# ONLINE BANKING SERVICE QUALITY AND CUSTOMER SATISFACTION

## A CASE STUDY OF BARCLAYS BANK KENYA LIMITED

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## DECLARATION

This project research is my original work and has not be submitted to any Institution or University for examination

Signed..... Date..02/11/2015.....

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This project research has been presented for examination with my approval as a University Supervisor

Signed..... Date..2/11/15.....

Dr. Jane Thuo

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## DEDICATION

I dedicate this paper to my lovely Christine and Samara, my daughters who are my greatest inspiration to always forge ahead. I also dedicate this work to my family for the great support. Their love, concern, support, encourage inspired me to achieve this goal.

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## ABSTRACT

This project study evaluated customer service with online banking service quality in Barclays Bank Kenya Limited. The conceptual framework adopted for conceptualizing the online banking dimensions for which customer satisfaction may be evaluated was the online banking service quality dimensions identified by Parasuraman et al (1991). Methodologically the study was a case study of the bank that involved the use of a structured questionnaire to collect primary data from the internal customers (staff). The questionnaires yielded an 86% response rate. The data was analysed using principal Component analysis (PCA) and Statistical SPSS (version 22.0.0.0) to eventually give tables and graphs for analysis of the study

During the analysis, the initial conceptual framework was modified and a model was created with four quality dimensions (service performance, website characteristics, communication and efficiency) with 17 items therein. The study found that satisfaction levels were high with the dimensions, service performance and efficiency which showed that they were satisfied with aspects such as transaction speed, accuracy and privacy of customer information. It was found that the satisfaction levels were low with the dimensions of website characteristics and communication which means that they were not satisfied with aspects such as ease of use of the website, easiness to reach the bank and aesthetics of the site.

The study gave recommendations for practioners to have amendments or changes to ensure the dimensions of website characteristics and communication were improved to ensure higher levels of customer satisfaction as the website is the face of the bank in this case where face to face interaction has been negated from the process. The study also suggested ensuring and maintaining the dimensions of service performance and efficiency through processed such as periodic assessment to ensure satisfaction levels do not drop. Since the study has looked at one organization in one sector, the study has given suggestions that the same study can be mapped onto research in other organizations in different sectors to evaluate online services. A more detailed model based on the one used in the study can also be created for study. The study also suggests that as the study only looked at customer satisfaction in relation to the service quality dimension, research can be carried out to find out the correlation between the dimensions themselves.

## LIST OF ABBREVIATIONS

**ATM**- Automated Teller Machine

**BBK**- Barclays Bank of Kenya

**CS**- Customer Service

**OBS**- Online Banking Services

**OBSQ**- Online Banking Service Quality

**PCA-** Principal Component Analysis

**SQ**- Service Quality

# CHAPTER ONE: INTRODUCTION

The internet communication is one of the most recent developments in communication to be developed with the first email being sent in 1972 in a split second. This communication allows the transmission of seemingly limitless amounts of information across the globe (Poster, 2011). The internet communication has opened doors to new opportunities to the global village that entails both individuals and organizations with the World Wide Web (WWW) coming to life in the early nineties going through the explosive expansion in 1995 and growing rapidly from then (www.zakon.org).

This communication not only connects individuals but also exposes them to an array of services, markets and information which has become the game changer from not just reducing communication and coordination costs but also to improving service provision and accessibility and effectively impacting on customer service and satisfaction. The emergence and expansion of the internet has improved organizations internet and external communication capabilities. In the banking sector this online facet commonly known as online banking (OB) or e-banking. Internet banking in the 21st century advanced from merely providing balance view and set up types of alerts but to also be able to do transactions, redeem loyalty coupons, deposit cheques and instruct payroll based transactions.

The earliest and widely adopted retail e-banking services in Kenya were the automated Teller machine (ATM) (Nyangosi et al, 2009). However according to an annual report by Central Bank of Kenya its adoption and usage has been surpassed by online banking in recent years (CBK 2010). The reason for this is that many low income earners have access to mobile phones and mobile networks are available in remote areas at a low cost. The effect of online banking is known as service quality (SQ) dimension such as reliability, security and privacy, timeliness that impacts on customer satisfaction. This study looks at how this service quality has made the banking experience for consumers better and hence improves customer satisfaction

## 1.1 Background of the Study

Globalization and deregulations have increased competition in the marketplace, as nowadays it has become much easier for companies to cross borders and compete internationally. This has made companies become more involved in increasing their productivity and still at the same time

reduce costs and investing in information Technology is one of these ways (Fredriksson, 2003). The recent developments in  has led to major adaptations to how customers are now transacting and accessing products and services by getting into the self-service systems which are easier to use and offer convenience and efficiency. There has been an upsurge and increased use of banking services online known as online banking (OB). Banks are providing online facility to their clients.

This was initially looked at as an added advantage but it is now become a basic necessity that banks have to endear their clients (Oyieke, 2008). These services rendered vary from bank to bank due to competition and search for new features to attract clients, but most general of them includes viewing balances, paying bills, view statements of transactions, transfer money between accounts and even change profile details of the account holder (Buzzle, 2010). The benefits of Electronic banking are diverse and for the customers in particular the benefits are more information, more options hence more choices, faster service, better value for money, privacy concerns, profitability and reduction of operational costs ( Boss et al, 2000). Banks offer the interface and websites in a user friendly manner which enables customers to transact with ease.

OB has become an invaluable tool driving development, promoting innovation and enhancing competitive (Kamel, 2005). The evolution of OB has been driven by changes in distribution channels as evidenced by ATM points, phone-banking, tele-banking, and internet-banking (Gallup C, 2008). Online banking services (OBS) has created opportunity for banks by enhancing product delivery, low entry barriers, ability to re-engineer different business processes and much more opportunity to sell cross-border and market over the internet. The uptake of online banking by banks in Kenya, has been largely to create and facilitate an interbank platform that allows transfer on information and data between banks for instance the Real Time Gross Settlement system (RTGS) and Electronic Funds Transfer (EFT). It has also been used as a way to reduce customers visiting the branches for their transactions. This has them using online system instead hence decongesting banking halls and enhancing customer satisfaction.

The quality of this system is one aspect that is an invaluable tool for this venture to be a success. This quality known as service quality (SQ) is based on the dimensions of the system and those are measurable to find out whether the desired effect on the customer is being achieved

(Fredrickson, 2003). Customers prefer OBS for reasons such as convenience, feeling more in control of the process, saving time and it is easier for them to compare and evaluate competing services (Santos, 2003)

Dabholkar, (1996) states that the cost of switching online service providers is low. As such it is very important for organizations to retain their customers on their service space. In order for the service providers in this case banks to retain their online customers, they should understand how their customers perceive and evaluate the SQ of the OBS. The organizations that have emerged successful in offering online services and retaining their customers have embraced the fact that beyond website design and low price, SQ is one of the dimensions that play a vital role in customer satisfaction (Zeithaml et al, 2002). Taking into account the immense input in terms of investments that banks have put into technological development, customer satisfaction and retention have fast become vital in successful OBS. Delivering high quality services is a requirement for customer satisfaction and this in turn creates loyal customers (Gronroos, 2001)

Research has been extensively done in the traditional setting where customers visited branch outlets and there is an interaction between the staff and the customers but it is the study of this aspect in OBS where the interaction between the staff and the customers is impersonal (Zeithaml et al., 2002 and Oiyeke, 2008). Customers have changing perceptions about the products and services they procure and banks should constantly try and find these out and improve their OBS and gain competitive advantage.

### 1.2 Statement of the Problem

Banks have been challenged by technological improvement which has led to the development of products and service that increased the fight for market share. There has been a move from paper-based to electronic payments and ATM use as opposed to visiting of branches by the customers. While all this is a good and advantageous aspect, it also has some critical issues for both parties i.e. the banks and the customers in terms of quality, security and efficiency among others. In the current era of intense competition, many banks are focused on maintaining a satisfied customer based on the argument that organizations that are customer centric gain more returns than those that are not service oriented; the increase of customer satisfaction and loyalty

through improved service quality (Bolton,2010). This has seen a great deal of investments in technology by the banks

Increased technological use has seen banking performance increases daily and online banking has become a very important part of present day banking. Some studies on online banking include, adoption and effectiveness of electronic banking in Kenya (Gikandi & Bloor,2010) where they dealt with the uptake of the electronic banking in the country and how the uptakes worked after the acquisition; another study was, effects of e-banking on growth of customer base in Kenyan banks (Wario and Okibo, 2014) who looked into the issues that affected the utilization of e-banking facilities by customers and how this impacted on the increase of the customer base in the banks; factors affecting adoption of mobile banking technology in Kenya- A case study of bank customers within Nakuru municipality (Oluoch, 2012) focused on how customers react and take up mobile banking.

There is need for further study to understand the attributes on online banking that lead to customer satisfaction as customer satisfaction is cornerstone in determining the successful implementation of new, technology based, online banking services and its usability. This study aims to look at the online banking system in a Barclays Bank Kenya and how this correlates with their satisfaction. This will help to give feedback to practioners and have empirical evidence on the phenomenon for better understanding. This could also drive future research in this area. The focus of this study was to evaluate how customers perceive the quality of online banking services and how this relates with their satisfaction levels.

### 1.3 Rationale and Justification of the study

Customer satisfaction is one of the most crucial aspects in service delivery on any facet. In the same breath, online banking service has become one of the many service platforms used by organizations to push products, increase profitability and reduce costs in a competitive environment, Parasuaman (2005). The study looked at the online banking services at Barclays Bank Kenya Ltd as this was the largest bank in terms of branches in Nairobi County at 50 branches (BBK 2012). When banks introduced online banking services, their aim was to decongest the banking halls, but with the continued long queues visible in the branches and as

such, it is important to find out why the online banking services are not eliciting the desired effect (CBA, 2011)

The study was also done as this is a new area of innovation in the banking sector. Studies have been done have been done on the more conventional and traditional service quality (Parasuraman et al, 1991, 2002) but studies have been sparse on the study of online banking service quality. As such the study will add to the existing knowledge and form a basis for further research for other scholars.

## 1.4 Objectives of the study

### 1.4.1 Main objective

The main objective of the study is to look at how customers perceive online banking services and how this relates to their levels of satisfaction. This will be done by identifying the quality dimensions of OBSQ and finding out the levels of customers' satisfaction them within Barclays Bank of Kenya.

### 1.4.2 Specific objectives

The specific objectives of this study were to;

i. Establish the service quality service dimensions banks should use to evaluate OBS
ii. Establish how these service quality dimensions are used to measure the quality of OBS
iii. Find out how customers perceive the quality of different aspects of OBS they use.

### 1.4.3 Research Questions

i. Which service quality dimensions should banks consider when evaluating the quality of their online banking services?
ii. How are these service quality dimensions of online banking services used to measure the quality of online banking services?
iii. How do customers perceive the quality of different aspects of the online banking services they use?

## 1.5 Significance of the Study

Top service researchers state that customer satisfaction is the key to development and strategy for organizations that want to grow and be contenders in the economic arena. Poll statisticians use a lot of satisfaction surveys based on the thinking that a satisfied customer will always return in the future. Customer is a corner stone in the banking industry and for any bank to be able to be efficient and competitive in an economy such as the Kenyan market that has institutions offering financial services constantly growing. This study can be used by management to improve on customer policy toward satisfaction as it looks at aspects that aid in the reduction of customer complaints, ensure the ease of access to services rendered so that the customer expectations are always met or exceeded. This will lead to better relations with the customers and boost company performance as well. As this is a case study on one organization the study can be used by researchers to find out the effect online facilities may have on the customer satisfaction in other organizations.

## 1.6 Scope of the Study

The study looks at OBS, OBSQ and customer satisfaction. The study was conducted at BBK branches in Nairobi County, Kenya. Data from other branches was not studied even though the data concerned the area of the study. A preliminary study was done to establish staff that had used OBS within the area and organization under study. The study period was one year, January, 2014 to December 2014

## 1.7 Limitations of the study

The study looked at the dimensions of SQ in OBS and how this effects customer satisfaction as it is fundamentally leveraging for banks to ensure success and relevance in a highly volatile economic environment. The SQ dimensions that were looked into centred largely on timeliness, efficiency, assurance, responsiveness and reliability. SQ was also used to understand customer thinking in the online market framework as a prerequisite for customer satisfaction. Even when there are prevailing confidentiality laws in the sector, study was still able to gain access to information from the respondents using items in the questionnaire that did not lead to revealing such information. This study did not look into the performance aspects such as growth of

customer base in banks, organizational performance or adoption of the OBS all of which SQ has an effect. However this study can be used to guide the research or study on these aspects.

### 1.8 Operational definition of key terms

The terms defined herein were used in this study and have been defined to enable the reader ease of understanding of the contents of the paper.

- **Online banking service (OBS):** A service offered by banks that enables customers to handle account management and account transaction directly on the internet through the banks own website. This includes money transfers, cheque book orders, updating personal profile and investments option access.
- **Service Quality (SQ)/ online banking service quality (OBSQ):** The overall comparison between the perceptions and performance of the online banking system by the customers
- **SERVQUAL:** an instrument that has 22 items created for measuring customers' expectations and perceptions from a service along five quality dimension: tangibles, reliability, responsiveness, assurance and empathy (Parasuraman et al., 1996)
- **Conceptual Model/ Framework:** an analytical tool with several variations

**E_SQ:** An instrument similar to the SERVQUAL also created for measuring service quality but it is specific to online services. It has two scales;

- ✓ **E_S_QUAL:** This scale is made up of 4 dimensions with 22 attributes which are system availability, efficiency, fulfillment and privacy.
- ✓ **E_ResS-QUAL:** This scale is made up of 3 dimensions with 11 attributes including responsiveness, compensation and contact (Parasuraman et al., 2005)

# CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

## 2.0 Introduction

This chapter discusses the framework of the study, basic knowledge on the study aspects, E-banking services and online systems quality. It also discusses the model on which the study will be further developed

## 2.1 Barclays Bank Kenya Limited- Company overview

Barclays Bank Kenya Limited (BBK) is part of the expansive Barclays Bank PLC that has operations in sixty two countries around the world and in twenty eight in Africa. Barclays Bank Kenya is the largest part of the Africa retail and Business Banking founded in 1991 and is now called Barclays Africa Group. BBK has a network of 117 branches and 230 ATMs around the countrywide by the close of 2012 (BBK2012).

The network is supported by their online banking platform and with a customer contact centre that operates twenty for hours. BBK has had a goal to be the leading brand in the sector, to be the most trusted, customer-focused, innovative company that offers high quality products and services to the customer. They aim to be associated with their stakeholders, contribute to the welfare of the community and deliver value to the stakeholders by positive growth (BBK, 2012).

BBKs products include savings accounts, current accounts, debit and credit cards, foreign currency accounts, loans for individuals and businesses. BBK introduced its online service in 2010 December and offers the service to both its retail and corporate customer with benefits that enable them access their accounts in real time giving them facilities that include statement access, bill payments, interbank transfers for both local and foreign currency all in the aim of being the "GO TO" bank in the region (BBK 2012).

## 2.2 Online banking service

Online banking service (OBS) also known as web e-banking, began on the 1980's in banks predominantly in the United States and in Europe; in 1995, The presidential Savings bank, The Wells Fargo, Chase Manhattan went into online banking as a way of taking the bank to the people hence led to banks that operate solely via the internet and have no "four-wall entity" (Ross- Bainbridge, 2006). From 2001, online banking grew exponentially enabling banks to offer

better services and features i.e. balance inquiry, cheque book order, bill payment and money transfers as they reduce operating costs and expenditure, it has also provided a way to enable people access banking facilities without having to visit the bank (Olivia, 2011). In addition it saves time and money as well as minimizing teller errors. OBS has emerged as a new marketing channel for banking products and services to growing and emerging economies like Kenya. It is tailored to offer customers easy access to the bank while adding more value such as convenience; this has led it to become not only a competitive advantage but a competitive necessity (Gan and Clemes, 2006).

With the dynamic ever growing information driven economy, the banking industry Kenya has found itself booming in online banking laying down a strong base for low cost banking and increase in the use of mobile phones for financial capacity especially in rural areas. Although the studies on the effects of OBS had been sparse in the country with one of the studies done by Oyieke (2008) on the phenomena, OBS has become a common household name in Kenya. Cooperative bank of Kenya pioneered the online banking wave in Kenya in 2004 by enabling customers to access their account using the mobile phones. It offered services including balance inquiry, SMS alerts on credit and debit card transactions to accounts, alerts on ATM transactions on the account. (CBK, 2010)

In 2009 standard chartered launched in its OBS on a unique user friendly platform called USSD (Unstructured Supplementary Services Data) which is available on GSM carrier networks which enable real-time banking worldwide. Barclays bank online banking consisting of the hello-money and internet banking allows the customers to transact on the go. Although unlike other banks this service is provided for free. Another player is Equity bank which has its own known as Eazy24/7 which offers services similar to those offered by cooperative bank. (CBK, 2010)

The PC and Telephone banking enables customer to also communicate with the banks using numbers availed to them by the banks to their contact centres which operate twenty four hours. Computer use a code given to the customer for verification and authentication then they can receive or send messages. They also have cards that are used at point of sale where the value for products and services are directly transferred to the merchant without having to go and withdraw cash or wait for clearing. Transactions are valued for money immediately.

## 2.3 Online Banking Service Quality

Online banking service quality is also known as e-service quality and numerous studies have established that service quality (SQ) is a very crucial aspect in customer service. It is also a key factor in business profitability and survival. SQ has become a significant differentiator in many leading organizations. Factors such as improved accessibility, reduced costs, better administration, and time sensitivity are key drivers of banking services (Brown and Molla, 2005). Traditional SQ is defined as customers' attitudes or beliefs concerning the degree of service excellence given at organizations physical facilities in this case bank branches, (Santos, 2003).

For the measurement of SQ, Parasuraman et al, (1988) created the SERVQUAL instrument which is a gap model for the comparison of perception against expectation. This instrument used the following variables; tangible, reliable, assurance, responsiveness and empathy. A lot of the research that has been done since have used this instrument to measure SQ (Kang and James, 2004). This has also faced a lot of criticism based on the fact that it looks at quality from service delivery process; service quality has many dimensions and these dimensions may differ (Brady and Cronin, 2001).

Online Banking Service (OBS) is defined as an interactive information service, the growth of online based services has really changed the way in which company and customers interact (Yang, 2001). Electronic service is not a relatively one way marketing activity and this hence makes measuring online banking service and its quality a complex undertaking. Key dimensions were created by Ranganathan and Ganapathy (2002) and these were information content, security and privacy and design. This was followed by the creation of an instrument to measure online service quality based on these factors; web design, reliability, fulfilment, customer service, security and privacy (Wolfinbarger and Gilly, 2003). Zeithaml, Parasuraman and Malhotra's (2002) e-SQ study identified eleven dimensions; site aesthetics, ease of navigation, personalization, assurance, privacy, reliability, access, responsiveness, flexibility, efficiency and price knowledge. Parasuraman et al (2005) then developed E-SQUAL instrument consisting of system availability, efficiency, fulfilment and privacy.

