *Assurance*: deals with the trust and confidence with the service provider based primarily on the knowledge and courtesy of employees.
- *Empathy*: deals with the provisions of caring and individualized attentions to customers.

On an operational level service quality research has been dominated by the SERVQUAL instrument which commonly groups quality determinants into five basic clusters: *reliability, responsiveness, assurance, empathy* and *tangibles*.

In addition, a conceptual model of service quality which includes five gaps was proposed by Parasuraman et al. (1985), and Zeithaml et al. (1988). In their model Gap one is about managers' perceptions of customers' expectations on service quality.

Managers think they know what customers really want, but actually there exists gaps.

- *Gap one* is between customers' expected service and management perceptions of customers' expectations.
- *Gap two* is about service quality standards. Because there is no clear-cut approach that managers can use to translate their perceptions into service quality standards, a gap is inevitable.
- *Gap three* is the difference between service quality standards and the level of service actually delivered.
- *Gap four* is the difference between service providers' service delivery and service providers' promises through external communications.
- *Gap five* is the difference between expected service and perceived service from customers' points of view.

This conceptual model is useful in that it is easy for practitioners to understand service quality components.

### 2.2.3 E-service Quality definition

E-service quality can be defined as customer's perceptions of the outcome of the service along with recovery perceptions if a problem should occur, Collier & Carol (2006).

Zeithaml (2002) defines the electronic service quality as "the extent to which a web site facilitates efficient and effective shopping, purchasing and delivery", which had significant impact on the

companies in the service sector. The definition focuses on meeting customer's needs and requirements, and tries to explain how the service delivered can meet the company's expectations.

#### **2.2.4 E-service Quality Dimensions**

With the increase of eservice adoption in business field, the importance of measuring and monitoring Eservice quality in the virtual world has been recognized, and eservice quality is an important topic in research field. Some academic researches have already been conducted to develop eservice quality measurement. Much of the studies in eservice quality take a combination of traditional service quality dimensions and web interface quality dimensions as the starting point.

After combining and synthesizing the existing construct of both service quality and eservice quality, a perceived eservice quality constructs consists of the dimensions from both online companies' and customers' perspectives. These dimensions are discussed below:

##### **Ease of use**

Ease of use is defined how easy it is for customers to use website. Website should be designed for customer's ease of use, including searching, navigating and use. Ease of use is an important determinant in the incubative dimension of eservice quality. Ease of use has been highly rated in customer's eservice quality measurement, and it has been noted by many researchers.

##### **Website design**

In the virtual environment of eservice, for customers website is the main access to online organizations and to a successful purchase process. The deficiency of website design can result in a negative impression of the website quality to the customers, and customers may exit the purchase process. Website is the starting point for customers to gain confidence. Website design can influences customers' perceived image of company, and attract customers to conduct purchasing online easily with good navigation and useful information on the website. Website should provide appropriate information and multiple functions for customers.

##### **Reliability**

Reliability refers to the consistency of performance and dependability of companies. According to some empirical studies, reliability is the most important dimension of eservice quality. In the virtual environment, it is vital to make customers to trust that the company is going to perform what it promises to do. Reliability can make customers recognize the consistency and credibility of the company as well.

##### **System availability**

System availability refers to the correct technical function of the website. In eservice, the system

availability makes customers always accessible to the online service offered by online companies, which can help customers to have a good image of online companies. If customers cannot use the online system when they need online service, they will switch to some other online companies.

### **Privacy**

Privacy refers to the degree to which the website is safe and customer information is protected. This Dimension holds an important position in eservice. Customers perceive significant risks in the virtual environment of eservice stemming from the possibility of improper use of their financial data and personal data.

Consumers utilize online services because they offer convenience and save time. However, online consumers might refrain from using online services because of their concerns about privacy, including the safeguard of personally sensitive information which may be sold to third parties.

Research show that as the number of consumers' purchases through the Internet increases, electronic vendors can increasingly obtain online buyers' private information such as demographic profiles or consumer shopping behavior which can be passed on to third parties. Some companies might have no reason to protect their customers' information if they are not aware of any responsibility concerning the social cost of privacy invasions.

However, many successful online service providers have customized their services and redesigned the offered products to match individual customers needs identified through the customer's personal information.

Privacy problems can be solved from the interaction of law, code of conduct and markets which can strengthen the existing regulations about compliance of online service providers to their own privacy policy as specified on their web sites, letting consumers have control over their personal information for their own benefits such as money, goods, or services.

### **Responsiveness**

Responsiveness refers to effective handling of problems and returns via the Internet. In eservice, Company's prompt service to customers via the Internet can make customers feel more comfortable during purchasing and continue purchasing without interruption.

### **Security**

Security concepts, in general, refer to the ability to protect against potential threats. However, in online environments, security is defined as the ability of the online company website to protect consumer information and their financial transactions data from being stolen during

transmission. Perceived security controls describe the degree to which an e-commerce website is perceived to be secure and able protect other information from potential threats. Since the growth of online services, security has become gradually noticeable as a critical issue. Successful electronic attacks results to loss of business, reputation and customer trust.

Fram and Grady (1995) conducted a study focused on Internet buyers from an online consumer perspective. They found that most concerns condensed into a collection of transaction issues such as lack of credit card security, vendors not fully identified and a lack of payment alternatives. The findings stated that “fear of doing financial transactions over the Internet” as the most significant barrier that prevents online browsers from becoming online buyers. Security concerns in this context refer to consumers’ beliefs that online companies are not able to protect their transaction’s information from being stolen during transmission or storage. These concerns have a notable impact on individual decision to buy online.

Research findings in general, have shown that customers’ behavioral intention to use e-commerce websites is significantly influenced by their perception about the level of security control that website has. Perceived security is a much stronger determinant of intention to purchase online than the perceived ease of use and usefulness of the website.

### **Empathy**

Even though there is no direct human interaction in the virtual eservice process, some human contacts are involved in eservice, for example email communication. Providing customer individual attention shows empathy to customers. Response to customers should always be mindful of customer’s needs and show understanding of customer’s needs. In the virtual environment of eservice, empathy is important in customer’s perception of the eservice quality without face to face encounter.

### **Trust**

Trust can be defined as the degree of confidence or certainty the customer has in exchange options. E-trust is defined as the degree of confidence customers have in online exchange or in online exchange channel. Moreover Mayer et al., (1995) define trust as “the willingness of a party to be vulnerable to the actions of another party based on the expectations that the other will perform a particular action important to the trust or, irrespective of the ability to monitor or control that other party”.

In the context of the Internet, trust toward online companies is often regarded as a key factor of commerce growth, online success and competitiveness. It is important to note that trust in

eservice is a function of other eservice quality dimensions such as the reliability of the website, privacy and securities issues, order fulfillment, service delivery, after sales service and the reputation of the company. Customers' trust to online companies is critical for online companies' success.

Online consumers not only need to trust online vendors, they also need to trust the web itself as a transaction medium. Therefore increasing the awareness of how to implement system designs that exploit the user's semantic understanding of electronic commercial process can be a helpful technique in building trust in electronic environments. Zuboff (1988), in her study focused on information technology usage, found that the lack of trust in a new technology would affect its usage. Actually, trust is an important factor influencing consumer behavior and it determines the success of technologies adoption such as ecommerce.

According to Palvia, (2009) trust has a significant effect on participation intention through usage attitude. In the context of B2C ecommerce, building trust between two parties is crucial for companies which choose to do business online. Several studies found that consumer trust is significantly related to trust in the ecommerce web site itself and perceived site quality is positively related to trust in the web site.

### **Loyalty**

Customer loyalty is a deeply held commitment to re-buy or re-patronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing despite situational influences and marketing efforts having the potential to cause switching behavior. Subsequently, Anderson and Srinivasan (2003) have defined e-loyalty, in brief, as the best preferable attitude of a customer headed for an e-business, leading to repetitive online purchasing.

Due to widened diffusion and diversity of the services offered via the Internet; the level and amount of competition between online service providers have escalated increasingly granting the online consumer power. Continuous development in web technology, content, service and product value helps to acquire and keep online customers loyalty which is critical to the success of any online service provider in today's online competitive environment.

In the context of Kenya, there is a lack of research on factors that affect customer loyalty. Studies indicate that loyal customers considered service/product quality and reputation important, reinforcing the notion that online consumers in developing countries prefer companies that assure their privacy.



Saha and Zhao (2005: 20), compare traditional service quality dimensions with online service quality dimensions among the researchers who worked on both of them the results of their comparison are shown in table 2:

**Table 2: Summary of Service Quality Factors, Source Saha and Zhao (2005: 20),**

Dimensions	Online service quality	Service quality	Authors
Reliability	YY		Parasuraman et al., (1985) Zeithaml et al., (1988,2002) Yang and Fang (2004) Liu and Arnett (2000) Riel et al. (2001)
Responsiveness	YY		Parasuraman et al. (1985) Zeithaml et al. (1988, 2002) Kaynama and Black (2000) Delone and Mclean (2003) Yang and Fang (2004) Arnett (2000) Riel et al. (2001)
Competence		Y	Parasuraman et al. (1985)
Accessibility	YY		Parasuraman et al. (1985) Kaynama and Black (2000)
Courtesy		Y	Parasuraman et al. (1985)
Communication		Y	Parasuraman et al. (1985)
Credibility		Y	Parasuraman et al. (1985)
Security		Y	Parasuraman et al. (1985)
Understanding the customer		Y	Parasuraman et al. (1985)
Tangibles		Y	Parasuraman et al. (1985) Zeithaml et al. (1988)
Content		Y	Kaynama et al. (2000)
Accuracy		Y	
Easy of use	Y	Y	Yang and Fang (2004)
Timeliness		Y	Zeithaml et al. (2002)
Efficiency	Y		Zeithaml et al. (2002)

### Summary of Service Quality Factors (Continued)

Dimensions	Online service quality	Service quality	Authors
Fulfillment	Y		Zeithaml et al. (2002)
Privacy	Y		Zeithaml et al. (2002)
Compensation and contact	Y		Zeithaml et al. (2002)
Navigation	Y		Kaynama and Black (2000)
Page design and presentation	Y		Kaynama and Black (2000)
Background	Y		Kaynama and Black (2000)
Personalization and customization	Y		Kaynama and Black (2000)
Assurance	YY		Zeithaml et al. (1988) Delone and Mclean (2003) Arnett (2000) Riel et al. (2001)
Empathy	YY		Zeithaml et al. (1988) Delone and Mclean (2003) Arnett (2000)

### 2.2.5 Models of E-Service Quality Dimensions

Good service quality measurably increases a firm's overall profitability, its price premium, and its perceived and actual market share. However, most organizations have limited understanding of how to design a customer centered web site that can help them establish better commercial relationships with their customers and to secure the success of their e-Business initiative. Most organizations would like to understand more closely how the quality aspects of their web sites influence purchasing decisions of web consumers. Different researches have provided different models that show relationships between web quality web factors and adoption of ecommerce. Smith and Merchant (2001) believe that e-commerce firms depend on people visiting their sites, purchasing their products, and, more importantly, becoming repeated customers.

#### 2.2.5.1 E-service quality model

Santos, (2003) presented a model that provides a comprehensive framework of e-service quality and its determinants. The author by using focus group interviews and insight from previous researches found a conceptual model of e-service quality. The model proposed that e-service quality consists of an incubative dimension and an active dimension. The incubative dimension and the active dimension each consist of five or six related (and potentially) overlapping

determinants. Customers often divide service-quality dimensions into various sub-dimensions (Carman, 1990), and a hierarchical conceptualization of service quality is appropriate. The findings from the focus group research implied that the active dimensions are as important as the incubative dimensions. The sequence of determinants in both the incubative dimensions and active dimensions are presented according to their importance as they emerged from the focus groups, either explicitly or implicitly.

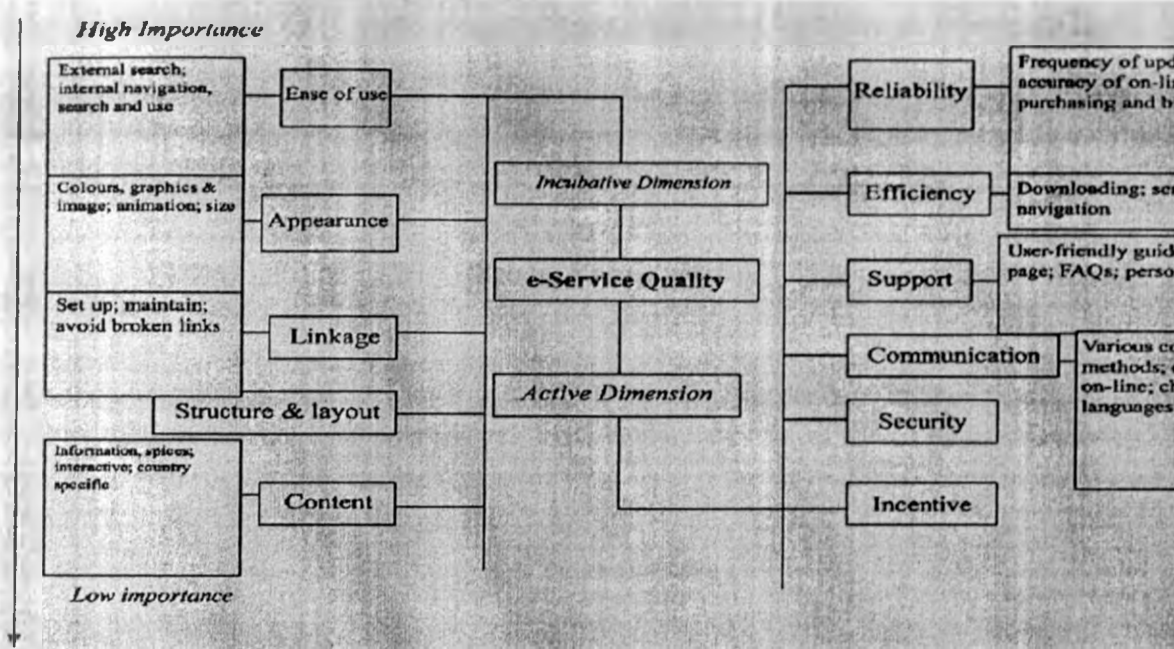


Figure 2: E-Service Quality Model, (Source: Santos, 2003)

The incubative dimensions are defined as the proper design of a web site, how technology is used to provide consumers with easy access, understanding, and attraction of a web site. The majority of elements in the incubative dimensions can be developed before a web site is launched. The active dimensions are defined as the good support, fast speed, and attentive maintenance that a web site can provide to its customers. The active dimensions must be achieved consistently throughout the period that a web site remains active. It can increase customer retention and encourage positive word-of-mouth referral (Santos, 2003).

A more empirically grounded of the scales that focus specifically on the website interface is WebQual (Loiacono et al., 2002). By interviewing both consumers and website designers and using undergraduates to rate e-commerce sites, Loiacono et al. identified 12 dimensions of website quality which they claimed have sufficient discriminate validity: informational fit-to-

task, interactivity, trust, response time, ease of understanding, intuitive operations, visual appeal, innovativeness, flow/emotional appeal, consistent image, online completeness and better than alternative channels.

**2.2.5.2 Conceptual Model for Delivering a Quality Web Site to Satisfy the Customer**  
 Cox and Dale (2002) detail the key quality factors (KQFs) and then puts forward a categorization of the KQFs in the form of a conceptual model for delivering a web site to satisfy customer requirements. Then they have been grouped these KQFs into four categories that each category relates to a different part of the web site experience and serves to enhance customer satisfaction to the extent that the customer will return.

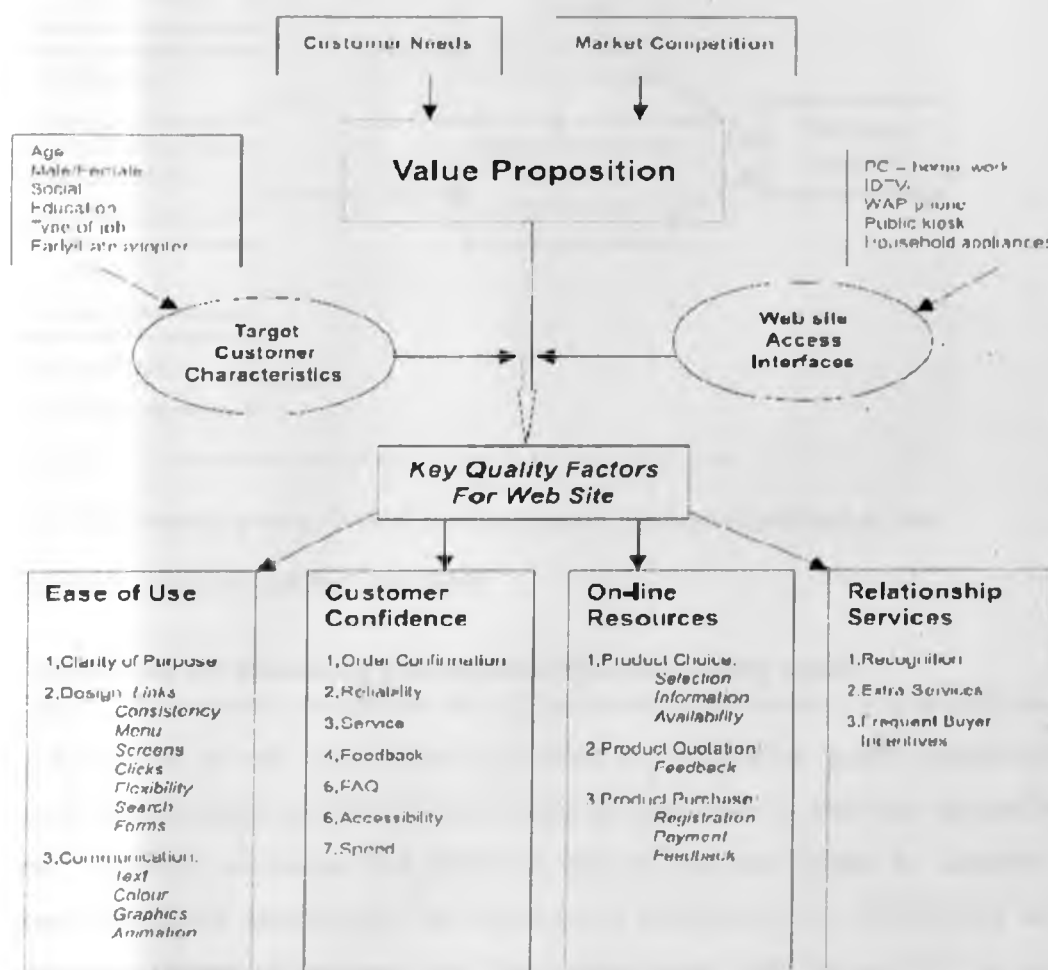


Figure 3: Conceptual Model for Delivering a Quality Web Site to Satisfy the Customer  
 (Source: Cox and Dale, 2002)

In that model, this can be considered as a guide, that how to define the value proposition of the web site before deciding which KQFs are appropriate in the assessment.

### 2.2.5.3 SERVQUAL model

Revised SERVQUAL model was developed by Lee and Lin (2004), which scale items to establish dimensions of e-service quality through web site design, reliability, responsiveness, trust, and personalization. The relationship among the e-service quality dimensions, overall service quality and customer satisfaction is hypothesized as shown in the figure.

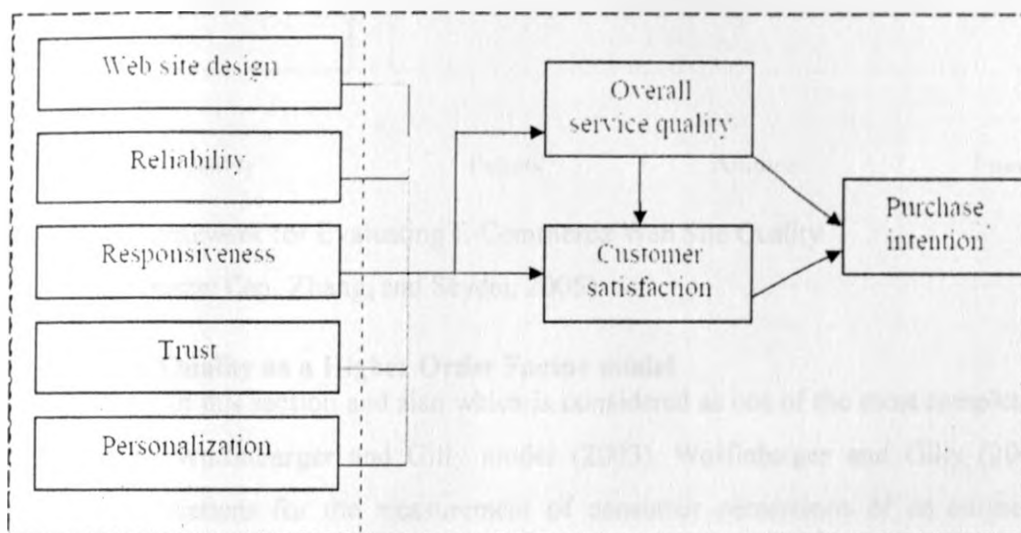


Figure 4: The Relationship among Overall Service Quality, Customer Satisfaction, and Purchase Intension, (Source: Lee and Lin, 2004)

### 2.2.5.4 A Framework for Evaluating E-Commerce Web Site Quality model

Liu and Arnett (2000) derived a framework from IS and marketing literature. They identify four factors that are critical to web site success in e-commerce: information quality, system use, playfulness and system design quality. They use following framework to relate web site quality to customers' perceived usefulness and perceived ease of use, and further to customers' preference and intention to reuse the site. The framework is built upon TAM, SERVQUAL, and the concept of trust (Delone and McLean, 1992; Parasuraman et al., 1985; Davis, 1989; Lin and Lu, 2000; Chen et al., 2002).

