INNOVATION AND SERVICE QUALITY IN TELECOMMUNICATION INDUSTRY IN KENYA

BY

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DECLARATION

This research project proposal is my original work and has not been presented for the award of a degree in any other university.

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

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DEDICATION

To all those who never gave up.

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I would like to acknowledge the following persons whose contributions facilitated the completion of the project; First and foremost, God for the wisdom, blessings and strength. My parents Benea Odhiambo and Angeline Odhiambo for making me who I am. My supervisor X,N Iraki for the guidance and support.

ABSTRACT

The purpose of the study was to show the main innovations, the main drivers and the relationship between innovation and service quality in telecommunication industry. Telecommunication industry in Kenya is a very competitive industry. Many firms in this sector have to come up with new and improved ideas to better services and products. They employ innovations to help improve service quality as well as improve the overall organization performance. We will look at key innovations in the telecommunications industry. This will show the most adopted innovations by the different telecommunication companies.

The study shows that there is no relationship between innovations and service quality in telecommunication. This was unexpected, we thought that innovations had significant contribution to service quality. The finding of the study revealed that financial service innovations are the main innovations adopted by the telecommunication industry. The financial services have revolutionized the financial sector, a model which was very successful in Kenya and currently being rolled out worldwide by other telecommunication service providers.

The main drivers of innovations were Research & development and increased competition among others. Due to the competitive landscape the telecommunication companies opted to have innovative products to meet customers need and retain their customers.

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ABBREVIATIONS AND ACRONYMS

1. AT&T - American multinational telecommunications corporation.
2. CCK - Communications Commission of Kenya.
3. SERVQUAL- Service quality model
4. R&D- Research and development
5. ATM-Automatic Teller Machines.
6. M-PESA-Mobile money

CHAPTER ONE: INTRODUCTION

1.1 Introduction to Innovations

Innovation can be defined as a new and original idea that successfully resolves a problem or improves existing product. Innovation deals with processes, products, services and technology. Cummings (1998) stated that innovation management processes can either be linear or continuous .In the business environment innovation is understood to be a catalyst to growth as it provides unique products and services to consumers. (Dodgson et al., 2008) suggest that innovations are essential for a firm to remain in business.

There are three main types of innovation: process, product/service and strategy. Innovations vary in the degree of newness and impact. Process innovation is the implementation of improved production or delivery methods. Product/Service innovations involves generation of new or improved product or services, they can either be incremental or radical. Incremental product/service innovation is oriented toward improving the features and functionality of existing products and services. Radical product/service innovation is oriented toward creating wholly new products and/or services. Product life cycles have become shorter causing business survival to depend on new product/service development. The increase in speed to innovate in order to develop and bring new products to market have been driven by competition (Jonash and Sommerlatte, 1999).Strategy innovations are planned improvement activities to achieve a certain goal in a given business environment. They include radically reconceiving products and services, developing new products and services, redefining market space and redrawing industry boundaries.

Innovations are understood to be mainly stimulated by the urge to reduce cost, improve quality, increase speed and flexibility from an operations perspective. According to Hamel (1996), companies increasingly feel they must promote their image and this has become a major driver of environmental and sustainable development innovations.

The drivers of innovation and the importance of radical business concept in innovation are important for organization survival. The innovations are made with the aim of improving service quality in any business environment. The quality improvement can be with regards to both functional and technical aspect.

Innovation has become a leading driver to help organizations meet one of its key objectives; profitability. Davila et al. (2006) notes, "Companies cannot grow through cost reduction and reengineering alone. Innovation is a key element in providing aggressive top-line growth, and for increasing bottom-line results."

1.1.1 Sources of innovation

Ducker (1993) stated that innovation consists of purposeful and organized search for changes and systematic analysis of opportunities that may offer economic and social growth. Ducker discussed the sources of innovation as follows. First, the unexpected; this is an occurrence that is abrupt, it has both probability of success or failure. Secondly, Incongruities; these are conflicts between opposing functions, requirements or values that may be the start of an innovation. Third. Process needs, “necessity is the mother of invention”. These are innovations that are purely initiated by the need that arise, for example Kenya didn’t have adequate money transfer means. This need drove the rise of M-pesa which was a money transfer means through telecommunication. Fourth, Industry and market structure: Industry and market structure may offer opportunities for new types of services, for examples the merging of computer industry with consumer electronics or IT with business consulting services. Fifth, Demographics: Demographics have been a major source of innovation creating opportunities for new types of products and services. Life style drugs such as Viagra are just examples where the growing group of elderly people who feel themselves still very healthy and who would like to enjoy life longer can conquer the effects of biological aging. Lastly new Knowledge; this has produced many opportunities for new products. The emergence of micro-electronics and new programming methods and tools, biotechnology, nano-technology etc.

1.1.1 Drivers of Innovation

Innovations are initiated by both internal and external drivers. The internal drives are attributed within an organization that will foster innovations, whereas external drivers are outward factors that influence how innovations can be adopted. The drivers of innovations can be as follows : Financial pressures to decrease costs, increase efficiency, do more with less; Increased competition; Shorter product life cycles; Value migration; Stricter regulations; Industry and community needs for sustainable development; Increased demand for accountability; Demographic, social, and market changes; Rising customer expectations regarding service and quality; Greater availability of potentially useful new technologies coupled with the need to keep up or exceed the competition in applying these new technologies and the changing economy. The high levels of competition and the desire to improve in profitability are major reasons that drive innovations. The stiff competitive environment has pushed companies to improve on their competitive advantage through innovative methods and practices. This has been done by adoption of new technologies and by provision of quality products and services.

1.1.2 Service quality

Service quality is an assessment of how well a delivered service conforms to the client's expectations. Service business operators often assess the service quality provided to their customers in order to improve their service and to quickly identify problems. Service quality is needed for creating customer satisfaction; service quality is connected to customer perceptions and customer expectations. Oliver (1997) argues that service quality can be described as the result from customer comparisons between their expectations about the service they will use and their perceptions about the service company. That means that if the perceptions would be higher than the expectations the service will be considered excellent, if the expectations equal the perceptions the service is considered good and if the expectations are not met the service will be considered bad.

The general concept of customers that are dissatisfied is that they can create a bad image and reduce customer loyalty and therefore it has negative effects on long term

profit margin. In order to make customers satisfied the company has to invest more money in good employees, innovations and better equipment.

1.1.3 Innovations and service quality.

Technological innovation builds operational effectiveness on areas such as system quality, information quality, service quality, user satisfaction. The performance objectives stemming from operational effectiveness such as cost, quality, reliability, flexibility and speed are important and significantly well-correlated factors. These factors promote the alignment between technological innovation effectiveness and operational effectiveness and should be the focus for managers in achieving effective implementation of technological innovations (Taylor, 2013).

The success of telecommunication industry depends on prudent efforts and feasible investments. In a competitive market, service providers are expected to compete on both price and quality of services and also it is necessary for the service providers to meet the consumers' requirements and expectations in price and service quality (Melody, 2001).

Quality is generally regarded as being a key factor in the creation of worth and in influencing customer satisfaction. Hence, the telecommunication industry in Kenya has to be strategically positioned to provide quality services to customers. To provide improved quality service, telecommunication companies need to investigate degree of customers' sensitivity, level of innovation and expectations toward service quality. Telecommunication outfits should be able to strategically focus service quality objectives and procedures to fit the Kenyan market.

Telecommunications sector in Kenya

Telecommunications is a form of communication at a distance by technological means, particularly through electrical signals or electromagnetic waves. It mainly involves the fixed line segment, the mobile telephone services and internet data services. The mobile telephone services in Kenya started in 1992 with the Extended

Total Access Communication System analogue system which was commercially launched in 1993. Then the elite of the society were the only ones who could afford them. This resulted in a marginal mobile subscriber growth of less than 20,000 for a period of seven years (from 1993-1999). The enactment of the Kenya Communications Act in 1998 saw the introduction of competition in the industry. The mobile telephone market segment continued to experience competition amongst the four mobile network operators, namely Safaricom Limited (Safaricom), Airtel Networks Kenya Limited (Airtel), Essar Telecoms Kenya Limited (yu), and Telkom Kenya Limited (Orange). Mobile cellular subscriptions grew from 25.2 million in June 2011 to 29.7 million in June 2012, representing a 17.5 percent growth. Operators also increased their mobile capacity to 49.977 million compared to 47.677 million recorded in the previous year, CCK (2013).

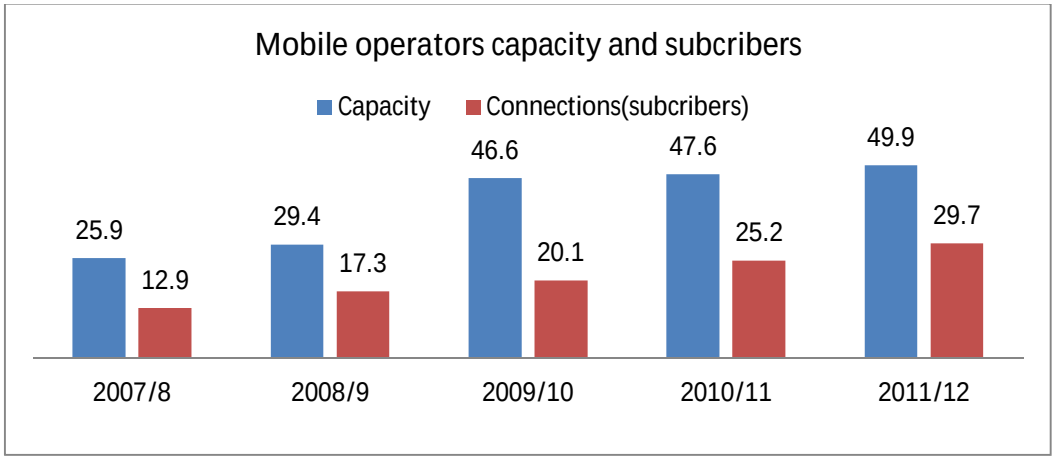


Figure 1-1: Shows the mobile network growth indicators, CCK (2013).

In the mobile data internet subscriptions grew by 1.9 per cent to reach 9.5 million up from 9.4 million. Data service promotions and special offers by mobile operators during the period confirm their keenness to continue growing their market shares and consequently contributing to the increase in mobile data/internet subscriptions, CCK (2013). In the fixed line segment the number of fixed terrestrial lines declined by 8.9 per cent to stand at 59,851 up from 65,710 lines. This decline could be

attributed to vandalism of copper cables as well as high maintenance costs and a marked shift to mobile telephony.

CCK (2013), Indicates that mobile subscriptions grew from 30.55m in 2012/13 to 32.25m in 2013/14. A growth of 5.6% showing increased uptake of mobile services .end of June 2014,Safaricom had the largest share of subscribers 29.9m, Airtel 5.06m, Orange 2.68m and YU 2.56m, with respective market share as shown below.