They also developed E-RecSQUAL which was made up of eleven dimensions that centred on contact, responsiveness and compensation. In the study done by Li. Y. (2009), the variable of tangibility was replaced by website interface and interaction as there is no physical interaction in online banking. The study showed that website design and quality has an impact on customer satisfaction and trust. It is also known that website design is more appealing for online shopping and website quality is more geared toward banking and transactional services and as the online banking service has become common place in the banking industry, measuring service quality is a critical aspect for the banks

**2.4 Customer Satisfaction**

According to Hom (2000), customer satisfaction refers to a short term positive attitude that can change owing to various circumstances. Bruhn, (2003) defines satisfaction as an assessment based on experience on how far his expectations of the overall functionality of services were fulfilled. It is largely revealed that customer satisfaction is shown as a result of repeat purchasing, tireless effort in obtaining the product in question. Pairot (2008), defined customer satisfaction as the company's ability to fulfil the business, emotional and psychological needs of its customers. He also acknowledges that customer satisfaction levels vary as they have different attitudes and experiences as perceived from the company.

Bank customer satisfaction is regarded as banks fully meeting the customers expectation; it is also said to be a feeling or attitude formed by bank customer after service, which connects the various purchasing behaviour (Jamal and Naser, 2002) customer satisfaction is seen to be a state of mind that customers have about a company when their expectations have been met over the lifetime of the product or service, it is then noticeable that satisfaction appears to be between pre-exposure and post-exposure of attitudinal components and serves as a link between the various stages of customer buying behaviour (Jamal and Naser, 2002)

In previous studies done, (Juma, 2013), looked into the relationship between expectations, performance and service delivery, It revealed that when a customer judges the performance of a product or service, he compares a set of performance outcomes that are expectations. The product is then is considered to be satisfactory or dissatisfactory in terms of service delivery. In another study, (Oluoch, 2012) examined the factors affecting the adoption of online banking by

customers where she looked at the relationships between the perceived usefulness, perceived ease of use, perceived risk toward the use of mobile banking technology and found out that customers were opened to use of mobile banking technology but some were put off by the perceived risk element which is the concern of their security In using the technology

Customer satisfaction has received wide attention as an important variable in business strategy in a very dynamic and competitive market (Lovelock and Wirtz, 2007). This study approaches customer satisfaction in a process perspective because in online banking, customers' evaluation of quality happens during the delivery process.

### 2.5 Online Banking and Customer Satisfaction

Today's economy is very competitive and with the customer getting more and more aware, customer satisfaction is considered to be the core of success and online technology can be used to improve service quality for customer satisfaction (Jamal and Naser, 2002). This rapid technological development has led the online channel the best for provision of banking products and services to their customers as this establishes, extends and retains the relationship (Robinson, 2000). It is a strategic advantage for banks to maintain great relationships with their customers for success.

Consistent customer oriented behaviour is a requirement for improving the implementation of quality as most banks are now largely consumer oriented as opposed to product oriented (Jamal and Naser, 2002). This enables banks to facilitate quick transactions and information access from any point the customer is which leads to customer satisfaction. This has ensured that banks are striving to always improve their online facets as customers are aware of developments taking place and demand for higher quality services (Oyieke, 2008). Banks are now not only competing among themselves but are also competing against other non-financial institution; this is followed by the statement that it is easier to satisfy and retain a client than to acquire a new one (Hull, 2002). This has made banks constantly appraise themselves and ensure that they meeting customer needs and expectations consistently. In online banking customer is either satisfied or dissatisfied based on various factors.

One of the most popular schools of thought that seek to explain the customer satisfaction process is the disconfirmation theory. This theory was championed by Oliver (1980). Proponents

of disconfirmation theory believe that satisfaction is formed as a result of the discrepancy between the perceived performance of a product/service and the customer's expectation. According to this theory, customers seek service with some expectation and by comparing their expectation with the perceived performance of the product they purchase or consume, they either confirm or disconfirm their expectation; if the outcome supersedes the expectation then positive confirmation occurs; when there is a difference between the expectation and the outcome, then negative confirmation happens and when the expectation is equal to the outcome the assessment is neutral. This then results in satisfaction or dissatisfaction levels that can be put on a point scale to express outcome (Danahar and Haddrell, 1996)

In measurement of customer satisfaction performance scales are used where parameters such as excellent, satisfactory, fair or poor are used. There are also satisfactions scales are used where parameters range from dissatisfied to satisfied (Danahar and Hadrell, 1996). They recommend the use of disconfirmation scales in measurement of satisfaction because they capture the 'SERVQUAL' measurement that has a two stage base of much worse than expected to much better than expected. They also recommend it as a customer rating service quality highly such as "fair or good" may not perceive it as better than expected. They studied various scales on the same respondents and came to the conclusion that a five-point disconfirmation scale is the most reliable to use in measurement of customer satisfaction. Measuring customer satisfaction is important for organization as it makes for useful feedback from the customer that could be used for marketing and technological strategy. This is also as satisfaction is the result of direct experiences with products or services, and it occurs by the by comparing perceptions against a standard in this case expectations (Danahar and Hadrell, 1996).

### 2.6 Conceptual Framework

The main constructs in this study are customer satisfaction and online banking service quality and its dimensions as the study seeks to investigate and evaluate online banking on customer satisfaction in BBK. Based on the existing literature customer satisfaction is looked at as a cumulative concept and hence the study will look at the online banking service from respondents who have used the online banking services for a period of one year.

Customer Satisfaction is also conceptualized as a process of customer evaluation as they use the Online Banking services, and that this evaluation is based on customer expectation and perceived

performance of the online banking service quality. Based on Danaher and Haddrell (1996), a disconfirmation scale was found to be the most appropriate to measure customer satisfaction based on specific variables that constitute online banking structure in the delivery process including reliability, transaction efficiency, and customer support among other variables. After a thorough review of the literature, models and concepts the following model was formulated for the study

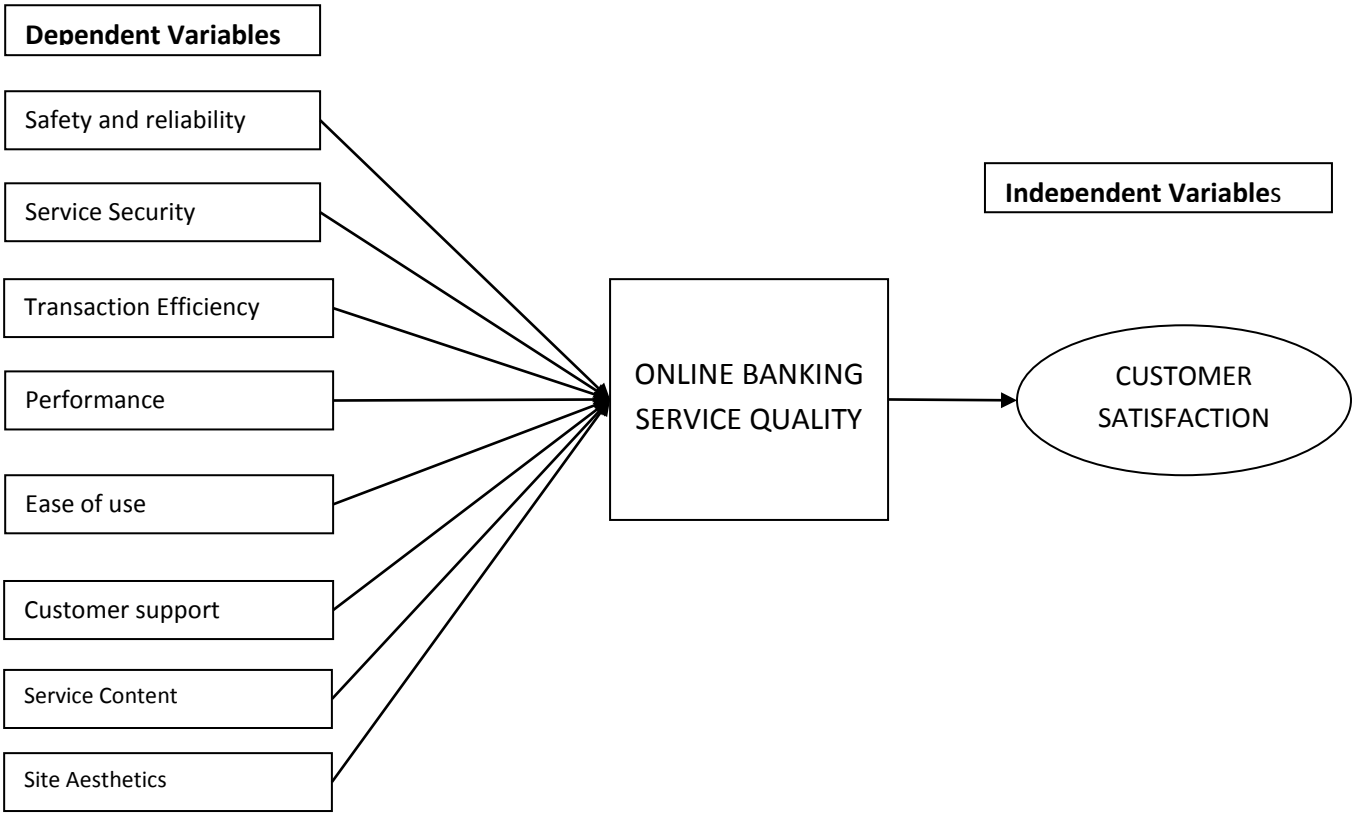


Figure 1 Conceptual Model developed for this study: Adapted from Parasuraman et al (2000 and 2002)

Safety and reliability is important to customer satisfaction as customers expect that services are provided re provided right the first time and always after that. It involves accuracy, time sensitivity and consistency. Parasuraman et al., (1988, 2000), in their research also found that reliability consists of dependability of a process, provision of promised services that what is advertised is actually what one gets when they visit the website, timeliness and maintaining error

free process. They also state that reliability is one of the most important aspects of satisfaction as this encourages the customer to continue using the online service because they can depend on the system.

Service security in online banking describes the impression by the providers that bring forth a sense of security and credibility. It is the freedom from risk and doubt for the customer and it involves a system that ensures the feeling of safety in their transactions. It also provides a sense of confidentiality where the customer knows his or her access to the system and transactions therein are private. They are assured that online system is secure from hackers and third party infiltration so they feel more at ease to use the system (Parasuraman et al., 2002)

Transaction efficiency refers to the ability to access the system and find the information they are looking for without struggling and going through a long process. It is also referred to in terms of the quality of information posted, the time it takes to download a product, the navigation assistance of the website and completeness of the processes is.( Parasuraman et al, 2000)

Customer support is inclusive of the marketing of the system before the client accepts to take it up and also after the customer has acquired the service and is now using it- After sales service. The bank should be on hand to resolve or clarify any difficulties or queries the customers may be faced with as they use the system. This is done by having a customer care centre that customers can call into to get assistance of a web dialog box that enables the client to communicate their issues and get timely and quality response. The availability of a link on the website that gives a tutorial demonstration of the website is also another way of offering customer support. (Parasuraman et al, 2000)

Ease of use deals with the navigation ability of the website, how the links are arranged is well presented and easy to navigate, the web address is easy to remember, the website is straight forward and the terms of using the site are easily understandable.(Parasuraman et al., 1988)

Performance looks at the features offered on the website and their operating ability. It is the aspect that looks at the functionality of the website as opposed to the aesthetic preference

Service content deals with what the bank has provided on its website, what is the content offered and of what quality is it? High quality easy to use and understand content is vital for the success of a website

Site aesthetics is the appearance of the website, how the site is packaged and presented. The layout has to be attractive to endear customers to use it. The summary of these antecedents are presented in table 1below.

**TABLE 1. Summary of the Conceptual Model dimensions**

| | |
|---|---|
| **1.Safety and reliability** | |
| 1.1 | OBS performs service right the first time |
| 1.2 | OBS provides services it is said to provide |
| 1.3 | OBS completes task accurately |
| **2.Service and security** | |
| 2.1 | OBS keeps accurate records of transaction |
| 2.2 | OBS provides security for data and privacy |
| 2.3 | Can check past transactions details every time |
| **3. Transaction efficiency** | |
| 3.1 | Information on OBS is up to date |
| 3.2 | OBS gives a complete help function |
| 3.3 | OBS transaction process is fast |
| **4. customer support** | |
| 4.1 | OBS contains enough information |
| 4.2 | OBS process solves problems fast |
| 4.3 | OBS has knowledgeable staff who can provide assistance on how to use process clearly |
| **5. Ease of use** | |
| 5.1 | OBS website is easy to use and understand |
| 5.2 | Information on OBS is easy to find and instructions are clear |
| 5.3 | OBS display output and transaction is fast |
| **6. Performance** | |
| 6.1 | OBS provides in multi language |
| 6.2 | OBS allows interbank transfer |
| 6.3 | OBS provides online registration |
| **7. Service content** | |
| 7.1 | OBS provides trustworthy information |
| 7.2 | OBS provides information that meets the need |
| 7.3 | OBS provides accurate information |
| **8. Site aesthetics** | |
| 8.1 | OBS website is well laid out |
| 8.2 | OBS website is attractive |
| 8.3 | OBS website is well packaged |

## 2.7 Summary

This chapter has examined literature on the online banking system and customer satisfaction from the Kenyan context. It has then adopted the Lickert scales based on the disconfirmation theory of satisfaction and has formulated a model based on Ho and Lin's (2010) service quality model as the conceptual framework for understanding online banking quality dimensions from which customer satisfaction is measured.

# CHAPTER THREE: RESEARCH METHODOLOGY

## 3.0 Introduction

The following chapter discusses the research method to be used for the study. The chapter also discusses the sampling technique. It also discusses the way data has been collected and the statistical ways used to analyse the data. The chapter has also discussed the aspects of reliability and validity

## 3.1 Research Approach

Mugenda (2003) defines research approach as the overall conception of the study; the variables, concepts, methods of data collection and analyses. The main objective of the study was to find out the qualities of the OBS and how the dimensions of these qualities related to customer satisfaction. Orodho, 2009 states that research approach should be chosen based on the research objectives as this dictates how to collect and analyze the data.

This study used quantitative research approach as it is based on the development of testable variables that can then be generalized across settings. It was also chosen because it allows for generalization of repeatability of data collection in order to verify reliability Kothari (2004). Quantitative approach was also chosen as it allowed for statistical analysis to be done on the data collected with the tool (questionnaire) that was used. This approach coupled with the survey method of collecting data was found to be suitable as the population of the study was large and conclusions were drawn for the entire population.

## 3.2 Population of the study

A population is a total group of subjects that meets a designated set of criteria. Mugenda (2003) distinguish between target population and accessible population. Target population is defined as the all the cases for which the study seeks to make generalizations. Accessible population is defined as the cases that conform to the designated criteria and are accessible as a pool of subjects for the study. The population of the study was the customer service staff within the banks Nairobi County Branches. These were chosen as they were OBS users who had the knowledge and expertise on customer satisfaction. Due to the privacy regulations that the banks uphold, the researcher was allowed to carry out the study among the members of staff who were

attending a customer service conference. The total number of staff attending conference was 420 comprising of both junior staff and members of management. As such these formed the accessible population of the study as they fitted the criteria that they worked in Nairobi County branches and were customer service staff.

### 3.3 Sample of the study

Sampling is the process of selecting a portion of the population to represent the entire population (Orodho, 2009). According to Mugenda(1999), when the population is more than 10000, 384 are recommended as the desired, representative sample. In this study the accessible population was 420 and as such the recommended sample was calculated as follows,

$$nf = \frac{n}{1+n/N}$$

According to the above formula:
nf= desired sample size when the population is less than 10,000,
n= desired sample when the population is more than 10,000,
N= estimate of the population size.

Using the above formula, the sample size was found to be

$nf = \frac{384}{1+384/420}$ =200.597= 201 respondents

The random sampling technique was applied which meant that all of the population had an equal chance to be selected Mugenda (1999). The technique was also chosen to ensure there was no occurrence of bias in the population

### 3.4 Data collection

Primary and secondary data were considered for the study. Primary data was collected from the members of staff who were approached as respondents. For this 201 questionnaires were administered randomly to the respondents. The questionnaire sought to find out the views of the respondents on the customer satisfaction levels using a seven-point Lickert scale of level of

satisfaction from *completely-dissatisfied* to *completely-satisfied*. The questionnaire had twenty questions and demographic information such as branch, gender, age, length and frequency of use of OBS. The questionnaire was delivered using the handout and collect method during the duration of the conference. Secondary data was collected from academic literature, reports and internet sources.

### 3.5 Data analysis

The data collected was first analysed using the Principal Component Analysis (PCA) which helped the study to decide whether the division and description of the initial dimensions pertaining to the conceptual model were appropriate. With the help of the PCA, some of the items of the initial theoretical model were removed and the number of dimensions reduced. Using PCA resulted in the modification of the initial model. After this was done, the Statistical Package for Social Sciences (SPSS version 22.0.0.0) was applied to run the descriptive data such as percentages and frequencies for the data, presented in form of tables and graphs based on research questions. For the convenience of the reader, a brief description of Principal Component Analysis is presented below.

#### 3.5.1 Principal Component Analysis

The Principal Component Analysis (PCA) is a method involving mathematical procedure used to identify patterns in a data set. It means that the method is used to reduce the dimensionality of the original data, which means to summarize the original data that is initially contained into a given number of variables into a new set of dimensions so that minimum amount of information is lost. This is done by defining the so called Principal Components (PC) also called factors that are variables explaining the maximum variability of a data set (Li et al, 2002).

The first principal component explains the most variance in the data and each succeeding principal component explains as much of the remaining variability as possible. There are two main reasons for using Principal Component Analysis (PCA): reduction of the dimensionality of the data set and formulation of new meaningful variables to describe the problem. In the underlying study each quality dimension pertaining to the used theoretical model is described with the help of given number of questions which customers are asked to answer. The use of PCA in this study showed the researcher whether the used questions described each quality

dimension adequately and whether some groups of questions pertaining initially to a given quality dimensions could be regrouped into less number of dimensions so that the study done could be more precise

### 3.6 Reliability and Validity

When developing and evaluating an instrument and when conducting research in general, there are two important issues that have to be examined - the reliability and validity of the study.

#### 3.6.1 Reliability

An instrument is considered reliable when the outcome of the measuring process is reproducible. According to Kothari (2004), reliability can be defined as; "The degree to which measures are free from error and therefore yield consistent results"

There are two aspects of the reliability issue: external and internal reliability; external reliability means that the studied variable does not fluctuate greatly over time which means that it is stable. According to Kothari (2004) and Mugenda (2003), internal reliability means that all the constituent indicators of a variable are measuring the same thing which means that the variable is coherent. One of the most popular methods for estimating internal reliability is Cronbach's Alpha Test of Reliability which was used.