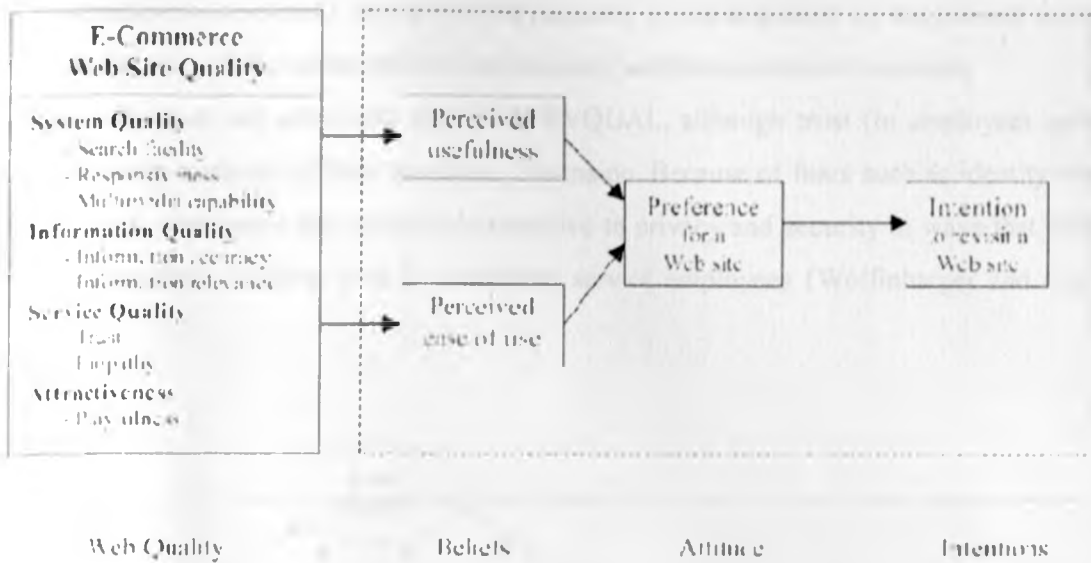


Figure 5: A Framework for Evaluating E-Commerce Web Site Quality  
 (Source: Cao, Zhang, and Seydel, 2005)

**2.2.5.5 E-Tail Quality as a Higher Order Factor model**

The last model in this section and also which is considered as one of the most completed models in this part is Wolfinbarger and Gilly model (2003). Wolfinbarger and Gilly (2003) offers important implications for the measurement of consumer perceptions of an online purchase experience. Their analyses suggest that judgments concerning the quality of an online site are most strongly related to website design factors and fulfillment/reliability. In their model 14 items chosen, measure the four factors at a global level. Most surprising is the role of security/ privacy, which is not significant in predicting quality, except among the most frequent buyers at the website.

Their findings show that inferences of security/privacy are initially obtained from other quality factors, particularly website design, when shoppers are new to a website. They claim that it also, appears initially consumers' judge security/privacy based on elements such as the professional look and feel of the website, as well as functionality of a website, and company reputation. Their eTailQ scale can be compared to the SERVQUAL scale (Parasuraman, Zeithaml, & Berry, 1988). According to writers, an overarching difference between them is that consumer perceptions of employees play a central role in SERVQUAL, while the company as an entity is the focus of eTailQ. The dimensions themselves also have key differences. Website design is a new dimension that strongly affects consumer perceptions of their buying experience. Reliability as defined in SERVQUAL entails consistency of performance and dependability. In contrast,

Fulfillment/reliability in eTailQ focuses on the accuracy of the depiction of the product on the website, the accuracy of the order and on-time delivery, attributes peculiar to retailers.

Privacy/security does not come into play in SERVQUAL, although trust (in employees rather than firms) is one attribute of their assurance dimension. Because of fears such as identity theft and spam, e-tail consumers are particularly sensitive to privacy and security in ways that differ from how consumers develop trust in individual service employees (Wolfinger and Gilly, 2003).

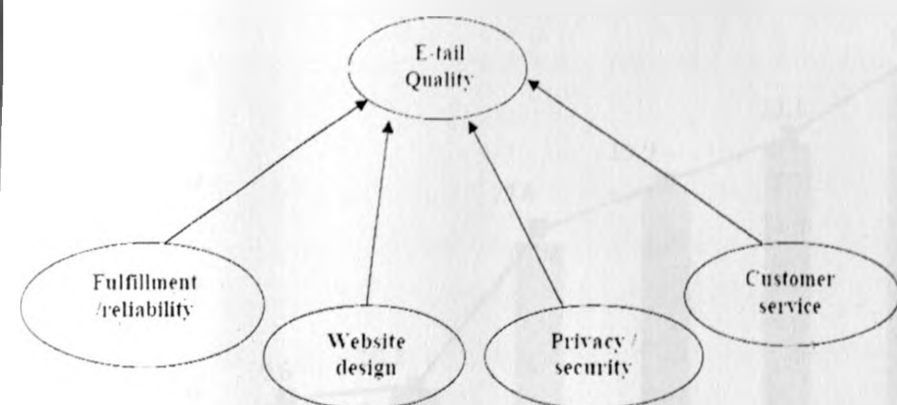


Figure 6: Modeling E-Tail Quality as a Higher Order Factor, (Source: Wolfinger and Gilly, 2003)

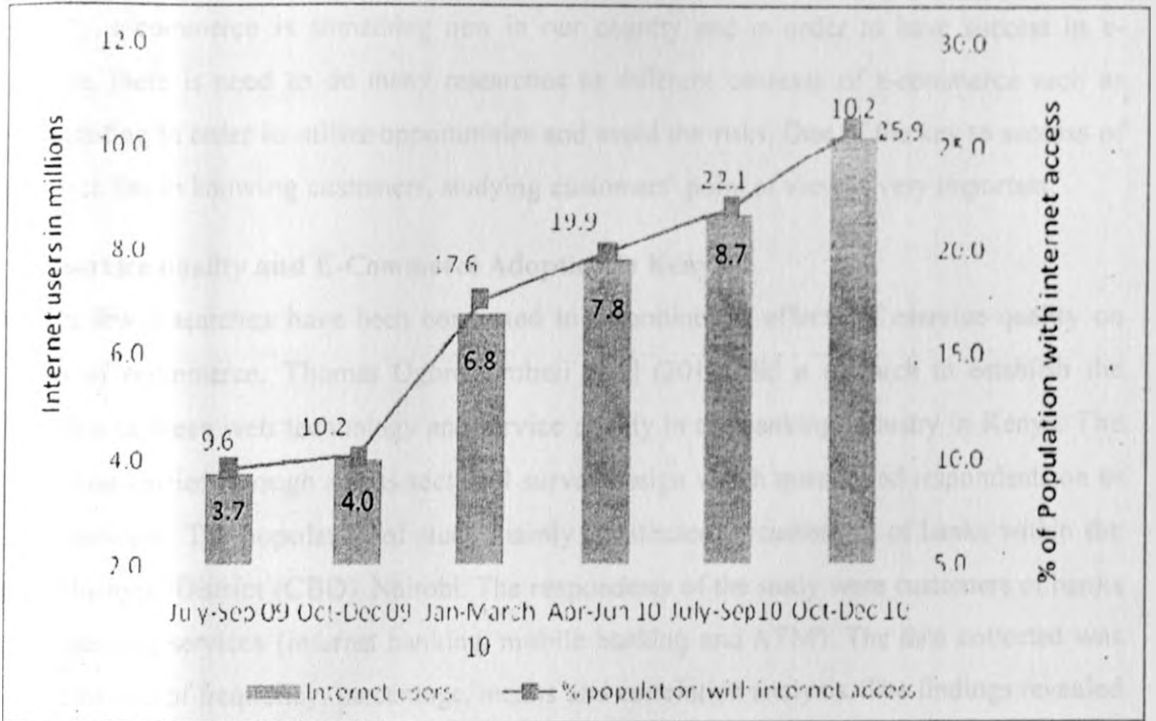
The four factors extracted in Wolfinger and Gilly model are defined as follow:

- *Fulfillment/reliability* is (a) the accurate display and description of a product so that what customers receive is what they thought they ordered, and (b) delivery of the right product within the time frame promised.
- *Website design* includes all elements of the consumer's experience at the website (except for customer service), including navigation, information search, order processing, appropriate personalization and product selection.
- *Customer service* is responsive, helpful, willing service that responds to customer inquiries quickly.
- *Security/privacy* is security of credit card payments and privacy of shared information.

### 2.3 E-Commerce Adoption in Kenya

Although, there is no any credible statistics in the e-commerce context in Kenya, but most of the information indicates that the volume of e-commerce in Kenya is low. The penetration of e-commerce has been slow in comparison to the level of internet usage in Kenya. However the has been rise in the number of local online e-commerce stores of late. They include bidorbuy.com, Kalahari.co.ke, elimishaonline.com, MamaMikes.com and TotallyToto.com among others.

Chart 1: Internet penetration in Kenya, (Source: CCK)



One of largest e-commerce player in Kenya has been Kalahari.co.ke. This is a site which is a spin-off of the highly popular South African online store Kalahari.net. In many ways, Kalahari.co.ke mimics its South African predecessor with the exception of the Kenyan localization. Kalahari.co.ke is comprehensive in that customer can buy books, electronics, music, movies, toys, gifts and vouchers, all in local currency. The only limitation with Kalahari.co.ke is that it lacks online credit card payments (currently) so one has to use M-Pesa or direct bank deposits to make payments. Unfortunate announced its closure of operations in Kenya and Nigeria as from 24<sup>th</sup> October 2011 due to underperformance (<http://www.kalahari.co.ke>, 2011). An obstacle cited to making e-commerce a reality in the country has been lack of legislation, adequate Internet infrastructure and innovation, but with the introduction of the ICT Bill there will be positive impact on growth of the ecommerce.



Another major issue in realizing widespread e-commerce is that internet-based payment systems are still not fully established in Kenya and credit card penetration is somewhat limited. Nevertheless, the mobile phone has become the preferred payment platform following the massive success of Safaricom's M-Pesa.

Just like the rest of the world the Kenyan government has also started to take notes of the socioeconomic advantages of electronic trading and commerce. It has taken a wide range of measures to set up and develop electronic trading facilities and venues cross the country. Obviously, e-commerce is something new in our country and in order to have success in e-commerce, there is need to do many researches in different contexts of e-commerce such as online retailing in order to utilize opportunities and avoid the risks. One of the key to success of e-commerce lies in knowing customers, studying customers' point of view is very important.

### **2.3.1 E-service quality and E-Commerce Adoption in Kenya**

In Kenya few researches have been conducted to determine the effects of eservice quality on adoption of e-commerce. Thomas Ogoro Ombati et al (2010) did a research to establish the relationship between web technology and service quality in the banking industry in Kenya. The research was carried through across-sectional survey design which questioned respondents on e-banking services. The population of study mainly constituted of customers of banks within the Central Business District (CBD), Nairobi. The respondents of the study were customers of banks using e-banking services (internet banking, mobile banking and ATM). The data collected was analyzed by use of frequency, percentage, means and correlation analysis. The findings revealed that, secure services as the most important dimension of eservice quality, followed by convenience, efficiency (not need to wait), ability to set up accounts so that the customer can perform transactions immediately, accuracy of records, user friendly, ease of use, complaint satisfaction, accurate transactions and operation in 24 hours.

The findings were consistent with research findings by Joyce Wangui Gikandi (2009). The aim of this research was to investigate the factors influencing the adoption and effectiveness of e-banking in retail banking in Kenya. Various future challenges of e-banking adoption identified in the current study included Internet security, customer and legal related issues besides technical issues. These challenges were rated according to their importance and are presented in table. The rating was on a 15-point-scale with 1 representing challenge(s) of extreme importance and 15 depicting those whose importance was not deemed so important in the current banking industry in Kenya.

**Table 3: E-banking future challenges rating and percentage importance in retail banking sector in Kenya. Source Electronic Commerce Research and Applications, 2010)**

Challenge	Ratings <sup>a</sup>		N (%)	
	2005	2009	2005	2009
Internet security	1	1	100	100
Customers' trust	2	5	90	80
The speed of service delivery	6	7	60	90
Customers' information privacy	3	3	80	90
Customers' awareness	4	6	90	70
Continuity of the service	7	10	70	80
Spread of computer use	8	13	70	100
Spread of Internet use	9	12	70	100
Difficulty of using online banking by some customers	10	14	80	90
Pricing of Internet service	13	15	70	100
Internet infrastructure in the country	11	11	80	90
Cost of maintaining the site	12	9	70	60
Lack of legal regulations	5	8	90	100
ISP monopoly	15	2	80	90
Difficulty of maintaining the site	14	4	90	70

From the findings, Internet security was identified as the most important future challenge in e-banking while customer trust, privacy and awareness are being recognized as challenges of great importance.

Both studies demonstrate that there is a strong link between web service quality and adoption of e-commerce in Kenya. However there are other non quality of service factors of importance which need to be researched. They include customer awareness, spread of ICT usage, internet access cost, lack of legislation, internet infrastructure and spread of computers.

### 2.3.2 E-commerce Adoption models

Several theories/models have been suggested as appropriate for the study of e-commerce adoption. Each of the theory/model has been utilized in numerous studies that have focused on the intention to adopt or to use a specific information technology. Most of these models are based on the idea that an individual's adoption of a new technology is determined by factors that

are perceived to influence intention to use the technology. These factors vary according to the theory or model that is being used in that particular research.

Existing models of IT acceptance have their foundations from several diverse theories, most noticeably Innovation Diffusion Theory, where individuals' perceptions about using an innovation are considered to affect their adoption behavior. This model was developed by Agarwal and Prasad, 1998.

Other important theoretical models that attempt to explain the relationship between user beliefs, attitudes, intentions, and actual system use include the Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1980), the Theory of Planned Behavior (TPB) (Ajzen, 1991), and the Technology Acceptance Model (TAM) (Davis, 1989; Davis et al., 1989).

This section reviews various models of technology adoption which are used as theoretical backgrounds of the e-Commerce adoption models.

### **2.3.2.1 Diffusion of Innovation Theory**

Diffusion theory whose proponent is Everett Rogers can be described as a set of generalizations regarding the typical spread of innovations within a social system. Rogers (1995) defines diffusion as the process by which an innovation is communicated through certain channels over time among the members of a social system. Diffusion research centers on the conditions which increase or decrease the likelihood that a new idea, product, or practice will be adopted by members of a given culture. Diffusion of innovation theory predicts that media as well as interpersonal contacts provide information and influence opinion and judgment.

Studying how innovation occurs, Rogers (1995) argues that it consists of four stages: invention, diffusion (or communication) through the social system, time and consequences. The information flows through networks. The nature of networks and the roles opinion leaders play in them determine the likelihood that the innovation will be adopted. Innovation diffusion research has attempted to explain the variables that influence how and why users adopt a new information medium/ICT, such as the Internet. Opinion leaders exert influence on audience behaviour via their personal contact, but additional intermediaries called change agents and gatekeepers are also included in the process of diffusion. Five adopter categories are: Knowledge – person becomes aware of an innovation and has some idea of how it functions; Persuasion – person forms a favorable or unfavorable attitude toward the innovation; Decision – person engages in activities that lead to a choice to adopt or reject the innovation; Implementation –

person puts an innovation into use: Confirmation – person evaluates the results of an innovation-decision already made.

The most striking feature of diffusion theory is that, for most members of a social system, the innovation-decision depends heavily on the innovation-decisions of the other members of the system. The innovation-decision is made through a cost-benefit analysis where the major obstacle is uncertainty. People will adopt an innovation if they believe that it will, all things considered, enhance their utility. So they must believe that the innovation may yield some relative advantage to the idea it supersedes. Also, in consideration of costs, people determine to what degree the innovation would disrupt other functioning facets of their daily life. Is it compatible with existing habits and values? Is it hard to use? The newness and unfamiliarity of an innovation infuse the cost-benefit analysis with a large dose of uncertainty. It sounds good, but does it work? Will it break? If I adopt it, will people think I'm weird?

Since people are on average risk-averse, the uncertainty will often result in a postponement of the decision until further evidence can be gathered. But the key is that this is not the case for everyone. Each individual's innovation-decision is largely framed by personal characteristics, and this diversity is what makes diffusion possible. Diffusion scholars divide the bell-shaped curve to characterize five categories of system member innovativeness, where innovativeness is defined as the degree to which an individual is relatively earlier in adopting new ideas than other members of a system. These groups are: 1) innovators, 2) early adopters, 3) early majority, 4) late majority, and 5) laggards. Figure 7 below, gives a breakdown of how an innovation diffuses and is either adopted or rejected by people in a given society and the influencing factors. The model focuses on five elements: (i) the characteristics of an innovation which may influence its adoption; (ii) the decision-making process that occurs when individuals consider adopting a new idea, product or practice; (iii) the characteristics of individuals that make them likely to adopt an innovation; (iv) the consequences for individuals and society of adopting an innovation; and (v) communication channels used in the adoption process (Rogers, 1995).

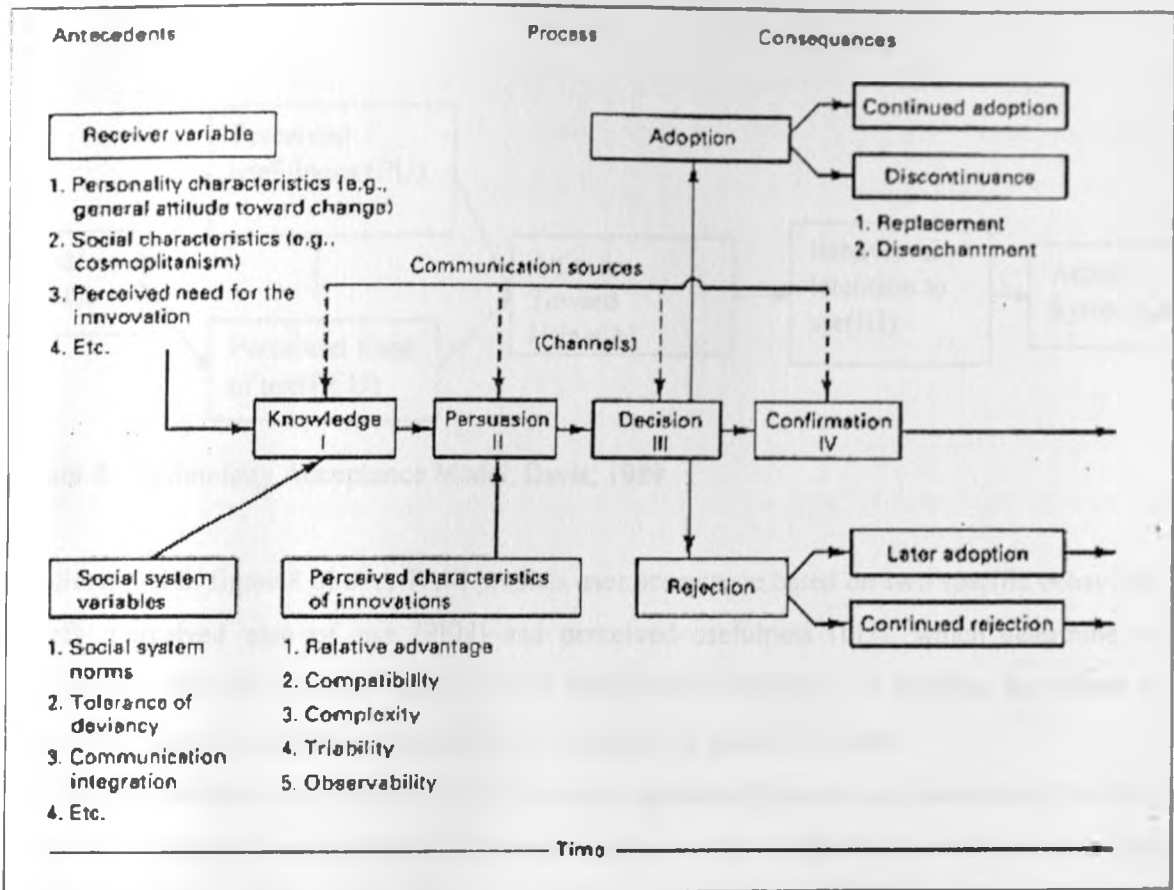


Figure 7: Diffusion of innovations source, Rogers, E.M. 1995.