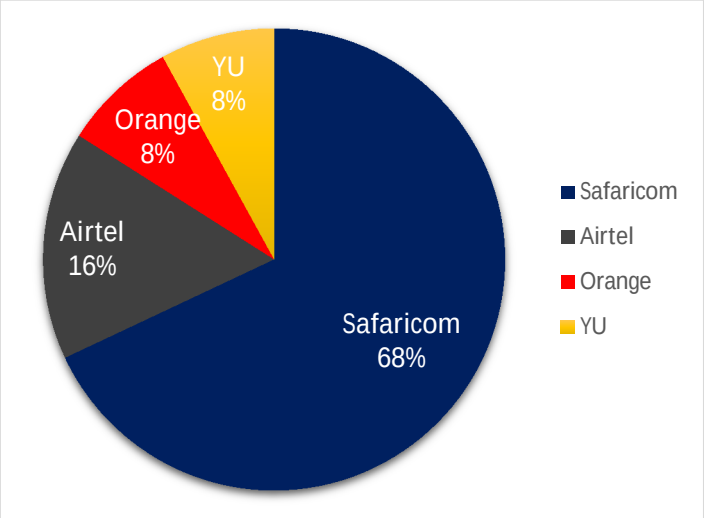


Figure 1-2: Mobile network services market share by operator, CCK (2014).

One of the more intriguing aspects of telecommunications in Kenya in recent years has been the establishment of a variety of special purpose networks making use of state-of-the-art technology and innovations to solve specific communications problems. The majority of these innovations have been established by international public sector organizations, by universities and other research institutions, by nonprofit organizations, and by the financial services sector. For example the use of M-Pesa money transfer concept was adopted by most financial institution. Innovations can be measured the number of new product offer by the different player.

The continuing concerns expressed by users focused mainly on the availability of service and the degree of service reliability and congestion in rural areas. The quality

of mobile and fixed line telephony has been measured by the clarity of service; call success rate and call drop rate, in the internet data speed and sustenance of the connection are the measures of quality.

(Riggs, 1983) noted that in telecommunication market customers bring higher expectations for communication from its service providers, and if companies are not able to meet these expectations the customers will take their business elsewhere. The consumers want and expectations are altering all the time, this directs to a condition where customers create even higher benchmarks

1.2 Research problem

Innovation is important for companies across all sectors of the economy, in both slow and rapidly changing environments. Keeping up with the latest innovations, as opposed to adopting only those innovations that appear to be most successful. To be market leaders companies requires that they be more innovative than the competition. Established companies must be prepared to know when and how best to make the necessary adjustments to potentially challenging innovations. Being adept at responding and adapting to change is also a prerequisite to ensure that the company will be able to compete successfully in the future. As Hamel (2000) noted, an innovation competency may be the new competitive advantage in the new millennium. An innovation competency could help organizations better manage the risks as well as reap the benefits of innovation. To be particular consumers prefer service quality when the price and other cost elements are held constant, and organizations prefer to make profits.

Telecommunication industry in Kenya has become very competitive. Many firms in this sector have to come up with new and improved ideas to better services and products. They employ innovations to help improve service quality as well as improve the overall organization performance. According to Lehtinen (1991), service quality helps to create the necessary competitive advantage by being an effective differentiating factor. This study shows the contribution of innovations towards service quality and organizational performance. We will look at how innovations help improve quality in the telecommunications industry. This will be

examined by the innovations on processes, product and service that have improved levels of service quality.

There are no much studies on innovations and service quality. Dachyar (2013) study on the Role of Innovation Management Model to Improve Service Quality concluded that companies have to make new strategy for innovation for better quality services in order to maintain number of customers. The good innovations can continuously generate better service and product quality. Njeri (2010) did a study on the effects of technological innovations on the financial performance of the commercial banks in Kenya. The study concludes that the banks had employed various technological innovations i.e. ATM services, mobile phone transactions and internet based banking services. The study further concludes that technological innovations had led to improved financial performance of commercial banks in Kenya. This was through increased bank sales, profits increment and return on equity.

This research will establish the contribution of innovation towards service quality and organizational performance. This study will focus on telecommunication in Kenya. It will answer the following research questions: What is the relationship between service quality and Innovations? What are the key drivers of innovations in the telecom sector?

1.3 Specific Objectives

To address the research Problem, we intend achieve the following Specific objectives:

i. To identify the key innovations in the telecom sector.
ii. To find out the relationship between innovation and service quality in telecom Sector.
iii. To identify the main drivers of innovations and effects of innovation in the telecom industry.
iv. To establish service quality attributes in telecommunication sector.

1.4 Value of the study

The study will clearly show how the telecommunications industry with different levels of innovation can improve service quality and market performance.

The study will help other business men to learn from the impact of innovation and service quality within the telecommunication industry. This study also shows whether innovations impacts on the overall profitability of the organization.

This study will also help Scholars as an important reference material from which future studies in the area of innovation and service quality can be done. It will also act as a source of knowledge.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

In this chapter, literature reporting studies on innovations and service quality in telecommunication is reviewed. The issues involved are the general view of innovation; Service quality concept. The global and local over view of telecommunication. Current innovations in the telecommunication sector, innovations and organization performance and finally, summary of the literature?

2.2 Innovations

Schumpeter (1995) defined innovation as encompassing the entire process, starting from a kernel of an idea continuing through all the steps to reach a marketable product that changes the economy. Technological innovation in telecommunication industry will involve management of innovations strategy, research and development, design and new product, service development, operations and value service delivery. These are both internal and external drivers of innovations.

2.2.1 Internal drivers for innovations

Oke (2002) suggests that the first step in formulating an innovation strategy is to define what innovation means to the organization or to specify the focus areas for innovation, He further states that innovation strategy provides a clear direction and focuses the effort of the entire organization on a common innovation goal.

Gunday et al. (2008) demonstrate that human capital, which encompasses the skills, creativity and experience of individuals, is the most valuable resource for innovation and therefore they suggest that organizations should invest in human capital by improving education, training and learning opportunities as well as developing the innovation skills of their workforce. Human resources with the explicit knowledge are always best placed to come up with new ideas on product and service improvement.

Montes et al.2004) that suggest managers should promote an organizational climate in which workers in their posts are recognized for their efforts towards innovation.

Montes further stated that a climate that is characterized by cohesion and support for workers creates a stimulus for them to invest their time and effort in innovation. A conducive work environment is vital to harness the full potential of your workforce.

Cohen and Leviathan (1989, 1990) argue that the capabilities to identify, evaluate and exploit external knowledge are developed while performing R&D activities internally.

2.2.2 External Innovations drivers.

The organization is influenced by the external environment as the organization creates new knowledge and information out of its analyses of the environment (Merx-Chermin and Nijhof, 2005). The external environment according to (Pearce and Robinson, 2003) comprises factors beyond any single organization's operating situation, they include economic, social, political, technological and ecological factors.

Political decisions may have an impact on various vital characteristics of organizations for example the education of the workforce, the health of the nation and the quality and kind of infrastructure of the economy such as road, rail, air and water transport systems (Marr 2009).The infrastructure creates a platform which can spur innovations.

Goh (2003, 2005) recommends that developing nations should formulate their own industrial and innovation policy according to their unique political and socio-economic conditions. In kenya we have the Kenya Information and Communications (Amendment) Bill which will support the media to be free, fair and responsible in conducting their business, It also help formulate policies which will foster growth.

Most empirical research and surveys of organizations show that innovation leads to new products and services that are higher in quality and lower in price (Rose et al.,

2009). In the telecommunication industry we have seen development of better quality voice and data services at reducing costs over the years.

Technological advances that have an impact on an organization and its levels of automation, achievement and potential, provide a fertile ground for innovative activities that result in new or improved goods and services (Marr 2009). For example we are seeing a shift from voice call over mobile phones to voice call on internet call, which is cheaper over short and long distances. Applications such as Skype are becoming instrumental communication tools.

Porter and Stern (2002) state that innovation activities of the organizations within a country are strongly influenced by national policy rooted on innovative imperatives. Goh (2005) states that, to achieve an innovation-driven economy, particularly in developing countries, the objective of industrial policy generation should be an accelerated pace of competitive and sustainable industrial growth within a functional framework characterized by a growing market orientation and private sector-led development. In Kenya the telecommunication sector is highly privatized and is run by CCK, a regulator of the players, to enhance fair competition and to spur growth.

2.3 Service quality concept

Service quality can be described as a rationale of differences between expectation and competence along the important quality dimensions. Service quality is judged low when the performance was below expectation. There are different models that have been used to discuss service quality. Gravin (1998) model defines eight dimensions for product quality: performance, features, reliability, conformance, durability, serviceability, aesthetics, and perceived quality. Johnston et al (1990) model lists eighteen dimensions which are categorized into satisfiers and dissatisfiers. Parasuraman et al (1990) identified ten requirements useful for customers' evaluation of the quality of services: reliability, responsiveness, tangibles, communication, credibility, security, competence, courtesy,

understanding the customers and service accessibility. Parasuraman proposed a service quality scale (SERVQUAL), a generic instrument that has five dimensions of service quality: reliability, responsiveness, assurance, empathy and tangibles, the constructs were found to have high correlation.

In this study we will focus on the servqual model. The servqual model is a common diagnostic tool used to measure customer service and perceived satisfaction. The five dimensions are as described: Reliability is the service company ability to deliver promises on time. In this study we focused on five factors that could predict the quality of the service provided by the investigated telecommunication service provider. Responsiveness is the degree to which customers perceive service providers' readiness to assist them promptly. Assurance is the degree of courtesy of service providers' workers and their ability to communicate trust to customers. Empathy is the care and importance the service provider gives to an individual customer, and the degree to which specific customer needs and preferences can be understood and articulated. Lastly, tangibility is the evidence of facilities, personnel, and communication materials used by the company while offering services to customers, Hernon, (2001).

2.3.1 Service Quality Gap

In previous service research, meeting and exceeding expectations of clients and customers is a perspective that has gained most attraction. This concept is all inclusive and cuts across service domains, but expectations change and experiences with alternate service providers could shape the customers' expectations. The important research gap here is attaining customers' expectation towards a particular service, Hernon (2001).

A gap is the difference, imbalance or disparity which is determined to exist between customers' perception of firm performance and their prior expectation. Service quality perceived by customers is therefore as a result of a comparison of customers' expectation of services that the organization should offer versus their perception of

the performance delivered by the service organization. Management of service quality largely focuses on managing the gaps between expectations and perceptions of customers, (Zeithaml, 2003).