#### 3.6.2 Validity

An instrument is valid when the outcome of the measuring process has really measured what it was designed to measure. Validity is defined as, "The ability of a scale or measuring instrument to measure what is intended to be measured" (Kothari, 2004). There are different types of validity:

- Face validity – requires a thorough examination of the wording of the items included in the instrument and their connection to the relevant frame of reference used in the particular study. Face validity can also be examined through the use of the opinion and judgment of experts concerning the items and wording used
- Criterion-related validity – evaluates a scale in terms of a criterion on which people tend to differ. This includes concurrent and predictive validity

The study used the face validity, where the validity of the study has been proven through thorough pre-testing, rewording and restructuring of the instrument.

### 3.7 Ethical considerations of the Study

In a field shroud by regulations and privacy and confidentiality the researcher was faced with a challenge on access to respondents and how to collect data without exposing information that is confidential during the process and during the analysis. The researcher requested authority from the banks customer service department to be allowed to collect data. Literal data was accessed from reports and from the internet which ensured that the information was already public information.

As a recent former employee of the bank, the researcher had in depth information on the set categories of bank information and this enabled the researcher to create a questionnaire whose question items did not contravene the policy. The issues of conflict of interest were seen not to arise as the researcher did not work for a competing organization at the time of the study and the study was undertaken purely for academic purposes.

# CHAPTER FOUR: DATA INTERPRETATION AND ANALYSIS

## 4.0: Introduction

This chapter discussed the results from the conducted survey and the analysis after. The results of the survey included the descriptive statistics of the collected data and Cronbach's Alpha Test of Reliability which was chosen to test the reliability of the model used. The data collected was analyzed using principal Component Analysis (PCA). A descriptive mathematical statistics based on the modified conceptual framework was presented

## 4.1 Pilot Study

Initially, a pilot study was done to find out if the instrument which was to be used for the survey (questionnaire) was efficient and would generate data that would valuable for analysis. 30 questionnaires were issued to respondents chosen from the target population of which 27 completed responses were received. Cronbach's Alpha values were calculated, which is often used to establish internal consistency of construct validity (Pallant, 2005). The pilot study led to a slight amendment on the questionnaire to rid the tool of questions that generated ambiguity and misunderstanding to the respondents. The questions were also rearranged in clusters for the various dimensions that were to be tested.

## 4.2 The Data from the field

For this study, 201 questionnaires were distributed but some had not been entirely filled and a few others did not fit the age bracket of 25-44. As this was a very pertinent aspect of the study, the researcher decided not to use entirely the questionnaires that did not fit the age criteria. After this the Cronbach's Alpha Test of Reliability and the Principal Component Analysis were performed with both the questionnaires with and without the missing answers and in the case of PCA the option "Exclude Cases Pair wise" was used. The aim of this was to find out if there would be significant differences in the results. In the cases of the $\alpha$-scores from the Cronbach's Alpha Test of Reliability results, the values from the tests with the 'missing answers' were lower as compared to the those 'without missing answers' but it was noted that the difference was so small that it could be disregarded without any implication on the study.

In the PCA testing, it was noted that there were differences in the results for both cases. In the cases 'without missing answers' the results showed that only three factors should be extracted while in the cases 'with missing answers' it was found that four factors need to be extracted which was also not a large discrepancy. Based on this and also on the fact that using even the questionnaires with missing answers would lead to more realistic and reliable answers and the total number of analyzed responses would also be higher which is a positive attribute to the study. In conclusion the researcher hence decided to use both the data from questionnaires including those with missing answers, but still did not use the questionnaires that did not fit into the studied age bracket.

### 4.3 Descriptive Statistics

During the survey of this study, 201 questionnaires were distributed from which 172 (86%) were found to be fit for use in the study because they had been completely filled. This according to Hair et al, 1998 exceeds the suggested 5 cases for each studied item. From the collected questionnaires those that did not fit into the studied age bracket were not used. The Table 1 below illustrates the descriptive statistics.

**TABLE 2. Descriptive Statistics**

| VARIABLE | PERCENTAGE OF THE TOTAL NUMBER(172) |
|---|---|
| **Age** | |
| **25-34** | **0.70** |
| **35-44** | **0.30** |
| **Gender** | |
| **Male** | **0.419** |
| **Female** | **0.581** |
| **Length of time of online banking use** | |
| **<3 months** | **0.035** |
| **3-12 months** | **0.128** |
| **>12 months** | **0.837** |
| **Frequency of online banking transactions** | |
| | **0.40** |
| **<5 per month** | **0.59** |
| **5 or more per month** | **7.41** |
| **Average number of Transactions per month** | |

| | |
|---|---|
| **Name of branch** | |
| **Queensway house** | **0.523** |
| **Haileselasie** | **0.192** |
| **Hurlingham** | **0.116** |
| **Yaya Premier Centre** | **0.110** |
| **Lavington** | **0.023** |
| **Karen** | **0.012** |
| **Westlands** | **0.006** |
| **Waiyaki Way** | **0.006** |
| **Rahimtula** | **0.006** |
| **Harambee** | **0.006** |

From the table above it can be seen that 70% of the respondents were in the 25-34 age bracket and 30% were in the 35-44 age bracket. This is so because the age range of the population where the questionnaires were distributed has 25-34 as the dominating age bracket. On the aspect of gender it can be seen that in the studied sample, 41.9% are male and 58.1% are female. From the respondents, we also see that 3.5% respondents have used online banking services for less than 3 months, 12.8% have used OBS between 3 and 12 months, while 83.7% of the respondents have used OBS for more than 12 months which forms the majority. This specific aspect of time is important to the study as most respondents have used the OBS for long enough time to elicit representative judgment on the quality of the provided OBS and the overall satisfaction of these services.

The experience of the respondents can also be seen from the number of transactions that are done monthly. 40% of the respondents indicated less than five transactions per month, 59 percent, more than 5 transactions per month. The figure does not add up to 100% as 1% of the respondents did not indicate frequency of online banking transaction; the average number of monthly transactions is 7.41 which were deemed sufficient for the study. The item on the name of your branch, Queensway house had 52.3% of the respondents, Haileselasie had 19.2%, Hurlingaham had 11.6%, Yaya Premier Centre had 11.0%, Lavington had 2.3, and Karen had 1.2% while Westlands, Waiyaki Way, Rahimtula and Harambee each had 0.6%.

### 4.4 Cronbach's Alpha Test of Reliability

The study employed this method to test and ensure internal reliability of the model used. When carrying out this test the study grouped different items pertaining to the different quality

dimensions and applied the test on each dimension. Appendix II shows grouping tabulated. Applying this test finds out whether the items pertaining to each dimension are internally consistent and whether they can be used to measure the same dimension. The α-score that is deduced from the test is a number between 1 and 10 and is used to interpret and determine the internal reliability of the measured variables. An α-score of 0.7 and greater indicates a higher internal reliability of the scale items (Young et al, 1995). **Table 4.2** below shows the estimated α-scores based on the data collected

**TABLE 3. Cronbach's Alpha Scores**

| **Dimension** | **Cronbach's Alpha (**α-score) |
|---|---|
| Ease of use | 0.801 |
| Performance | 0.777 |
| System availability | 0.620 |
| Service Security | 0.690 |
| Safety / Trust | 0.634 |
| Site Aesthetics | - |
| Transaction responsiveness | 0.618 |
| Customer support | 0.555 |

From the table above, we can see that highest α-score has been represented by scores on Ease of use and performance at 0.801 and 0.777 respectively. This shows high reliability of the dimensions indicating that the items pertaining to the dimensions can be used to measure the constructs. The service security dimension that looks at privacy has an α-score of 0.690 which is very close to 0.70 and can therefore be regarded as highly reliable.

Safety/Trust has an α-score of 0.634, system availability has an $\alpha$-score of 0.62, transaction responsiveness has an α-score of 0.618 and customer support has an α-score of 0.555 all of which are less than 0.70. Site aesthetics has no α-score as the dimension has only one item/ question. According to Pallant (2005) the α-score increase when the number of items on a scale increase; this then dictates the supposition that the α-scores that are lower than 0.7 on some of the dimensions is because there could be a lower number of questions pertaining to the specific dimensions. Due to the size of the questionnaire and the time constraint during the application of

the survey it will noted, that these dimensions that have α-scores lower than 0.7 had only two questions. In addition, applying the Cronbach's Alpha Test of Reliability showed that the removal of any of the questions pertaining to the dimensions that include more than two questions would not increase the α-score of the dimension.

It would also be prudent to note that the dimensions of transaction responsiveness and customer support had very low α-scores as there was a challenge with the questions pertaining to them during the survey. The two dimensions normally deal with instances when the respondents had an issue with the OBS provided and since it seemed unlikely that the many of the respondents had encountered such, 32 questionnaires had missing answers on the questions pertaining to the transaction responsiveness dimension while 31questionnaires had missing answers for the questions pertaining to the customer support dimension.

### 4.5 Principal Component Analysis (PCA)

Before conducting an analysis on data collected, it is important to find out whether the conceptual model is useful for the study and especially under the banking context. For this, the study used PCA as an extraction method and Varimax as a rotation method with Kaiser Normalization to conduct Factor Analysis on the items of the model. A check for outliers as carried out to check if there were present and if so if they could have a consequence n the result of the data analysis. Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity were carried out to determine the suitability of the data for Factor Analysis.

When performing Factor Analysis, in order to determine the number of factors (dimensions in this study) to retain, the study used Kaiser's criterion after which intense repetition was used so that the items with low loadings on each of the factors could be eliminated. For ease of understanding the study has included a brief theoretical description and results of the performed tests using the mentioned methods together with tabulation on KMO and Bartlett's Test, Communalities, Correlation Matrix, Total Variance Explained, component Matrix, Rotated Component Matrix and Scree plot graph in Appendix V. The discussion of the results in these tables is detailed below.

A check for outliers as earlier stated was carried out. These results showed that there were few outliers present for different questions with two cases presenting as extreme outliers hence their removal from the data file as suggested by Pallant, 2005. This then left 170 cases to be used for the PCA process. After the removal of these extreme outliers, KMO Measure of Sampling Adequacy and Bartlett's Test were performed as tabulated in Appendix V which shows that the result of the Bartlett's Test of Sphericity is 0.000, which meets the indicative criteria of below 0.05 for Factor Analysis to be deemed appropriate. The result of the KMO Measure of Sampling Adequacy is 0.894 which exceeds the minimum level of 0.6 and is good for Factor Analysis (Young et al, 1995). After these initial steps were done, Factor Analysis using PCA as an extraction method was done using 170 cases and produced the results as detailed below.

To begin with, in addition to the KMO Measure of Sampling Adequacy and Bartlett's Test of Sphericity detailed above, the Correlation Matrix also confirmed the suitability of the data for the Factor Analysis as it includes considerable number of correlation coefficients higher than 0.3. In the table on Communalities for all variables inclusively, it can be seen that the extraction value of the communalities of all the variables are high to a satisfactory level. The lowest values relate to Q11, Q1 and Q3 which have communalities that are lower than 0.5, 0.398 being the lowest value for Q11 which shows that only 39.8% of the variance of this variable is explained by all factors in the analysis which then means that this variable can be considered for removal from the model. This also applies to Q1 and Q3 which have communalities of 0.418 and 0.457 respectively.

Secondly looking at the table, Total Variance Explained, the column total under eignevalues shows different eignevalues- what amounts of variance in all variables is explained by the corresponding number of dimensions in the study. One of the extraction methods used when performing PCA is the Kaiser's Criterion. According to Kaiser's Criterion, the number of factors to be extracted is equal to the eignevalues that exceed 1 which in this case totals to 4 values which means 4 factors should be extracted from the data file. From the table it is seen that 59.76% of the total variance of all the variables is explained by four factors, 54.376% is explained by three factors and 48.082% is explained by two factors while 40.801% of the total variance of all the variables is explained by only one factor pertaining to the conceptual model. Based on the Kaiser's Criterion for extraction of factors and the conducted PCA lead to the

extraction of only four factors, which means that the 20 questions should be regrouped to form four quality dimensions

Another method used for deciding the factors to extract is the Scree Plot which in this case shows that only 1 factor should be extracted, as the slope on the graph is steep only till the point marked 2 on the horizontal axis. Notwithstanding, the study as mentioned earlier leaned more toward the use of the Kaiser's criterion for extraction (with eignevalues more than 1)and as such four factors will be extracted. The details above showed that extraction of four factors was appropriate for the study. The most effective way to divide the variables in four different dimensions (factors) can be identified by analyzing the data presented in the Rotated Component Matrix in Appendix V.

The Rotated Component Matrix shows the correlation between every variable (row) and the different factors (column). As such, each variable should pertain to the factor with which it correlates best. In case one variable has similar correlation values to more than one factor, it means that this variable can pertain equally well to a number of factors and as such it is assumed that this variable is in itself not very clearly defined and can hence be removed from the model. The Rotated Component Matrix as shown in Appendix V, presents only the correlations higher than 0.3. Studying the data presented in the table, it can be seen that the following questions are best correlated to the first factor meaning that the highest percentage variance of these variables is explained by the first factor and hence they can be grouped together to represent this factor: Q1-50.5%, Q3-62.5%, Q4-71%, Q5-60.8%, Q10-62.7%, Q12-65.9%, Q13-62.7% and Q14-59.3%. Apart from Q1 and Q14, these questions meet the agreeable level of 60% for factor loadings in Lickert scale cases. Despite the fact that the communalities for Q1 and Q3 are slightly lower than 0.5, their good correlations (plus 50%), these questions have been retained in the model.

Using the same exposition, the following variables correlate best to and should hence be grouped together to represent the second factor; Q6-63.0%, Q9-51.4%, Q18-58.2%, Q19-82.8% and Q20-58.5%. Q6 and Q19 meet the favourable level of plus 60% for factor loadings in the Lickert scale cases. Q18 with 58.2% and Q20 at 58.5% are significantly close to 60% and can be considered to be explained substantively from the second factor. Q9 is slightly lower than 60% at 51.4%, but based on the fact that 60% is an arbitrary level for good factor loadings in the Lickert scales

cases and the appropriately high communality value of Q9- 0.575 indicating that 57.5% of the variance in this variable can be explained by the factors in the model and as such will be retained.

Factor three should include Q7-76.7% and Q8- 64.5%. Both of their values meet the plus 60% for factor loadings on the Lickert Scale cases and highly correlate to this factor. Lastly, the fourth factor should be represented by Q15-69.2%, Q16-79%, and Q17- 70.9%. All these values meet the plus 60% for factor loadings on the Lickert Scale cases.

Looking at the Rotated Component Matrix, 2 variables should be excluded from the model as their correlation values are almost equal for some factors which means that these variables are not clearly defined. Q2 with correlation values of 59% with both the first and the third factors showing that the variable is equally explained by both factors. Q11 with correlation values of 40% with the first factor, 37.8% with the second factor, 24% with the third factor and 19.3% with the fourth. These figures show that this variable does not only correlate almost equally with the first and the second factor but the values are also very low-less than 50%, showing that the factors explains less than 50% of the variable. In addition to this, the low communality value of Q11- 39.8%, the variable will the left out of the model.

Based on this analysis of the collected data, the number of dimensions included into the presented conceptual model should be decreased. The conducted Factor Analysis with PCA as an extraction method shoed that all the variables that pertain to the initial conceptual model are not well grouped to represent the initial eight dimensions and hence should be reconstituted to represent four new quality dimensions. Finally the new four quality dimensions should include the variables as indicated below;

- Quality dimension 1- Q1, Q3, Q4, Q5, Q10, Q12, Q13, and Q14
- Quality dimension 2- Q6, Q9, Q18, Q19, and Q20
- Quality dimension3- Q7 and Q8
- Quality dimension 4- Q15, Q16, and Q17

The initial variables have been rearranged almost completely to form the four new quality dimensions and the dimensions should be labelled in a new way. After assessing the dimension-variable clusters in Appendix 11, the study renamed the new dimensions as detailed in Table 4.3

**TABLE 4. Labels for the newly created dimensions**

| Items | Question detail | New dimension label |
|---|---|---|
| Q1 | I am able to get on the site quickly | **Service Performance** (Availability, performance, service security, safety) |
| Q3 | The site is always available for business | |
| Q4 | The bank does not misuse my personal information | |
| Q5 | I have confidence in the banks service | |
| Q10 | My online transactions are always accurate | |
| Q12 | I feel my transactions with the banks are safe | |
| Q13 | The banks name is well known and has a good reputation | |
| Q14 | The bank quickly resolves problems I encounter online | |
| Q6 | The website design is attractive | **Website Characteristics** (Design, content, ease of use) |
| Q9 | It is easy to find what I need on the website | |
| Q18 | Using the bank's website does not require a lot of effort | |
| Q19 | The website structure and information is easy to follow | |
| Q20 | The website makes accurate promises about the services rendered | |
| Q7 | The bank responds quickly to my requests | **Communication** (Access, Customer support) |
| Q8 | The bank is easily accessible by telephone | |
| Q15 | The site has a customer service representative available online | **Efficiency** (Speed of site performance) |
| Q16 | is quick to complete a transaction online | |
| Q17 | Services provided on the bank's website are quick | |

In the new dimensions, the first has encompassed eight questions. Some refer to the easiness of accessing the website and the availability of the website. Some regard to the service security or privacy and safety/ trust aspect dealing with the confidence the respondents have concerning their information being kept confidential, some deal with the ease of getting solutions to issues encountered online while others deal with the accuracy of the services- transactions performed. These aspects looked at cumulatively contribute to the overall performance of the OBS and as such this dimension has been named- Service Performance.

The second dimension has taken into account the questions that relate to the website of the bank, the attractiveness of the site, the ease of navigation, and the accuracy of the website services and as such this dimension has been labelled Website Characteristics

The third dimension has been named Communication and is because the two questions captured here deal with the response of the bank to the issues brought to their attention via email, and also the reach ability of the bank via telephone services by the respondents

Lastly the fourth new dimension deals with the speed of completing a transaction on the website and also of the service delivery of the website. These aspects look at how efficient the website is and as such this dimension has been named Efficiency for the purposes of this study.

### 4.6 Cronbach's Alpha Test of Reliability on the modified Conceptual Framework

The study again performed the Cronbach's Alpha Test of Reliability on the new conceptual model that had new four dimensions as opposed to the previous eight. The results are shown in the Table below

**TABLE 5. Cronbach's Alpha α-score results on the modified model**

| Dimension | Cronbach's Alpha α-score |
|---|---|
| **Service Performance** | 0.869 |
| **Website Characteristics** | 0.807 |
| **Communication** | 0.533 |
| **Efficiency** | 0.760 |

The α-scores for all the new dimensions apart from the dimension of communication is well above the 0.7 bench mark. This shows that the dimensions are highly reliable and the questions in these dimensions can be used to measure the constructs to which they pertain. The communication dimension is the lowest at 0.533 which is significantly lower than 0.7. This score can be explained by the fact that the questions in the dimension are few; in this case only two questions (Q7 and Q8). The low score can also be attributed to the fact these questions had highest number of missing data (8.82% and 4.12% for Q7 and Q8 respectively.