### 2.3.2.2 Technology Acceptance Model

Information Systems (IS) researchers have made significant efforts in building theories to examine and predict the determinant factors of information technology (IT) acceptance. Among these theories, TAM seems the most widely accepted among IS researchers due to the richness of recent empirical support. According to the TRA model, beliefs influence attitudes, which consecutively lead to intentions, then direct or make behaviors. The TAM model, originally developed by Davis from the theoretical foundation of TRA, adapts this belief-attitude-intention-behavior relationship to an IT user acceptance. Thus, the purpose of TAM is to explain and predict IT acceptance and facilitate design changes before users have experience with a system (Davis, 1989).

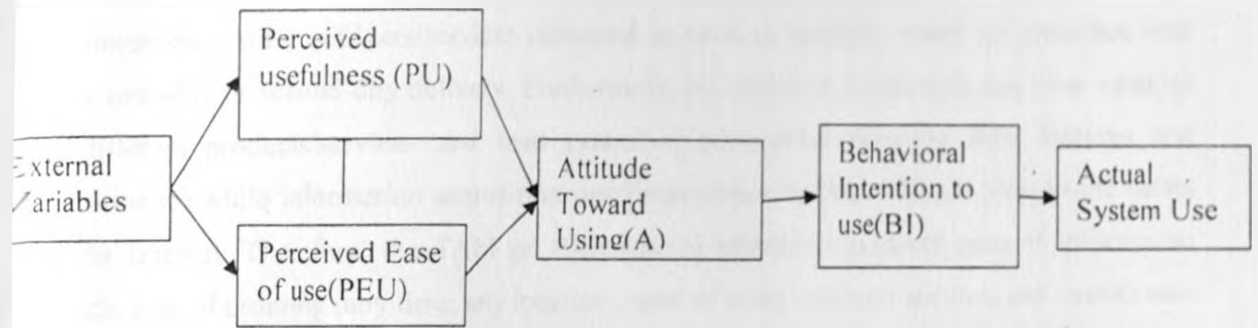


Figure 8 : Technology Acceptance Model, Davis, 1989

As illustrated in figure 8 above, TAM predicts user acceptance based on two specific behavioral beliefs: perceived ease of use (PEU) and perceived usefulness (PU), which determine an individual's behavior intention (BI) to use an information technology. In addition, the effects of external variables on behavioral intention are mediated by these two factors.

Significant researches examined the TAM's overall explanatory power and measurement validity in different settings characterized by constructs and type of IS. Originally the model was applied in investigating e-mail, word processing and graphics software. TAM has been extended its application to diverse types of IS, such as spreadsheets, internet and E-commerce.

Based on empirical evidence, the attitude construct (A) was left out from the original TAM model because it did not fully mediate the effect of PU on behavioral intention (BI). In addition, several studies have disregarded the effect of PEU/PU on the attitude (A) and/or BI. Instead, they focus on the impact of PEU and/or PU directly on the actual system usage. Since this research focuses on consumers' actual usage on e-Commerce, it adapts the TAM model by dropping some constructs (i.e., A and BI) as shown in the figure below.

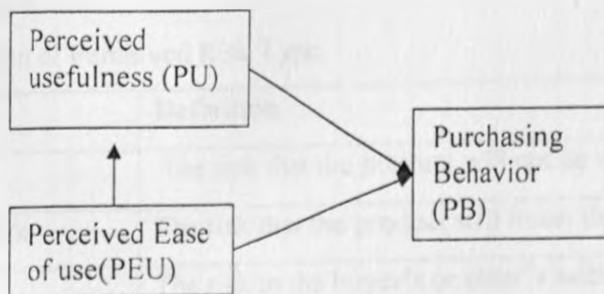


Figure 9 : TAM Model on E-commerce Adoption, Jinsoo Park, 2001

Consumers can access thousands of online sites and purchase anything from basic commodities such as clothing to books and insurance policies without traveling to a store. Recognizing that customers may want products/services delivered as soon as possible, many e-Commerce sites offer next-day or second-day delivery. Furthermore, e-Commerce consumers can view catalogs of different products/services and read extensive information detailing their features and performance while information acquisition was time-consuming and difficult prior to the outset of the Internet. Therefore, the TAM on E-commerce adoption recognize ease of information search, ease of ordering (any time, any location), ease of using customer service, and overall ease of use as consumers' perceived ease of use (PEU). In addition, the model measure perceived usefulness (PU) by the following factors: saving of money, saving of time, vast selection of products/services, and overall usefulness.

### 2.3.2.3 Perceived Risk Model on the Adoption of e-Commerce

This model was developed by Bauer (1960) in recognition that consumer behavior be seen as risk taking. The model attempted to identify various types of perceived risk in the context of the consumer's purchase behavior as discussed below.

#### Perceived Risk with Product/Service

Perceived risk has been recognized as a key determinant to consumer behavior that might be a primary factor influencing the conversion of browsers to real buyers. This model refers to perceived risk as the overall amount of uncertainty perceived by a consumer in a particular purchase situation. Perceived Risk with Product/Service include the risk resulting from poor performance, danger, health hazards, and costs.

Roselius (1971) identified four types of losses that related to the types of risk: time, hazard, ego, and money. Jacoby and Kaplan (1972) classified consumers' perceived risk into the following five types of risk: physical, psychological, social, financial, and performance (functional) as shown in the table below.

**Table 4:** Definition of Perceived Risk Type

Risk Type	Definition
Financial Risk	The risk that the product will not be worth the financial price
Psychological Risk	The risk that the product will lower the consumer's self image.
Physical Risk	The risk to the buyer's or other's safety in using products.
Functional Risk	The risk that the product will not perform as expected.

Social Risk	The risk that a product choice may result in embarrassment before one's friends/family/work group.
Time Risk(Non-monetary)	The risk of time spent preparing shopping lists, traveling, and seeking information, shopping, and waiting for product delivery.

As consumers cannot directly see or touch product/service in the electronic market (i.e., intangibility characteristic), consumers may feel anxiety or uncertainty when they have transactions with online vendors. For example, product/service delivered to consumers may not perform as expected. In addition, consumers may be also required to bear the expenses such as shipping and handling, when returning or exchanging the product/service.

Among the five types of risk, *functional loss* and *financial loss* are recognized as risk types related to product/service that may discourage consumers from doing online transactions. Further, when purchased products/services fail, the consumer may waste time, convenience, and effort getting it adjusted or replaced. Although time is non-monetary effort and varies among individuals, it is important to recognize time as a cost that consumers must pay for products/services. Thus, the model identified *time loss* as an additional risk with the product/service. After purchasing product/service over the Internet, consumers may find a product/service of equal or higher quality at a lower price. Hence the model recognized another perceived risk, *opportunity loss*, which is the risk that by taking one action a consumer will miss out on doing something else he/she would really prefer to do.

Therefore, perceived risk with product/service (PRP) can be defined as the overall amount of uncertainty or anxiety perceived by a consumer in a particular product/service when the consumer purchase online.

### **Perceived Risk in the Context of Online Transaction**

Researchers indicate that consumer's confidence or trust can be improved by increasing the transparency of the transaction process (for example, fully disclosing the identity, origin, and liability of the supplier), keeping to a minimum the personal data required from the consumer, and by making clear the legal status of any information provided. Bhimani (1996) points out the threats to the adoption of e-Commerce that could manifest from such illegal activities as eavesdropping, password sniffing, data modification, spoofing, and repudiation. Therefore, the fundamental requirement for e-Commerce that satisfies the following security issues is



Important: authentication, authorization, availability, confidentiality, data integrity, non repudiation, and selective application services.

Swaminathan et al. (1999) assert that consumers evaluate online vendors before they enter into online transaction and therefore the characteristics of the vendors play an important role in facilitating the transaction. Rose et al. (1999) identified the technical impediments and their associated costs and limitations specific to B2C e-Commerce, which include download delays, limitations of the interface, search problems, inadequate measurement of Web application success, security weakness, and lack of Internet standards. Further, they state that if people do their business transactions with dishonest merchants or if sensitive information is stored on unsecured databases, security threats exist even where data is perfectly secure in transmission. Therefore, we define perceived risk in the context of online transaction (PRT) as a possible transaction risk that consumers can face when exposed to electronic means of doing commerce. Finally, four types of PRT are identified as follows: privacy, security (authentication), non repudiation, and overall perceived risk on online transaction.

Based on the consumer's perceived risk, a theoretical model that postulates perceived risks as the antecedents to the adoption of e-Commerce is represented as shown below.

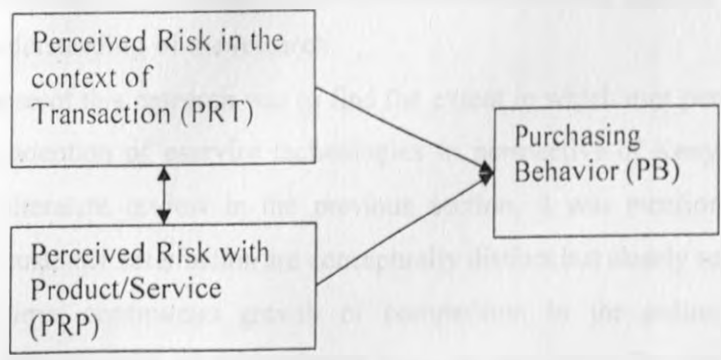


Figure 10: Perceived Risk Model on the Adoption of e-Commerce, Bauer (1960)

### 2.3.2.4 E-Commerce Adoption Model (e-CAM)

Many factors positively or negatively influence a consumer's decision to adopt e-Commerce as a purchasing means of products/services. This model is developed from each of the constructs from TAM Model on E-commerce Adoption and Perceived Risk Model on the Adoption of e-

Commerce. e-CAM suggests that Perceived Ease of use( PEU), Perceived usefulness( PU), Perceived Risk with Product/Service (PRP) and Perceived Risk in the context of Transaction(PRT) will have impact on the consumer's adoption of e-Commerce. The relationships constituting the model also have support from prior theoretical and empirical work in the previous research.

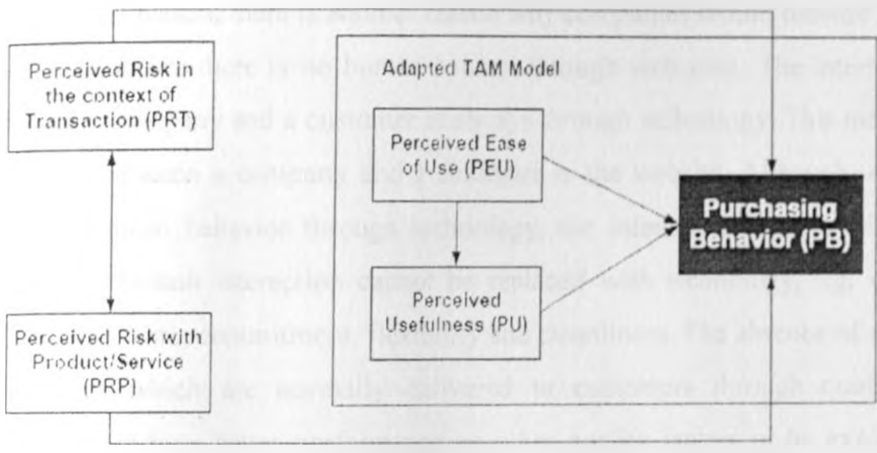


Figure 11: E-Commerce Adoption Model (e-CAM), Joongho Ahn, 2001

### 2.4 Conceptual Framework

This part of the research provide a conceptual framework coupled with theoretical overview by explaining the key factors, variables, and the relationships among theories or models in order to give a better understanding of the research.

The main purpose of this research was to find the extent to which user perceived web quality of service affects adoption of eservice technologies in perspective of Kenyan online consumers. Based on the literature review in the previous section, it was mentioned that quality, user perception and customer satisfaction are conceptually distinct but closely related structurally.

At the same time, continuous growth of competition in the online market shows that understanding of customers as an important issue in marketing. So, today's companies have shifted their focuses from products and sales to customer oriented marketing in order to survive in such a highly competitive world.

Also, there is an increasing pressure to better understand the issue of online quality since with consumer experience; expectations of online businesses are increasing. In addition, having customers satisfied primarily depends on the balance between customer's expectations and experiences with the products and services. Because customers have ever increasing

expectations, it is necessary for companies to continuously improve their quality and hence, customers' experiences with the company.

Companies offer quality to satisfy their customers and create positive perception toward their services. As a website is part of the connection between a company and its customers, it is evident that it should reflect the quality efforts that are in place throughout the company.

Besides this reason, there is another reason why companies should provide high quality Websites to its customers: there is no human contact through web sites. The interaction via the Internet between a company and a customer is always through technology. This means that the "moment of truth" between a company and a customer is the website. Although, companies may try to emulate human behavior through technology, the interaction remains different because some aspects of human interaction cannot be replaced with technology, e.g. courtesy, friendliness, helpfulness, care, commitment, flexibility and cleanliness. The absence of such aspects of human interaction which are normally delivered to customers through quality will have to be compensated by a better performance on other quality factors or by excellent performance on "new" specific Web quality factors. Moreover: a website should reflect the value proposition and address whether it is trying to satisfy the customers' needs to ensure frequent visits from the customer in the hope of gaining customer loyalty. The result should be a common ground between the goals sought by the website and the customers' goals leading to a pleasant experience on the part of the customers.

In literature review, different website quality and ecommerce adoption models have been discussed. It is clear that in most cases, there exist a link between quality of web service and adoption of ecommerce.

This research was grounded on two models: *Conceptual Model for Delivering a Quality Web Site to Satisfy the Customer* and *E-Commerce Adoption Model (e-CAM)*. The two models were integrated to create the research model. *The Conceptual Model for Delivering a Quality Web Site to Satisfy the Customer* was used for evaluation of web service quality factors while the e-CAM model was used for evaluation of the ecommerce adoption factors. *The Conceptual Model for Delivering a Quality Web Site to Satisfy the Customer* identifies four key quality factors (KQF) of the Web site: ease of use (the design of the web site), customer confidence (how the web site inspires trust by the customer), online resources (capability of the web site to offer products/services), and relationship services (how the web site bonds with the customer and inspires loyalty).

The reason behind this selection is the fact that this model, from the researcher's point of view, is considered as one of the most comprehensive models it attempts to measure the quality of websites for online retailing. Each of the four key quality factors of the model relates to a different part of the web site experience and serves to enhance customer satisfaction to the extent that the customer will return.

Also put into the consideration by the model is target customer characteristics such as gender, age, education level, job type and technology adoption stage (early or late adoption). The type of web site access interface is also an input element of KQFs. The various web site access options include: personal computers (home or work), mobile phones or cyber cafés.

Also in e-commerce context, quality of service is closely related to interpersonal trust. Loyal customers are considered extremely valuable and loyalty generally attributed to satisfaction with the quality of service. Further, many of antecedents of trust are common with website quality items, the relationship of e-trust with satisfaction and quality is also examined in this research. Therefore, Cox and Dale (2002) model, is extended to include e-trust, security and privacy as key quality factors. E-trust was incorporated since online transaction involves many uncertainties for the customers; trust is a condition for exchange. Trust has been found to be important for building and maintaining long-term relationships. In the modified Cox and Dale (2002) model, ease of use is replaced with security/privacy factors. This is because Ease of Use is appearing still in e-CAM model. The inclusion of Security/Privacy is because these are two important dimensions of any viable e-service model.

The e-CAM model consists of four constructs: Perceived Ease of use (PEU), Perceived usefulness (PU), Perceived Risk with Product/Service (PRP) and Perceived Risk in the context of Transaction (PRT). These factors were found to have impact on the consumer's adoption of e-Commerce.

The new extended and modified research model appears as shown in the figure below.

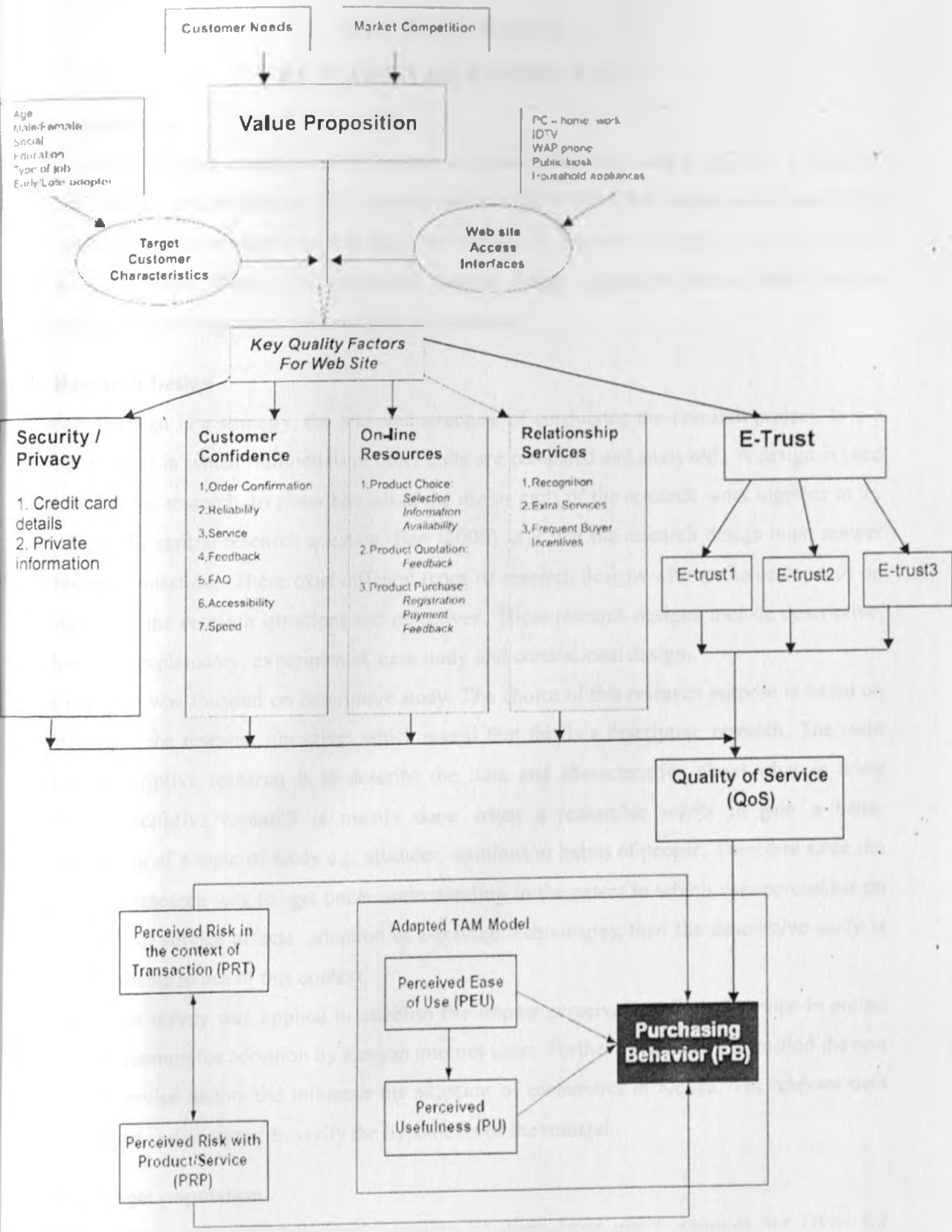


Figure 12: The research model

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.1 Introduction

This section provides background information on how the research was conducted in terms of research method and techniques. The research method can be defined as collection of rules, tools and reliable and well ordered ways to study the realities, to disclose the passivity, and to acquire the solution (Khaki, 2000). This constitutes research design, population, area of study, sample selection methods, data collection and analysis methods.

#### 3.2 Research Design

Research design is a strategy, the plan and structure of conducting the research project. It is a logical manner in which individuals or other units are compared and analyzed. A design is used to structure the research, to show how all of the major parts of the research work together to try to address the central research question. Beri (2000) says that the research design must answer the research question. There exist different types of research designs whose choice depends on the nature of the research questions and objectives. These research designs include descriptive, exploratory, explanatory, experimental, case study and correlational design.

This research was founded on descriptive study. The choice of this research purpose is based on the nature of the research objectives which reveal that this is a descriptive research. The main goal of descriptive research is to describe the data and characteristics about what is being studied. Descriptive research is mainly done when a researcher wants to gain a better understanding of a topic of study e.g. attitudes, opinions or habits of people. Therefore since the goal of this research was to get better understanding to the extent to which user perception on web quality of service affects adoption of e-service technologies, then the descriptive study is the most suitable to use in this context.

A large scale survey was applied to establish the impact perceived quality of service in online context on ecommerce adoption by Kenyan internet users. Further the research identified the non quality of service factors the influence the adoption of ecommerce in Kenya. The relevant data was collected and analyzed to verify the hypothesis of the research.