2.3.2 Innovations and organization performance.

Indubitably organizational innovations will cause some level of change. According to Schumpeter (2000), innovations had a substantial economic impact. The innovating organization was likely to become the new market leader and to gain an immense advantage over its competitors. Innovations are likely to cause various organizational impacts (organizational changes, challenges, and issues) , they may also bring about the desired performance results, such as profitability, effectiveness, efficiency, cost savings, customer value, or a transformation of the market place.

2.4 Telecommunication industry

2.4.1 Global view

The Telecom Industry world-wide has evolved & transformed rapidly and radically from Plain voice & messaging to rich media & complex services. With over five billion people owning mobile phones, and the number of global 3G mobile internet subscribers reaching a billion by 2012. Globally, the various forces and challenges that telecommunication need to deal with are: high competition, telecom regulation, falling costs, expectations of excellence in service delivery, Return on investments for stakeholders. Innovation and creating value-webs at every level will be key to survival and growth for organizations (Kelen , 2005). Falling prices of voice call & broadband, innovation in telecommunications services is key to survival and growth as stated by (Sriram, 2009). According to Garvin (1987), Telecommunications companies that want to move forward progressively, shifting from offering low cost but having to focusing on quality of services and innovations. Companies like AT&T had restricted communications services through high interconnection charges and monopoly. They created a regressive and anti-competitive structure.

They were able to provide a nationwide wire line network, but government regulation aimed at protecting monopolistic structure delayed competition, as well as opportunities for innovation in other lines of business.

2.4.2 Local perspective

The mobile industry is among the fastest growing industries in Kenya. According to the Communications Commission of Kenya (CCK), the mobile service providers are- Safaricom, Airtel, Orange and Yu. The Internet/data market segment witnessed an increase in the number of subscriptions1 by 1.9% from 9.4 million during the previous quarter to 9.6 million. This growth could have largely been driven by the promotions and special offers. Mobile telephony penetration declined from 78.0% (30.7 million subscribers) recorded in 2012 to 75.8% (29.8 million) in 2013. The decline was mainly attributed to an estimated 2.4 million unregistered SIM cards which were switched-off during the SIM card registration. Below is a distribution of market share for each service provider.

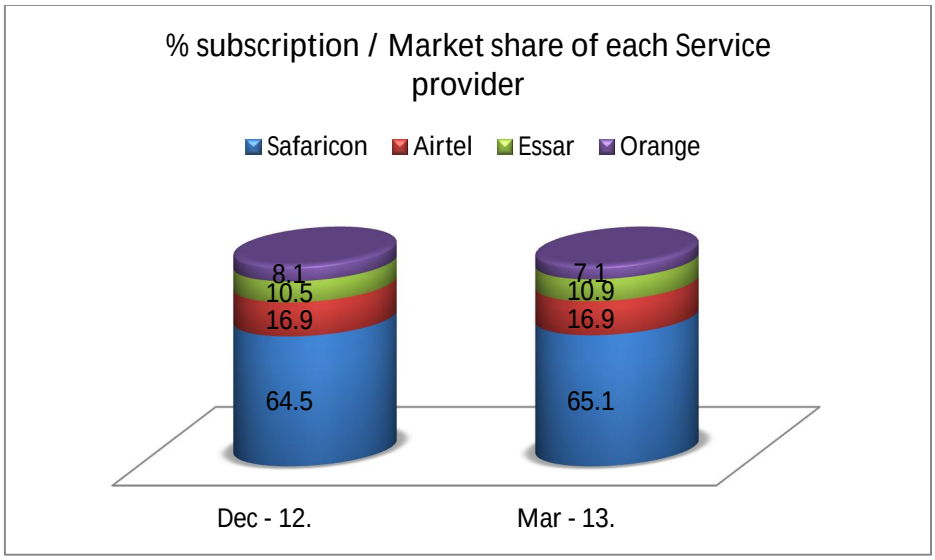


Figure 2-1: Percentage subscription per market share of each service provider, CCK, (2013).

2.5 Innovations in Telecommunication in Kenya.

The innovation concept includes product, process, billing and marketing innovations, etc. However, a large part of the innovations, which in daily activities actually affect the market shares of operators, is related to billing methods and smaller product and service improvements. A well-known example of such innovation is the pre-paid card in the mobile market in the late 1990s. This kind of innovation is a mixture of business models and technological improvements and is included within the boundaries of this paper. Only sheer marketing innovations as, for instance, advertisement campaigns and branding initiatives, are considered outside the scope of this investigation.

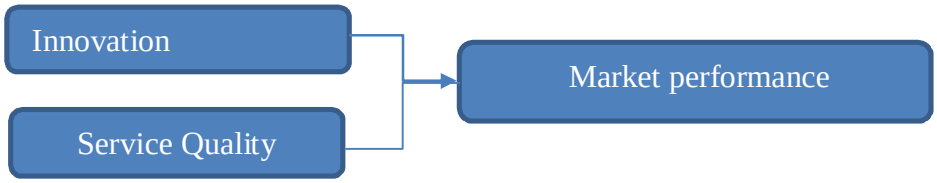
An incremental innovation is, for example, a new service developed on the basis of an IN product development platform. A radical innovation is, for instance, the implementation of 3G systems in the mobile area. The transition from a 2G to a 3G system can be made more or less smoothly. However, a fully developed 3G system could lead to radically new communication possibilities.

Other innovations in the telecommunication Include service and product innovations, namely: Mobile money -The product concept of mobile money is very simple: a customer can use his or her mobile phone to move money quickly, securely, and across great distances, directly to another mobile phone user; Cloud Computing- is an online-based computing in which shared resources (such as network printers), software, and information are provided to computers and other devices on demand. Telepresence- is a video or audio solution that enables users to effortlessly and securely connect with colleagues, customers, and partners across many locations in a way that feels like participants are across the table; Teletriage- is a service that enables customers to get information on various medical issues though the phone. The service also allows customers to reach medical services quickly to talk to a qualified medical practitioner through the phone. This is a service from telecommunication companies that allows you to entertain your callers with your or their favorite song instead of “Ring Ring” while they wait for you to answer your phone.

2.6 Summary of Literature Review and Conceptual frame work.

In summary, there was no much study done on the field of innovations in relations to telecommunication. According to Kelen (2005), study shows that innovation in telecommunication can be used as a competitive advantage tool. Sriram (2009), study also concluded that for telecommunications firm to stay in business firms must innovate. There is very high competition in telecommunication industry. This study will focus on innovations, service quality and organization performance. It will put to perspective how innovations impact service quality and to show how the Servqual model dimensions contribute to service quality.

The conceptual framework used in this study is as described below.



Independent Variable Dependent Variable

Figure 2-2: Conceptual frame works

This paper developed a conceptual framework, the first aim of which is to examine the predictive ability as well as the nature and strength of relationship between service quality, organizational performance and Innovation. All constructs were conceptualized to fit better into the current study setting.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research approach that was used in this study. It highlighted the Research design adopted. This will be followed by an explanation of the target population. Finally, tools and techniques that were used for data collection and analysis will be discussed.

3.2 Research Design

The key issue in this study was to determine how innovations and service quality impacts on telecommunication operations in Kenya. A decision was made as to whether to use a survey or a census. A survey was adopted because it focuses on a segment of the population, whereas a census focuses on total population. A survey is used where a population is very large and we cannot take a census.

For part A of the questionnaire a census was carried out on the four telecommunication companies in Kenya; Orange, YU, Safaricom and Airtel, we targeted four employees from innovation and development department. A randomly taken survey represents the description of the targeted population and was used for part B of the questionnaire targeting the telecommunication consumers.

3.3 Population

The study is a survey on the telecommunication consumers. The telecommunication firms are: Safaricom Ltd, Airtel Ltd, Orange Kenya Ltd and Yu mobile Ltd. The targeted sample size of telecommunication consumer will be 150 respondents. Using the formula -sample size (n) = $(1.96^2 * ð^2))/E^2$. The Error rate considered is 4, confidence level 95% and a std of 25. (n) = $(1.96^2 * 25^2))/4^2 = 150$. The sample size will be assumed to represent the population of mobile telecommunication services users in Kenya.

3.4 Data Collection

For this study primary and secondary data was used. Primary data was obtained by using a questionnaire with structured questions. Choice of questionnaire as a research instruments was informed by the considerable ease and advantages of administration (Blumberg, Cooper & Schindler, 2008). The section A of the questionnaire was administered to 16 staff members in Innovation and development department in the main telecommunications companies for information on drivers of innovation and main innovations. The section B of the questionnaire was administered to 150 telecommunication services consumers, the respondents focused on service quality dimensions namely: reliability, responsiveness, assurance, empathy and tangibles. The secondary data on market performance on the Telecommunication companies was got from CCK reports.

3.5 Data Analysis

The study has four objectives: the first objective was analyzed through quantitative analysis, the second objective was analyzed using chi-square; the Third objective was analyzed using both quantitative and regression analysis and the fourth objective was analyzed by quantitative methods.

CHAPTER FOUR: DATA ANALYSIS, PRESENTATIONS AND INTERPRETATION

4.1 Introduction

This chapter presents data analysis and interpretation related to the telecommunication service providers: Safaricom, Orange, Airtel and Yu. It will focus on the following; the main innovations, the drivers of innovations , degree of innovation in telecommunications industry and Service quality attributes namely; Tangibility/ Physical aspects .Reliability, Responsiveness, Assurance and Empathy.

The section A of the questionnaire was administered to the Innovation staff members in the main telecommunications companies for information on drivers of innovation and main innovations adopted. The section B of the questionnaire was administered to telecommunication consumers for the service quality dimensions namely: reliability, responsiveness, assurance, empathy and tangibles.

A sample size of 150 respondents was selected. The target population was administered with questionnaire by the researcher. Out of those served with questionnaire, 110 filled and returned the questionnaires. The response rate therefore was 73% which was considered sufficient. According to Mugenda & Mugenda (1999), a response rate of 50% and above is adequate for analysis.

4.2 Key innovations in telecommunication industry

The first objective was to find out the key innovations in telecommunication industry. This section A of the questionnaire was administered to staff in innovations and development department for main innovations in the telecommunication sector. To identify the main innovations adopted in the telecom sector, the respondent ranked the main innovation in a scale of 1-5 where , 5 is most innovative and 1 is the least innovative.

4.2.1 Main innovations adopted in the telecom sector

Table 4-1: Main innovations adopted in the telecom sector

Innovation	Safaricom	Airtel	YU	Orange	Mean
1. Mobile money transfer.	5	4	3	4	4.00
2.Ring back tones	4	4	4	3	3.75
3.Mobile banking services	5	3	2	2	3.00
4.Cloud computing	5	3	0	2	2.50
5.Teletriage services	4	3	0	1	2.00
6. Tele presence (Video & Audio)	4	2	1	1	2.00
7. 3G & 4 G services	4	4	2	4	3.50
Mean	4.43	3.29	1.71	2.43	2.96

Mobile money transfer and Ring back tones were the most adopted innovations in the telecommunication industry. The mobile money has revolutionized both the telecommunication and financial sectors to cater for both individuals and business. A fast, convenient, safe and affordable way to transfer money was invented in the telecommunication industry. The indicators below show how mobile money has grown in the subscriber base and has been adopted by all players in the telecommunication industry.