While conducting the testing on the new dimensions it was also seen that the dimension of efficiency would have a higher α-score at 0.771 as opposed to 0.760 if Q15 was removed from the dimension which goes to indicate that the dimension will be more reliable without Q15. It is also seen that Q15 has the highest number of missing data at 13.53% which represents 23 out of the total 170 responses required. As such Q15 was removed from the dimension. Looking at the α-scores of the modified conceptual model in comparison to the initial model, it is seen the results are higher and hence deduced as being better and more reliable. It is then concluded that the modified model is better and more suited for the study.

### 4.7 Modified Conceptual Model

After the application of PCA and Cronbach's Alpha Test of Reliability, the initial conceptual model was modified to a new model that is ideal for the measurement of the quality of OBS. The study conducted Factor Analysis with PCA as an extraction method in order to remove some questions from the initial model and ascertain whether the division and description of the initial dimensions included to this model are befitting. The analysis showed that there were changes needed in the initial model.

The PCA proved the improbability of division of the initial eight dimensions and this led to the rearrangement of the questions into four quality dimensions. From Appendix V it is seen that from the initial model, four dimensions can be created as follows:

- Service Performance; Q1,Q3,Q4,Q5,Q10,Q12,Q13 and Q14
- Website Characteristics; Q6,Q9,Q18,Q19 and Q20
- Communication; Q7 and Q8
- Efficiency; Q15,Q16 and Q17

The Cronbach's Alpha Test of Reliability applied on the modified model revealed that the $\alpha$-score for the efficiency dimension would increase if Q15 is removed. In addition it was also the question with the highest number of missing answers (23 out of the total 170) which represented 13.53%. This was also a key reason for removing it from the modified model. As such, the modified conceptual model used to measure OBSQ, is one scale, with four quality dimensions including 17 questions (variables). The changes in the model from the initial to the modified are represented in the diagram 4.1 below.

Initial Model Modified Model

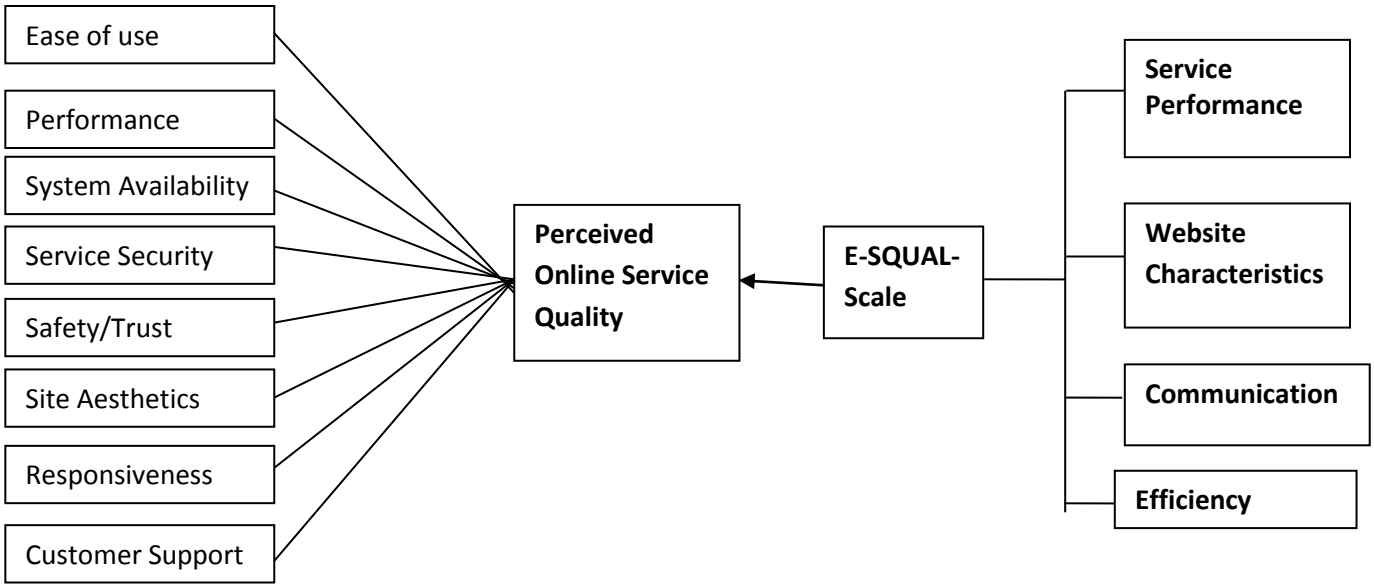


Figure 1 Initial and Modified Conceptual Model

### 4.8 Descriptive Statistics Analysis (based on the Modified Conceptual Model)

#### 4.8.1 Analysis based on Quality Dimension

Analysis of the graphs in Appendix VI showing the frequency of survey responses in percentage based on the seven-point Lickert scale and interpretations of the medians of collected data in Appendix IV will be detailed to ensure a better understanding on how customers perceive quality of online banking services they use based on the quality dimensions in the modified model. Seeing as the median values of the questions used in the modified conceptual model did not change after eliminating the extreme outliers, the median values used in the analysis are the same as those represented in Appendix IV.

The seven-point Lickert scale was interpreted as follows, **1**-very dissatisfied, **2**- dissatisfied, **3**-slightly dissatisfied, **4**-nor satisfied, nor dissatisfied, **5**- slightly satisfied, **6** satisfied, **7**- very satisfied. 3, 4, 5 on this scale was described as the **zone of tolerance**. This means that at 3, people get the minimum level of service quality that they are ready to accept (adequate level), while at 5, they get the desired level of service quality ( the level they believe service quality should be). This shows that between 3 and 5, customers get the expected level of service quality, which is more or less acceptable. At 6 and 7, the expectations of the customers is exceeded, more

than acceptable and they are satisfied and very satisfied respectively with the quality of online banking service that they receive. At 1 and 2 on the other hand, the customers get service quality that is less than what they expect (adequate level) and they are therefore very dissatisfied and dissatisfied respectively. It is essential to note at this point that the apparent adequate level of service quality is required as a mandatory level, but it is not enough for service providers to retain their customers and hence the need for more to be done such as positive word of mouth which would boost the company's image and reputation (Groonos, 2000). What banks should strive to achieve as service providers is a level of quality service that exceeds the customers' expectations which on the Lickert scale in this case is 6 and 7. The section that follows discuses the finding on the four quality dimensions and the questions that described these qualities

#### 4.8.1.1Service Performance (Q1, Q3, Q4, Q5, Q10, Q12, Q13 and Q14)

The study started by looking at Q1, whose median value is 6 shows that at least 50% of the respondents are satisfied or very satisfied with this aspect of OBS- the ability to get on the website with quickly (Q1). Looking at the corresponding Graph 1 in Appendix VI, it is seen that only 3.5% of the total number of respondents have stated 3 or below on the Lickert Scale, showing that only 3.5% o the respondents were not satisfied or got the minimum level of service quality as far as getting on the banks website quickly is concerned. This is interpreted to mean that it is generally easy to get the banks website and it is relatively fast to get on the website

Q3 that looked at the availability of the bank's website for business, shows general satisfaction is also seen and the question has a median value of 6. Nonetheless, Graph 2 in Appendix VI highlights that 24% of the respondents have answered 4 or below on Q3. This shows that almost a quarter of the respondents do not receive the desired level of service quality as far as the availability of the banks website for business goes. This implies that roughly 25% of the OBS users have trouble launching the website. The study classifies this aspect as a crucial aspect for OBS as the availability of the website translates to use of the website and when problems arise it can have negative impact on the users hence attrition due to frustrations and poor word of mouth to other users.

Q4 and Q12, pertaining to this dimension has median values of 6 each. This means that at least 50% of the respondents stated 6 or 7 on the Lickert Scale hence showing that the bank has

exceeded the expectations (desired level of service quality) of the OBS users. This can be seen as a high quality on this aspect of the delivered OBS. Furthermore it can be seen that no respondent has stated 1 or 2 on the Lickert Scale for both questions. 83.1% have stated a little satisfaction (desired level of service quality) or above as far as the treatment of their personal information by the bank goes (Q4) annotated in Graph 3 in Appendix VI. Q12 has 90% for the aspect of feeling safe in the transactions done with the bank, Graph 6 in appendix VI. These figures are very high and both have no respondents stating 1 or 2 on the Lickert Scale which goes to show that banks are doing a good job in ensuring privacy and safety of their customers' accounts and personal information, which is a very important aspect for customer retention and satisfaction

Both Q5 and Q13 in this dimension also have median values of 6 pointing out that at least 50% of the respondents feel confident and /or very confident with the bank (Q5). They also consider the bank to be well known and have a very good reputation in the market space (Q13).89.3% of the respondents feel satisfied and/ or very satisfied in their banks (Q5) (5 or more on the Lickert Scale in Graph 4 in Appendix VI. 92.9% of the respondents showed confidence in the banks to have high and/ or very high reputation and to be well known(Q13) (5 or more on the Lickert Scale as shown in Graph7 in Appendix VI). These are very high figures that go to show that banks are rather successful in gaining the trust of their customers and building a good name and reputation.

The same goes for Q10, median 6, which shows that 50% of the respondents are satisfied and/ or very satisfied with the accuracy of their online transactions with the bank (Q10). Graph 5 in Appendix VI shows the high percentage of respondents; 34.9% have stated very high satisfaction with this aspect of OBS (7 on the Lickert Scale). 9.5% of respondents are the only ones who have stated 4 or below on the Lickert Scale meaning that only 9.5% of respondents have not received the desired level of service quality on this aspect. This add on that the bank is generally successful in providing accurate OBSQ

Q14 deals with a very sensitive aspect of OBS; the way and how fast the bank resolves customer's online issues and hence makes it very delicate to measure. This has proved to be a crucial aspect of the service delivery process as the way a company sorts out it customers problems goes a long way to influence the total perception of service quality and if it is well

done with speed it can have a positive impact on the development of relationships with customers and can lead to increased customer confidence and satisfaction (Gronoos, 2000)

Looking at the Graph 8 in Appendix VI, it can be seen that respondents' level of satisfaction is not high which can also be seen from the median value of 5 which means that less than 50% of the respondents stated 6 or 7 on the Lickert Scale. From the data it can be seen that 35.5% of the respondents answered 4 or below on the Lickert Scale for Q14. This number shows that the percentage of the total number of respondents whose expectations about this aspect of OBS were not met on a desired level. Focusing on these figures and the opinion on the importance of this aspect of the service presented above, it is advisable for the bank's managers pay more attention to this feature of their OBS as the percentage of customers who are not satisfied is significant. It becomes notable from the study that banks should try to resolve their customers' online issues faster and more efficiently. Not doing this might lead to customers feeling that they have received poor quality service. This can cause the quality of the relationship to deteriorate and the risk of attrition increases (Groonos, 2000).

On the dimension of Service Performance all questions included therein expect Q14 have medians of 6, which shows that besides the solution of arising problems, customers are generally satisfied with the Service Performance aspect of OBS they use. Looking at the table in Appendix VI where items are ranked according to the levels of customer satisfaction, it can be seen that most questions pertaining to the Service Performance quality dimension rank lowest on dissatisfaction (3 or below on the Lickert Scale) and highest on satisfaction of respondents (6 or 7 on the Lickert Scale). This confirms that banks customers have high satisfaction with this dimension of the OBS.

#### 4.8.1.2 Website Characteristics (Q6, Q9, Q18, Q19 and Q20)

Q6 that deals with the design of the banks website is one of the questions that had the lowest median value at only 4. This shows that at least 50% of the respondents are indifferent or to some extent dissatisfied to some level with this aspect of the OBS. The data shows that 5.9% are dissatisfied, 14.7 of them are slightly dissatisfied and 31.2% are neither satisfied nor dissatisfied with the design of the bank's website. This can be seen in Graph 9 in Appendix VI. This gives direction that there is need to look into this aspect of the OBS. While this is an aspect that is

easily assumable in the overall process of service delivery, studies have shown that it is indeed a vital aspect that can affect the overall satisfaction of the OBS users. It has also been included by some researchers in their models for studying service quality of online systems (Jayawardhena & Folley, 2000; Liu & Arnett, 2000; Santos, 2003). It can hence be recommended that bank managers do not overlook the importance of the website design and make improvements to make their websites more attractive to use.

In Q9 and Q19, the median value is 5 in both cases which means that at least 50% of the respondents have stated according to the Zone of Tolerance that they have received the desired (5) or higher (6 or 7 on the Lickert Scale), level of service quality on these aspects of OBS. It should however be noted that on the graphs, Q9 has more respondents stating slight dissatisfaction (3 on the scale) and dissatisfaction (2 on the scale) than Q19 has. In Q9 (Graph 10 in Appendix VI), 12.4% of the respondents have stated slight dissatisfaction and below while in Q19 (Graph 12 in Appendix VI); only 7.1% of the respondents express the same sentiments.

This shows that more people are satisfied with the organization and structure of the online content (Q19) as opposed to the ease of finding what they need online (Q9). This shows that even when the content of the banks website is well organized and presented, there is still a challenge in the structure of the website as a whole as some of the users have problems to easily find what they need on the website. This causes some level of frustration in the users. It is then important for bank managers to look into the features and make their website easier to manoeuvre and use. This will in essence improve the overall customer satisfaction in the quality of OBS.

Looking at Q18, Appendix IV shows that this question has a median of 6 which indicates that at least 50% of the respondents have stated that they are satisfied and/or very satisfied with this aspect of the OBS as such their expectations have been exceeded. But looking at Graph 11 in Appendix VI, we see that 20% of the respondents have stated 4 or below on the Lickert Scale which shows that a fifth of the respondents are indifferent or dissatisfied with the effort required to use the banks website. This shows that there is still some level of need for the banks to make their websites simplified and hence easier to use as 20% is a significant number of users that are not satisfied with this aspect.

In Q20, the median value is 5 showing that at least 50% of the respondents have stated they have received the desired (5) or even higher (6 or 7 on the Lickert Scale), level of service quality. Graph 13 in Appendix VI however shows that 24.2 percent of the respondents have stated 4 or below on the Lickert Scale indicating that these respondents have not received their desired level of quality of service when it came to the bank making accurate promises. So even when a higher number seemed to receive the desired level of quality of service, it should be noted that 24.2% is also a high number for OBS users not be satisfied with the accuracy of the banks promises.

In a dynamic and competitive operating space this can easily lead to customers moving to alternative service providers who they feel will be upfront and accurate with them. It is based on this that there is need for the features of the above dimension of OBS to be improved significantly as there is a good number of customers who are not receiving their desired level of quality of service.

#### 4.8.1.3 Communication (Q7 and Q8)

Dealing with how the bank responds to the customers' requests (Q7) and the easiness with which the bank is reached via telephone when there is need (Q8), these are delicate quality of service aspects and are deemed essential in service delivery, because they can play a very important role in recovery process of service delivery and if well executed can even have a positive impact on overall customer satisfaction which stems from enhanced relationship building and trust fortification (Gronoos, 2000)

These questions also had some of the higher number of missing answers (15 of 170 at 8.82% for Q7 and 7 of 170 at 4.12% for Q8).this is to show that there are some respondents who are assumed not to have had any experience with this aspects of service hence the missing answers.

In Appendix IV and in Graph 14 and 15 in Appendix VI, the respondents' level of satisfaction is very low on this dimension. The median values of Q7 and Q8 are 4 and 5 respectively. This interprets as at least 50% of the respondents had issues getting fast responses to their requests from the bank (Q7) and less than 50% of the respondents could access the bank by telephone without difficulty when the need arose (Q8). Looking at the data, 60% of the respondents answered 4 or below on Q7 and 32.5% answered 4 or below in Q8. These represent the respondents whose expectations on these aspects of OBS are not met to desired level of quality.

As these figures are the highest seen so far, it is then important that immediate correctional measures be taken to remedy these features of the OBS to improve overall quality of service provided? It is advisable for the bank managers to give higher attention to these aspects as the number of customers who are not satisfied is quite high. From the study it is seen that this is urgent, as lack of proper and effective communication with the bank can lead to queries and issues raised by customers not being sorted out promptly and well; which leads to increased complaints. This may led to ultimate attrition as the customers feel they have not received good service (Gronoos, 2000). Customers will look for a service provider who can respond to their issues quickly and comprehensively.

#### 4.8.1.4 Efficiency (Q15, Q16 and Q17)

Looking at Q16, the median value to start with is 6, which means at least 50% of the respondents have answered that they are satisfied or very satisfied with this feature of OBs and their expectations have been exceeded. From the Graph 16 in Appendix VI it is seen that only 11.2% of respondents have stated 4 or below on the Lickert Scale which goes to show that only 11.2% are indifferent or dissatisfied with the speed of completing a transaction on the banks website (Q16). This shows that the customers are generally happy with the time it takes to complete a transaction online and this can be said to be successful as it helps in determining the efficiency of the OBS provided. This can also be seen in the graph which shows that 65.3% or the respondents have stated they are satisfied or very satisfied with the OBS aspect.

Q17 has a median value of 5 which translates to show that at least 50% of the respondents receive the desired or even faster speed of online service delivery. In Graph 17 in Appendix VI we see that 46.1% of the respondents have stated that they are satisfied or very satisfied with the speed on OBS delivery while 20.4% have stated 4 or below on the Lickert Scale which is higher than for Q16. This shows that while the customers are generally satisfied with the speed of transaction completion there is still a challenge with the overall speed of the service delivery which is something that needs to be improved. Therefore bank managers should evaluate the online systems and service process to find out the issue and look for lasting solutions. Continuous periodic assessment of the same can also aid in management and ensure overall improvement of the process.

### 4.8.2 Satisfaction and Dissatisfaction levels of customers on different Quality Dimensions

The study went on to find out the number of respondents who answered 4 and below on the Lickert Scale as well as those who answered 3 or below on the scale and those who answered 6 and 7 for each of the quality dimensions in the model. In Appendix VII Table 1 this has been presented. The figures were arrived at by totalling the percentages of the items pertaining to a given quality dimension and dividing the total with the number of items. This step assumed that all items carry the same level of importance in the given dimension.

The aim of this was to show the relative satisfaction of the respondents with each of the items and the different dimensions as well. This in turn highlights the aspects of the banks online system that needs focus due to low customer satisfaction for improvement and those aspects that are considered satisfactory by most of the respondents. Table 4.5 below shows the figures to be used in the analysis that follows.