#### 3.3 The target population

A population is group of individuals, objects or items from which samples are taken for measurement. It refers to an entire group of persons or elements that have at least one thing in

common. In this research the target population was the Kenyan internet users. The users were selected based on diversity, representation, accessibility and knowledge. The study targeted online Kenyan users who use web portal various services such e-mails, news, social network, ticketing, shopping, banking and e-payments and web informational services. Internet users were requested to respond on their experience or their perception on various web quality and e-commerce adoption factors on web portals they have ever used. The web portals were also evaluated against a list of e-commerce features to determine if they meet the required e-commerce web site standards.

### **3.4 Sampling and sampling techniques**

A sample is one of a number of things or one part of a whole, which can be examined to see what people like. Where time and resources allow, a researcher should take as big a sample as possible, since this would ensure the reliability of the results (Mugenda and Mugenda, 2003).

Statistically, a small representative sample will reflect the group from which it is drawn. The larger the sample, the more precisely it reflects the target group while the smaller the sample the bigger the sampling error (Mugenda and Mugenda, 2003). Sampling error is defined as the discrepancy between the sample characteristics and the population characteristics. It is therefore imperative for a researcher to identify the minimum sample size which will give results within acceptable sampling error margin.

#### **3.4.1 Selecting the sampling method:**

Selection of the sampling method to use in a study depends on a number of related theoretical and practical issues. Therefore considering the nature of the study, the objectives of the study, and the time and budget available are important. Sampling method can be divided into two major categories: probability and non-probability sampling.

#### **3.4.2 Probability sampling:**

Probability sampling is most commonly associated with survey-based research where, researcher needs to make inferences from the sample about a population to answer the research questions or to meet research objectives (Saunders et. al., 2003). In probability sampling, sampling elements are selected randomly and the probability of being selected is determined ahead of time by the researcher. If done properly, probability sampling ensures that the sample is representative (Hair et. al., 2003).

### **3.4.3 Non-probability sampling:**

Provide a range of alternative techniques based on researcher subjective judgment (Saunders et. al., 2003). In non-probability sampling the selection of elements for the sample is not necessarily made with the aim of being statistically representative of the population. Rather the researcher uses the subjective methods such as personal experience, convenience, expert judgment and so on to select the elements in the sample.

As a result the probability of any element of the population being chosen is not known (Samuel et. al., 2003).

According to Saha and Zhao (2005, p.33) refer to Samuel et. al., (2003), most non-probability sampling methods are as follow:

#### **Convenience sampling:**

According to Hair et. al., (2003), Convenience sampling involves select sample members who can provide required information and who are more available to participate in the study. Convenience samples enable the researcher to complete a large number of interviews cost effectively and quickly but they suffer from selection bias because of difference of target population.

#### **Judgment sampling:**

Sometimes researcher's judgment is used to select sample element and it involves for a specific purpose. Group of people who have knowledge about particular problem can be selected as sample elements. Sometimes it referred as purposive sample because it involves a specific purpose. Judgment sampling is more convenience and low cost involvement..

#### **Quota sampling:**

Objective of quota sampling is to have proportional representation of the strata of target population for the total sample and the certain characteristics describe the dimensions of the population (Cooper and schindler, 2003). In quota sampling the researcher defines the strata of the target population, determines the total size and set a quota for the sample elements from each stratum. The findings from the sampling cannot be generalized because of the choice of elements is not done using a probability sampling method (Samuel et al., 2003)

From the target population, a sample of 230 online users was selected for use in the study.

In order to achieve a proportional representation of the strata from the target population for the total sample, the research used use stratified sampling technique. In quota sampling the researcher defines the strata of the target population, determines the total size and set a quota for



the sample elements from each stratum.

The purpose of this research was to investigate the importance of website quality factors on adoption of online shopping by Kenyan internet users, as well as identifying the non equality factors of ecommerce adoption in Kenya. In order to achieve this, stratification was based on the different categories of users. Random sample of users was selected from each strata based on nature of services and types of internet user e.g. cyber café users, computerized office workers and students of institutions of higher learning.

### **3.5 Data collection methods and procedure**

Data was collected using a combination of data gathering methods. These included: pre-designed questionnaires and literature surveys, which involved reading books, journals and publications with relevant literature as well as web site evaluation.

#### **3.5.1 Self administered questionnaires**

Respondents were issued with questionnaires for them to fill independently with little assistance from the researcher. A total of 203 closed ended questionnaires were administered to the online users. The specific reasons for choosing self- administered questionnaires included: first, the population of the study is educated and ICT literate enough to provide relevant answers to the questions. Secondly, the population was expected to provide their feedback on the practical experience on use of the web portal services. And lastly it is the cheapest and easiest method of collecting large amounts of data.

The respondents were asked to rate their opinion using a 5-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree) for all independent variables and dependent variables.

The questionnaire consisted of four parts:

- **Part one** gathered general information about the respondents' gender, age, education level, internet usage experience, the average amount of time spent on the Internet, and place of internet usage.
- **Part two** asked the respondents to provide their opinion on website quality factors including ease of use, availability, reliability, security, privacy, responsiveness, empathy and e-trust.
- **Part three** asked the respondents to provide their opinion on non quality of service e-commerce adoption factors. These factors included: technology accessibility, perceived

usefulness, perceived risk with products/services, compatibility; and legal and legislation environment.

- **Part four** asked the respondents on online shopping frequency. The respondents were asked to whether they have shopped online, the number of times they shopped and the amount they have spent on the shopping.

This method was chosen due to the following advantages:

- (i) Questionnaires are among the least expensive methods of collecting data.
- (ii) Questionnaires have a wider reach. Questionnaires can be sent by post to respondents in far flung areas.
- (iii) Questionnaires give the respondents a sense of anonymity and this encourages them to give more candid responses.
- (iv) Questionnaires can be filled at the respondents' convenience and returned later.

The following are some of the disadvantages of self-administered questionnaires:

- (i) They often take longer than other forms of data collection. Some respondents may take a long time before filling and/or returning the questionnaire.
- (ii) Questionnaires are prone to ambiguities. The respondent may interpret the questions differently from the way they were intended.

### **Pre-testing the questionnaire**

The questionnaire were pre-tested before conducting the main interview to ensure that it serves the purpose for which it was intended to, there is no ambiguity in the questions and that all instructions to the respondent are clear. The following steps were for the pre-testing stage:

- (i) Review the questionnaire with the supervisor.
- (ii) Testing the questionnaire with a small number of respondents having similar characteristics to those of the target group.

### **3.5.2 Literature surveys**

A wide range of literature related to the research topic was reviewed; these resources included books, journals and publications with the relevant literature as well internet materials. This method of data collection was preferred because it gave the researcher an insight into what other researchers have written about the impact of web quality factors on online consumer perception

toward usage of the eservices. Through this method, the researcher was able to relate the findings of the study to those of other researchers.

### **3.5.3 Evaluation of web portals against the E-commerce features**

A list of web portals offering eservices or online shopping to Kenyan online consumers was identified. The web site features were identified and analyzed to determine if they meet the requirements for ecommerce web site.

### **3.6 Ethical considerations**

Individual consent is the basis for one to participate in the study. No respondent was coerced into giving information. Respondents were assured that information will be treated with confidentiality in case there was need for that. Data collected was used specific for this research alone and would therefore not be revealed to any other party with need to carry out a similar study.

For mutual trust, introduction cover letters accompanied the questionnaires for the purpose of identification of the researcher and explain purpose of the study being carried out.

## CHAPTER FOUR

### DATA ANALYSIS, INTERPRETATION AND DISCUSSION

#### 4.1 Introduction

This chapter presents analysis, interpretations and findings of the research. From the study population target of 230 respondents, 223 respondents filled and returned their questionnaires, constituting 97% response rate. On performing data cleaning, 20 questionnaires were found not well filled and therefore could not be used in the data analysis. Therefore of the 230 questionnaires, 203 questionnaires were used for data analysis in this research, representing 88% of the target respondents. Data analysis was done through Statistical Package for Social Scientists (SPSS) and Microsoft Excel. The analysis involved reliability test, Factor analysis, descriptive statistics, frequency statistics and T-Test. In the descriptive statistics, relative frequencies and percentages were used in analysis of demographic information of the respondents. The web quality factors and non quality of service factors of ecommerce adoption were analyzed using mean scores, T-Test and charts with the help of Likert scale ratings.

#### 4.2 Questionnaire Reliability Test

A measurement is said to be reliable or consistent if the measurement can produce similar results if used again in similar circumstances. Hence, the reliability of a scale is the correlation of that scale with the hypothetical one which truly measures what it is supposed to. Lack of reliability may result from negligence, guessing, differential perception and recording errors. Internal consistency reliability refers to the extent to which a measure is consistent with itself. Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items are as a group or average correlation of items in a survey instrument to gauge its reliability.

To analyze the collected data, first Cronbach's Alpha Method was used to test the reliability of the questionnaire used to collect the data. Cronbach's Alpha method is the mostly used method to calculate the reliability of measurement tool e.g. questionnaire or tests which measure different characteristics. Cronbach's alpha equals 0 when the true score is not measured at all and there is only an error component. Cronbach's alpha equals 1 when all items measure only the true score and there is no error component. A tool with Cronbach's Alpha greater than the minimum quantity level 0.7 is considered reasonable from reliability aspect.

The results of reliability test by using SPSS software for the web quality factors was 0.912, e-commerce adoption factors 0.77 and for both web quality factors and non quality of service

adoption factors was 0.89. For the three reliability tests, the values are more than the minimum level (0.7).

**Table 5: Reliability Statistics for Questionnaire Variables**

Construct/ Factor	Cronbach's Alpha value	Number of items
Both Web quality factors and non quality of service e-commerce adoption factors	0.890	46
All Web quality factors	0.912	23
Non quality of service e-commerce adoption factors	0.771	23
Ease of use	0.795	6
Availability & Reliability	0.784	4
Privacy and Security	0.801	4
E-Trust	0.767	5
Responsiveness and Empathy	0.732	4
Technology Accessibility	0.594	2
Complexity	0.914	3
Perceived Benefits/Usefulness	0.789	5
Perceived Risk with Product/Service	0.833	6
Perceived Compatibility	0.864	3
Legal and legislation environment	0.839	4

The reliability for specific factors in web quality and e-commerce adoption categories was high and suitable for majority of the factors since it was above minimum requirement of 0.7, except for *Technology Accessibility*; therefore it was not included in the analysis.

#### **4.3 Analysis of demographic information**

Demographic analysis was done using descriptive statistics in order to determine relative frequencies and percentages of the demographic behavior of the respondents. This included gender, age, and education level, and internet usage experience, frequency of internet usage and place of internet access. The results are as presented below.

**Table 6: Gender of the respondents**

	Frequency	Percent
Female	106	52.2
Male	97	47.8
Total	203	100.0

From the findings on the respondent gender, the study found that most of the respondent as shown by 52.2% indicated that they were female whereas 47.8% of the respondent indicated that they were males, this is an indication that both genders were well represented in the study.

**Table 7: Distribution of respondent by age**

	Frequency	Percent
under 20	22	10.8
20-24	54	26.6
25-34	87	42.9
35-44	32	15.8
45 -54	8	3.9
Total	203	100.0

From the results shown in the above tables on the age of the respondent the study found that most of the respondent as shown by 42.9% indicated that they were aged between 25 to 34 years. 26.6% indicated that they were between 20 to 24 years 15.8% of the respondent indicated that they were aged between 35 to 44 years. 10.8% of the respondent indicated that they were aged under 20 years whereas 3.9% indicated that they were aged 45-54 years.

**Table 8: Respondent education level**

	Frequency	Percent
Form four	33	16.3
Diploma	113	55.7
Degree	54	26.6
Masters and above	3	1.5
Total	203	100.0

On the respondent level of education, the study found that majority of the respondent as shown by 55.7% indicated that they were on diploma level, 26.6% of the respondent indicated that they were on degree level whereas 16.3% indicated that they were four leavers while 1.9% were masters level.

**Table 9: Internet usage experience**

	Frequency	Percent
less than 3 months	22	10.8
3-6 months	21	10.3
6-12 months	24	11.8
over 12 months	136	67.0
Total	203	100.0

From the findings on the respondent internet usage and experience the study found that 67% indicated that they had been using internet for over 12 months, 11.8% of the respondent indicated that they had been using internet for 6 to 12 months, 10.8% indicated that they had been using internet for less than 3 months whereas 10.3% indicated that they had been using internet for 3 to 6 months.

**Table 10: Frequency of internet usage**

	Frequency	Percent
more than once daily	87	43.5
once daily	62	31.0
weekly	45	22.5
monthly	6	3.0
Total	203	100.0

On the respondent frequency of internet usage , the study found that 43.5% of the respondent indicated that they had been using internet more than once daily , 31% of the respondent indicated that they had been using internet once daily , 22.5% indicated that they had been using internet weekly whereas 3% of the respondent indicated that they were using internet monthly.

**Table 11: Place of internet access**

	Frequency	Percent
mobile phone	82	40.4
cyber café	45	22.2
Work	29	14.3
Home	21	10.3
school/college	26	12.8
Total	203	100.0

From the results in the above table on the place of internet access, the study found that 40.4% of the respondent indicated mobile phone, 22.2% indicated cyber café , 14.3% indicated workplace, 12.8% of the respondent indicated school/colleges whereas 10.3% of the respondent indicated at home.

#### **4.5 Online shopping frequency Analysis**

The aim of this analysis was to determine the frequency and percentage of the respondents who have ever shopped online, the number of times they have shopped and how much the respondents spent on the online shopping.



**Table 12: If the Respondents have shopped online**

	Frequency	Percent
Yes	54	26.6
No	149	73.4
Total	203	100.0

On whether the respondent had ever shopped online the study found that majority of the respondent as shown by 73.4% indicated that they had never shopped online, whereas 27% of the respondent indicated that they had done shopping online.

**Table 13: Numbers of times shopping online for the last 6 months**

	Frequency	Percent
Once	6	22.2
2-3 times	5	18.5
4-5 times	4	14.8
more than 10 times	12	44.4
Total	27	100.0

On the numbers of time the respondent had shopped online for the last six months, the study found that 44.4% of the respondent indicated more than 10 times, 22.2% of the respondent indicated once, 18.5% of the respondent indicated 2 to 3 time whereas 14.8% of the respondent indicated 4 to 5 times.

**Table 14: Amount spent in online shopping in the last 6 months**

	Frequency	Percent
less than 1000	9	33.3
1000-5000	8	29.6
6000-10000	7	25.9
11000-30000	3	11.1
Total	27	100.0

From the findings on the amount of money they spend on online shopping, the study found that 33.3% indicated less than 1000, 29.6% indicated 1000 to 5000, 25.9% indicated 6000 to 10000 whereas 11.1% indicated 11000 to 30000.

#### **4.6 Factor Analysis on website quality factors**

Factor analysis attempts to identify underlying variables, or factors, that explain the pattern of correlations within a set of observed variables. Factor analysis is often used in data reduction to identify the key component factors that explain most of the variance that is observed in a much larger number of manifest variables.

The aim of factor analysis is to uncover the latent structure of a set of variables, i.e., to reveal any latent variables that explain the correlations among the variables, called dimensions. Hence, factor analysis is based on the assumption that all variables are correlated to some degree. Therefore, those variables that share similar underlying dimensions should be highly correlated, and those variables that measure different dimensions should yield low correlations.

In context of web quality factors and ecommerce adoption factors, factor analysis was performed in order to determine the level correlation and importance of various quality factor aspects or variables in influencing e-commerce adoption in Kenya. The analysis provides level of importance of each factor in e-commerce adoption.

Factor analysis was performed using SPSS, which consist of three steps:

1. Determining Communalities
2. Determining Total variance Explained
3. Determining Component matrix

##### **4.6.1 Communalities**

The communalities table helps to show the relationship between the variances (factor aspects) i.e. the correlation between each web quality aspect or variable in respect to other aspects.

Initial communalities are estimates of the variance in each variable accounted for by all components or factors they are assigned 1. Extraction communalities are estimates of the variance in each variable accounted for by the factors (or components) in the factor solution. This is achieved by performing Kaiser Normalization criteria using SPSS. It generates extraction with respect to each aspect. Small values indicate variables that do not fit well with the factor solution, and should possibly be dropped from the analysis. High values indicate variables that fit well with the factor solution.

**Table 15: Communalities for website quality factors**

	Initial	Extraction
It is easy to move around website	1.000	0.791
It is easy for me to look for information I need	1.000	0.831
It is easy for me to fill online forms	1.000	0.764
Products and services are clearly and accurately presented by website	1.000	0.847
Websites have a well organized appearance links, colour, graphics and animations	1.000	0.809
Web pages load quickly	1.000	0.746
Website is available whenever I need services	1.000	0.822
Service is delivered accurately	1.000	0.735
Websites run without failure until I complete using the service	1.000	0.769
Websites offer confirmation on completion of the service process	1.000	0.592
I feel privacy of my online information is protected on the website	1.000	0.732
I believe websites owners do not share customer information with others	1.000	0.831
I believe websites protect customers' credit card information in case of online shopping	1.000	0.804
I believe websites provide secure services to online customers	1.000	0.911
I trust services offered by websites	1.000	0.818
I am willing to give private information to online companies	1.000	0.766
I am willing to give my credit card number on websites	1.000	0.729
I trust online companies will fulfill my promise to deliver the service or product I request online	1.000	0.772
I will not mind to pay in advance for product/services purchased online	1.000	0.595
Websites offer services requested by customers promptly	1.000	0.873
Online companies provide prompt feedback to its customers	1.000	0.793
Online companies address customers' complaints friendly and promptly	1.000	0.758
Online companies offer incentives to its regular online customers	1.000	0.697

The above table helps the researcher to estimate the communalities for each variance. This is the proportion of variance that each item has in common with other factors. For example 'I believe websites provide secure services to online customers' has 91.1% communality or shared

relationship with other factors. This value has the greatest communality with others, while 'Websites offer confirmation on completion of the service process' has the least communality with others of 59.2%.

Examining the correlations among the web quality aspects, it reveals that there is significant overlap among various subgroups of items. For example aspects about security and privacy tend to correlate with each other and so on.

#### 4.6.2 Total Variance Explained (Eigenvalues and the Number-of-Factors Problem)

After determining the measure of how much variance each successive web quality factor aspects extracts, next is to determine how many factors to retain for subsequent analysis. The aim is to the researcher retains only the principal components for analysis. In this research, this was achieved by use of The *Kaiser criterion*. This criterion was proposed by Kaiser (1960), and is probably the one most widely used. The concept is to retain only factors with eigenvalues greater than 1. In essence this is like saying that, unless a factor extracts at least as much as the equivalent of one original variable, then it can be dropped.

**Table 16: Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.278	35.992	35.992	8.278	35.992	35.992
2	2.913	12.666	48.658	2.913	12.666	48.658
3	2.318	10.078	58.737	2.318	10.078	58.737
4	1.614	7.016	65.753	1.614	7.016	65.753
5	1.469	6.388	72.141	1.469	6.388	72.141
6	1.191	5.179	77.320	1.191	5.179	77.320
7	0.954	4.149	81.469			
8	0.853	3.707	85.176			
9	0.685	2.978	88.154			
10	0.502	2.183	90.337			
11	0.459	1.995	92.332			
12	0.341	1.483	93.816			

13	0.311	1.354	95.170			
14	0.294	1.277	96.447			
15	0.218	0.948	97.395			
16	0.177	0.770	98.165			
17	0.125	0.542	98.707			
18	0.111	0.484	99.191			
19	0.075	0.328	99.519			
20	0.055	0.239	99.758			
21	0.035	0.153	99.911			
22	0.017	0.076	99.987			
23	0.003	0.013	100.000			

In the above table, Kaiser Normalization Criterion, which allows for the extraction of components that have an Eigen value greater than 1, was used to perform the *principal component analysis* and six factors were extracted. As the table shows, these six factors explain 77.3% of the total variation. Factor 1 contributed the highest variation of 36%. The contributions decrease as one move from factor one to factor six. This percentage is acceptable in social sciences.

#### 4.6.3 Component Matrix

Component matrix table represents the factor loadings for each variable in the study. From the factor loading, it helps in grouping each variable in the relevant factor category generated by variance table. For each variable, the highest loading value determines the category to place the variable.

Component matrix is achieved through rotation. The goal of rotation is to simplify and clarify the data structure. A rotation can help to choose the correct number of factors to retain and can also help the interpretation of the solution. One can do a factor analysis with different values of the number of factors extracted, performing rotations, and, eventually, choosing the solution that has the more logical interpretation.

Interpretation of factors is subjective, and usually can be made less subjective after a rotation.

Rotation consists of multiplying the solution by a nonsingular linear application called the rotation matrix. The objective is to obtain a matrix of loadings whose entries, in absolute value, are close to zero or to one. In this research Varimax rotation of Kaiser Normalization was used to generate component matrix table using SPSS.