Table 0-2: Mobile money transfer indicators, CCK, (2014).

Telecommunication Firms	2011	2012	2013	2014	2015
Safaricom Ltd (M-Pesa)	10,232,805	14,331,941	15,083,674	17,561,999	19,776,056
Orange (Orange Money)	-	117,091	140,166	166,114	185,463
Airtel Ltd(Airtel money)	378,700	2,530,916	3,751,713	4,580,467	3,238,754
YU (yu cash)	3,881	415,779	530,149	2,291,473	2,147,139
Total Number of Subscribers	10,615,386	17,395,727	19,505,702	24,600,053	25,347,412
Total Number of Agents	32949	42313	49079	88466	110096

Safaricom was the most innovative company followed by Airtel. Safaricom is an innovation leader while the others companies were innovation followers. Most innovations in the industry were pioneered by Safaricom. The telecommunication industry is very competitive hence the innovation drive.

4.3 Relationship between innovation and service quality in telecommunication industry

The second objective was to establish relationship between innovation and service quality. To find out the relationship between innovation and service quality in telecom sector. Pearson's chi-square test was used to discover if there is a relationship between the categorical variable and Phi and Cramer's V are both tests of the strength of association between the variables

4.3.1 Relationship between innovation and service quality

The Pearson's chi-square test for independence, is used to discover if there is a relationship between two categorical variable.

Hypotheses:

H_0: Innovation is not related to service quality

H_1: Innovation is related to service quality

Relationship between innovation and service quality in Safaricom

Table 0-3: Innovation and Service Quality in Safaricom

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.000[a]	12	0.301
Likelihood Ratio	13.38	12	0.342
Linear-by-Linear Association	0.923	1	0.337
N of Valid Cases	7		

a. 21 cells (100.0%) have expected count less than 5. The minimum expected count is .14.

The results of the Pearson Chi-Square in table above shows that $\chi 2 = 14.000$, $p = .301$. Since the P>.05 this suggest that we fail to reject the null hypothesis. We conclude that there is no Relationship between innovation and service quality in Safaricom, i.e. they are independent.

Table 0-4: Phi and Cramer's V Test

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	1.414	0.301
	Cramer's V	1	0.301
N of Valid Cases		7	

The Phi and Cramer's V table 3 above tests of the strength of association cannot be considered due to no dependence.

4.3.2 Relationship between innovation and service quality in Airtel

Table 0-5: Innovation and Service Quality in Airtel

Chi-Square test

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.000[a]	12	.301
Likelihood Ratio	15.106	12	.236
Linear-by-Linear Association	.176	1	.674
N of Valid Cases	7		

a. 21 cells (100.0%) have expected count less than 5. The minimum expected count is .29.

The results of the Pearson Chi-Square in table 7 above shows that $\chi 2 = 14.000$, $p = .301$. The null hypothesis Since the P>.05. We conclude that there is no Relationship between innovation and service quality in Airtel, i.e. they are independent.

The Phi and Cramer's V table 8 below tests of the strength of association cannot be considered due to no dependence.

Table 0-6: Phi and Cramer's V Test Airtel

Symmetric Measures

			Value	Approx. Sig.
Nominal	by	Phi	1.414	.301
Nominal		Cramer's V	1.000	.301
N of Valid Cases			7	

4.3.3 Relationship between innovation and service quality in YU

Table 0-7: Innovation and Service Quality in YU

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21.000[a]	18	.279
Likelihood Ratio	17.878	18	.464
Linear-by-Linear Association	.600	1	.439
N of Valid Cases	7		

a. 28 cells (100.0%) have expected count less than 5. The minimum expected count is .14.

The results of the Pearson Chi-Square in table 9 above shows that $\chi 2 = 21.000$, $p = .279$. Since the P>.05 this suggest that we fail to reject the null hypothesis. We conclude that there is no Relationship between innovation and service quality in YU, i.e. they are independent.

Table 0-8: Phi and Cramer's V Test YU

Symmetric Measures

			Value	Approx. Sig.
Nominal	by	Phi	1.732	.279
Nominal		Cramer's V	1.000	.279
N of Valid Cases			7	

The Phi and Cramer's V table 10 above tests of the strength of association cannot be considered due to no dependence.

4.3.4 Relationship between innovation and service quality in Orange

Table 0-9: Innovation and Service Quality in Orange

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.000[a]	12	.301
Likelihood Ratio	13.380	12	.342
Linear-by-Linear Association	1.200	1	.273
N of Valid Cases	7		

The results of the Pearson Chi-Square in table 11 above shows that $\chi 2 = 14.000$, $p = .301$. Since the P>.05 we fail to reject the null hypothesis. We conclude that there is no Relationship between innovation and service quality in Orange, i.e. they are independent.

Table 0-10: Phi and Cramer's V Test Orange

Symmetric Measures

			Value	Approx. Sig.
Nominal	by	Phi	1.414	.301
Nominal		Cramer's V	1.000	.301
N of Valid Cases			7	

The Phi and Cramer's V table 12 above tests of the strength of association cannot be considered due to no dependence.

Table 0-11: chi-square summary

Summary

Firm	X^2	p	Association(P>.05)
Safaricom	14	0.301	No
Airtel	14	0.301	No
YU	21	0.279	No
Orange	14	0.301	No

Since the P>.05 this suggest that we fail to reject the null hypothesis. We conclude that there is no association between innovation and service quality in all the service provider, i.e. they are independent.

Innovation is production of new ideas to create a sustainable customer value, generate new processes and managerial procedures as stated by Nasution (2008). Service quality is more about meeting customer expectation as stated by Reeves& Bednae, (1994). So in order to sustain operations and maintain a competitive edge

innovation remains a crucial capability that must be pursued aggressively (Zahre& George, 2002)

From this study we conclude that innovation as a tool for competitive edge and not service quality. Service quality remains an internal factor of reliability, empathy, responsiveness, assurance and tangibility.

4.4 Main drivers of innovation and effect of innovation in telecommunication

The third objective was to establish the main drivers in telecommunication industry. The respondent ranked drivers of innovation on a scale of 1-5. 5 being the key driver to innovation for that organization while 1 being the least driver for innovation for that company.

4.4.1 Ranking the drivers of innovations for Telecom Providers

Table 0-12: The drivers of innovations for Telecom Providers

Drivers of Innovations	Airtel	YU	Orange	Mean
Increased Competition	4	2	4	3.33
Human capital	1	2	2	1.67
Organization climate	2	3	2	2.33
Research & Development	4	3	4	3.67
Increased quality & efficiency	4	2	4	3.48
Industrial innovation policy	3	2	3	2.67
Industry & community needs	2	3	3	2.74
Demographic & market changes	2	5	2	3.00
Cost reduction& value addition	2	1	4	2.40
Mean of drivers	2.74	2.58	3.11	2.81

Research and development, increased competition and increased quality and efficiency key drivers of innovation. Cost reduction, organization climate and human capital were least drivers of innovation. The industry is pushed to get products meet the needs of consumer, ranging from financial solutions, entertainment, information and technology and better service quality.

According to (Pearce and Robinson, 2003) the external environment comprises factors beyond any single organization's operating situation, they include economic, social, political, technological and ecological factors. The external environment fosters external drivers ranging from increased competition, research and development that influences innovation in an organization.

The effect of innovation to market performance in the telecommunication industry was subjected to a regression analysis to establish the relationship between different variables, The dependent variables are the market performance and the independent variable are the service providers degree of innovation in the telecommunication industry.

Table 0-13: Regression data summary

Telecommunication firms	Market share Performance , (CCK,2014)	Innovativeness
Safaricom	68	4.43
Airtel	16	3.29
orange	8	2.43
Yu	8	1.71

Table 0-14: Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Square Change	F Change
1	.891[a]	.794	.691	16.074	.794	7.707

The Model Summary Table above provides the Multiple Correlation (R = .891), the Multiple Correlation squared (R^2 = .794), the adjusted Multiple Correlation squared (adj.R^2 = .691), and the Standard Error of the Estimate. The multiple correlation refers to the combined correlation of each predictor with the outcome. The multiple correlation squared represents the amount of variance in the outcome which is accounted for by the predictors; here, 69% of the variability in degree of innovation for the service providers in the telecommunication industry, 31% of the variance could be attributed to by other market dynamics that should be established in further research.

Table 0-15: Anova table

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1991.260	1	1991.260	7.707	.109[b]
	Residual	516.740	2	258.370		
	Total	2508.000	3			

a. Dependent Variable: Market share

b. Predictors: (Constant), Innovativeness

The F-ratio in the **ANOVA** table tests whether the overall regression model is a good fit for the data. The ANOVA summary table 3 above, which indicates that our model's R^2 is not significantly different from zero, F = 7.707, p < .109 and we therefore conclude that the independent variables are significant predictors of the dependent.

Table 0-16: Coefficients Table

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-40.239	24.836		-1.620	.247	-147.099	66.622
	Innovativeness	22.003	7.926	.891	2.776	.109	-12.099	56.104

a. Dependent Variable: Market share

b. From the coefficient table above the unstandardized coefficients indicate how much the dependent variable varies with an independent variable when all other independent variables are held constant. From the above output, the regression equation is:
$Y = -40.239 + 22.003X_1$

Y=market share and X degree in innovation.

4.5 Service quality dimensions.

The fourth Objectives was to establish the main attributes of service quality in telecommunication under the Sevqual model. This section B of the questionnaire was administered to telecommunication consumers. The respondents ranked the service quality dimension from 1-5, 1 being least agreed and 5 being most agreed.

The service quality dimensions are: reliability, responsiveness, assurance, empathy and tangibles and have been discussed as below.

4.5.1 Tangibility/ Physical aspects

This section discusses findings on tangibility, the following factors were considered: Customer service counter is well-equipped with up-to-date facilities, Staffs are well-dressed and appear neat, and Material and information associated with the service are appealing.