**TABLE 6. The percentages for the dimensions for the respondents that have stated 4 or below, 3 or below and 6 or 7 on the Lickert Scale**

| **Respondents who have stated 4 or below on the Lickert Scale** | | **Respondents who have stated 3 or below on the Lickert Scale** | | **Respondents who have stated 6 or 7 on the Lickert Scale** | |
|---|---|---|---|---|---|
| Dimension | % of total respondents | Dimension | % of total respondents | Dimension | % of total respondent |
| Service Performance | 15.7625 | Service Performance | 2.8375 | Communication | 31.8 |
| Efficiency | 15.8 | Efficiency | 3.85 | Website Characteristics | 40.4 |
| Website Characteristics | 29.84 | Website Characteristics | 9.68 | Efficiency | 55.7 |
| Communication | 46.25 | Communication | 12.3 | Service Performance | 61.475 |

**the figures are captured in ascending order.*

The figures calculated for the respondents who stated 4 or below on the Lickert Scale shows the percentage of the total number of respondents who have been dissatisfied or who received the minimum level of online banking service quality (OBSQ) that they would accept. It also shows those whose average expectations were met (nor satisfied nor dissatisfied). In Table 1 in Appendix VII, we see that most respondents have shown dissatisfaction or indifference with the

following aspects of the OBS; prompt responses of the bank to customers' requests (Q7) at 60%, design of the banks website (Q6) at 52.9%, fast solution of customers' problems (Q14) at 35.5%, the easiness to reach the bank via telephone (Q8) at 32.5% and the easiness to find what the customer needs on the website (Q9) at 30.2%. These are relatively high numbers that imply that the bank needs to give more attention to these aspects of the OBS in order to better their customers' holistic satisfaction with the services offered.

The aspects of the OBS where the fewest respondents have shown dissatisfaction or indifference included, well known name and reputation (Q13) at 7.1%, accuracy of online transactions carried out (Q10) at 9.5%, feeling safe in transactions with the bank (Q12) at 10% and confidence in the bank (Q5) at 10.7% ( Table 1 Appendix VII). This shows that the least number of respondents have shown dissatisfaction or indifference with the Service Performance dimension at 15.7625% and Efficiency at 15.8%. Quality dimensions where respondents have shown significant indifference levels are Communication at 46.25% then Website Characteristics at 29.84%.

For the respondents who have stated 3 or below on the Lickert Scale, means that the respondents were dissatisfied or they received the minimum level of service quality that they would accept, while for those who stated 6 or 7 showed that they were satisfied and their expectations have been exceeded. The number 3 and below on the Lickert Scale shows dissatisfaction or minimum level of acceptable service quality and as such are important to managers as the quality dimensions of OBS that have a lot of these responses are those that might need immediate intervention so that the overall service quality does not diminish further.

The respondents who stated 6 or 7 show the percentage of respondents whose expectations of the OBS have been exceeded and are hence satisfied, which can go to show the relative success of the bank as a service provider to offer high quality to its customers as far as the related aspects of the OBS go. Looking at the figures it is seen that the least number of respondents have stated 6 or 7 for the following aspects, design of the website (Q6) at 15.9%, prompt responses from the bank to customers requests (Q&) at 19.4%, quick solution to customers problems (Q14) at 38.1% and ease of finding what is needed on the website (Q9) at 38.5%. Inversely most respondents have shown higher satisfaction (6 or 7 on the scale) with aspects including well known name and god reputation (Q13) at 74.7%, accuracy of online transactions (Q10) at 71%, feeling safe in

transactions with the bank (12) at 70% and the non misuse of personal information from the bank (Q4) at 67.5% (Table 1 Appendix VII)

Based on calculations it can be seen from the percentages that the most customers have shown higher satisfaction with Service Performance at 61.475% and Efficiency at 55.7% while the fewest respondents have expressed higher satisfaction for the quality dimensions of Communication at 312.8% and Website Characteristics at 40.4%.

Looking at the respondents who stated 3 and below on the Lickert Scale we see that the fewest respondents have stated dissatisfaction or received minimal acceptable level of service quality for the following aspects of OBS, well known name and reputation of the bank (Q20) at 1.2%, accuracy of online transactions (Q10) at 1.8%, feeling safe in transactions with the bank (Q12) at2.4%. on the other hand, the most respondents have stated dissatisfaction or minimum acceptable level of service quality for the aspects that include, design of the website (Q6) at 21.8%, prompt response from the bank to customers' requests (Q7) at 14.2%, ease of finding what is needed on the website (Q9) at 12.4% and the easiness to reach the bank via telephone (Q8) at 10.4%.

The percentages calculated for the quality dimensions shows that the fewest respondents have shown dissatisfaction or received minimum level of acceptable service quality for the dimensions, Service Performance at 2.8375% and Efficiency at 3.85% while most respondents have shown dissatisfaction or minimum acceptable level of service quality for dimensions Communication at 12.3% and Website Characteristics at 9.68%. This reveals that Communication and Website Characteristics have been shown to be the quality dimensions that need the most attention from the bank managers.

Website Characteristics include the website design, ease with which customers access what they need on the website, the ease to follow the structure and the organization of online content, the easiness to use the bank's website and accuracy of promises for service delivery on the website. As such it is important for managers to reconsider this as part of their OBS. It should be noted there is no direct interaction between the customers and bank employees as the website is the interface for the communication between the customers and the bank. According to Jamal and Nasser, 2002 the main reasons for using a high quality website include, that as part of the

connection between customer and the company, the website should reflect the total quality efforts pervading in the company. Another reason is due to the lack of human interaction in the delivery of online services, the website becomes the truth sayer between the customer and the company. It is therefore important for the website to be organized, structured and designed so that it is made easiest for customers to adapt and make use of what the website has to offer. These aspects also need consistent and continuous assessment and observation by the managers to ensure high standards are maintained.

In relation to the dimension of Communication, the aspects contained herein are prompt responses to customer requests and queries by bank staff and easiness to access the bank via telephone when the need arises. It has been proved to be a vital quality dimension as the ways a company communicates with its customers and deals with their issues has an effect on the overall perceived quality of service rendered. It is also important as it has been seen to be a way to service recovery process. Service recovery process on it on can be a useful and beneficial tool if executed in the right manner. This is because it can have positive impact on the mending and developing of trusting relationships between companies and customers and this can increase overall customer satisfaction (Gronoos, 2000).

This analysis shows that customers are relatively satisfied with the quality dimensions, Service Performance and Efficiency of the OBS. This means that banks have been rather successful in ensuring good performance of the service and its speed. They have been able to satisfactorily ensure privacy and safety of their customers' accounts and personal information. They have also been able to ensure that the customers have considerably satisfactory trust in the bank.

These service quality dimensions are mostly made of service aspects that are essential in the service delivery process not only in the online platform but also in the traditional setting (Parasuraman et al, 1991). Website Characteristics as a quality dimension is highly specific to the online context and hence should gain more attention. The low figures presented for this quality dimension lead to higher dissatisfaction among the respondents. This could be because the banks may have concentrated more on the traditional service quality aspects of safety, privacy, accuracy and security which had higher satisfaction. The managers should as such embrace the website characteristics to be as important as these other aspects especially as the service is being provided on the online platform.

# CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

## 5.0 Introduction

In this chapter, conclusions of the undertaken study are made. The study also gives recommendations for practitioners and study recommendations for research in the field.

## 5.1 Summary

This study was conducted with 201 respondents, from which 170 were used for the analysis. For data analysis and to test its reliability, Cronbach's Alpha Test of Reliability and Principal Component Analysis (PCA) were conducted. The Cronbach's Alpha Test of Reliability confirmed the relative reliability of the dimensions used in the model. Conducting PCA led to some changes in the conceptual model, the initial dimensions were reduced to four and three items Q2, Q11 and Q15 were eliminated from the survey tool.

In the final version, the model developed in the study for measuring OBSQ was one scale with four dimensions. Based on the study done, these are the service quality dimensions that the banks should consider when evaluating their OBS. In addition seventeen items are used to define these dimensions. The banks may use the items described to measure the OBSQ along the dimensions presented in the study.

After modifying the conceptual model, the study analyzed the descriptive statistics data presented in the study to find out how customers perceived the different aspects of the OBS they used. The study also evaluated the level of customers satisfaction with the different quality dimensions pertaining to the modified conceptual in order to be concluded the aspects of OBS need improvement and attention so as to give recommendations to the banks managers.

## 5.2 Conclusions

Banks have and still are putting in massive investments into online infrastructure and as such customer satisfaction and retention are turning into one of the most crucial factors for the success of OBS meaning that the generation of positive customer value on the Internet requires the establishment and maintenance of long- standing customer relationships( Falk et al, 2005). One of the basic ways of achieving high customer satisfaction and hence gain loyalty of customers is

providing high quality services. To this end it is seen why being able to measure and evaluate the quality of the OBS is deemed important for banks in order for them to take action to correct features of their OBS which customers find unsatisfactory, maintain those that they are satisfied with and improve those that they are not too satisfied with.

Based on previously done studies on the same the study used a slightly changed version of a model developed by Parasuraman et al(1991) for measuring Service Quality to the banking context and created a conceptual model that would be suitable for measuring OBSQ specifically. Beyond this, the study based on the applied and later modified conceptual framework, evaluated the levels of customer satisfaction with the different aspects of OBS that they used.
Most respondents have shown dissatisfaction or indifference with these aspects; prompt responses to the customer's requests by the bank, quick solutions to customer's problems, design of the bank's website, the easiness to reach the bank by telephone and the easiness to find what the customer needs on the website. It can also be concluded that banks seem to perform very well on the service performance and efficiency dimensions of OBS as these dimensions ranked highest on the satisfaction of the respondents. It was also seen that the dimensions of communication and website characteristics consistently ranked highest on dissatisfaction and should therefore be considered by the bank managers for intervention and remedy.

What stood out in observation is that the aspects of the OBS on which banks rank higher in satisfaction of customers like Service Performance and Efficiency are not specific for the Internet context, but are typical for the traditional settings as well. In comparison, the aspect of the OBS on which banks rank higher in dissatisfaction like the Website Characteristics dimension is more Internet specific.
A reason for that might be that banks do not consider this feature as important for the quality of their online services and have concentrated their efforts on the other aspects of the online services. None the less, because of the lack of actual face to face interaction in the online space, it should always be in mind that the website is the "truth sayer" between customers and their banks as far as OBS is concerned, and as such the website should be consistent and at par with the total quality efforts of the service provider. In a nutshell, a high quality website is an important aspect of the offered OBS.

This study developed a model for measuring the quality of OBS based on an already developed model for measuring quality of online services by Parasuraman et al (2002). The conducted research showed that some changes were necessary to the initial conceptual model in order to achieve higher reliability and consistency. It should be taken into consideration that this led to a preliminary constructed model which can be further tested and modified based on surveys conducted with higher number of respondents from different organizations.
Because of the time- and resource- constraints of the conducted study, the model was created to include fewer numbers of quality dimensions and especially items in the research tool, so that the survey would be more convenient and easy to conduct.

Finally, it should be considered also that the developed instrument can be used to measure the satisfaction level of customers with different aspects of OBS, but does not show the relative importance of each of these aspects in relation to the other service aspects, which would be interesting to be measured and included in further researches as well.

### 5.3 Recommendations

As stated in the previous part on Discussions, there is need for further research and testing of the developed instrument in order for better understanding of the quality dimensions of OBS and their relative importance to be achieved. Despite that, the findings from the present study found some important implications for practitioners. The analysis of this work includes implications for banks' managers as far as the satisfaction level of their customers with different aspects of the OBS is concerned. Showing with which features of the OBS the customers are really satisfied and with which highly dissatisfied, can be used by banks' managers as a guideline for necessary actions leading to improvements of the quality of the OBS they offer.

Customers have shown highest level of dissatisfaction or indifference with aspects of the OBS such as: prompt responses of the bank to customers' requests by email or other means; design of the bank's website; quickly solution of customers' problems; the easiness to reach the bank by telephone and the easiness to find what the customer needs on the website. On the other hand, customers seemed to be most satisfied with aspects of OBS such as: well-known name and

reputation of the bank; accuracy of online transactions; feeling safe in transactions with the bank and the non-misuse of personal information from the bank. What this means for practitioners is that they have been quite successful in building well-known name and reputation probably through well organized advertising campaigns; they are also quite successful in providing accurate and quick service and building confidence in customers. Nevertheless, what deserve their attention foremost are the aspects of the OBS where most customers have shown dissatisfaction, namely the Communication and Website Characteristics quality dimensions.

Beyond this, what seems to be the case from the results of the analysis is that banks perform relatively well on issues of their OBS such as Service Performance and Efficiency; which are not specific for the Internet context but are typical for the traditional settings as well. In comparison, their performance seems to be not that satisfactory as far as an aspect of the OBS such as Website Characteristics is concerned, which is highly specific for the online space. The conclusion is that managers might undervalue this aspect of the OBS and concentrate their efforts on more traditional features of the services. This may imply lack of proper understanding of and experience with the specific features and requirements of the online sphere. What is advisable for managers in this case is to gain better understanding and pay more attention to the Internet specific features of their OBS, because they are very important part of the customer's experience and consequently of customer satisfaction with the OBS. Because of the lack of human interaction over the Internet, banks' managers should not forget that the website is the medium of interaction between the bank and its customers as far as the OBS are concerned, and as such it should represent the total quality efforts of the bank.

In addition, the Communication dimension should be also given higher concern from managers, because it includes the way banks respond to their customers' requests and the easiness with which the bank is accessed by telephone when needed. Both these aspects might play crucial role in the recovery part of the service delivery process. Many studies have proven the importance of the recovery process for the total perception of service quality and if done well, the recovery can have positive effects on the development of trusting relationships with customers and can lead to increased customer satisfaction. As this dimension showed high dissatisfaction of customers and taking into consideration the importance it can have on the overall perceived quality, it can be

recommended that managers make immediate corrections and improvements in order to enhance to total customer satisfaction.

Finally, it should be remembered that although the other dimensions such as Service Performance and Efficiency have relatively high percentage of people whose expectations have been met, in order for loyalty and positive word-of-mouth to be created; banks should strive to exceed their customers' expectations. Conclusively, the aspects connected with these dimensions can also be improved so that the expectations of customers are not only met, but exceeded, because in the contemporary competitive business environment, banks as service providers should strive for excellence.

### 5.4 Further Research

Because of the time-constraints and the specific conditions under which the study has been conducted, only 201 questionnaires were used to collect data and test the conceptual model used to measure quality of OBS. Although the reliability and validity of the conceptual model used in the conducted study was been proven to be satisfactory, it should be accepted as a preliminary scale and tested further with higher number of respondents. Furthermore, because of the circumstances of the conducted study, the number of items used in the model to describe each quality dimension is limited and reduced on purpose because of resource, ethical considerations and time-constraints.

Further research aimed at creating a more elaborated and detailed instrument for measuring quality of OBS based on the one developed in this study instrument can be conducted. In addition, the study targeted respondents aged between 25 to 44; as banks might also be interested in people not included in this age range, a survey based on the developed instrument might be conducted to target respondents from different age groups. The study was conducted based on only one bank and as such it would be interesting to conduct similar researches in other national contexts as well. Furthermore, the presented modified conceptual model was developed especially for the banking services in the online space. It would be interesting and challenging to test the model on other types of online services, using modifications and changes relevant to the area of interest.

Finally, the developed instrument measures only the level of customer satisfaction with different quality dimensions characterizing OBS, but does not show the relative importance of each dimension in comparison to the others. To what extent is one given aspect of the OBS important for achieving customer satisfaction? Is there a difference in the requirements for given aspects of the OBS among different kind of respondents- different age-groups, occupation, gender? These and other related questions seem worth investigating.

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# APPENDICES

## APPENDIX I Online systems quality studies

| Researcher and year of research | Online system quality dimension |
|---|---|
| Jayawardhena and Foley (2000) | speed to download, content, design, interactivity, navigation and security |
| Cox and Dale (2001) | Ease of use, customer confidence, online resources, relationship services |
| Santos (2003) | Ease of use, appearance, linkage, structure and layout, content |
| Parasuraman et al(1998) | Efficiency, responsiveness, security and access |

**APPENDIX II Description of questions and their positions on the questionnaire**

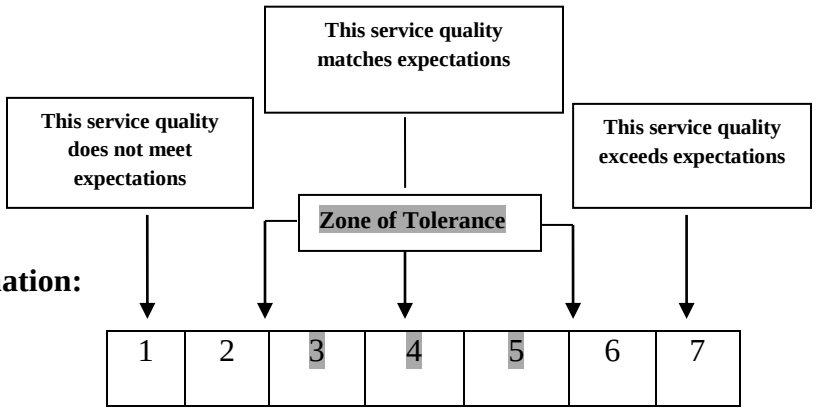
| QUALITY DIMENSION | QUESTION | Position of the question on the questionnaire |
|---|---|---|
| **Ease of use** | I am able to get on the site quickly | **1** |
| | It is easy to find what I need on the website | **9** |
| | The services delivered on the web are quick | **16** |
| | Using the banks website does not require a lot of effort | **18** |
| | The website structure and online content is easy to follow | **19** |
| **Performance** | The timeline given is accurate | **2** |
| | My online transactions are always accurate | **10** |
| | The service delivered through the bank's website is quick | **17** |
| | the bank's site makes accurate promises about the services being delivered | **20** |
| **System availability** | The site is always available for business | **3** |
| | The website is fast | **11** |
| **Service security** | The bank does not misuse my personal information | **4** |
| | I feel my transactions are safe with the bank | **12** |
| **Safety / trust** | I have confidence in the bank's service | **5** |
| | The bank is well known and has a good reputation | **13** |
| **Site aesthetics** | The website design is attractive | **6** |
| **Transaction response** | The bank responds quickly to my requests | **7** |
| | The bank quickly resolves problems I encounter with my online transactions | **14** |
| **Customer support** | The bank is easily accessible by telephone | **8** |
| | The site has a customer representative available online | **15** |

**APPENDIX 111 Questionnaire on the Quality of Online Banking Services**

**Questionnaire on Online Banking Services**

Based on your experiences as a consumer of online Banking Services, please provide information on how you perceive the quality of the online banking services you use in comparison to your expectations. Please circle the answer of your choice

**Scale Explanation:**




**A. Please provide the following information**

**Name of your branch.....**

**Gender: Male** ☐ **Female** ☐

**Age:** ☐

**Length of Online Banking use**: **< 3 months** ☐

**3-12 months** ☐

**>12 months** ☐

**Number of online banking transactions** ☐ per months

**B. Please provide responses for the following questions**

1. I am able to get on the site quickly 1 2 3 4 5 6 7
2. The timeline given are accurate 1 2 3 4 5 6 7
3. The site is always available for business 1 2 3 4 5 6 7
4. The bank does not misuse my personal information 1 2 3 4 5 6 7
5. I have confidence in the bank's service 1 2 3 4 5 6 7
6. The website design is attractive 1 2 3 4 5 6 7
7. The bank responds quickly to my requests 1 2 3 4 5 6 7
8. The bank is easily accessible by telephone 1 2 3 4 5 6 7
9. It is easy to find what I need on the website 1 2 3 4 5 6 7
10. My online transactions are always accurate 1 2 3 4 5 6 7
11. The website is fast 1 2 3 4 5 6 7
12. I feel my transactions with the banks are safe 1 2 3 4 5 6 7
13. The banks name is well known and has a good reputation 1 2 3 4 5 6 7
14. The bank quickly resolves problems I encounter online 1 2 3 4 5 6 7
15. The site has a customer service representative available online 1 2 3 4 5 6 7
16. It is quick to complete a transaction online 1 2 3 4 5 6 7
17. Services provided on the bank's website are quick 1 2 3 4 5 6 7
18. Using the bank's website does not require a lot of effort 1 2 3 4 5 6 7
19. The website structure and information is easy to follow 1 2 3 4 5 6 7
20. The website makes accurate promises about the services rendered 1 2 3 4 5 6 7