**Table 17: Component Matrix**

Web quality variables	Component					
	1	2	3	4	5	6
It is easy to move around website	.658	-.297	-.470	.106	.195	.000
It is easy for me to look for information I need	.571	-.432	-.543	.126	-.079	.040
It is easy for me to fill online forms	.718	.391	-.209	.050	.060	-.215
Products and services are clearly and accurately presented by website	.560	.470	-.020	-.548	.085	-.070
Websites have a well organized appearance links, colour, graphics and animations	.367	.551	-.568	.063	-.110	-.183
Web pages load quickly	.683	.172	.079	-.097	.368	.314
Website is available whenever I need services	.584	-.304	-.126	-.232	.144	.546
Service is delivered accurately	.625	.429	-.182	.210	.219	-.187
Websites run without failure until I complete using the service	.500	-.087	.178	.257	.626	.149
Websites offer confirmation on completion of the service process	.552	.375	-.204	-.321	-.033	.039
I feel privacy of my online information is protected on the website	.625	.105	.003	.480	-.202	-.244
I believe websites owners do not share customer information with others	.569	-.330	.209	.557	-.197	-.068
I believe websites protect customers' credit card information in case of online shopping	.738	-.339	-.086	-.231	-.066	-.281
I believe websites provide secure services to online customers	.709	-.334	-.155	-.266	.190	-.407
I trust services offered by websites	.518	-.483	.447	-.212	.206	-.170
I am willing to give private information to online companies	.236	.500	.634	.207	.102	-.065
I am willing to give my credit card number on websites	.635	.017	.479	.178	.251	-.045
I trust online companies will fulfill my promise to deliver the service or product I request online	.705	-.126	.347	-.272	-.250	.046
I will not mind to pay in advance for product/services purchased online	.573	.194	.400	-.079	-.232	-.089
Websites offer services requested by customers promptly	.639	.327	.248	-.174	-.464	.226
Online companies provide prompt feedback to its customers	.699	-.282	.061	.054	-.457	.099
Online companies address customers' complaints friendly and promptly	.409	.575	-.197	.273	-.007	.384
Online companies offer incentives to its regular online customers	.654	-.326	-.125	.176	-.169	.296

The initial component matrix was rotated using Varimax (Variance Maximization) with Kaiser Normalization. The above results allowed identifying what variables fall under each of the 6 major extracted factors. Each of the 23 variables was looked at and placed to one of the six factors depending on the percentage of variability; it explained the total variability of each factor. A variable is said to belong to a factor to which it explains more variation than any other factor. From the above table, the individual variables constituting the six factors extracted are summarized and identified below:

### **Factor 1**

1. It is easy to move around website
2. It is easy for me to look for information I need
3. It is easy for me to fill online forms
4. Products and services are clearly and accurately presented by website
5. Web pages load quickly
6. Website is available whenever I need services
7. Service is delivered accurately
8. Websites offer confirmation on completion of the service process
9. I feel privacy of my online information is protected on the website
10. I believe websites owners do not share customer information with others
11. I believe websites protect customers' credit card information in case of online shopping
12. I believe websites provide secure services to online customers
13. I trust services offered by websites
14. I am willing to give my credit card number on websites
15. I trust online companies will fulfill my promise to deliver the service or product I request online
16. I will not mind to pay in advance for product/services purchased online
17. Websites offer services requested by customers promptly
18. Online companies provide prompt feedback to its customers
19. Online companies offer incentives to its regular online customers

### Factor 2

1. Online companies address customers' complaints friendly and promptly
2. Websites have a well organized appearance links, colour, graphics and animations

### Factor 3

1. I am willing to give private information to online companies

### Factor 5

1. Websites run without failure until I complete using the service

In summary, the 23 web quality factors variables were categorized as follows;

**Table 18: web quality factors variables Factor categories**

Factor category	No. of variables (frequency)
Factor 1	19
Factor 2	2
Factor 3	1
Factor 4	0
Factor 5	1
Factor 6	0
Total	23

From the above table, since factor analysis attempts to identify underlying variables, or factors that explain the pattern of correlations within a set of observed variables, then through data reduction, variables in factor 1 category (19 variables) are more correlated and explains most of the variance observed in a much larger number of manifest variables.

Therefore from the 23 web quality factor variables, 19 factors will be used to perform further analysis to determine the key web quality factors for ecommerce adoption among the Kenyan internet users.

#### **4.6.4 Comparing Mean Difference of Web quality variables using One Sample T-Test**

In order to determine the level of importance of each web quality factor aspect on adoption of ecommerce, comparison of mean differences of web quality variables was done using One Sample T Test in SPSS. A one sample median test allows testing whether a sample median



differs significantly from a hypothesized value. In case of the web quality factors, the hypothesized value is 5. Confidence interval of 95% was used for the test. From the analysis, difference between the mean and the hypothesized value is displayed. The web quality factor variables were then ranked based on the mean difference from the hypothesized value in descending order. The higher the difference, the more the important a variable is in web quality factor consideration. The results were as shown in the table below:

**Table 19: One Sample T-Test Analysis for Web Quality Variables**

	Variable	N	Mean	Std. Deviation	Mean Diff. From Hypothetical Value ( 5)	Percent Mean Diff.	Category
1	I am willing to give my credit card number on websites	203	2.453	1.030	2.55	51.0%	ET
2	I will not mind to pay in advance for product/services purchased online	203	2.941	1.197	2.06	41.2%	ET
3	I believe websites protect customers' credit card information in case of online shopping	203	2.966	1.175	2.03	40.6%	SP
4	I trust services offered by websites	203	2.966	1.208	2.03	40.6%	ET
5	I believe websites provide secure services to online customers	203	2.975	1.031	2.02	40.4%	SP
6	I believe websites owners do not share customer information with others	203	3.000	1.148	2.00	40.0%	SP
7	I trust online companies will fulfill my promise to deliver the service or product I request online	203	3.064	0.856	1.94	38.8%	ET
8	I feel privacy of my online information is protected on the website	203	3.069	1.051	1.93	38.6%	SP
9	Web pages load quickly	203	3.167	0.857	1.83	36.6%	AR
10	Website is available whenever I need services	203	3.202	1.078	1.80	36.0%	AR
11	Websites offer services requested by customers promptly	203	3.315	1.062	1.68	33.6%	RE
12	Service is delivered accurately	203	3.335	0.899	1.67	33.4%	AR
13	Online companies provide prompt feedback to its customers	203	3.419	1.042	1.58	31.6%	RE
14	Online companies offer incentives to its regular online customers	203	3.498	0.898	1.50	30.0%	RE
15	Products and services are clearly and accurately presented by website	203	3.502	1.096	1.50	30.0%	EU
16	It is easy for me to fill online forms	203	3.581	1.008	1.42	28.4%	EU

17	Websites offer confirmation on completion of the service process	203	3.714	0.860	1.29	25.8%	AR
18	It is easy to move around website	203	3.857	0.972	1.14	22.8%	EU
19	It is easy for me to look for information I need	203	4.025	0.957	0.98	19.6%	EU

#### Web Service Quality Factor Categories

- SP - Security and Privacy
- ET - E-Trust
- EU - Ease of Use
- AR - Availability and Reliability
- RE - Responsiveness and Empathy

From the analysis, 'I am willing to give my credit card number on websites' variable of E-trust factor had the highest difference of 51.0%. This means majority of the respondents were not willing to give out their credit card details on web sites. This was followed by another E-trust factor variable 'I will not mind to pay in advance for product/services purchased online' with mean difference of 41.2%

The lowest mean difference was 19.6% for 'It is easy for me to look for information I need' variable of Ease of Use. This means majority of the respondents had no difficulty in using web sites.

In overall, web quality variables related to E-trust and Security & privacy had higher mean differences and were in the top eight variables. This demonstrates their importance in context of ecommerce adoption among Kenyan online users.

#### 4.6.5 Analysis of Website quality factors

In order to determine overall importance of each web quality factor, an aggregate mean for variables and mean difference for the variables which constitutes a particular factor were computed. Percentage contribution for each variable was also determined. The results were as shown below.

**Table 20: Security and Privacy**

Security & Privacy Variables		N	Mean	Std. Deviation	Std. Error Mean	Mean Diff. From Hypothetical Value ( 5)	Percent Mean Diff
1	I believe websites protect customers' credit card information in case of online shopping	203	2.966	1.175	0.082	2.03	25.46
2	I believe websites provide secure services to online customers	203	2.975	1.031	0.072	2.02	25.34
3	I believe websites owners do not share customer information with others	203	3.000	1.148	0.081	2.00	25.03
4	I feel privacy of my online information is protected on the website	203	3.069	1.051	0.074	1.93	24.17
<b>Mean</b>			<b>3.002</b>			<b>2.00</b>	<b>100.00</b>

From the results on the respondent level of agreement on privacy and security . most of the respondents disagreed that on websites protect customers' credit card information by a mean difference of 25.5%, followed by 'believe websites provide secure services to online customers' as shown by mean difference of 25.3%. followed by believe websites owners do not share customer information with others as shown by mean difference of 25% and last followed by they feel privacy of my online information is protected on the website as shown by mean difference of 24.2%.

**Table 21: E-Trust**

	<b>E-Trust Variables</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Std. Error Mean</b>	<b>Mean Diff. From Hypothetical Value ( 5)</b>	<b>Percent Mean Diff</b>
1	I am willing to give my credit card number on websites	203	2.453	1.030	0.072	2.55	29.7
2	I will not mind to pay in advance for product/services purchased online	203	2.941	1.197	0.084	2.06	24.0
3	I trust services offered by websites	203	2.966	1.208	0.085	2.03	23.7
4	I trust online companies will fulfill my promise to deliver the service or product I request online	203	3.064	0.856	0.060	1.94	22.6
	<b>Mean</b>		<b>2.856</b>	<b>1.073</b>	<b>0.075</b>	<b>2.144</b>	<b>100.0</b>

On level of agreement on the E-trust, the study found that most of the respondent disagreed that they are willing to give my credit card number on websites and they are willing to give private information to online companies as shown by mean difference of 29.7% in each case. they won't not mind to pay in advance for product/services purchased online as shown by mean of 24.0%, they trust services offered by websites as shown by mean difference of 23.7%, and they trust online companies will fulfill their promise to deliver the service or product they request online as shown by mean difference of 22.6%.

**Table 22: Ease of Use**

	<b>Ease of Use Variables</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Std. Error Mean</b>	<b>Mean Diff. From Hypothetical Value ( 5)</b>	<b>Percent Mean Diff</b>
1	Web pages load quickly	203	3.167	0.857	0.060	1.83	26.7
2	Products and services are clearly and accurately presented by website	203	3.502	1.096	0.077	1.50	21.8
3	It is easy for me to fill online forms	203	3.581	1.008	0.071	1.42	20.7
4	It is easy to move around website	203	3.857	0.972	0.068	1.14	16.6
5	It is easy for me to look for information I need	203	4.025	0.957	0.067	0.98	14.2
	<b>Mean</b>		<b>3.627</b>			<b>1.373</b>	<b>100.0</b>

On the respondent opinion on the ease of internet use, the study found that most of the respondent agreed that It is easy for them to look for information they need as shown by mean difference of 14.2%, 'It is easy to move around website' as shown by mean difference of 16.6% and 'It is easy for them to fill online forms' as shown by mean difference of 20.7%. Further respondent were neutral on whether products and services are clearly and accurately presented by website as shown by mean difference of 21.8% and 'web pages load quickly' as shown by mean difference of 26.7%.

**Table 23: Availability and Reliability**

	Availability and Reliability Variables	N	Mean	Std. Deviation	Std. Error Mean	Mean Diff. From Hypothetical Value ( 5)	Percent Mean Diff
1	Website is available whenever I need services	203	3.202	1.078	0.076	1.80	37.9
2	Service is delivered accurately	203	3.335	0.899	0.063	1.67	35.1
3	Websites offer confirmation on completion of the service process	203	3.714	0.860	0.060	1.29	27.0
	<b>Mean</b>		<b>3.417</b>			<b>1.58</b>	<b>100.0</b>

From the findings on the respondent opinion on availability and reliability of internet, the study found that respondent agreed that websites offer confirmation on completion of the service process as shown by mean difference of 27.0%, respondent were neutral on whether the service is delivered accurately as shown by mean difference of 35.1%.

**Table 24: Responsiveness & Empathy**

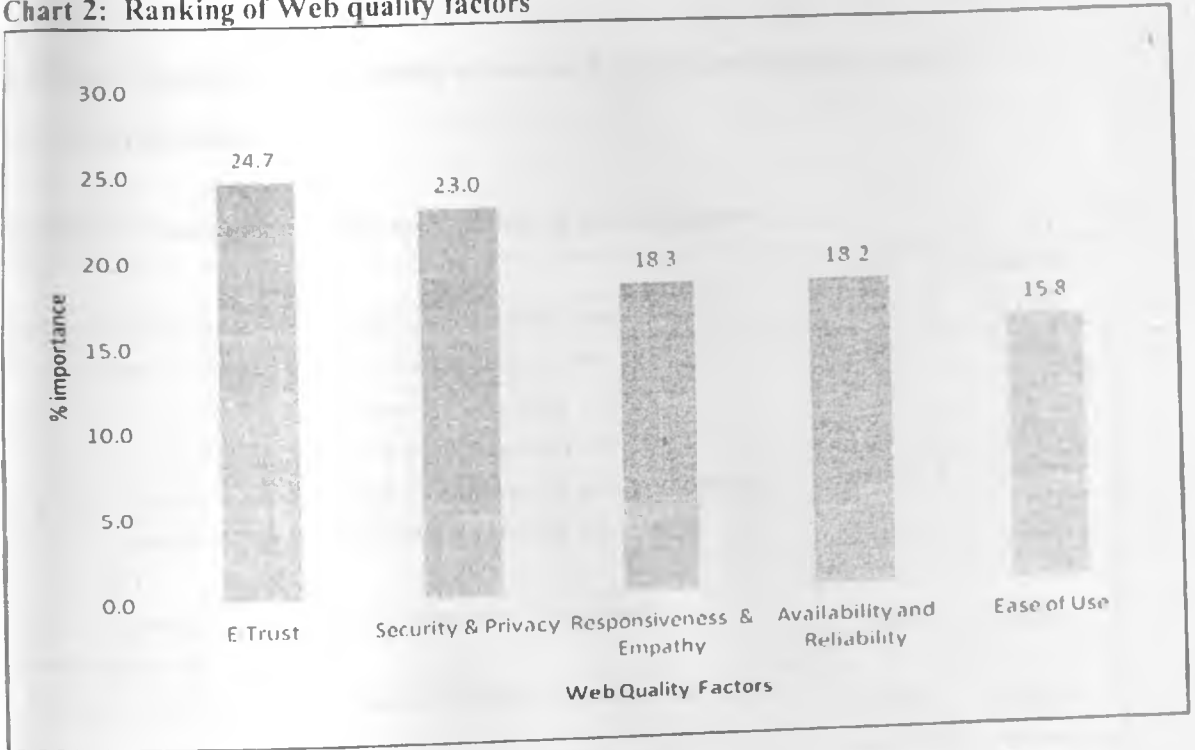
	<b>Responsiveness &amp; Empathy Variables</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Std. Error Mean</b>	<b>Mean Diff. From Hypothetical Value ( 5)</b>	<b>Percent Mean Diff</b>
1	Websites offer services requested by customers promptly	203	3.315	1.062	0.075	1.68	35.3
2	Online companies provide prompt feedback to its customers	203	3.419	1.042	0.073	1.58	33.2
3	Online companies offer incentives to its regular online customers	203	3.498	0.898	0.063	1.50	31.5
	<b>Mean</b>		<b>3.411</b>			<b>1.589</b>	<b>100.0</b>

On responsiveness and empathy the study found that respondent agreed that Online companies offer incentives to its regular online customers as shown by mean difference 31.5%, respondent were neutral on Online companies provide prompt feedback to its customers as shown by mean difference of 33.2% and Websites offer services requested by customers promptly as shown by mean difference of 35.3

**Table 25: Ranking of Web Quality Factors**

	<b>Factor</b>	<b>Standardized mean</b>	<b>Aggregate Mean Difference</b>	<b>Percent Mean Diff</b>
1	E-Trust	2.856	2.144	24.7
2	Security & Privacy	3.002	1.998	23.0
3	Responsiveness & Empathy	3.411	1.589	18.3
4	Availability and Reliability	3.417	1.583	18.2
5	Ease of Use	3.627	1.373	15.8
	<b>Total</b>		<b>8.687</b>	<b>100.0</b>

**Chart 2: Ranking of Web quality factors**



In terms of importance E-trust is the most key quality factor (24.7%), followed by security and privacy (23%). The third factor is Responsiveness and Empathy (18.3%), followed by Availability and Reliability (18.2%). The least important factor is Ease of Use (15.8%)

#### 4.7 Factor Analysis on non quality of service E-commerce adoption factors

##### 4.7.1 Communalities

Table 26: Communalities for non quality of service factors

	Initial	Extraction
The internet technology is readily accessible to me	1.000	0.770
The internet accessibility cost is affordable to me	1.000	0.769
I believe it is easy for me to learn how to shop online	1.000	0.859
I believe doing online shopping would be easy for me	1.000	0.914
I believe already I have enough IT skills to do online shopping	1.000	0.839
I believe doing online shopping would reduce my cost for shopping	1.000	0.792
I believe doing online shopping would offer me more convenience of shopping	1.000	0.422
I believe online shopping would offer better customer service to me	1.000	0.751
I believe online shopping would offer me competitive advantage in product/service varieties and prices	1.000	0.821
I believe that online shopping would offer more quality and product/service to me	1.000	0.855
The risk of product /service not worthy the financial price	1.000	0.779
The risk that the product quality may lower the personal image	1.000	0.868
The risk that the product /service may not be safe for me to use	1.000	0.883
The risk that the product /service will not perform as I expect	1.000	0.895
The risk that the product/service choice may results in embarrassment before my fiends /family	1.000	0.697
The risk of wasting time in preparing shopping list seeking information and waiting for products delivery	1.000	0.721
Online shopping fits well my beliefs , values and practices in life	1.000	0.705
Online shopping fits well my past technology experience	1.000	0.778
I have positive attitude towards online shopping	1.000	0.683
I believe there are effective laws to protect consumers in online shopping	1.000	0.749
I believe that there are effective laws to combat cyber crime	1.000	0.714
I believe that the government demonstrates strong commitment to promote electronic commerce	1.000	0.891
I believe government regulations allows safe electronic payments on online purchase	1.000	0.796



The above table helps the researcher to estimate the communalities for each variance. This is the proportion of variance that each item has in common with other factors. For example 'The risk that the product /service will not perform as I expect' has 89.5% communality or shared relationship with other factors. This value has the greatest communality with others, while 'I believe doing online shopping would offer me more convenience of shopping' has the least communality with others of 37.6%.

#### 4.7.2 Total Variance Explained for non quality of service E-commerce adoption factors

**Table 27: Total Variance Explained for non quality of service E-commerce adoption factors**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.783	42.535	42.535	9.783	42.535	42.535
2	3.483	15.145	57.680	3.483	15.145	57.680
3	1.940	8.434	66.114	1.940	8.434	66.114
4	1.539	6.691	72.805	1.539	6.691	72.805
5	1.205	5.240	78.045	1.205	5.240	78.045
6	0.987	4.293	82.338			
7	0.822	3.574	85.911			
8	0.645	2.804	88.716			
9	0.584	2.541	91.257			
10	0.433	1.881	93.138			
11	0.409	1.779	94.917			
12	0.333	1.448	96.364			
13	0.207	0.902	97.266			
14	0.180	0.782	98.047			
15	0.152	0.662	98.710			
16	0.098	0.424	99.134			
17	0.086	0.372	99.506			
18	0.040	0.175	99.681			

19	0.033	0.143	99.823			
20	0.025	0.111	99.934			
21	0.009	0.037	99.971			
22	0.005	0.021	99.992			
23	0.002	0.008	100.000			

In the above table, the researcher used Kaiser Normalization Criterion, which allows for the extraction of components that have an Eigen value greater than 1. The principal component analysis was used and five factors were extracted. As the table shows, these five factors explain 78.057% of the total variation. Factor 1 contributed the highest variation of 42.619%. The contributions decrease as one move from factor one to the other up to factor five.