4.5.1.1 YU Telecommunication Service Provider

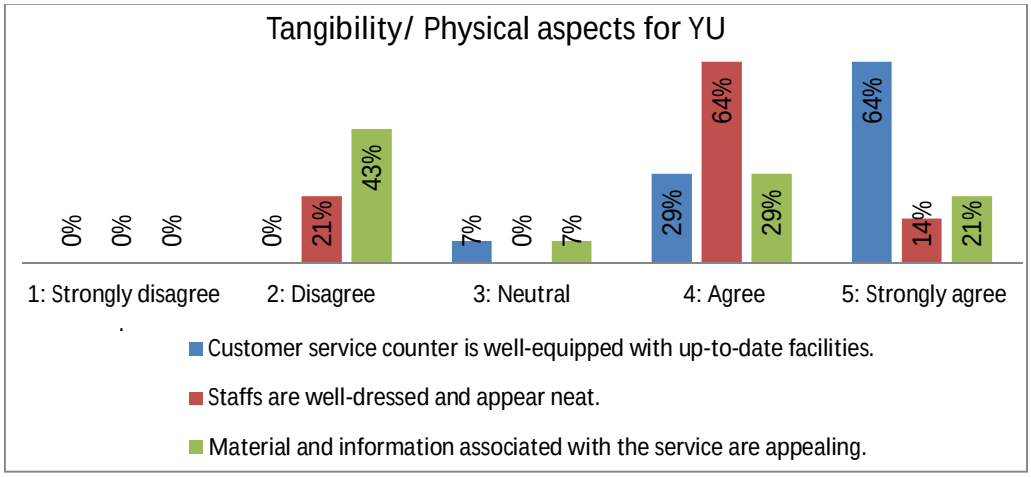


Figure 4-1: Tangibility/ Physical aspects for YU

4.5.1.2 Orange Telecommunication Service Provider

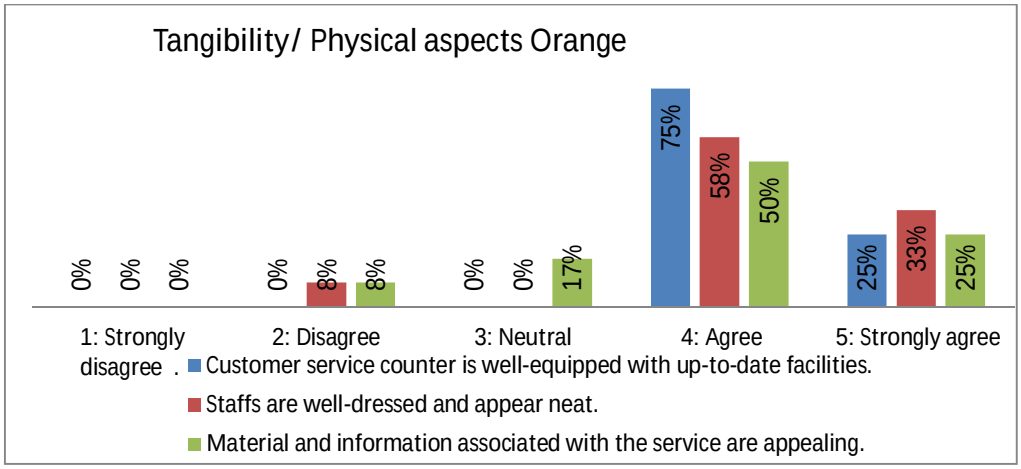


Figure 4-2: Tangibility/ Physical aspects Orange

4.5.1.3 Airtel Telecommunication Service Provider

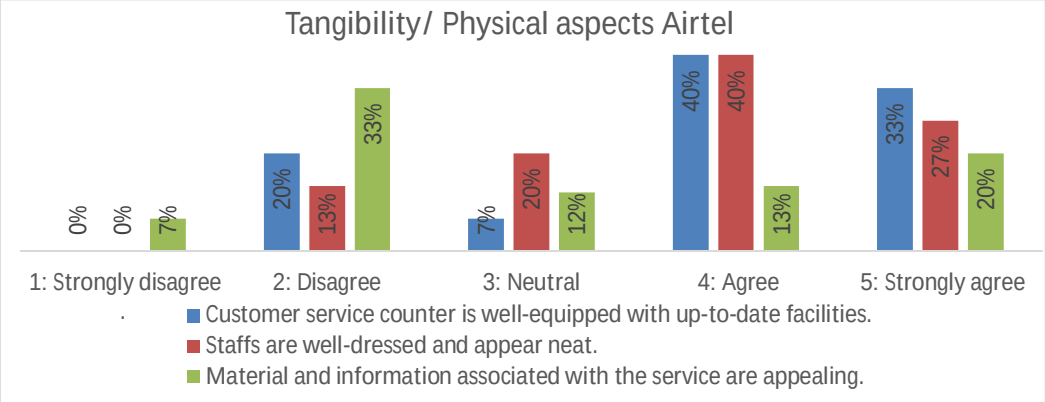


Figure 4-3: Tangibility/ Physical aspects Airtel

4.5.1.4 Airtel Telecommunication Service Provider

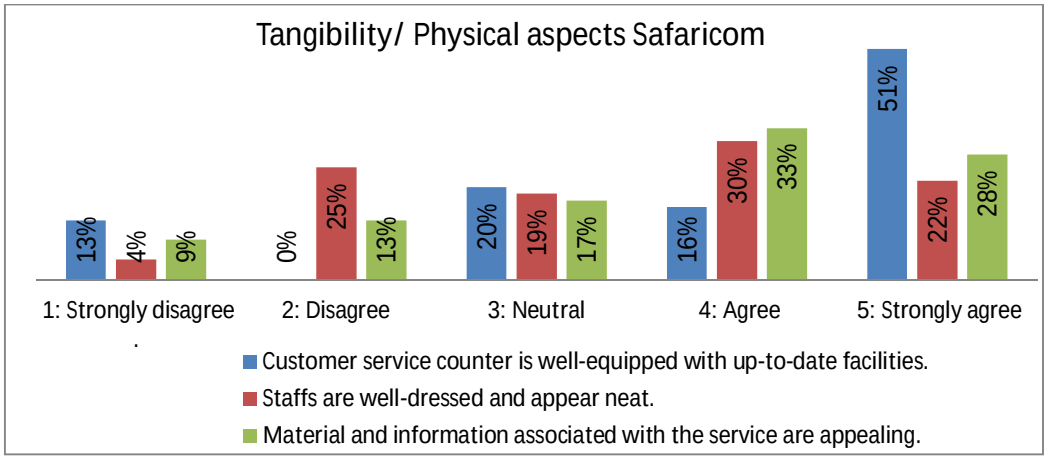


Figure 4-4: Tangibility/ Physical aspects Safaricom

Summary: Tangibility /Physical Aspects			
Attributes	Firm	Agree %	Disagree %
Customer service counter is well-equipped with up-to-date facilities	Safaicom	67	13
	Airtel	73	20
	Yu	93	
	Orange	100	
Staffs are well-dressed and appear neat	Safaicom	52	29
	Airtel	67	13
	Yu	78	21
	Orange	91	8
Material and information associated with the service are appealing	Safaicom	61	21
	Airtel	33	40
	Yu	50	43
	Orange	75	8

Table 0-17: Summary tangibility table

The research finding can be inferred that Orange company have invested a lot in the recent telecommunication technology and provides material and information of their service to enhances services to customers . To attract customers the staff are well dressed and appear neat in order to attract more clients as over 75% of respondents agreed. The study further revealed that more that 52% of the respondent agree that Safaricom staffs are well dressed and appear neat while less than 29% indicated otherwise. The company has a policy on dressing and provides its staff with branded uniform to its staff so that they may look neat this will help in attract and uphold brand identity. Safaricom and Airtel had average performance on the tangibility aspects due to larger subscriber base that could have affected level of service .Orange was ranked by respondents on tangibility as best service provider .

4.5.2 Reliability

This section discuss the findings on reliability and the following aspects were looked into: the service provider delivers services as promised and is dependable, The service provider staff is swift and reassuring in problems and The service provider has reliable network coverage and quality service for all the service provider.