**Thank you for your time**

## APPENDIX IV Descriptive Statistics On The Empirical Data

| | Q question) | Variable | Median | Mean | Standard deviation | N |
|---|---|---|---|---|---|---|
| Ease of use | Q1* | I am able to get on the site quickly | 6 | 5.5291 | 1.126 | 172 |
| | Q9* | It is easy to find what I need on the website | 5 | 4.9708 | 1.365 | 171 |
| | Q16* | The services delivered on the web are quick | 6 | 5.7209 | 1.151 | 172 |
| | Q18* | Using the banks website does not require a lot of effort | 6 | 5.4709 | 1.272 | 172 |
| | Q19* | The website structure and online content is easy to follow | 5 | 5.2515 | 1.293 | 171 |
| Performance | Q2* | The timeline given is accurate | 5 | 5.2275 | 1.269 | 167 |
| | Q10* | My online transactions are always accurate | 6 | 5.9240 | 1.046 | 171 |
| | Q17* | The service delivered through the bank's website is quick | 5 | 5.3491 | 1.171 | 169 |
| | Q20* | the bank's site makes accurate promises about the services being delivered | 5 | 5.3353 | 1.051 | 167 |
| System Availability | Q3* | The site is always available for business | 6 | 5.3905 | 1.337 | 169 |
| | Q11* | The website is fast | 5 | 5.2632 | 1.244 | 171 |
| Service security | Q4* | The bank does not misuse my personal information | 6 | 5.8683 | 1.195 | 167 |
| | Q12* | I feel my transactions are safe with the bank | 6 | 5.9070 | 1.077 | 172 |
| Safety /Trust | Q5* | I have confidence in the bank's service | 6 | 5.7588 | 1.128 | 170 |
| | Q13* | The bank is well known and has a good reputation | 6 | 6.000 | 0.991 | 172 |
| Site Aesthetics | Q6* | The website design is attractive | 4 | 4.3779 | 1.285 | 172 |
| Transaction response | Q7* | The bank responds quickly to my requests | 4 | 4.4295 | 1.24 | 156 |
| | Q14* | The bank quickly resolves problems I encounter with my online transactions | 5 | 5.0962 | 1.163 | 156 |
| Customer support | Q8* | The bank is easily accessible by telephone | 5 | 5.1524 | 1.399 | 164 |
| | Q15* | The site has a customer representative available online | 4 | 4.4698 | 1.402 | 149 |

**APPENDIX V Theories and Tables supporting the statistical analysis of the study (PCA Result)**

In this study factor analysis using PCA as an extraction method was used. For this method to be used, the subjects to variables ratio should not be less than five for it to be effective (Pallant, 2005), in this study the number of respondents used was 172 to perform the method as an extraction method on 20 variables and hence the rule for applicability was passed. The study also used a method which was applied through Exploratory Factor Analysis (EFA) whose main purpose is to identify the underlying dimensions in multivariate data analysis (Hair et al, 1998). Based on this, Factor Analysis was done to remove all highly correlated or redundant variables from the data file, before applying the PCA analysis.

The study, as well before embarking on the Factor Analysis employed Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity to find out the sampling adequacy; whether the partial correlations among variables are significant, which means the KMO measure of adequacy should exceed 0.6 while the Bartlett's sampling adequacy should exceed 0.5 ( Pallant, 2005). The results of the tests are presented in the table KMO and Bartlett's Tests provided below.

Hair et al, 1998 calls Factor Analysis a reduction method- used to identify factors that statistically explain correlations between measures or variables. Such variables should be quantitative, be symmetrically distributed and have a wide range of scores. Factor Analysis has two steps to the process; one is to pre-decide the number of factors (PCA is used in this step) and second manipulation of the outputs to make the factors more understandable and to decide about the number of factors (Varimax Rotation Method can be used in this step (Hair et al, 1998). The result of these steps has led to the results presented in the tables titled Communalities. Correlation Matrix, Total Variance Explained, Component Matrix, Rotated Component Matrix as well as the Scree plot.

The Correlation Matrix shows the correlation coefficients between the different variables included in the analysis. A correlation matrix should include at least some correlation coefficient of 0.3 or above for it to said to be suitable (Pallant, 2005)

The Component Matrix contains factor loadings which represent the correlation coefficients between the variables (rows in the table) and the factors (columns in the table). The percentage variance in the variable explained by a given factor is represented by the squared factor loading (Garson, 2002). Normally a minimum value of 0.3 or 0.35 is used but the context of the research study can also contribute to the interpretation of the value of a factor loading. According to Garson, 2002 for instance says that for a Lickert scale study, 0.6 may be required for the factor loading to be considered high.

Communality is an aspect used to measure the percent of variance in a given variable explained by all the factors together. For instance if the communality value of a given variable is low, then that variable should be removed from the mode as the factor it pertains to cannot explain its variance enough. Having said that however, the interpretation of the values of communality should be done in relation to the interpretation of the factors; this is because a communality of 0.7 can be said to be high in one stead but in another 0.3 can be considered to be sufficient. What is important is the role that the variable plays in explaining the given factor, and when the communality is high, then this role is greater. The table presented has initial and extracted values. The initial values will be always 1.0 as in this case the number of factors is equal to the number of variables. The extracted values represent the variance in a variable explained by the extracted factor. In this case, the extracted factors will be less than all possible values hence the extracted value will be less than 1.0 (Garson, 2002).

Total variance explained table presents the eignevalues are presented. The variance in all the variables which is accounted for by the given factor is measured by the eignevalue for this factor. If the eignevalue is low it means the factor explains little of the variance in the variables and can be left out of the model. As such the eignevalue measures the amount of variance in the variables which is explained by a given factor- the total variance in the table should be equal to the number of variables. In addition, in the table the initial eignevalues and those after extraction are the same when PCA is performed; the eignevalues in the column, Rotated Sums of Squared Loadings will be lower (Garson, 2002). The data presented in the table can be used to determine the number of factors to extract, using the most common techniques for extraction of factors Kaiser's criterion (eignevalue rule). According to this technique the number of factors to be extracted should be equal to the number of eignevalues higher than 1 (Pallant, 2005)

The scree plot can also be used. According to this method, the number of factors to be extracted should be equal to the number of points above the point at which the shape of the curve on the scree plot changes direction and becomes more horizontal (Pallant, 2005). In order to easen the understanding of the output of the analysis Rotation can be used which is also necessary to help with interpretation of the factors. After Rotation is performs, the eignevalues of the given factors and the factor loadings will be changed. There are a number of rotation methods and one of the most common of them is the Varimax Rotation Method which makes it easiest to associate given variable with a single factor (Garson, 2002)

Bartlett's Test of Sphericity and KMO Measure of Sampling Adequacy

KMO and Bartlett's Test

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy | | 0.896 |
| Bartlett's Test of Sphericity | Approx. Chi Square | 1338.487 |
| | df | 190 |
| | Sig. | 0.000 |

Principal Component Analysis
(the tables presented below are the result of conducted Principal Component Analysis on all variables (items) with four factors extracted)

Communalities

| | Initial | Extraction |
|---|---|---|
| Q1 | 1.000 | .418.700 |
| Q2 | 1.000 | .457.595 |
| Q3 | 1.000 | .519.602 |
| Q4 | 1.000 | .641.525 |
| Q5 | 1.000 | .575.569 |
| Q6 | 1.000 | .398.658 |
| Q7 | 1.000 | .550.609 |
| Q8 | 1.000 | .655.711 |
| Q9 | 1.000 | .743.655 |
| Q10 | 1.000 | .783.590 |
| Q11 | 1.000 | |
| Q12 | 1.000 | |
| Q13 | 1.000 | |
| Q14 | 1.000 | |
| Q15 | 1.000 | |
| Q16 | 1.000 | |
| Q17 | 1.000 | |
| Q18 | 1.000 | |
| Q19 | 1.000 | |
| Q20 | 1.000 | |

Extraction Method: Principal Component Analysis

**TOTAL VARIANCE EXPLAINED**

| Component | Initial Eignevalues | | | Extraction Sums of Squared Loading | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 8.160 | 40.801 | 40.801 | 8.160 | 40.801 | 40.801 | 4.291 | 21.454 | 21.454 |
| 2 | 1.456 | 7.281 | 48.082 | 1.456 | 7.281 | 48.082 | 2.881 | 14.404 | 35.859 |
| 3 | 1.257 | 6.285 | 54.367 | 1.257 | 6.285 | 54.367 | 2.399 | 11.996 | 47.855 |
| 4 | 1.080 | 5.400 | 59.767 | 1.080 | 5.400 | 59.767 | 2.382 | 11.912 | 59.767 |
| 5 | .880 | 4.402 | 64.169 | | | | | | |
| 6 | .826 | 4.132 | 68.301 | | | | | | |
| 7 | .762 | 3.809 | 72.110 | | | | | | |
| 8 | .748 | 3.739 | 75.849 | | | | | | |
| 9 | .721 | 3.604 | 79.452 | | | | | | |
| 10 | .615 | 3.074 | 82.526 | | | | | | |
| 11 | .585 | 2.926 | 85.452 | | | | | | |
| 12 | .470 | 2.349 | 87.801 | | | | | | |
| 13 | .433 | 2.165 | 89.967 | | | | | | |
| 14 | .374 | 1.871 | 91.837 | | | | | | |
| 15 | .350 | 1.751 | 93.588 | | | | | | |
| 16 | .333 | 1.664 | 95.253 | | | | | | |
| 17 | .269 | 1.345 | 96.597 | | | | | | |
| 18 | .250 | 1.249 | 97.846 | | | | | | |
| 19 | .232 | 1.159 | 99.005 | | | | | | |
| 20 | .199 | .995 | 100.000 | | | | | | |

Extraction Method: Principal Component Analysis

**COMPONENT MATRIX (a)**

| | Component | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Q1 | .607 | | | |
| Q2 | .582 | | .575 | |
| Q3 | .585 | | .301 | |
| Q4 | .684 | | | |
| Q5 | .650 | | | |
| Q6 | .541 | .478 | | |
| Q7 | .508 | .524 | | |
| Q8 | .529 | .469 | | |
| Q9 | .623 | .376 | | |
| Q10 | .729 | | | |
| Q11 | .623 | | | |
| Q12 | .724 | | | |
| Q13 | .607 | -.379 | | |
| Q14 | .731 | | | |
| Q15 | .588 | | | .501 |
| Q16 | .585 | | | .469 |
| Q17 | .728 | | | .358 |
| Q18 | .695 | | -.369 | |
| Q19 | .675 | | -.433 | -.302 |
| Q20 | .707 | | | |

Extraction Method: Principal Component Analysis. A 4 components extracted

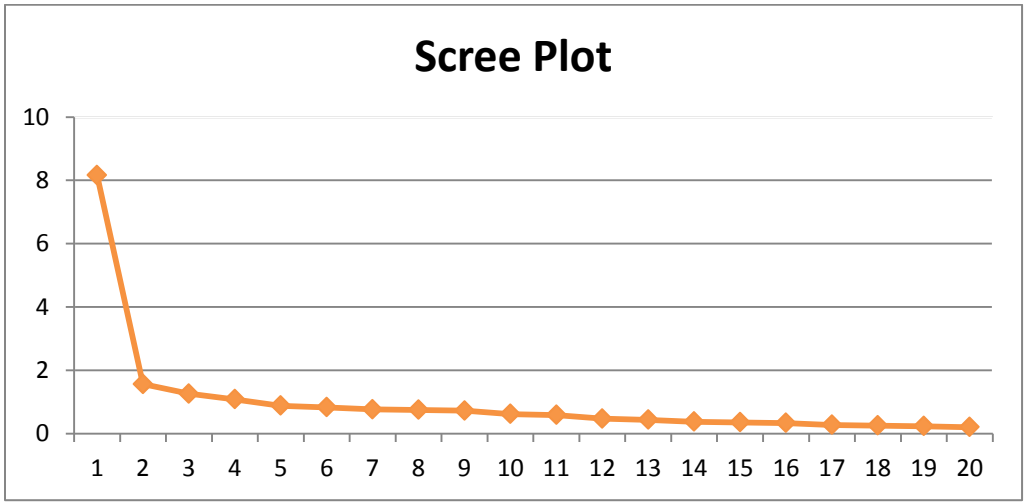
ROTATED COMPONENT MATRIX (a)

| | Component | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Q1 | .505 | | .308 | |
| Q2 | .590 | | .590 | |
| Q3 | .625 | | | |
| Q4 | .710 | | | |
| Q5 | .608 | .355 | | |
| Q6 | | .630 | .444 | |
| Q7 | | | .767 | |
| Q8 | | | .645 | |
| Q9 | | .514 | .474 | |
| Q10 | .627 | | | |
| Q11 | .400 | .378 | | |
| Q12 | .659 | .441 | | |
| Q13 | .627 | | | .393 |
| Q14 | .593 | | .425 | |
| Q15 | | | .352 | .692 |
| Q16 | | | | .790 |
| Q17 | .428 | | | .709 |
| Q18 | .373 | .582 | | .709 |
| Q19 | | .828 | | .420 |
| Q20 | .437 | .585 | | |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalizations
A rotation converged in 13 iterations

**CORRELATION MATRIX**

| | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 | Q15 | Q16 | Q17 | Q18 | Q19 | Q20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Q1 | 1.000 | .420 | .351 | .399 | .349 | .288 | .329 | .321 | .309 | .440 | .354 | .371 | .368 | .370 | .267 | .332 | .406 | .480 | .259 | .360 |
| Q2 | .420 | 1.000 | .376 | .450 | .331 | .224 | .450 | .383 | .305 | .399 | .259 | .322 | .320 | .580 | .242 | .170 | .359 | .230 | .263 | .398 |
| Q3 | .351 | .376 | 1.000 | .492 | .388 | .291 | .235 | .190 | .308 | .447 | .404 | .334 | .331 | .466 | .250 | .309 | .400 | .335 | .257 | .296 |
| Q4 | .399 | .450 | .492 | 1.000 | .496 | .237 | .227 | .292 | .358 | .448 | .277 | .506 | .479 | .490 | .260 | .337 | .471 | .436 | .466 | .475 |
| Q5 | .349 | .331 | .388 | .496 | 1.000 | .321 | .243 | .255 | .308 | .388 | .293 | .643 | .406 | .459 | .328 | .376 | .373 | .435 | .396 | .411 |
| Q6 | .288 | .224 | .291 | .237 | .321 | 1.000 | .448 | .336 | .430 | .343 | .323 | .318 | .204 | .323 | .304 | .180 | .229 | .360 | .515 | .376 |
| Q7 | .329 | .450 | .235 | .227 | .243 | .448 | 1.000 | .366 | .348 | .301 | .311 | .242 | .175 | .426 | .336 | .214 | .329 | .179 | .324 | .228 |
| Q8 | .321 | .383 | .190 | .292 | .255 | .336 | .366 | 1.000 | .505 | .369 | .314 | .300 | .238 | .370 | .366 | .220 | .224 | .255 | .346 | .278 |
| Q9 | .309 | .305 | .308 | .358 | .308 | .430 | .348 | .505 | 1.000 | .413 | .317 | .352 | .226 | .377 | .393 | .353 | .394 | .359 | .536 | .409 |
| Q10 | .440 | .399 | .447 | .448 | .388 | .343 | .301 | .369 | .413 | 1.000 | .517 | .622 | .533 | .474 | .309 | .378 | .489 | .434 | .382 | .490 |
| Q11 | .354 | .259 | .404 | .277 | .293 | .323 | .311 | .314 | .317 | .517 | 1.000 | .428 | .347 | .458 | .364 | .208 | .418 | .467 | .377 | .468 |
| Q12 | .371 | .322 | .334 | .506 | .643 | .318 | .242 | .300 | .352 | .622 | .428 | 1.000 | .496 | .511 | .308 | .388 | .444 | .485 | .472 | .501 |
| Q13 | .368 | .320 | .331 | .479 | .406 | .204 | .175 | .238 | .226 | .533 | .347 | .496 | 1.000 | .377 | .386 | .357 | .499 | .352 | .230 | .353 |
| Q14 | .370 | .580 | .466 | .490 | .459 | .323 | .426 | .370 | .377 | .474 | .458 | .511 | .377 | 1.000 | .393 | .401 | .487 | .410 | .399 | .485 |
| Q15 | .267 | ..242 | .250 | .260 | .328 | .304 | .336 | .366 | .393 | .309 | .364 | .308 | .386 | .393 | 1.000 | .449 | .513 | .378 | .343 | .382 |
| Q16 | .332 | .170 | .309 | .337 | .376 | .180 | .214 | .220 | .353 | .378 | .208 | .388 | .357 | .401 | .449 | 1.000 | .629 | .463 | .314 | .340 |
| Q17 | .406 | .359 | .400 | .471 | .373 | .229 | .329 | .224 | .394 | .489 | .418 | .444 | .499 | .487 | .513 | .629 | 1.000 | .563 | .425 | .502 |
| Q18 | .480 | .230 | .355 | .436 | .435 | .360 | .179 | .255 | .359 | .434 | .467 | .485 | .352 | .410 | .378 | .463 | .563 | 1.000 | .608 | .493 |
| Q19 | .259 | .263 | .257 | .466 | .396 | .515 | .324 | .346 | .536 | .382 | .377 | .472 | .230 | .399 | .343 | .314 | .425 | .608 | 1.000 | .616 |
| Q20 | .360 | .398 | .296 | .475 | .411 | .376 | .228 | .278 | .409 | .490 | .468 | .501 | .353 | .485 | .382 | .340 | .502 | .493 | .616 | 1.000 |