#### 4.7.3 Component Matrix

**Table 28: Component Matrix for non quality of service E-commerce adoption factors**

	Component				
	1	2	3	4	5
The internet technology is readily accessible to me	.675	-.301	-.050	-.046	-.468
The internet accessibility cost is affordable to me	.702	-.153	-.114	.377	.312
I believe it is easy for me to learn how to shop online	.793	-.037	-.401	-.045	.256
I believe doing online shopping would be easy for me	.829	.027	-.471	.027	.057
I believe already I have enough IT skills to do online shopping	.805	-.073	-.391	-.103	.148
I believe doing online shopping would reduce my cost for shopping	.837	-.204	-.073	.208	-.015
I believe doing online shopping would offer me more convenience of shopping	.139	-.133	.520	.113	.318
I believe online shopping would offer better customer service to me	.759	-.161	-.139	-.002	-.360
I believe online shopping would offer me competitive advantage in product/service varieties and prices	.848	-.239	-.103	-.134	-.127
I believe that online shopping would offer more quality and product/service to me	.868	-.109	-.228	-.162	-.108

The risk of product /service not worthy the financial price	.298	.720	-.012	-.014	-.413
The risk that the product quality may lower the personal image	.330	.819	.136	-.081	-.250
The risk that the product /service may not be safe for me to use	.314	.859	-.097	.020	.195
The risk that the product /service will not perform as I expect	.312	.867	-.154	.001	.149
The risk that the product/service choice may results in embarrassment before my fiends /family	.467	.554	.005	.413	.046
The risk of wasting time in preparing shopping list seeking information and waiting for products delivery	.472	.141	.355	.593	.040
Online shopping fits well my beliefs , values and practices in life	.763	-.165	.291	.105	.020
Online shopping fits well my past technology experience	.800	-.245	.245	.128	-.044
I have positive attitude towards online shopping	.684	-.259	.242	.218	-.203
I believe there are effective laws to protect consumers in online shopping	.612	.093	.603	-.029	.035
I believe that there are effective laws to combat cyber crime	.520	.155	.444	-.461	-.096
I believe that the government demonstrates strong commitment to promote electronic commerce	.789	-.073	.047	-.336	.384
I believe government regulations allows safe electronic payments on online purchase	.554	.098	.296	-.592	.203

The initial component matrix was rotated using Varimax (Variance Maximization) with Kaiser Normalization. The above results allowed the researcher to identify what variables fall under each of the 5 major extracted factors. Each of the 23 variables was looked at and placed to one of the six factors depending on the percentage of variability: it explained the total variability of each factor. A variable is said to belong to a factor to which it explains more variation than any other factor. From the above table, the individual variables constituting the five factors extracted are summarized and identified below-

### Factor 1

1. The internet technology is readily accessible to me
2. The internet accessibility cost is affordable to me
3. I believe it is easy for me to learn how to shop online
4. I believe doing online shopping would be easy for me

5. I believe already I have enough IT skills to do online shopping
6. I believe doing online shopping would reduce my cost for shopping
7. I believe online shopping would offer better customer service to me
8. I believe online shopping would offer me competitive advantage in product/service varieties and prices
9. I believe that online shopping would offer more quality and product/service to me
10. Online shopping fits well my beliefs , values and practices in life
11. Online shopping fits well my past technology experience
12. I have positive attitude towards online shopping
13. I believe there are effective laws to protect consumers in online shopping
14. I believe that there are effective laws to combat cyber crime
15. I believe that the government demonstrates strong commitment to promote electronic commerce
16. I believe government regulations allows safe electronic payments on online purchase

#### **Factor 2**

1. The risk of product /service not worthy the financial price
2. The risk that the product quality may lower the personal image
3. The risk that the product /service may not be safe for me to use
4. The risk that the product /service will not perform as I expect
5. The risk that the product/service choice may results in embarrassment before my fiends /family.

#### **Factor 3**

1. I believe doing online shopping would offer me more convenience of shopping.

#### **Factor 4**

1. The risk of wasting time in preparing shopping list seeking information and waiting for products delivery.

In summary, the 23 Ecommerce Adoption factors variables were categorized in frequency as follows;

**Table 29: Non quality of service Ecommerce Adoption factors variables**

Factor category	No. of variables (frequency)
Factor 1	16
Factor 2	5
Factor 3	1
Factor 4	1
Factor 5	0
Total	23

From the above table, variables in factor 1 category (16 variables) were more correlated and explain most of the variance observed in a much larger number of manifest variables.

The risk related variables were highly related, appearing in factor 2 category.

#### 4.7.4 Factor Analysis for Non quality of service Ecommerce Adoption factors

**Table 30: One Sample T-Test Analysis for Non quality of service Ecommerce adoption Variables**

	Adoption Variable	N	Mean	Mean Difference	Percent Mean Difference	Category
1	The risk that the product /service will not perform as I expect	203	3.990	2.990	59.8	PR
2	The risk that the product /service may not be safe for me to use	203	3.975	2.975	59.5	PR
3	The risk that the product/service choice may results in embarrassment before my fiends /family	203	3.967	2.967	59.3	PR
4	The risk that the product quality may lower the personal image	203	3.886	2.886	57.7	PR
5	The risk of product /service not worthy the financial price	203	3.708	2.708	54.2	PR
6	I believe that the government demonstrates strong commitment to promote electronic commerce	203	2.825	2.175	43.5	LL

7	I believe government regulations allows safe electronic payments on online purchase	203	2.985	2.015	40.3	LL
8	I believe that online shopping would offer more quality and product/service to me	203	3.059	1.941	38.8	PU
9	Online shopping fits well my past technology experience	203	3.118	1.882	37.6	PC
10	I believe already I have enough IT skills to do online shopping	203	3.158	1.842	36.8	CX
11	Online shopping fits well my beliefs , values and practices in life	203	3.163	1.837	36.7	PC
12	I believe doing online shopping would be easy for me	203	3.222	1.778	35.6	CX
13	I believe there are effective laws to protect consumers in online shopping	203	3.283	1.717	34.3	LL
14	I have positive attitude towards online shopping	203	3.291	1.709	34.2	PC
15	I believe online shopping would offer me competitive advantage in product/service varieties and prices	203	3.320	1.680	33.6	PU
16	I believe online shopping would offer better customer service to me	203	3.330	1.670	33.4	PU
17	I believe doing online shopping would reduce my cost for shopping	203	3.365	1.635	32.7	PU
18	I believe that there are effective laws to combat cyber crime	203	3.474	1.526	30.5	LL
19	I believe it is easy for me to learn how to shop online	203	3.492	1.508	30.2	CX

CX - Complexity

PU – Perceived Usefulness

PR – Perceived Risk

PC – Perceived Compatibility

LL - Legal and Legislation environment

**Table 31: Complexity**

	<b>Complexity Variables</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Std. Error Mean</b>
1	I believe already I have enough IT skills to do online shopping	203	3.158	1.237	0.087
2	I believe doing online shopping would be easy for me	203	3.222	1.175	0.082
1	I believe it is easy for me to learn how to shop online	203	3.492	1.193	0.087
	<b>Mean</b>		<b>3.290</b>		

On complexity of E-commerce, the study found that respondent were neutral on 'I believe it is easy for me to learn how to shop online' as shown by mean 3.492, they believe doing online shopping would be easy for me as shown by mean of 3.22 and they believe already I have enough IT skills to do online shopping as shown by mean 3.158.

**Table 32: Perceived Benefits/Usefulness**

	<b>Perceived Usefulness Variables</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Std. Error Mean</b>
1	I believe that online shopping would offer more quality and product/service to me	203	3.059	1.213	0.085
2	I believe online shopping would offer me competitive advantage in product/service varieties and prices	203	3.320	1.077	0.076
3	I believe online shopping would offer better customer service to me	203	3.330	1.087	0.076
4	I believe doing online shopping would reduce my cost for shopping	203	3.365	1.132	0.079
	<b>Mean</b>		<b>3.268</b>		

From the findings on the perceived benefits/usefulness of E-commerce , respondent were neutral on that 'I believe doing online shopping would reduce my cost for shopping' as shown by mean of 3.36,they believe online shopping would offer better customer service to me as shown by mean of 3.33, they believe online shopping would offer me competitive advantage in

product/service varieties and prices as shown by mean of 3.32 and they believe that online shopping would offer more quality and product/service to me as shown by mean of 3.055.

**Table 33: Perceived Risk on Products/Services**

	Perceived Risk Variables	N	Mean	Std. Deviation	Std. Error Mean
	I believe online shopping may result to:				
1	The risk that the product/service choice may results in embarrassment before my fiends /family	203	3.708	1.007	0.071
2	The risk that the product /service may not be safe for me to use	196	3.886	0.877	0.063
3	The risk that the product /service will not perform as I expect	203	3.975	0.998	0.070
4	The risk that the product quality may lower the personal image	203	3.990	1.002	0.070
5	The risk of product /service not worthy the financial price	203	3.967	1.067	0.075
	<b>Mean</b>		<b>3.905</b>		

On the perceived risk of E-commerce the study revealed that most of the respondent agreed that they avoid risk that the product/service choice may results in embarrassment before my fiends /family as shown by mean of 3.708, the risk of the risk that the product /service may not be safe for me to use as shown by mean of 3.886, the risk that the product /service will not perform as they expect as shown by mean of 3.975, the risk of product /service not worthy the financial price as shown by mean of 3.967 and the risk that the product quality may lower the personal image as shown by mean of 3.990.

**Table 34: Perceived Compatibility**

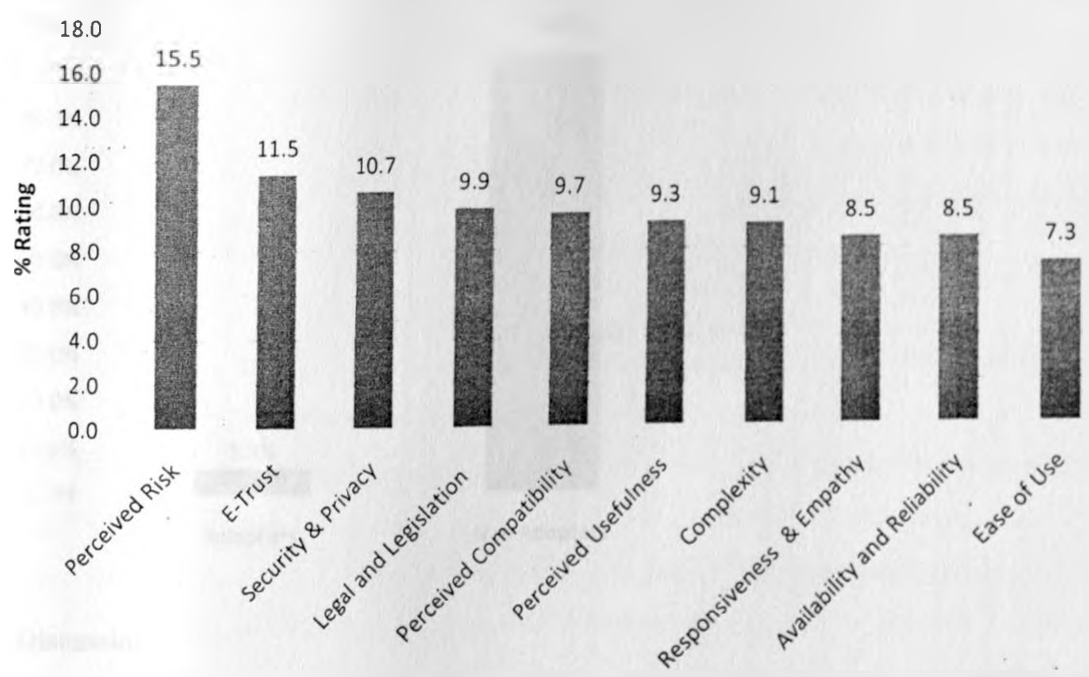
	Perceived Compatibility Variables	N	Mean	Std. Deviation	Std. Error Mean
1	Online shopping fits well my past technology experience	203	3.118	1.119	0.079
2	Online shopping fits well my beliefs , values and practices in life	203	3.163	0.938	0.066
3	I have positive attitude towards online shopping	203	3.291	1.198	0.084
	<b>Mean</b>		<b>3.190</b>		



5	Perceived Compatibility	1.810	9.68
6	Perceived Usefulness	1.732	9.26
7	Complexity	1.710	9.14
8	Responsiveness & Empathy	1.589	8.50
9	Availability and Reliability	1.583	8.46
10	Ease of Use	1.373	7.34

When the eservice quality factors are combined with non quality of service e-commerce adoption factors, then ranked in terms of their importance to e-commerce adoption, perceived risk is the most vital factor (15.5%), followed by E-trust (11.5%), then Security & privacy (10.7%). Legal and Legislation environment is the fourth factor of importance (9.9%).

**Chart 4: Overall Ranking of Both web Quality of service and Non Quality of service E-commerce Adoption factors**



**Web Quality and E-commerce adoption factors**

**4.8 Level of E-commerce Adoption among the respondents**

From the 203 respondents, only 54 (27%) have ever shopped online. However it is only 27 respondents who have been shopping for the last 6 months. This translates to 13% of the respondents.

On perceived compatibility of E-commerce, the study found that respondent were neutral on they have positive attitude towards online shopping as shown by mean of 3.291. Online shopping fits well my beliefs , values and practices in life as shown by mean 3.165 and Online shopping fits well my past technology experience as shown by mean of 3.118.

**Table 35: Legal and Legislation Environment**

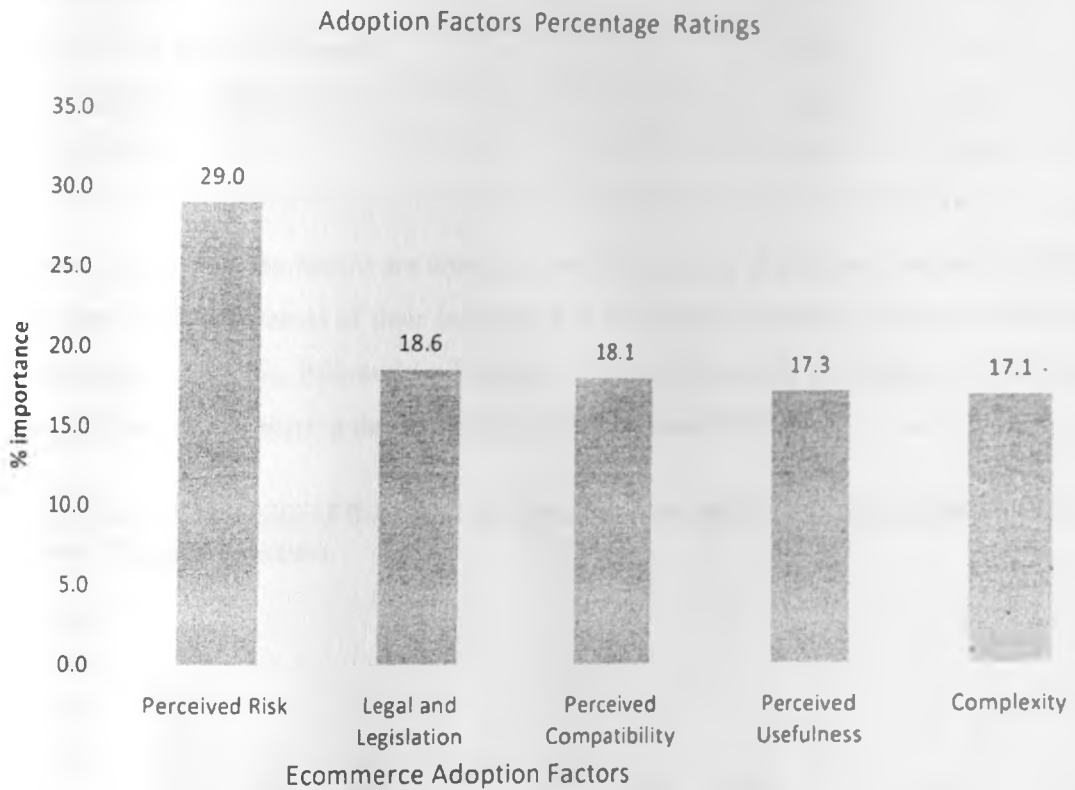
	Legal and Legislation Variables	N	Mean	Std. Deviation	Std. Error Mean
1	I believe that the government demonstrates strong commitment to promote electronic commerce	203	3.283	1.141	0.080
2	I believe government regulations allows safe electronic payments on online purchase	203	3.474	1.044	0.075
3	I believe there are effective laws to protect consumers in online shopping	203	2.825	0.944	0.066
4	I believe that there are effective laws to combat cyber crime	203	2.985	1.063	0.076
	<b>Mean</b>		3.142		

From the findings on the legal and legislation environment of E-commerce, the study found that majority of the respondent disagreed on that they believe that there are effective laws to combat cyber crime as shown by mean of 2.985, they believe there are no effective laws to protect consumers in online shopping as shown by mean of 2.825, they are neutral on whether government regulations allows safe electronic payments on online purchase as shown by mean of 3.474 and they are also not sure if the government demonstrates strong commitment to promote electronic commerce as shown by mean of 3.283.

**Table 36: Ranking of E-commerce Adoption Factors**

	E-commerce Adoption Factors	N	Standardized Mean	Aggregate Mean Difference	Percent
1	Perceived Risk	203	3.905	2.91	29.0
2	Legal and Legislation Environment	203	2.328	1.86	18.6
3	Perceived Compatibility	203	3.190	1.81	18.1
4	Perceived Usefulness	203	3.268	1.73	17.3
5	Complexity	203	3.290	1.71	17.1

**Chart 3: Ranking of E-commerce Adoption Factors Graphically**



From the analysis of the non quality of service e-commerce adoption factors, Perceived risk is the most important factor (29.0%), followed by legal and legislation environment (18.6%). Third in importance is perceived compatibility (18.1%). Perceived Usefulness (17.3%) and Complexity (17.1%) are least important.

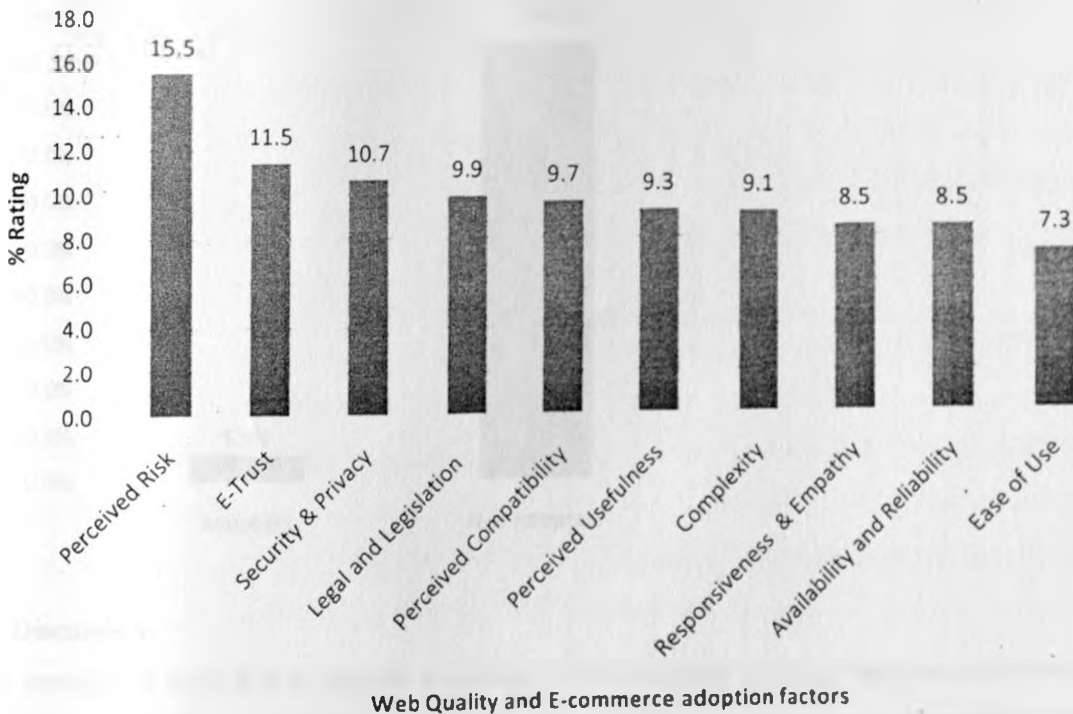
**Table 37: Overall Ranking of Both web Quality of service and Non Quality of service E-commerce Adoption factors**

	Key factors	Aggregate Mean Difference	Percent
1	Perceived Risk	2.905	15.54
2	E-Trust	2.144	11.46
3	Security & Privacy	1.998	10.68
4	Legal and Legislation	1.858	9.94

5	Perceived Compatibility	1.810	9.68
6	Perceived Usefulness	1.732	9.26
7	Complexity	1.710	9.14
8	Responsiveness & Empathy	1.589	8.50
9	Availability and Reliability	1.583	8.46
10	Ease of Use	1.373	7.34

When the eservice quality factors are combined with non quality of service e-commerce adoption factors, then ranked in terms of their importance to e-commerce adoption, perceived risk is the most vital factor (15.5%), followed by E-trust (11.5%), then Security & privacy (10.7%). Legal and Legislation environment is the fourth factor of importance (9.9%).

**Chart 4: Overall Ranking of Both web Quality of service and Non Quality of service E-commerce Adoption factors**



#### 4.8 Level of E-commerce Adoption among the respondents

From the 203 respondents, only 54 (27%) have ever shopped online. However it is only 27 respondents who have been shopping for the last 6 months. This translates to 13% of the respondents.