4.5.2.1 YU Telecommunication Service Provider

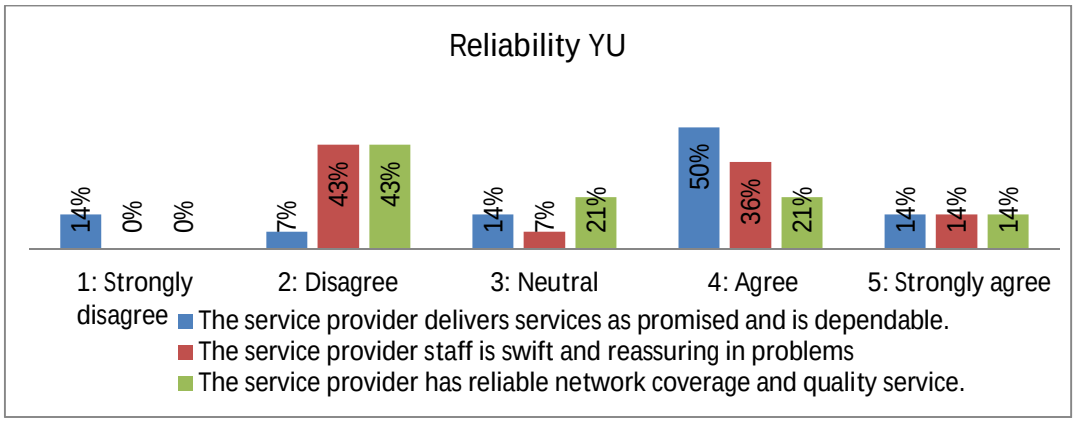


Figure 4-5: Reliability YU

4.5.2.2 Orange Telecommunication Service Provider

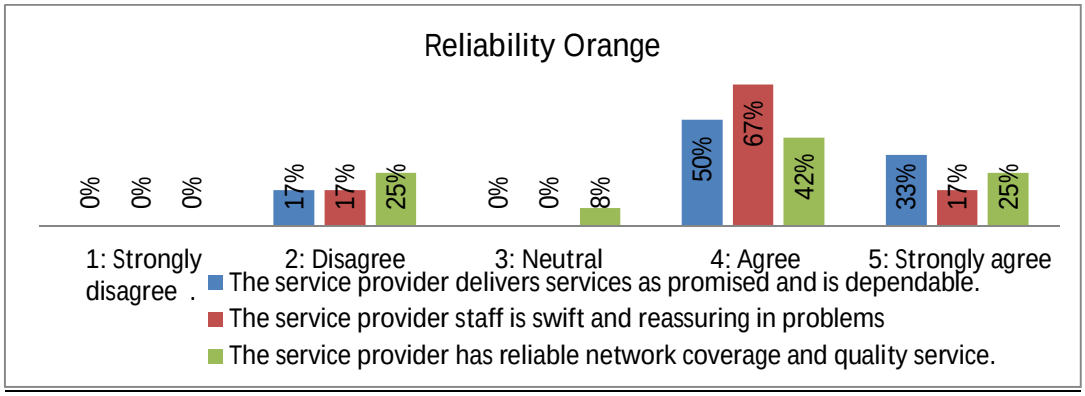


Figure 4-6: Reliability Orange

Airtel Telecommunication Service Provider

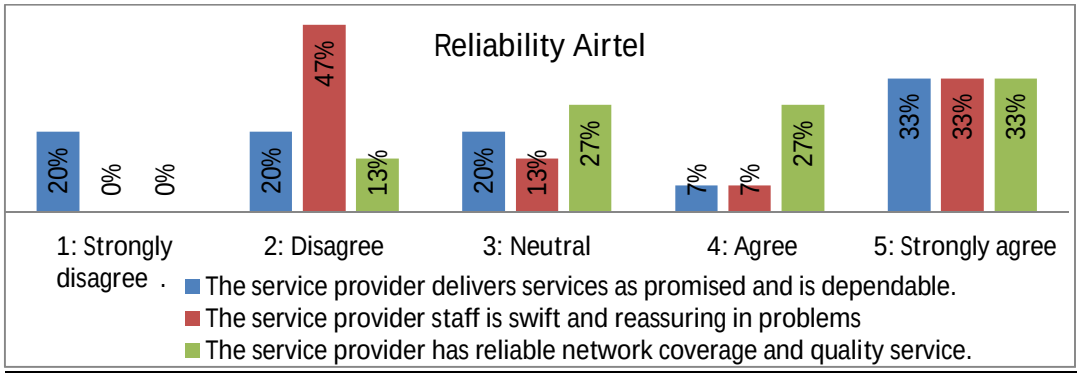


Figure 4-7: Reliability Airtel

4.5.2.3 Safaricom Telecommunication Service Provider

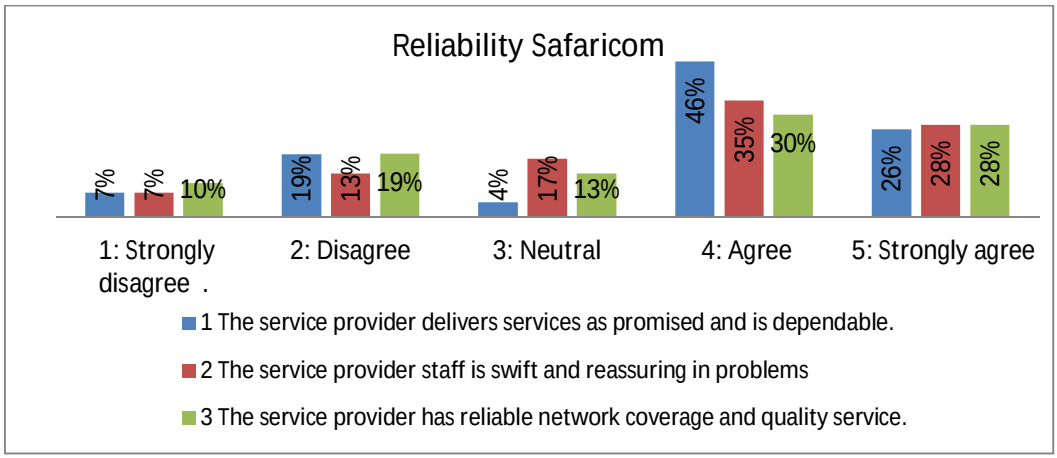


Figure 4-8: Reliability Safaricom

Summary: Reliability

Attributes	Firm	Agree %	Disagree %
The service provider delivers service as promised and is dependable	Safaicom	72	26
	Airtel	40	40
	Yu	64	21
	Orange	83	17
The service provider staff is swift and reassuring problems	Safaicom	63	20
	Airtel	40	47
	Yu	50	43
	Orange	84	17
The service provider has reliable network coverage and quality service	Safaicom	58	29
	Airtel	60	13
	Yu	35	43
	Orange	69	25

Table 0-18: Summary reliability table

We had 35% of YU respondents agree on reliable network, this indicates that the service provider had not invested adequately on telecommunication infrastructure and network coverage. The finding also shows that 84% of orange respondent agreed that the service provider staffs are swift and reassuring problems. This can be attributed by the large investment for the firm on customer's service management systems and also had improved quality of service and network coverage.

The study further revealed that at least 60 % of Airtel respondent agree that the service provider has reliable network coverage and quality service this to mean that

the firm has invested on infrastructure in order to provide adequate network coverage and improved quality of service to its client.

The study findings shows that 72% of the Safaricom respondent indicated that the service provider delivers service as promised and is dependable. Further the findings also shown that 63% of the respondent confirmed that the service provider staff is swift and reassuring problems this can be deduced that the company has trained its staff on service delivery, a robust customer service management and a broad network coverage. From study we can attest that Orange was the most reliable service provider.

4.5.3 Responsiveness

This section discuss the findings on responsiveness ,the following aspects were looked into ; The service provider staff updates customer on service, receive prompt service from the service provider staff and Service provider staff is available to respond to customer requests for all the service provider

4.5.3.1 YU Telecommunication Service Provider

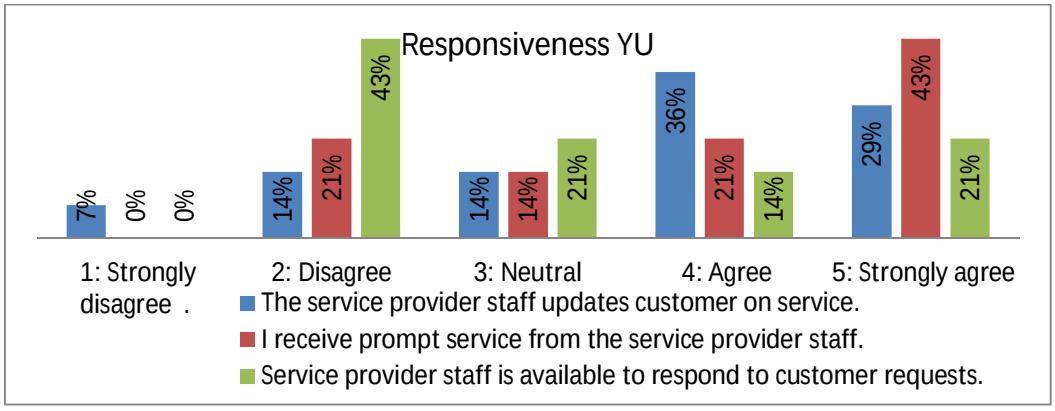


Figure 4-9: Responsiveness YU

4.5.3.2 Orange Telecommunication Service Provider

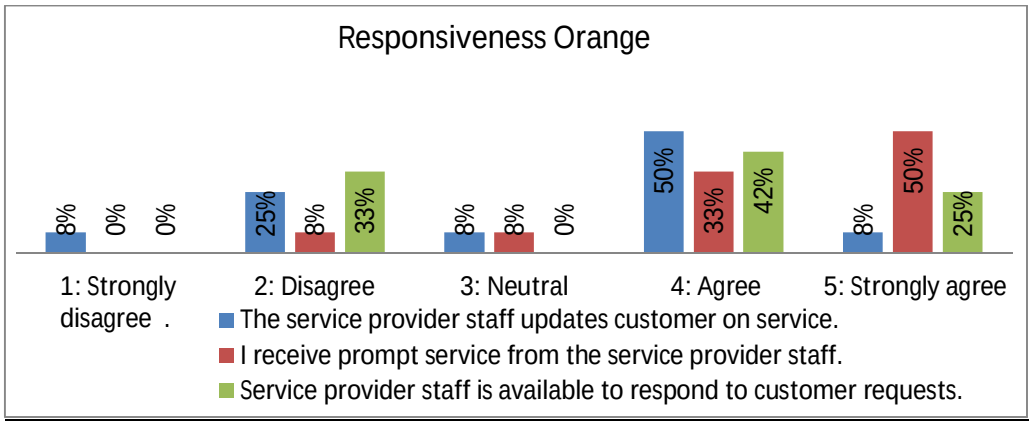


Figure 4-10: Responsiveness Orange

Airtel Telecommunication Service Provider

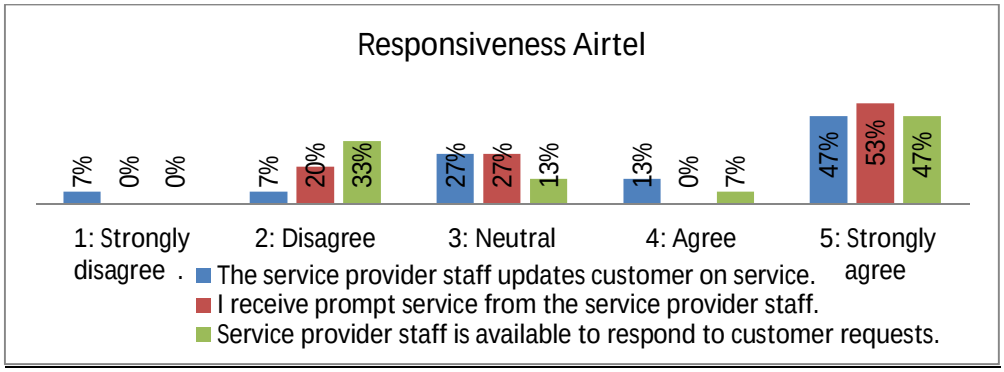


Figure 4-11: Responsiveness Airtel

4.5.3.3 Safaricom Telecommunication Service Provider

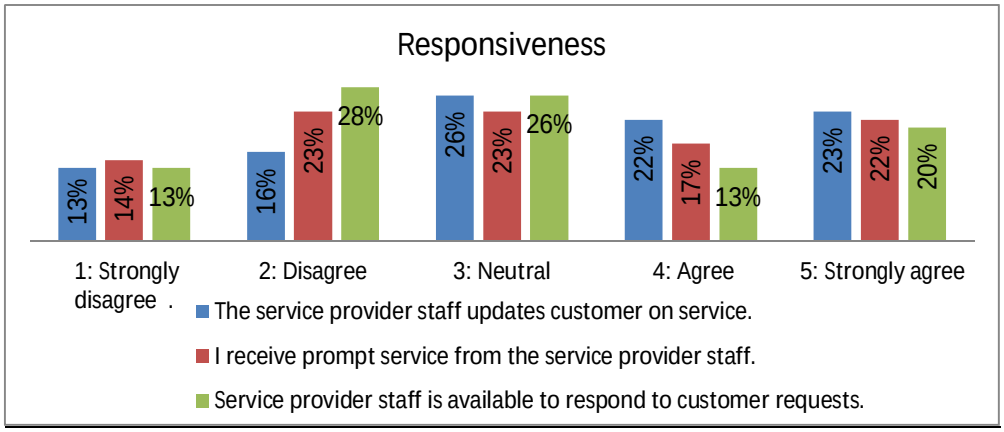


Figure 4-12: Responsiveness Safaricom

Summary: Responsiveness

Attributes	Firm	Agree %	Disagree %
The service provider staff updates customer on service	Safaicom	47	29
	Airtel	60	14
	Yu	65	21
	Orange	58	33
Receive prompt service from service provider staff	Safaicom	39	37
	Airtel	60	20
	Yu	64	21
	Orange	83	8
The service provider staff is available to respond to customer requests,	Safaicom	33	41
	Airtel	54	33
	Yu	35	43
	Orange	67	33

Table 0-19: Summary responsiveness table

The study findings revealed that a 64% of the YU respondent agree on prompt service , This can be interpreted that the service provider has shown considerable responsiveness on customer updates, prompt service from their staff, the response to customers request is significantly low due to low subscriber base.