**APPENDIX VI Tables and graphs on the frequency of the survey responses in percentage**

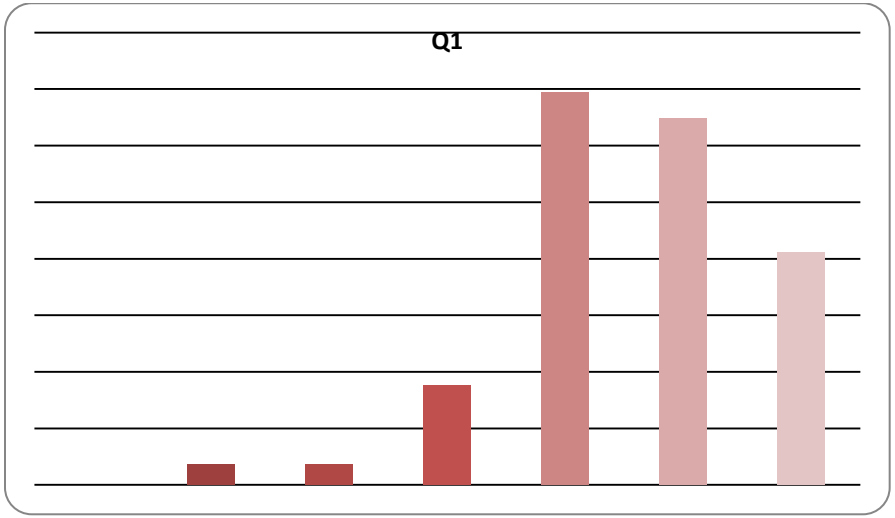
Table 1 Frequency of Responses in Percentage (Valid Percentages)

| | Frequency of responses in percentage | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Scale** | **Q1** | **Q3** | **Q4** | **Q5** | **Q10** | **Q12** | **Q13** | **Q14** | **Q6** | **Q9** | **Q18** | **Q19** | **Q20** | **Q7** | **Q8** | **Q16** | **Q17** |
| **1** | | 0.6 | | | | | | | 1.2 | 1.8 | 0.6 | 1.2 | | 1.9 | 1.2 | | 0.6 |
| **2** | 1.8 | 1.2 | | 0.6 | | | | | 5.9 | 2.4 | 0.6 | 1.2 | | 3.2 | 1.8 | 1.2 | |
| **3** | 1.8 | 6.0 | 3.0 | 2.4 | 1.8 | 2.4 | 1.2 | 3.9 | 14.7 | 8.3 | 4.7 | 4.7 | 1.2 | 9.0 | 7.4 | 2.9 | 3.0 |
| **4** | 8.8 | 16.2 | 13.9 | 7.7 | 7.7 | 7.6 | 5.9 | 31.6 | 31.2 | 17.8 | 14.1 | 14.8 | 23.0 | 45.8 | 22.1 | 7.1 | 16.8 |
| **5** | 34.7 | 21.6 | 15.7 | 26.2 | 19.5 | 20.0 | 18.2 | 26.5 | 31.2 | 31.4 | 24.7 | 33.1 | 28.5 | 20.6 | 23.3 | 23.5 | 33.5 |
| **6** | 32.4 | 31.7 | 26.5 | 32.7 | 36.1 | 34.1 | 38.2 | 24.5 | 10.0 | 27.2 | 31.8 | 27.8 | 33.3 | 12.9 | 23.9 | 38.2 | 28.1 |
| **7** | 20.6 | 22.8 | 41.0 | 30.4 | 34.9 | 35.9 | 36.5 | 13.5 | 5.9 | 11.2 | 23.5 | 17.2 | 13.9 | 6.5 | 20.2 | 27.1 | 18.0 |
| **Total** | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Missing number of responses** | | **3** | **4** | **2** | **1** | | | **15** | | **1** | | **1** | **5** | **15** | **7** | | **3** |

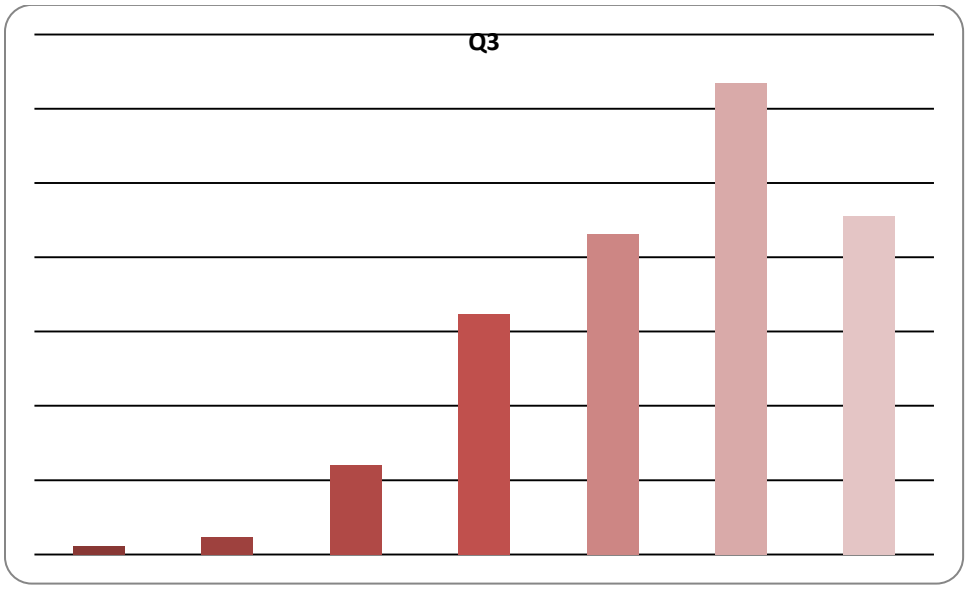
**Graphs on the frequency distribution of Survey Responses in Percentages according to the quality dimensions**