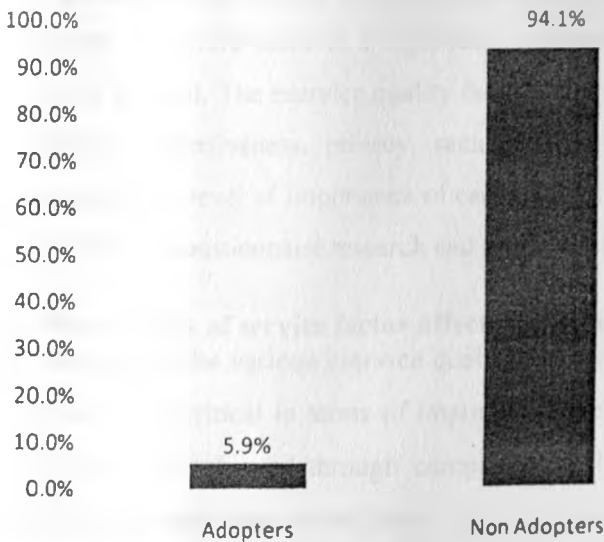
On the respondents who have been shopping for the last 6 months, on 12 respondents who have shopped more than 10 times. The rest have shopped up to five times. This indicates that the level of online shopping adoption among the Kenyan internet users is still low, representing approximately 6%.

Further majority of the online shoppers spent little amount on their shopping, less than Kshs. 1000 in last 6 months.

**Table 38: Level of Ecommerce adoption**

Category	Frequency	Percent
Adopters	12	5.9%
Non Adopters	191	94.1%
Total	203	100%

**Chart 5: Adoption level of E-commerce by Kenyans.**



#### 4.9 Discussion

The aim of this section is to provide discussion of the research findings based on set objectives and findings of the research. The research used extensive literature review and questionnaires as sources of the research findings.

The aim of the research was to investigate the extent to which web quality of service influence the adoption of eservice technologies among Kenyans with specific focus on business to consumer ecommerce.

The specific objectives of the study were:

- (i) To identify web quality of service factors that affects e-commerce adoption.
- (ii) To establish the extent to which each web quality of service factor affect the adoption of ecommerce in Kenya.
- (iii) Identify the key web quality of service factors that affect the adoption of ecommerce in Kenya.
- (iv) Identify the non quality of service factors that affect the adoption of ecommerce in Kenya.

#### 4.9.1 Web quality of service factors that affects e-commerce adoption

From the findings, various eservice quality factors that affect adoption of eservice technologies such as business to consumer (B2C) ecommerce were identified through extensive literature review. Since E-service quality is representation of the entire service delivered through the online service providers, the research findings confirmed that e-service quality is highly related to consumer satisfaction. Therefore there is a significant relationship between e-service quality and e-service adoption in general. The eservice quality factors identified were ease of use, web design, reliability, availability, responsiveness, privacy, security, empathy and e-trust. In order to determine the relevance and the level of importance of each factor to ecommerce adoption in Kenya, these factors were used in the questionnaire research and the results analyzed.

#### 4.9.2 Web quality of service factor affect the adoption of ecommerce in Kenya

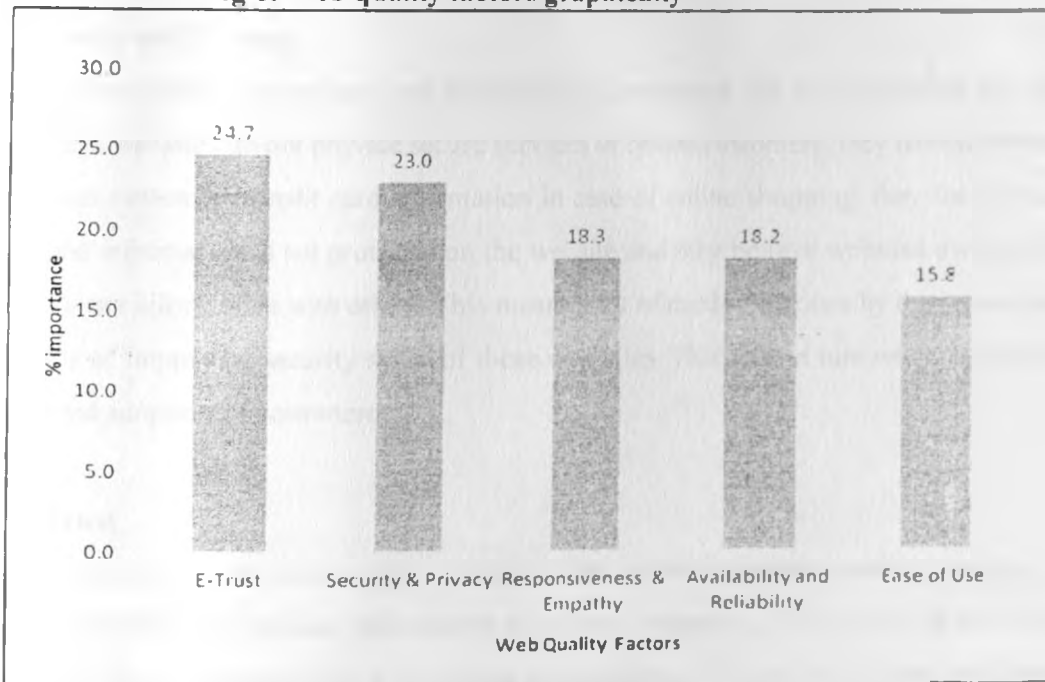
After analysis of the various eservice quality factors, the research findings established that some factors are more critical in terms of importance to ecommerce adoption in Kenyan context than others. This was achieved through comparison of the mean difference of the eservice quality factors. The factors were ranked based on level of importance to ecommerce adoption in Kenya. Through this, the research established the extent to which each eservice quality factor affects the adoption of ecommerce in Kenya. In terms of importance, the each eservice quality factors were ranked as follows: E-trust, Security & Privacy, Responsiveness & Empathy, Availability and Reliability and Ease of Use from most important to least important.

**Table 39: Ranking of Web Quality Factors**

	Factor	Percent Importance
1	E-Trust	24.7%

2	Security & Privacy	23.0%
3	Responsiveness & Empathy	18.3%
4	Availability and Reliability	18.2%
5	Ease of Use	15.8%
	<b>Total</b>	<b>100.0%</b>

**Chart 6: Ranking of Web quality factors graphically**



### Ease of Use

From the finding on the ease of web site use, the study found that most of the online users are able to use web sites without much difficulty. It is easy for them to look for information they need on the web site. Majority have no difficulty in navigating around website and filling online forms. The research further established that most web sites do not present products and services clearly and accurately. Also most of the web sites' web pages do not load quickly. There are web design issues which need to be improved in order to make ease of use fully acceptable by internet users. Therefore it can be concluded that ease of use is not a challenge toward adoption of e-commerce by most Kenyan internet users.

### **Availability and Reliability**

On availability and reliability of website, the study found that the websites offer confirmation to the users on completion of the service process, however majority of internet users are sure on whether service is delivered accurately and web sites run without failure. The most important aspect of availability and reliability is whether websites' services are available whenever users need services. Therefore availability and reliability still has considerable impact on the user perception toward adoption of ecommerce.

### **Security and Privacy**

From the findings on privacy and security of E-commerce, the study revealed that respondents believe websites do not provide secure services to online customers, they believe websites do not protect customers' credit card information in case of online shopping, they feel privacy of their online information is not protected on the website and they believe websites owners do not share customer information with others. This means a lot of need to be done by the service providers in terms of improving security status of these web sites. This will in turn win customer confidence toward adoption of ecommerce.

### **E-Trust**

Findings on E-trust, indicate that majority of the online users are unwilling to give their credit card numbers and private information to online companies. They also do not trust services offered by websites and they will mind to pay in advance for product/services purchased online.

### **Responsiveness and Empathy**

On responsiveness and empathy, the study found that online companies offer incentives to its regular online customers and online companies address customers' complaints friendly and promptly, The online users are however neutral on whether online companies provide prompt feedback to its customers and websites offer services requested by customers promptly.

#### **4.9.3 The key web quality of service factors that affect the adoption of ecommerce in Kenya**

From the eservice quality factors that influence the adoption of the ecommerce in Kenya, this research was able to identify the key quality factors and their important variables/aspects. From the data analysis, eservice quality aspects related to E-trust, Security & Privacy; and Availability



& reliability were in the top ten most important aspects. E-trust is the most important eservice quality factor, followed by security and privacy then availability and reliability.

**Table 40: Ranking of web quality aspects/variables by importance**

	<b>Eservice Quality Variables/Aspects</b>	<b>Mean Diff. From Hypothetical Value ( 5)</b>	<b>Percent</b>	<b>Eservice Quality Category</b>
1	I am willing to give my credit card number on websites	2.55	51.0%	E-Trust
2	I will not mind to pay in advance for product/services purchased online	2.06	41.2%	E-Trust
3	I believe websites protect customers' credit card information in case of online shopping	2.03	40.6%	Security & Privacy
4	I trust services offered by websites	2.03	40.6%	E-Trust
5	I believe websites provide secure services to online customers	2.02	40.4%	Security & Privacy
6	I believe websites owners do not share customer information with others	2.00	40.0%	Security & Privacy
7	I trust online companies will fulfill my promise to deliver the service or product I request online	1.94	38.8%	E-Trust
8	I feel privacy of my online information is protected on the website	1.93	38.6%	Security & Privacy
9	Web pages load quickly	1.83	36.6%	Availability & Reliability
10	Website is available whenever I need services	1.80	36.0%	Availability & Reliability

In context of E-trust, majority of the Kenyan internet users identified the unwillingness to give out their credit card numbers for their bank accounts as the most important eservice quality aspect. Related to this is the fact that most users indicated that they may not be willing to pay in advance when they shop online. The other important aspects related to e-trust identified by this research include trust of services offered online and trust that the online companies will fulfill their promise.

The research finding on the importance of e-trust in Kenyan context is consistent with other findings as indicated in the literature review. However to be noted is that e-trust in eservice is a function of other eservice quality dimensions. Therefore there is need to create awareness to eservice providers on how to implement system designs that help in building trust in electronic environments in Kenya. This is because, in the context of B2C ecommerce, building trust between two parties is crucial for companies which choose to do business online.

In case of security and privacy, the study established that protection customers' credit card information in online shopping is the most important aspect of this eservice quality factor. Currently majority of the Kenyan internet users believe the online companies do not protect online user's credit account details. Also of concern to internet users is the provision of secure online services. Majority of the users believe that online services are currently not secure. The other important aspect of concern to the online users is sharing of customer information by the online companies. Related to this is protection of personal information of the web sites.

The findings indicate that security and privacy of dimensions of eservice quality hold an important position in eservice adoption in Kenya. Customers perceive significant risks in the virtual environment of eservice stem from the possibility of improper use of their financial data and personal data. Therefore online consumers might refrain from using online services because of their concerns about privacy, including the safeguard of personally sensitive information which may be sold to third parties. Equally Perceived security is a much stronger determinant of intention to purchase online than other adoption factors such as the perceived ease of use and usefulness of the website.

In Kenya privacy problems can be solved from the perspective of law, code of conduct and markets which can strengthen the existing regulations about compliance of online service providers to their own privacy policy. Implementation of strong perceived security control mechanism on web portals can also improve the perception of online toward online shopping.

For availability and reliability factors, web page downloading speed and availability of the web site to whenever service is needed are the most important aspects of these factors. Majority of the web users indicated that web site performance in terms of downloading information is poor. If

customers cannot use the online system when they need online service, they will not be willing to return to the same web site again. This negatively affects the image of the online company and more fundamental intention to purchase online in order to avoid wasting time and inconveniences.

**4.9.4 Non Eservice Quality Factors of E-commerce Adoption Factors in Kenya**

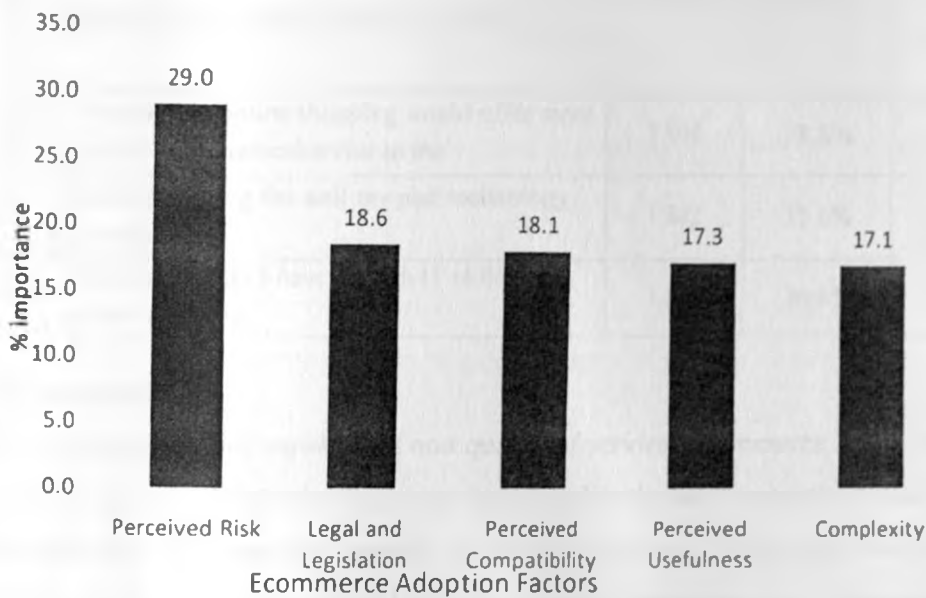
One of the objectives of this research project was to identify the ecommerce adoption factors which are not related to eservice quality. The motivation behind the objective is through appreciation that in Kenyan context eservice quality may not be the only major inhibitor to ecommerce adoption.

Initial ecommerce adoption factors were identified through extensive review of secondary data. These factors were identified as complexity, perceived usefulness, perceived risk, perceived compatibility, legal and legislation environment. These factors were used in research questionnaire for further analysis. In order to identify the key ecommerce adoption factors from the initial list of adoption factors, factor analysis was performed on these factors. From the findings the ecommerce adoption factors were ranked from most important to least important as follows perceived risk, legal and legislation environment, perceived compatibility, perceived usefulness and compatibility.

**Table 41: Ranking of Non Quality of Service E-commerce Adoption Factors**

	<b>E-commerce Adoption Factors</b>	<b>Percent Importance</b>
1	Perceived Risk	29.0%
2	Legal and Legislation Environment	18.6%
3	Perceived Compatibility	18.1%
4	Perceived Usefulness	17.3%
5	Complexity	17.1%

**Chart 7: Ranking of Non Quality of Service E-commerce Adoption Factors**



**Table 42: Ranking of Non Quality of Service E-commerce Adoption variables by importance**

	Adoption Variable	Mean Difference	Percent Mean Difference	Category
1	The risk that the product /service will not perform as I expect	2.990	59.8%	Perceived Risk
2	The risk that the product /service may not be safe for me to use	2.975	59.5%	Perceived Risk
3	The risk that the product/service choice may results in embarrassment before my fiends /family	2.967	59.3%	Perceived Risk
4	The risk that the product quality may lower the personal image	2.886	57.7%	Perceived Risk
5	The risk of product /service not worthy the financial price	2.708	54.2%	Perceived Risk
6	I believe that the government demonstrates strong commitment to promote electronic commerce	2.175	43.5%	Legal and Legislation Environment

7	I believe government regulations allows safe electronic payments on online purchase	2.015	40.3%	Legal and Legislation Environment
8	I believe that online shopping would offer more quality and product/service to me	1.941	38.8%	Perceived Usefulness
9	Online shopping fits well my past technology experience	1.882	37.6%	Perceived Compatibility
10	I believe already I have enough IT skills to do online shopping	1.842	36.8%	Complexity

### Perceived risk

On comparing various variables of non quality of service E-commerce adoption factors, aspects related to perceived risk of online shopping topped in the list. In perceived risk, the internet users indicated that they fear that product or service purchased online may not perform expected. Related to this, the study revealed that the consumers mind that the product/service may not be unsafe for use. The risk of the financial loss is also a major concern to the shoppers in that they avoid the financial risk which may arise from online shopping.

The findings of this research on the perceived risk in Kenyan situation are very consistent with prior studies. Therefore perceived risk need to be recognized as a key determinant to consumer behavior that might be a primary factor influencing the conversion of browsers to real buyers. Perceived Risk with Product/Service include the risk resulting from poor performance, danger, health hazards and costs.

It is important to point that perceived risk is a function of eservice quality factors. Therefore improved eservice quality reduces perceived risk hence positively influencing online shopping. Consumer's confidence or trust can be improved by increasing the transparency of the transaction process (for example, fully disclosing the identity, origin, and liability of the supplier), keeping to a minimum the personal data required from the consumer, and by making clear the legal status of any information provided.

For the case of eservice quality, the fundamental requirement for e-commerce that satisfies the security issues such as authentication, authorization, availability, confidentiality, data integrity, non repudiation, and selective application services is vital for reducing perceived risk.

### **Legal and Legislation Environment**

The findings established that legal and legislation environment is the second important dimension of non quality of service ecommerce adoption in Kenya. The study found that most internet users believe that the government does not demonstrates strong commitment to promote electronic commerce through establishment of relevant legislations. These legislations and legal framework is important to guarantee safe electronic payments on online purchase. Another concern of the prospective online shoppers is existence of effective laws to combat cyber crime. Therefore there is need for the government to put in place adequate legal and legislation infrastructure to promote ecommerce in the country.

### **Perceived Compatibility**

On perceived compatibility of E-commerce, the study found that internet users had positive perception towards online shopping. Ecommerce also does not conflict their beliefs and values. However the users indicated that online shopping does not fit well their past technology experience. This is an indication that ecommerce is a new innovation for Kenyans.

Since compatibility is the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters, and the majority of the users have positive attitude toward this new innovation, then more users are likely to adopt the technology.

### **Perceived benefits/usefulness**

The study findings indicated that Kenyan internet users do not think that online shopping would reduce cost for their shopping. However, they believe online shopping would offer better competitive advantage in product/service varieties and prices. Therefore perceived benefits are positive factor toward adoption of ecommerce among the online consumers.

### **Complexity**

On complexity of online shopping and learning how to shop online, the study found that most users had relevant computer skills to use internet and shop online. This is finding is consistent will prior research in Kenya which showed that there is good penetration of internet usage among the Kenyans. This is why complexity is ranked as the last in terms of ecommerce adoption factors.

#### 4.9.5 Overall Key E-commerce Adoption Factors

In order to identify the key ecommerce adoption factors (KEAF) in Kenya, factor analysis was done for both eservice quality factors and non eservice quality ecommerce adoption factors. The research ranked the all factors in terms of importance from the most important to least important as shown below.

**Table 43: Overall Ranking of Both web Quality of service and Non Quality of Service E-commerce Adoption factors**

	<b>Key factors</b>	<b>Aggregate Mean Difference</b>	<b>Percent</b>
1	Perceived Risk	2.905	15.5%
2	E-Trust	2.144	11.5%
3	Security & Privacy	1.998	10.7%
4	Legal and Legislation	1.858	9.9%
5	Perceived Compatibility	1.810	9.7%
6	Perceived Usefulness	1.732	9.3%
7	Complexity	1.710	9.1%
8	Responsiveness & Empathy	1.589	8.5%
9	Availability and Reliability	1.583	8.5%
10	Ease of Use	1.373	7.3%
	<b>Total</b>		<b>100.0%</b>

From the study it was established that perceived risk, e-trust, security, privacy; and legal and legislation environment are the most important of ecommerce adoption in Kenya. The research further established that majority of the key ecommerce adoption factors are related to eservice quality of service. However other factors of importance are perceived compatibility, perceived usefulness and complexity.

## CHAPTER FIVE

### SUMMARY FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

#### **5.1 Introduction**

The chapter of the research offers summary findings of the research undertaken, conclusions and relevant recommendations based on findings of the research.

#### **5.2 Summary findings**

The purpose of this study was to investigate the extent to which web quality of service influence the adoption of eservice technologies among Kenyans with specific focus on business to consumer ecommerce. Its aim was to establish the key quality factors (KQFs) of web site quality and the extent to which they influence adoption of eservices such as ecommerce. The research further attempted to identify the other non quality of service factors that influence positively or negatively the adoption of ecommerce.

The motivation of this research was necessitated by the fact that adoption of internet technology has been received very well by most Kenyans. Currently there are approximately over ten million internet users in Kenya. However, despite the fundamental benefits to internet users on embracing eservices such as online shopping such as avoiding crowd, lower prices, ease of comparing prices and products, avoiding the inconvenience of traveling to shops and wider selection of products on the internet very few internet users have adopted online shopping. Instead most online Kenyans use web technology for services such as information searching, emails, news and social network.

Previous researches and literature had shown that perceived quality of service in online context is an important factor of ecommerce adoption. Therefore this research was to determine the importance of eservice quality factors on influencing the adoption of ecommerce in Kenyan context.

The research findings indicate that eservice quality factors related to risk are the most critical to adoption of ecommerce in Kenya. These factors are e-trust, security and privacy. This is an indication that Internet security and privacy remains major threat to adoption of ecommerce by Kenyan internet users. By increasing internet security and privacy, this reduces perceived risk hence increasing e-trust among the internet users. Consequently this will encourage internet users to adopt online shopping.