The study findings revealed that 83% of the orange respondent agree on prompt service. These findings indicate service provider staff provide significantly updates to its client, provide prompt service and that the staff are available to respond to clients request so the level of responsiveness is significantly well.

The study findings observed that at least 60% of the Airtel respondent agree that service provider gave prompt services and updates to subscribers this indicated a great customer care experience. Safaricom has 39% response on prompt service response levels this is attributed to by a large customer base over ten million subscribers and a low customer support mechanisms. This is explained by jammed calls on customer support lines.

4.5.4 Assurance

This section discuss the findings on assurance ,, on the following items; I can trust the service provider staff, The customer service staff is polite and patient in

resolving problems and Customer service staff seems to be competent for all the service provider.

4.5.4.1 YU Telecommunication Service Provider

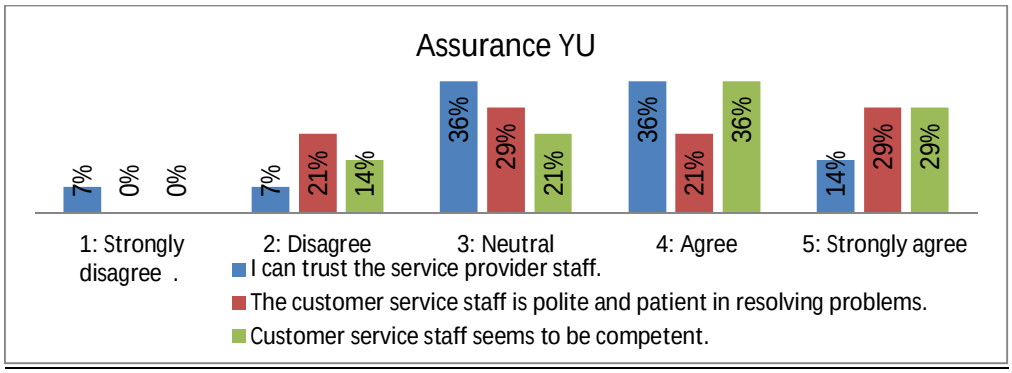


Figure 4-13: Assurance YU

4.5.4.2 Orange Telecommunication Service Provider

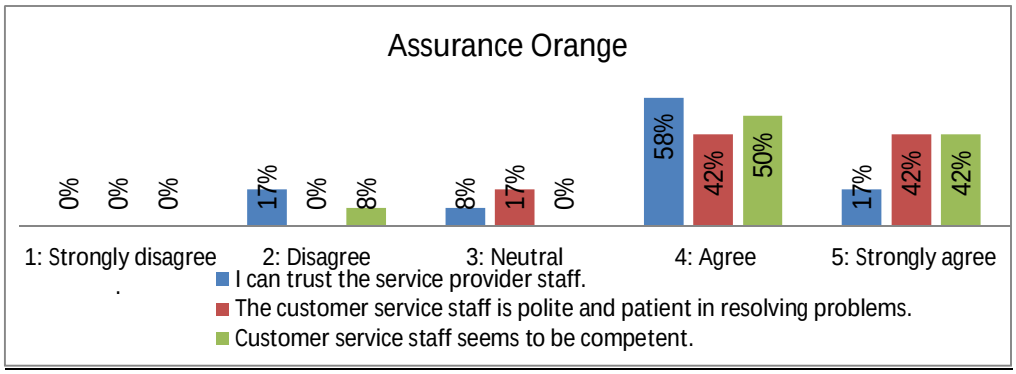


Figure 4-14: Assurance Orange

4.5.4.3 Airtel Telecommunication Service Provider

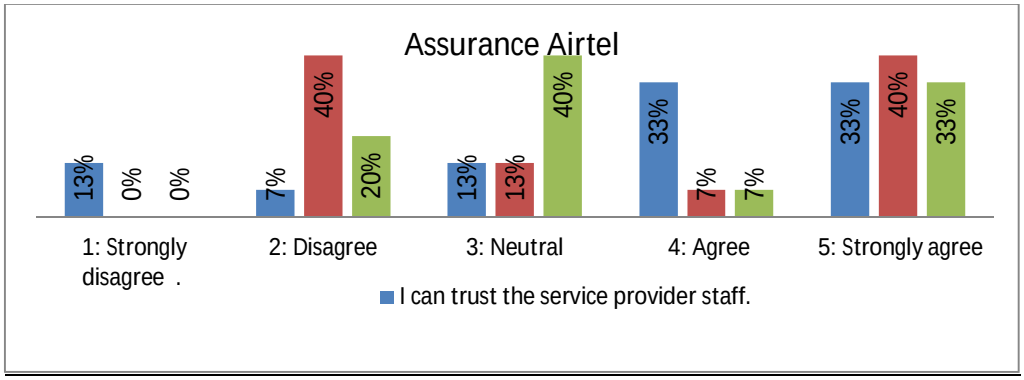


Figure 4-15: Assurance Airtel

4.5.4.4 Safaricom Telecommunication Service Provider

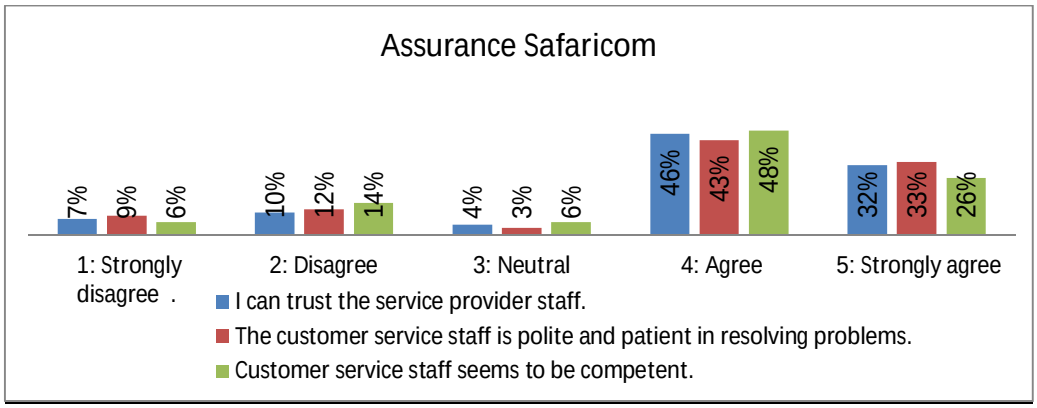


Figure 4-16: Assurance Safaricom

Table 0-20: Summary assurance table

Summary : Assurance

Attributes	Firm	Agree %	Disagree %
I can trust the service provider staff	Safaicom	17	78
	Airtel	66	20
	Yu	50	14
	Orange	75	17
The customer service staffs are polite and patient in resolving problems	Safaicom	21	76
	Airtel	47	40
	Yu	50	21
	Orange	84	
The customer service staff seems to be competent	Safaicom	20	74
	Airtel	40	20
	Yu	65	14
	Orange	92	8

The study results revealed that 50% of the respondents agree that they can trust YU service provider. This shows a moderate level of customer assurance from the company. The customers trust the service provider staff and the customer's service staff are very competent this show a better service level.

The study results revealed that 92 % of the respondents were comfortable with the competency levels of the Orange staff, this may have been from excellent customer care experience.

The study results revealed that 40% of the airtel respondents think that customer service staff are polite and patient in resolving customer problems , This can be attributed to the level of training of staff in customers service and customer service process.

The study results revealed that 18% of the respondents from safaricom can trust the service provider staff. This can be attributed to high level of fraud cases reported in this service line from the public and there is a lot of sensitization by the service provider to keep you service line personal and protected. From the finding orange had the best rating on assurance from the service providers.

4.5.5 Empathy

This section discuss the findings on empathy ,the data focused on the following attributes; The service provider staff gives client individual attention, customer are interest in the services provided by the service provider and The service provider operates according to the convenient business hours to all the service provider.