**SERVICE PERFORMANCE**

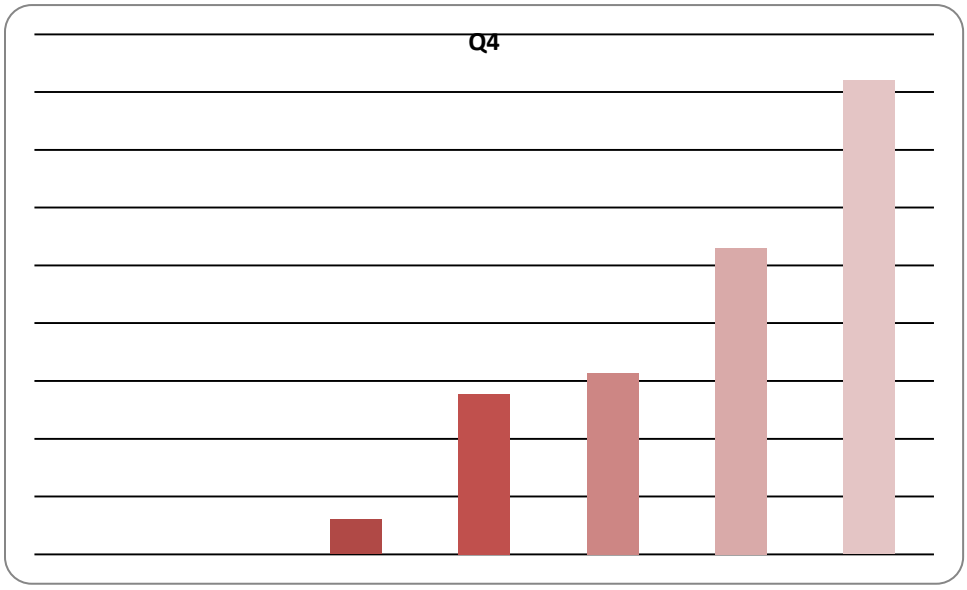
**Graph 1(Q1)**



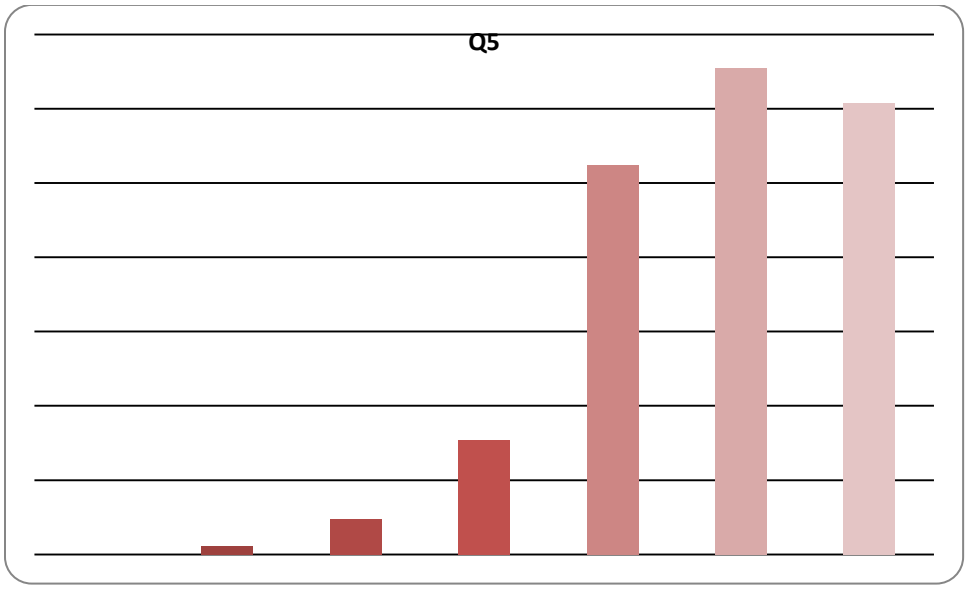
**Graph 2 (Q3)**



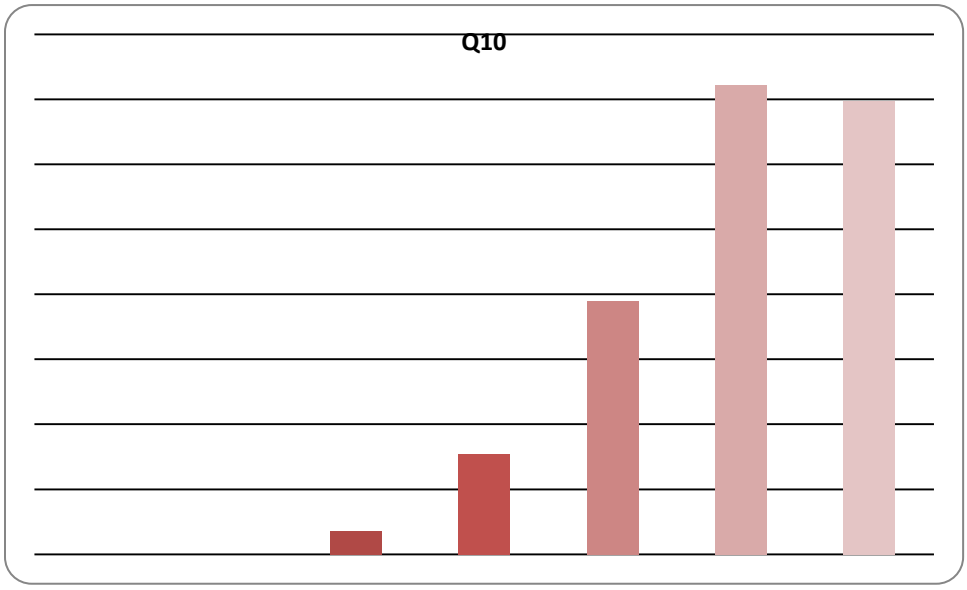

**Graph 3 (Q4)**



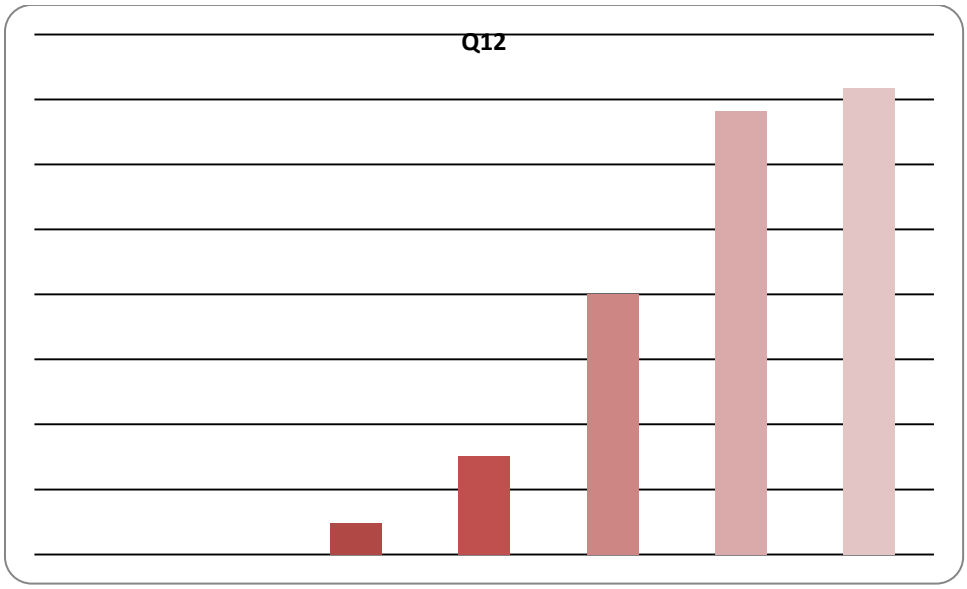
**Graph 4 (Q5)**



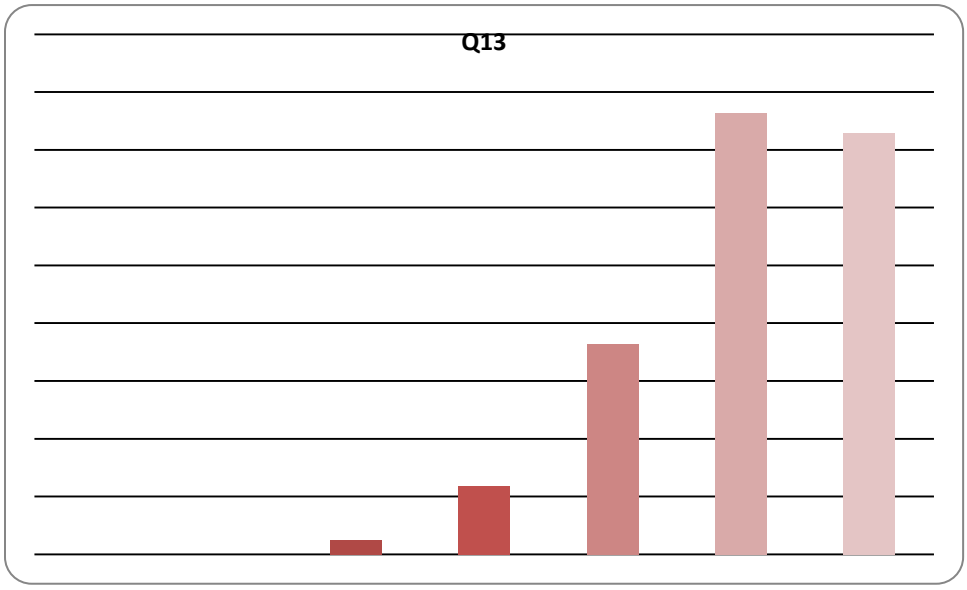

**Graph 5 (Q10)**



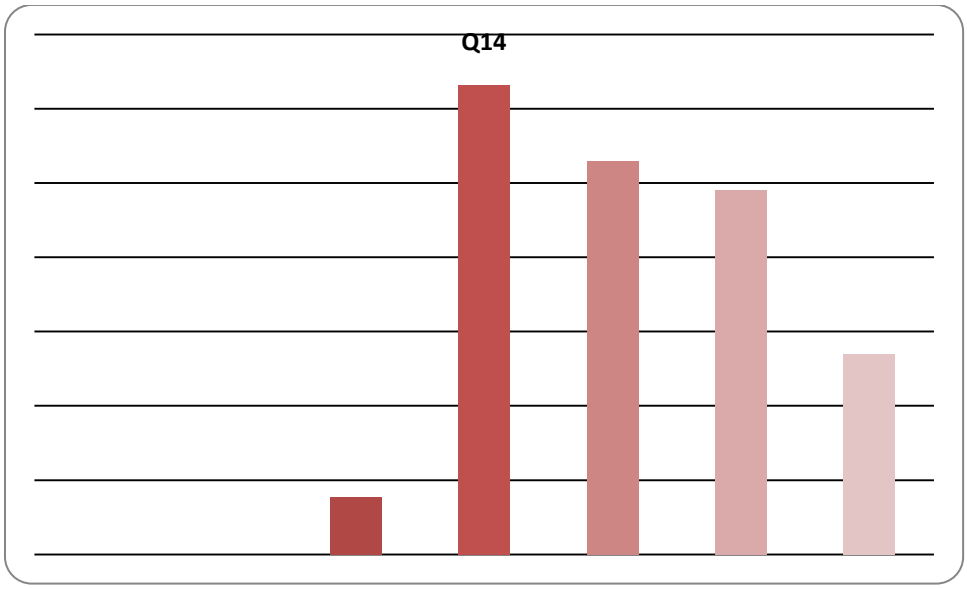
**Graph 6 (Q12)**




**Graph 7 (Q13)**

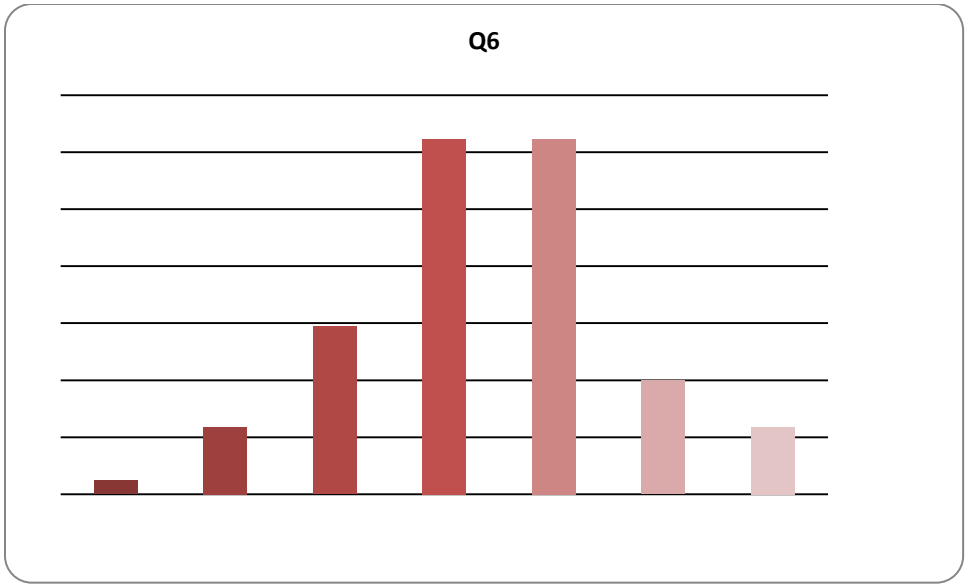


**Graph 8 (Q14)**

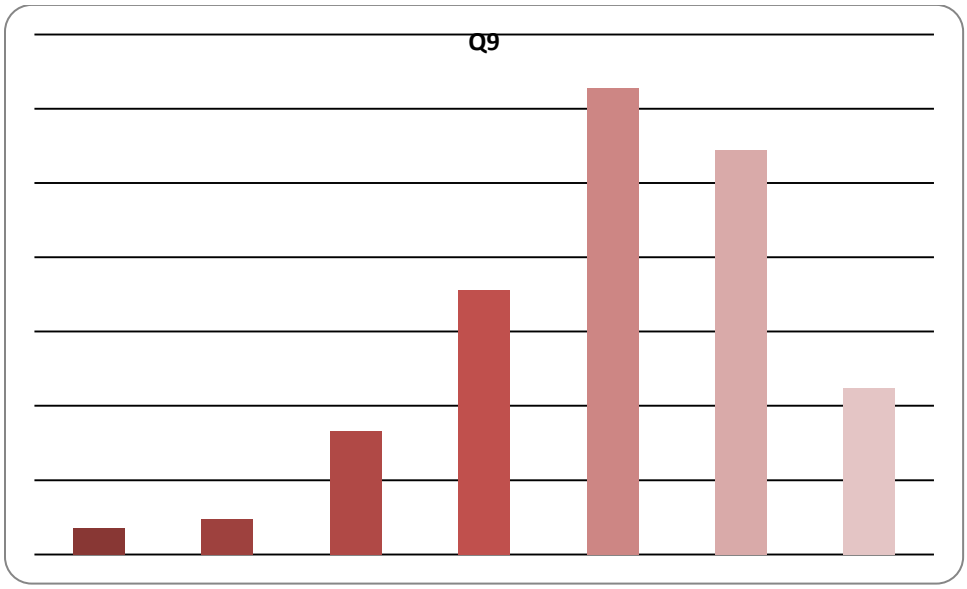



**WEBSITE CHARACTERISTICS**

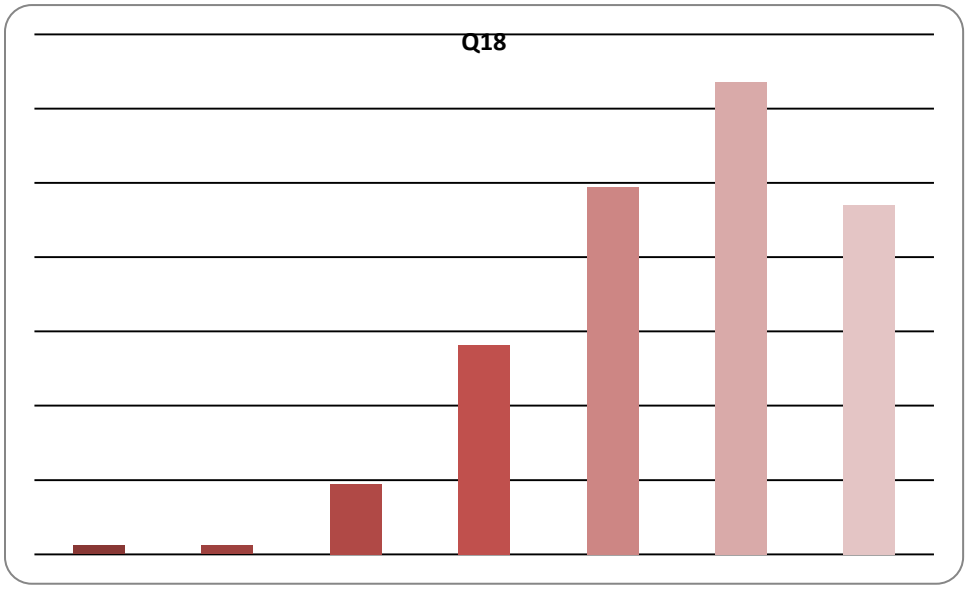
**Graph 9 (Q6)**



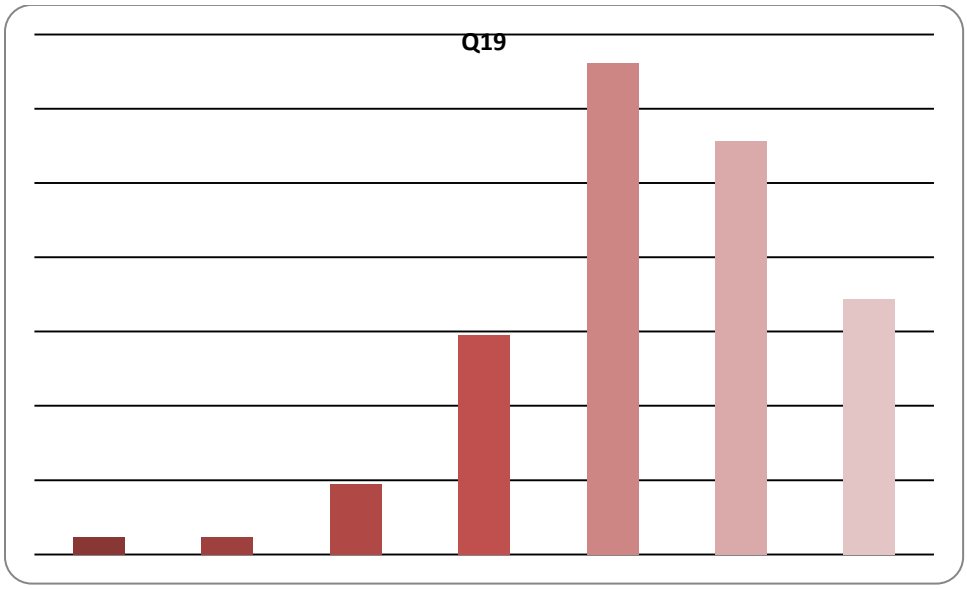
**Graph 10 (Q9)**



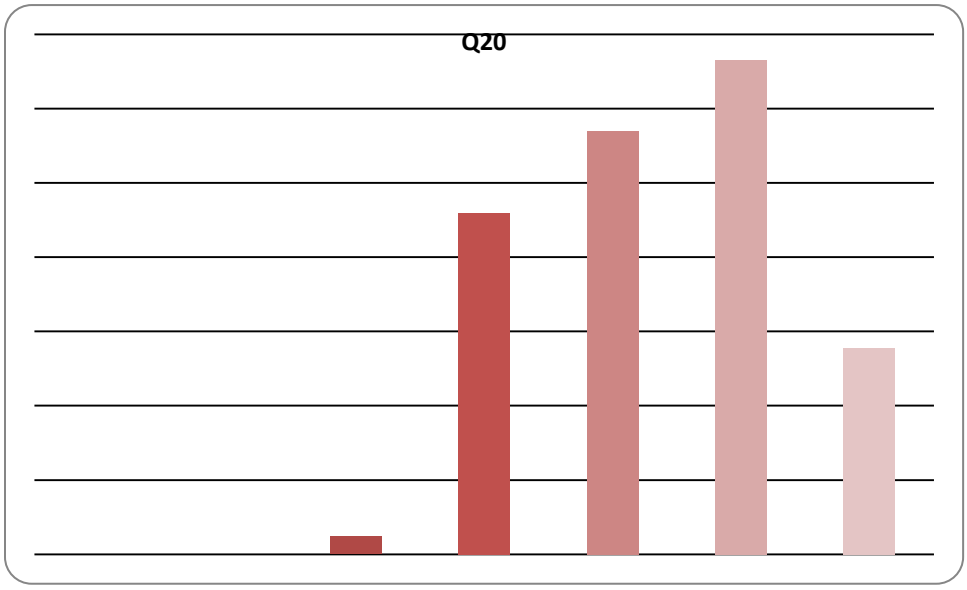

**Graph 11 (Q8)**



**Graph 12 (Q19)**

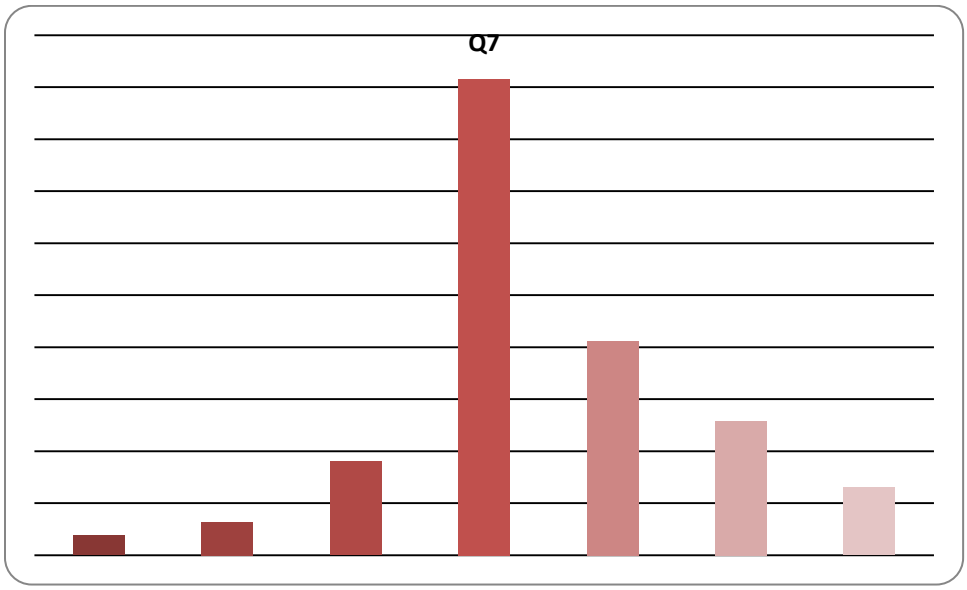



**Graph 13 (Q20)**

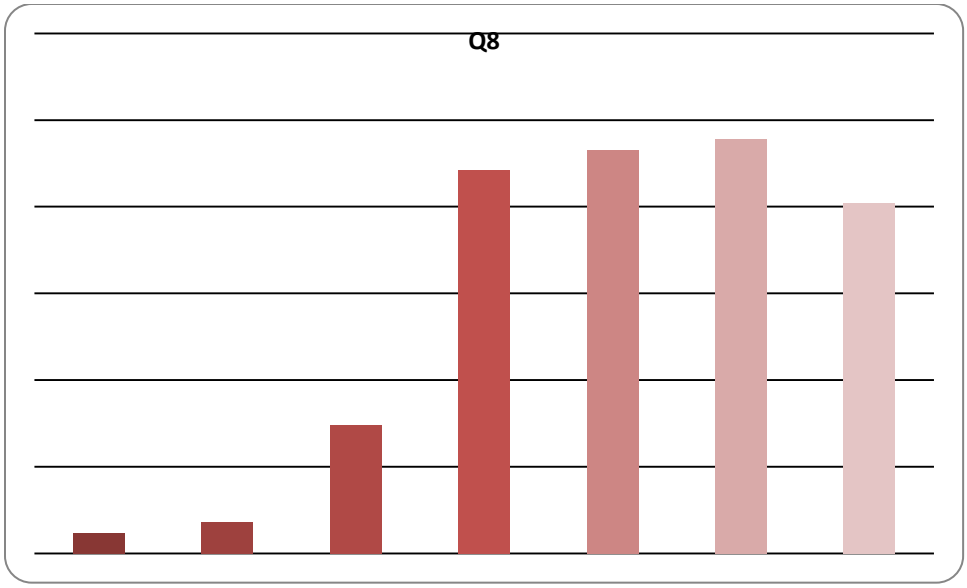


**COMMUNICATION**

**Graph 14 (Q7)**

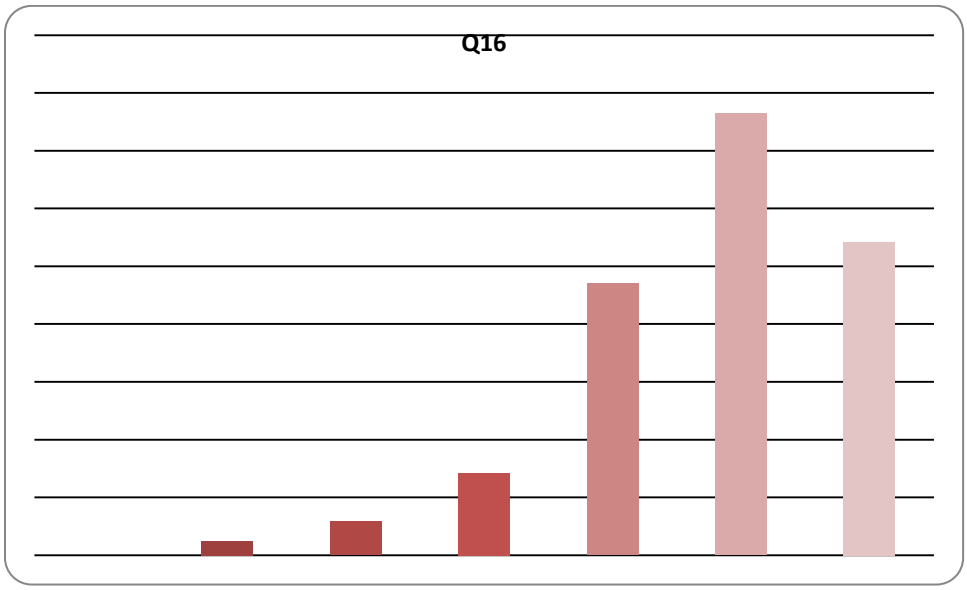



**Graph 15 (Q8)**

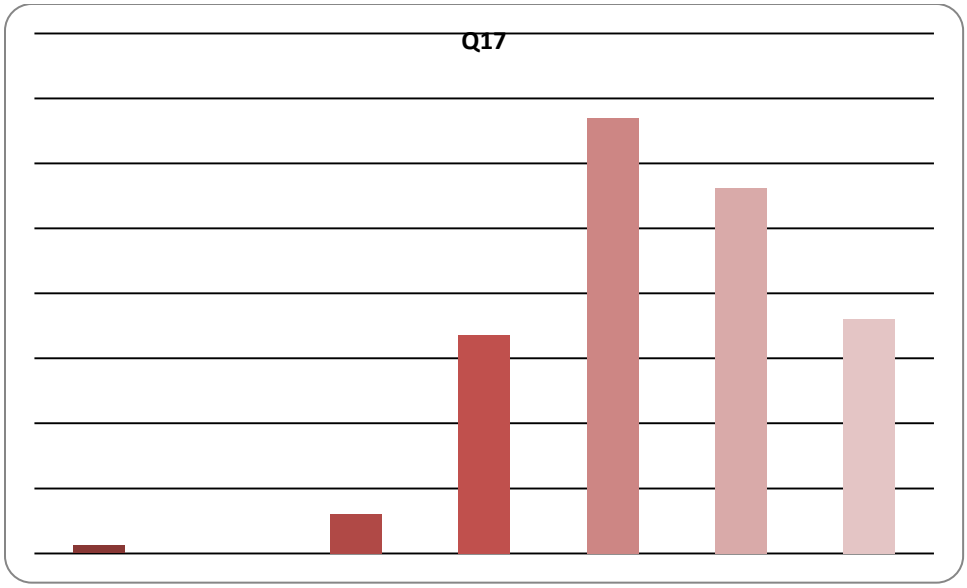


**EFFICIENCY**

**Graph 16 (Q16)**




**Graph 17(Q17)**



**APPENDIX VII table showing the percentage of the total number of respondents who stated 4 and below, 3 and below and 6 or 7 on the lickert scale**

| People that have stated 4 or below on the Lickert scale | | People that have stated 3 or below on the Lickert scale | | People that have stated 6 or 7 on the Lickert scale | |
|---|---|---|---|---|---|
| **Q13*** | 7.1 | **Q13*** | 1.2 | **Q6*** | 15.9 |
| **Q10*** | 9.5 | **Q20*** | 1.2 | **Q7*** | 19.4 |
| **Q12*** | 10 | **Q10*** | 1.8 | **Q14*** | 38.1 |
| **Q5*** | 10.7 | **Q12*** | 2.4 | **Q9*** | 38.5 |
| **Q16*** | 11.2 | **Q4*** | 3 | **Q8*** | 44.2 |
| **Q1*** | 12.4 | **Q5*** | 3 | **Q19*** | 45 |
| **Q4*** | 16.9 | **Q1*** | 3.5 | **Q17*** | 46.1 |
| **Q18*** | 20 | **Q17*** | 3.6 | **Q20*** | 47.3 |
| **Q17*** | 20.4 | **Q14*** | 3.9 | **Q1*** | 52.9 |
| **Q19*** | 21.9 | **Q16*** | 4.1 | **Q3*** | 54.5 |
| **Q3*** | 24 | **Q18*** | 5.9 | **Q18*** | 55.3 |
| **Q20*** | 24.2 | **Q19*** | 7.1 | **Q5*** | 63.1 |
| **Q9*** | 30.2 | **Q3*** | 7.8 | **Q16*** | 65.3 |
| **Q8*** | 32.5 | **Q8*** | 10.4 | **Q4*** | 67.5 |
| **Q14*** | 35.5 | **Q9*** | 12.4 | **Q12*** | 70 |
| **Q6*** | 52.9 | **Q7*** | 14.2 | **Q10*** | 71 |
| **Q7*** | 60 | **Q6*** | 21.8 | **Q13*** | 74.7 |

## APPENDIX VIII Certificate of Field Work and Certificate of Correction


UNIVERSITY OF NAIROBI
COLLEGE OF HUMANITIES & SOCIAL SCIENCES
SCHOOL OF JOURNALISM & MASS COMMUNICATION

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P.O. Box 30197-00100
Nairobi, GPO
Kenya


**REF: CERTIFICATE OF CORRECTIONS**

This is to certify that all corrections proposed at the Board of Examiners meeting held on 22/05/2015 in respect of M.A/PhD. Project/Thesis Proposal defence have been effected to my/our satisfaction and the project can now be prepared for binding.

Reg. No: K50/71221/2011

Name: PONTIANNA MAYAKA

Title: ONLINE BANKING SERVICE QUALITY AND CUSTOMER SATISFACTION. A CASE STUDY OF BARCLAYS BANK KENYA LTD

| | | |
|---|---|---|
| DR. JANE W THUO<br>SUPERVISOR | SIGNATURE | 2/11/2015<br>DATE |
| Dr Samuel Siringi<br>M.A. COORDINATOR | SIGNATURE | 3/11/2015<br>DATE |
| Dr. Wamukuru<br>DIRECTOR | SIGNATURE/STAMP | 5/11/2015 |

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**REF: CERTIFICATE OF FIELD WORK**

This is to certify that all corrections proposed at the Board of Examiners' meeting held on 13/05/2015 in respect of M.A./Ph.D final Project/Thesis defence have been effected to my/our satisfaction and the student can be allowed to proceed for field work.

Reg. No: K50/71221/2011

Name: PONTIANNA MAYAKA

Title: ONLINE BANKING SERVICE QUALITY AND CUSTOMER SATISFACTION. A CASE STUDY OF BARCLAYS BANK KENYA LTD

| | | |
|---|---|---|
| DR. JANE W THUO | | 13/5/2015 |
| SUPERVISOR | SIGNATURE | DATE |
| Dr Samuel Sinnga | | 3-11-2015 |
| PROGRAMME COORDINATOR | SIGNATURE | DATE |
| Dr. Nderi Nderi | | 4-11-2015 |
| DIRECTOR | SIGNATURE/STAMP | DATE |

UNIVERSITY OF NAIROBI SCHOOL OF JOURNALISM & MASS COMMUNICATION