Legal and legislation environment was identified as a key ecommerce adoption factor following perceived risk by this research. Generally majority of the internet users have the perception that government does not demonstrates strong commitment to promote electronic commerce through establishment of relevant legislations to tackle cyber crime and ensure safe electronic payments. The finding from this study reveals that government has a major role to play in achieving a secure environment for e-commerce activities. In particular, the government of Kenya needs to put in place clear laws, rules and regulations to regulate the ecommerce in this era of technology and ensure they are adhered to. In its efforts to achieve this, the government should provide relevant technical training to the regulatory authority to enable them to enforce the laws effectively.

Lastly the research results found that ease of use is no longer a challenge of ecommerce adoption. This is an indication that majority of Kenyan internet users have the relevant computer skills to use the internet technology. Other factors found to be currently not a challenge to ecommerce adoption in Kenya are availability, reliability, responsiveness and empathy.

### **5.3 Conclusions**

Based on the results of this research finding, eservice quality is key ecommerce adoption factor in Kenya. However this study shows that the eservice quality factors driving the B2C e-commerce adoption among the Kenyan internet users can be viewed from two categories: risked correlated eservice quality factors and non risk correlated eservice quality factors. It is the eservice quality factors that are correlated to perceived risk which are more critical to ecommerce adoption. These factors include e-trust, security and privacy. Factors not related to risk such as availability, reliability, responsiveness and empathy are no longer key determinant factors of ecommerce adoption in Kenyan scenario.

In context of non eservice quality ecommerce adoption factors, the research findings revealed that perceived risk is the most important ecommerce adoption factor followed by legal and legislation environment. Other factors relevant for ecommerce adoption are perceived compatibility, perceived usefulness and complexity in that order.

#### 5.4 Recommendations for E-commerce Service Providers

The findings of this study have significant implications in the perspective of online companies which offer on ecommerce based services. The study provides evidence that eservice quality has significant influence on consumer's adoption of ecommerce in Kenya. The important factors identified for ecommerce adoption are perceived risk, e-trust, security; and legal and legislation environment. The findings of the study suggest important practical implications for businesses currently providing products/services on the Internet as well as those planning to do so. It is evident from this study that to convert Internet users into real buyers, perceived risk relating to product/service (PRP) and online transaction (PRT) must be reduced. From the perspective of a consumer's perceived risk, the consumer is willing to purchase product/service from an online vendor that is perceived low risk, even if the consumer's perceived ease of use or usefulness on ecommerce is relatively low.

As shown in the results of the study, consumers consider the risk related to the online transaction (i.e., privacy and security) as one of the important factors when they purchase on the Internet. Thus, diminishing such risk is considerably important to online vendors. To lower the transactional risk, online vendors should establish a robust mechanism, which utilize state-of-art Internet technologies. However, as criminals will always exist in our society, if credit card is lost or stolen in a physical place, anyone can abuse the card information. Hence, it is more important that online vendors enable consumers to place full trust on the privacy, security, integrity and availability of vendor information.

Further, to reduce consumers' risk with product/service, online vendors should build trust with consumers by giving them complete confidence on the product/service that they provide. This can be achieved when online vendors improve the following service quality factors:

- (i) Security: ability to protect customer information any against potential threats.
- (ii) Privacy: the degree to which the website is safe and customer information is protected
- (iii) Reliability: the ability to perform a promised service reliably and accurately;
- (iv) Responsiveness: the willingness to assist customers and to provide prompt service;
- (v) Assurance: the knowledge and courtesy of employees and their ability to convey trust, and confidence;
- (vi) Empathy: the caring attitude which provides individualized attention to customers.

In summary, firms providing products/services through ecommerce should consider these factors in order to facilitate consumer adoption behavior.

## **5.5 Recommendations for the Government**

The research findings indicate that the government has a strong role in promoting and spreading the benefits of electronic commerce in Kenya. Government has the responsibility to provide an enabling legal and legislation environment in which ecommerce can realize its full potential. Through established legal framework, the government can help address the problems and challenges affecting both ecommerce service providers and potential online shoppers. Potential online shoppers need to be assured of existence of laws to fight cyber crime and laws to solve disputes that arise in context of online shopping.

The government of Kenya needs legislations in place with regard to privacy with a view to ensure that online companies respect and protect their consumers' privacy rights. Customers need assurance that the online businesses they are dealing with are respectful of individual privacy on the Internet. The government could authorize relevant authority bodies such as CCK to develop, manage and monitor privacy policy guidelines for online companies.

## **5.6 Limitations of the research**

Firstly, due to the fact that e-commerce penetration in Kenya is very low currently, majority of the respondents were potential adopters rather than actual ecommerce consumers. Due to this, did not have any idea about different online services offered by ecommerce web sites information required by the research questionnaire, and therefore they had to be assisted. Also the results of the research are based more on user perception of the internet users. Their opinion of eservice quality could be having some level of variation with a scenario where majority of the respondents are ecommerce adaptors.

Secondly, the research was time consuming because each web quality and ecommerce adoption factors several variables which had to be evaluated.

Thirdly, there exists no reliable database for online ecommerce web portals in Kenya which could be used as bases for evaluation of web service quality factors by respondents.

Fourthly, due to financial limitation, to travel different regions of the country, the research was limited to Nairobi and its environs.

However, despite these limitations, this research provides a foundation for future research in this area.

### **5.7 Suggestions for further research**

The following suggestions are recommended for further research:

- Further research need to be done later evaluate differences of the impact of website quality factors based on actual ecommerce adaptors instead of information searchers or potential online buyers in order to provide a practical implications of website quality factors .
- Further research need to be done to determine the readiness of businesses on adoption of ecommerce as a tool of doing their businesses. This is because majority of the businesses have not included ecommerce components on their web portals. Lack of ecommerce enabled web sites has direct impact of consumer adoption of ecommerce.
- To use other models in order to confirm the findings of this research.

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## Appendix

### Quality of Service Variables/Aspects Frequency Tables

It is easy to move around website			
		Frequency	Percent
	strongly disagree	12	5.9
	disagree	7	3.4
	neutral	19	9.4
	agree	125	61.6
	strongly agree	40	19.7
	Total	203	100.0

It is easy for me to look for information I need			
		Frequency	Percent
	strongly disagree	12	5.9
	neutral	18	8.9
	agree	114	56.2
	strongly agree	59	29.1
	Total	203	100.0

It is easy for me to fill online forms			
		Frequency	Percent
	strongly disagree	6	3.0
	disagree	27	13.3
	neutral	46	22.7
	agree	91	44.8
	strongly agree	33	16.3
	Total	203	100.0



<b>Products and services are clearly and accurately presented by website</b>			
		Frequency	Percent
	strongly disagree	12	5.9
	disagree	28	13.8
	neutral	41	20.2
	agree	90	44.3
	strongly agree	32	15.8
	Total	203	100.0

<b>Web pages load quickly</b>			
		Frequency	Percent
	disagree	47	23.2
	neutral	88	43.3
	agree	55	27.1
	strongly agree	13	6.4
	Total	203	100.0

<b>Website is available whenever I need services</b>			
		Frequency	Percent
	strongly disagree	12	5.9
	disagree	52	25.6
	neutral	35	17.2
	agree	91	44.8
	strongly agree	13	6.4
	Total	203	100.0

<b>Service is delivered accurately</b>			
		Frequency	Percent
	disagree	46	22.7
	neutral	56	27.6
	agree	88	43.3
	strongly agree	13	6.4
	Total	203	100.0

<b>Websites offer confirmation on completion of the service process</b>			
		Frequency	Percent
	disagree	27	13.3
	neutral	31	15.3
	agree	118	58.1
	strongly agree	27	13.3
	Total	203	100.0

<b>I feel privacy of my online information is protected on the website</b>			
		Frequency	Percent
	disagree	99	48.8
	neutral	47	23.2
	agree	31	15.3
	strongly agree	26	12.8
	Total	203	100.0

<b>I believe websites owners do not share customer information with others</b>			
		Frequency	Percent
	strongly disagree	32	15.8
	disagree	82	40.4
	neutral	52	25.6
	agree	24	11.8
	strongly agree	13	6.4
	Total	203	100.0

<b>I believe websites protect customers' credit card information in case of online shopping</b>			
		Frequency	Percent
	strongly disagree	35	17.2
	disagree	80	39.4
	neutral	37	18.2
	agree	33	16.3
	strongly agree	18	8.9
	Total	203	100.0

<b>I believe websites provide secure services to online customers</b>			
		Frequency	Percent
	strongly disagree	26	12.8
	disagree	102	50.2
	neutral	43	21.2
	agree	20	9.9
	strongly agree	12	5.9
	Total	203	100.0

<b>I trust services offered by websites</b>			
		Frequency	Percent
	strongly disagree	37	18.2
	disagree	81	39.9
	neutral	34	16.7
	agree	33	16.3
	strongly agree	18	8.9
	Total	203	100.0

<b>I am willing to give my credit card number on websites</b>			
		Frequency	Percent
	strongly disagree	46	22.7
	disagree	87	42.9
	neutral	40	19.7
	agree	24	11.8
	strongly agree	6	3.0
	Total	203	100.0

<b>I trust online companies will fulfill my promise to deliver the service or product I request online</b>			
		Frequency	Percent
	strongly disagree	17	8.4
	disagree	93	45.8
	neutral	56	27.6
	agree	31	15.3
	strongly agree	6	3.0
	Total	203	100.0

<b>I will not mind to pay in advance for product/services purchased online</b>			
		Frequency	Percent
	strongly disagree	35	17.2
	disagree	87	42.9
	neutral	36	17.7
	agree	26	12.8
	strongly agree	19	9.4
	Total	203	100.0

<b>Websites offer services requested by customers promptly</b>			
		Frequency	Percent
	strongly disagree	13	6.4
	disagree	28	13.8
	neutral	69	34.0
	agree	68	33.5
	strongly agree	25	12.3
	Total	203	100.0

<b>Online companies provide prompt feedback to its customers</b>			
		Frequency	Percent
	strongly disagree	12	5.9
	disagree	24	11.8
	neutral	59	29.1
	agree	83	40.9
	strongly agree	25	12.3
	Total	203	100.0

<b>Online companies offer incentives to its regular online customers</b>			
		Frequency	Percent
	strongly disagree	6	3.0
	disagree	19	9.4
	neutral	65	32.0
	agree	94	46.3
	strongly agree	19	9.4
	Total	203	100.0

### Non Quality of Service Variables/aspects Frequency Tables

<b>I believe it is easy for me to learn how to shop online</b>			
		Frequency	Percent
	strongly disagree	18	8.9
	disagree	19	9.4
	neutral	39	19.2
	agree	91	44.8
	strongly agree	36	17.7
<b>Total</b>		<b>203</b>	<b>100.0</b>

<b>I believe doing online shopping would be easy for me</b>			
		Frequency	Percent
	strongly disagree	18	8.9
	disagree	32	15.8
	neutral	76	37.4
	agree	41	20.2
	strongly agree	36	17.7
<b>Total</b>		<b>203</b>	<b>100.0</b>

<b>I believe already I have enough IT skills to do online shopping</b>			
		Frequency	Percent
	strongly disagree	19	9.4
	disagree	52	25.6
	neutral	42	20.7
	agree	58	28.6
	strongly agree	32	15.8
<b>Total</b>		<b>203</b>	<b>100.0</b>

<b>I believe doing online shopping would reduce my cost for shopping</b>			
		Frequency	Percent
	strongly disagree	18	8.9
	disagree	20	9.9
	neutral	67	33.0
	agree	66	32.5

	strongly agree	32	15.8
	Total	203	100.0

<b>I believe online shopping would offer better customer service to me</b>			
		Frequency	Percent
	strongly disagree	13	6.4
	disagree	27	13.3
	neutral	74	36.5
	agree	58	28.6
	strongly agree	31	15.3
	Total	203	100.0

<b>I believe online shopping would offer me competitive advantage in product/service varieties and prices</b>			
		Frequency	Percent
	strongly disagree	13	6.4
	disagree	31	15.3
	neutral	62	30.5
	agree	72	35.5
	strongly agree	25	12.3
	Total	203	100.0

<b>I believe that online shopping would offer more quality and product/service to me</b>			
		Frequency	Percent
	strongly disagree	31	15.3
	disagree	26	12.8
	neutral	70	34.5
	agree	52	25.6
	strongly agree	24	11.8
	Total	203	100.0

<b>The risk of product /service not worthy the financial price</b>			
		Frequency	Percent

strongly disagree	7	3.4
disagree	25	12.3
neutral	41	20.2
agree	86	42.4
strongly agree	44	21.7
Total	203	100.0

<b>The risk that the product quality may lower the personal image</b>			
		Frequency	Percent
	strongly disagree	6	3.0
	disagree	34	16.7
	neutral	25	12.3
	agree	77	37.9
	strongly agree	61	30.0
	Total	203	100.0

<b>The risk that the product /service may not be safe for me to use</b>			
		Frequency	Percent
	strongly disagree	6	3.0
	disagree	25	12.3
	neutral	49	24.1
	agree	84	41.4
	strongly agree	39	19.2
Total		203	100.0

<b>The risk that the product /service will not perform as I expect</b>			
		Frequency	Percent
	strongly disagree	6	3.0
	disagree	31	15.3
	neutral	44	21.7
	agree	93	45.8
	strongly agree	29	14.3
	Total	203	100.0

<b>The risk that the product/service choice may results in embarrassment before my fiends /family</b>			
		Frequency	Percent

	strongly disagree	13	6.4
	disagree	39	19.2
	neutral	73	36.0
	agree	65	32.0
	strongly agree	13	6.4
	Total	203	100.0

<b>Online shopping fits well my beliefs , values and practices in life</b>			
		Frequency	Percent
	strongly disagree	12	5.9
	disagree	33	16.3
	neutral	74	36.5
	agree	78	38.4
	strongly agree	6	3.0
	Total	203	100.0

<b>Online shopping fits well my past technology experience</b>			
		Frequency	Percent
Valid	strongly disagree	19	9.4
	disagree	47	23.2
	neutral	40	19.7
	agree	85	41.9
	strongly agree	12	5.9
	Total	203	100.0

<b>I have positive attitude towards online shopping</b>			
		Frequency	Percent
Valid	strongly disagree	13	6.4
	disagree	48	23.6
	neutral	46	22.7
	agree	59	29.1
	strongly agree	37	18.2
	Total	203	100.0



<b>I believe there are effective laws to protect consumers in online shopping</b>			
		Frequency	Percent
Valid	strongly disagree	26	12.8
	disagree	95	46.8
	neutral	35	17.2
	agree	26	12.8
	strongly agree	21	10.3
	Total	203	100.0

<b>I believe that there are effective laws to combat cyber crime</b>			
		Frequency	Percent
Valid	strongly disagree	19	9.4
	disagree	108	53.2
	neutral	32	15.8
	agree	26	12.8
	strongly agree	18	8.9
Total		203	100.0

<b>I believe that the government demonstrates strong commitment to promote electronic commerce</b>			
		Frequency	Percent
Valid	strongly disagree	18	8.9
	disagree	92	45.3
	neutral	41	20.2
	agree	34	16.7
	strongly agree	18	8.9
	Total		203

<b>I believe government regulations allows safe electronic payments on online purchase</b>			
		Frequency	Percent
Valid	strongly disagree	28	13.8
	disagree	97	47.8
	neutral	37	18.2
	agree	29	14.3
	strongly agree	12	5.9
Total		203	100.0

## Research Questionnaire

The aim of this research questionnaire is help in data collection with objective to determine the extent to which web quality of service influence the adoption of online shopping among the Kenyan internet users. It also aims to identify the factors which encourage or discourage Kenyans on online shopping.

### SECTION ONE: Personal information

Please tick the box which best describes you.

1. Gender	<input type="checkbox"/> Female	<input type="checkbox"/> Male					
2. Age	<input type="checkbox"/> Under 20	<input type="checkbox"/> 20 - 24	<input type="checkbox"/> 25 - 34	<input type="checkbox"/> 35 - 44	<input type="checkbox"/> 45 - 54	<input type="checkbox"/> 55 - 60	<input type="checkbox"/> Over 60
3. Educational Level	<input type="checkbox"/> Less than Form Four	<input type="checkbox"/> Form Four	<input type="checkbox"/> Diploma	<input type="checkbox"/> Degree	<input type="checkbox"/> Masters and Above		
4. Internet usage experience	<input type="checkbox"/> Less than 3 months	<input type="checkbox"/> 3 - 6 months	<input type="checkbox"/> 6 - 12 months	<input type="checkbox"/> Over 12 months			
5. Frequency of internet usage	<input type="checkbox"/> More than once daily	<input type="checkbox"/> Once daily	<input type="checkbox"/> Weekly	<input type="checkbox"/> Monthly			
6. Place of Internet Access	<input type="checkbox"/> Mobile Phone	<input type="checkbox"/> Cyber Cafe	<input type="checkbox"/> Work	<input type="checkbox"/> Home	<input type="checkbox"/> School/College	<input type="checkbox"/> Other	

## SECTION TWO: Web site quality factors

Please tick the number which best describes your opinion on web site quality factors toward adoption of online shopping using the five point scale where:

1 = Strongly disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

Quality Factor	Description	1	2	3	4	5
Ease of use	1. It is easy for me to move around website.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. It is easy for me to look for information I need.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. It is easy for me to fill online forms.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. products/services are clearly and accurately presented by website.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Web sites have a well organized appearance: links, colour, graphics and animations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Web pages load quickly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Availability & Reliability	7. Website is available whenever I need services.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. Service is delivered is accurately.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	9. Web sites run without failure until I complete using the service.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	10. Web site offers confirmation on completion of service process.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Privacy and Security	11. I feel privacy of my online information is protected on web sites.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	12. I believe web sites owners do not share customer's information with others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	13. I believe web sites protect customers' credit card information in case of online shopping.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	14. I believe web sites provide secure services to its online customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Quality Factor	Description	1	2	3	4	5
E-Trust	15. I trust services offered by web sites.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	16. I am willing to give my private information to online companies.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	17. I am willing to give my credit card number on websites.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	18. I trust online companies will fulfill my promise to deliver the service or product I request online.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	19. I would not mind to pay in advance for products/services purchased online.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Responsiveness and Empathy	20. Web sites offer services requested by consumers promptly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	21. Online companies provide prompt feedback to its customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	22. Online companies address customer complaints friendly and promptly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	23. Online companies offer incentives to its regular online customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### SECTION THREE: Non Quality of Service E-commerce Adoption Factors

Please tick the number which best describes your opinion on the following online shopping adoption factors, using the five point scale where:

1 = Strongly disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

Adoption Factor	Description	1	2	3	4	5
Technology Accessibility	1. The internet technology is readily accessible to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. The internet accessibility cost is affordable to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Complexity	3. I believe it is easy for me to learn how to shop online.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. I believe doing online shopping is/would be easy for me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. I believe already I have enough IT skills to do online shopping.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Perceived Benefits/Usefulness	6. I believe doing online shopping would reduce my cost of shopping.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7. I believe online shopping would offer me more convenience of shopping.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8. I believe online shopping would offer better customer service to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	9. I believe online shopping would offer me competitive advantage in product/service varieties and prices.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	10. I believe online shopping would offer more quality and product/service choices to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Adoption Factor	Description	1	2	3	4	5
Perceived Risk with Product/Service	I believe online shopping may result to:					
	11. The risk of the product/service not worthy the financial price.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	12. The risk that the product quality may lower the personal image.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	13. The risk that the product/service may not be safe for me to use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	14. The risk that the product/service will not perform as I expect.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	15. The risk that a product/service choice may result in embarrassment before my friends/family/work mates.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	16. The risk of wasting time in preparing shopping lists, seeking information, shopping, and waiting for product delivery.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Perceived Compatibility	17. Online shopping fits well my beliefs, values and practices in life.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	18. Online shopping fits well my past technology experience.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	19. I have positive attitude toward online shopping.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Legal and legislation environment	20. I believe there are effective laws to protect consumers in online shopping.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	21. I believe that there are effective laws to combat cyber crime.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	22. I believe that the government demonstrates strong commitment to promote electronic commerce.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

23. I believe government regulations allow safe electronic payments on online purchases.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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#### SECTION FOUR: Online Shopping Frequency

Please tick the box which best describes you.

1. Have you ever shopped online?

Yes

No

If your response is YES in 1, then continue to 2 and 3

2. How many times have you shopped online in the last 6 months

None

Once

2- 3 times

4 - 5 times

6- 10 times

More than 10

3. How much have you spent in online shopping in the last six months.

Less than Kshs.1,000

Kshs 1000 - Kshs. 5,000

Kshs 6000 - Kshs. 10,000

Kshs 11,0000 - Kshs. 30,000

Kshs 31,0000 - Kshs. 50,000

Over Kshs.50,000

*End.*

*Thank you for your participation*