4.5.5.1 YU Telecommunication Service Provider

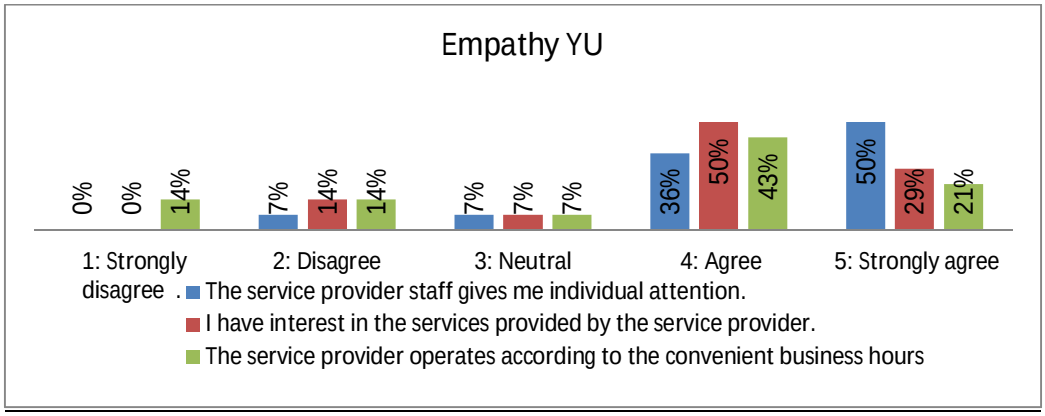


Figure 4-17: Empathy YU

4.5.5.2 Orange Telecommunication Service Provider

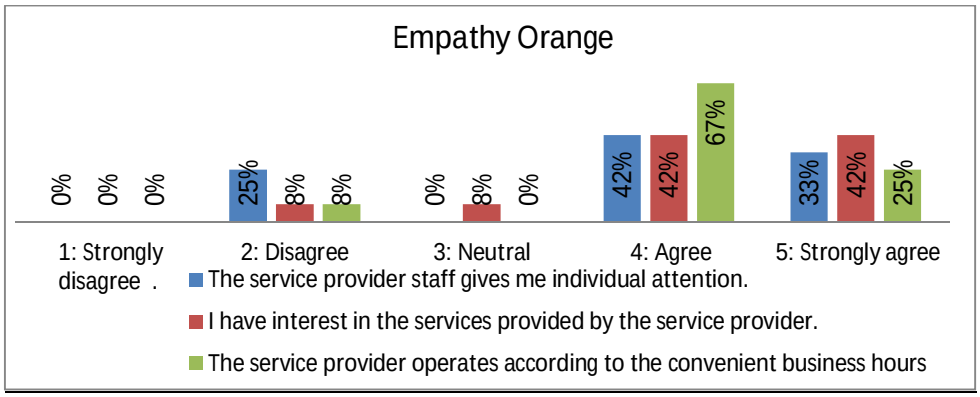


Figure 4-18: Empathy Orange

4.5.5.3 Airtel Telecommunication Service Provider

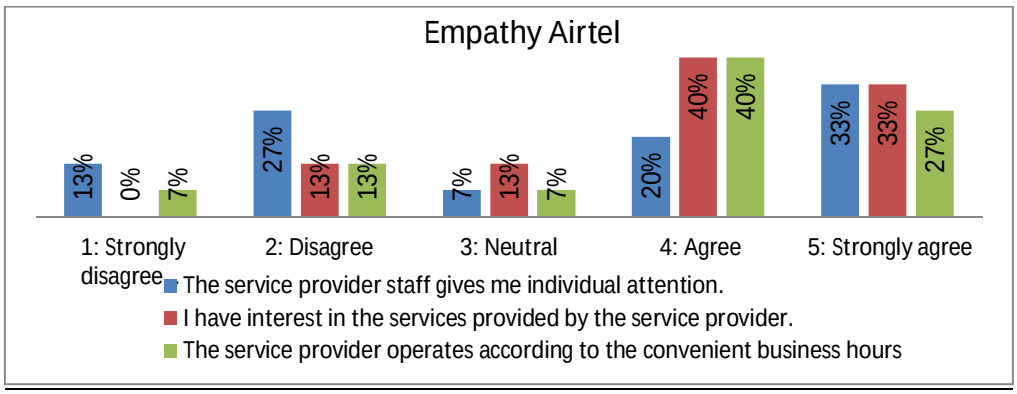


Figure 4-19: Empathy Airtel

4.5.5.4 Safaricom Telecommunication Service Provider

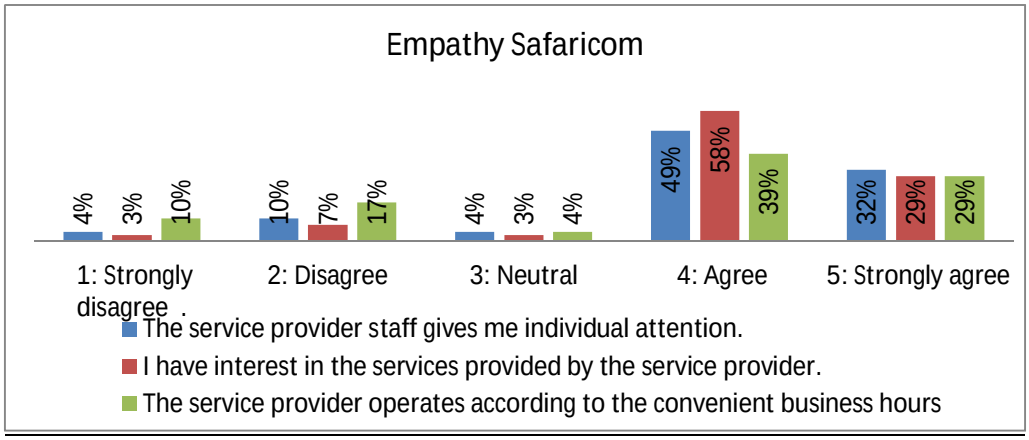


Figure 4-20: Empathy Safaricom

Summary :Empathy

Attributes	Firm	Agree %	Disagree %
Service provider staffs gives them individual attention	Safaicom	81	14
	Airtel	53	40
	Yu	86	7
	Orange	75	25
Interest in service provided by the service provider	Safaicom	87	10
	Airtel	73	13
	Yu	79	14
	Orange	84	8
Service provider operates according to the convenient business hours	Safaicom	68	27
	Airtel	67	20
	Yu	64	28
	Orange	92	8

Table 0-21: Summary empathy table

The findings revealed that 86% of the respondent from YU agreed that service provider staffs gives them individual attention. This can be attributed to the low customer base. The findings from the study shows that 92 % of the respondent indicated that the Orange service provider operation times were more convenient and they were pleased with the service times The service provider from Airtel had 73% response on the interest on service provided .The findings shown that 81% of the respondent indicated that Safaricom has interest on the service provided and that staff had a more individualized attention on the kind of service offered.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings of the data in relation to the independent variables and dependent variable of the research, make conclusions and finally give recommendations on what the researcher feels need to be done to improve on the innovations and service quality in telecommunication industry in Kenya.

5.2 Summary

Innovation and service quality are key factors to the telecommunication industry and should be considered in the growth on this sector. Telecommunication industry is a key pillar to the economy and a sector with numerous opportunities. This sector faces stiff competition and many product can be differentiated based on the service quality and innovations. The service providers must lay out clear innovations and service quality strategy to grow and survive in the industry.

5.3 Conclusions

The study sought to assess innovations and service quality in telecommunication operations, focusing on the main innovations adopted in the telecom sector, relationship between innovation and service quality and the main drivers of innovations in the telecom industry.

The study found out that that main drivers of innovation were products developed by the service providers to help improve and differentiate service offered. Owing to the competitive nature of the business innovation was used to attract new subscriber and in turn influence market share and bottom line. This is evident as Safaricom is the most innovative service provider, with a customer base of over ten million and who have been growing year on year. Safaricom is regarded as a leader in innovation as other service providers are innovation followers. The most innovative product

that revolutionized the telecommunication industry was the mobile money product. This was championed by Safaricom Mpesa product that was a great innovation in telecommunication industry to provide financial solutions. The innovation was adopted by the competitors both locally and internationally. The other innovative product adopted across all the other telecommunication subscribers were ring back tones, mobile banking services among others.

Innovation has both internal and external drivers, internal drivers are factors from within an organization that spur innovation whereas external drivers were without the organization. The telecommunication environment is highly competitive and innovation has become one of the key differentiation factors for success. This study has shown that key drivers of innovation in telecommunication industry were: Research and development, increasing competition and service quality and efficiency. Increasing competition among the service providers and the need to improve service quality and efficiency has led to companies developing research and development functions. Research and development saw the industry come up with innovative products like mobile money, cloud computing services, ring back tones amongst others. Service quality and efficiency could be related to clarity of call, low call drop rates, service efficiency to reduce cost of call per minutes and messaging services. The drivers of innovation have improved efficiency, effectiveness and service levels in the telecommunication industry.

This research also showed that there is no relationship between service quality and innovation, contrary to expectation. Further research could be conducted to show why there is lack of dependence between the two variables.

It then went further to discuss all the service quality attributes in relation to the telecommunications industry. Most respondent agreed that tangibility was mostly affected by well-equipped and updated facilities. Among the service providers Orange had the best facilities as per the respondents. Reliability was highlighted by dependability on service delivery, Orange and Safaricom had the best performance on this front as per the respondents. Responsiveness was impacted by prompt delivery of service to customers, Orange had the best response levels, Owing to

customer care centers which served their moderate customer base as compared to Airtel and Safaricom that had a very large customer base. Assurance was impacted confidence in competence of the service provider's staff. Safaricom and Orange had highest competence levels from staff as per the respondents. Empathy was highlighted by the interest in service provided by the service provider. Orange have best performance in service level interest as per the respondent. Orange Kenya performed better in this survey due good service levels and having a lower number of subscriber than that the other two leader in subscriber base, Safaricom and Airtel.

5.4 Recommendations

This study recommend to the telecommunication industry the importance of innovation and service quality in the sector. To remain relevant in the business one must be an innovation leader or follow and adopt existing innovation in the industry as this would influence migration of telecommunication subscribers from one service provider to another. The level of innovations of the service provider has had a correlation to the growth and performance of the telecommunication firm. This makes innovation an important attribute to the bottom line performance of telecommunication firms. Safaricom is an innovation leader, commanding the largest subscriber base and making greatest profits in the entire telecommunication industry.

Further studies should be done to establish if there are other factors that influence service quality other than innovation and why service quality and innovation have no dependence. This would help understand the forces shaping service quality in the telecommunication industry.

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APPENDIX 1: QUESTIONNAIRE

A. TELECOMMUNICATION SERVICE PROVIDER

1. What are the main innovations in your organization?

Innovation	Safaricom	Airtel	YU	Orange	Others
1. Mobile money transfer.					
2.Ring back tones					
3.Mobile banking services					
4.Cloud computing					
5.Teletriage services					
6. Tele presence (Video & Audio)					
7. 3G & 4 G services					

2. What are the drivers of innovations for your organization?

Drivers of Innovations	Safaricom	Airtel	YU	Orange	Others
1. Increased Competition					
2. Human capital					
3. Organization climate					
4. Research & Development					
5. Increased quality & efficiency					
6. Industrial innovation policy					
7. Industry & community needs					
8. Demographic & market changes					
9. Cost reduction& value addition					

B. TELECOMMUNICATION CONSUMER

Fill in the table below with the right degree on how you view the various attribute. We are testing how service quality is influenced through the following dimensions.

What is the name of your service provider …….

Likert scale: 1: Strongly disagree 2: Disagree 3: Neutral 4: Agree 5: Strongly agree.

1.Tangibility/ Physical aspects						
1	Customer service counter is well-equipped with up-to-date facilities.	**1**	**2**	**3**	**4**	**5**
2	Staffs are well-dressed and appear neat.	**1**	**2**	**3**	**4**	**5**
3	Material and information associated with the service are appealing.	**1**	**2**	**3**	**4**	**5**
2.Reliability						
1	The service provider delivers services as promised and is dependable.	**1**	**2**	**3**	**4**	**5**
2	The service provider staff is swift and reassuring in problems	**1**	**2**	**3**	**4**	**5**
3	The service provider has reliable network coverage and quality service.	**1**	**2**	**3**	**4**	**5**
3.Responsiveness						
1	The service provider staff updates customer on service.	**1**	**2**	**3**	**4**	**5**
2	I receive prompt service from the service provider staff.	**1**	**2**	**3**	**4**	**5**

3	Service provider staff is available to respond to customer requests.	**1**	**2**	**3**	**4**	**5**
4.Assurance						
1	I can trust the service provider staff.	**1**	**2**	**3**	**4**	**5**
2	The customer service staff is polite and patient in resolving problems.	**1**	**2**	**3**	**4**	**5**
3	Customer service staff seems to be competent.	**1**	**2**	**3**	**4**	**5**
5.Empathy						
1	The service provider staff gives me individual attention.	**1**	**2**	**3**	**4**	**5**
2	I have interest in the services provided by the service provider.	**1**	**2**	**3**	**4**	**5**
3	The service provider operates according to the convenient business hours	**1**	**2**	**3**	**4**	**5**