School of Graduate studies

Master's in Business Administration

Determinants of Mobile Service Quality: A Case of Ethio-Telecom Network Operation

By: Alexander Behailu

June, 2022

Addis Ababa, Ethiopia

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Declaration

I, **Alexander Behailu Wurga**, do hereby declare this research work is entirely my original work and it has not been submitted to any other higher educational institute. It was prepared under the guidance of **Mesfin Tesfaye (PHD).** All sources of materials used in this thesis have been fully acknowledged.

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Endorsement

I, the Undersigned certify that I have read and hereby recommend acceptance of this thesis title; "**Determinants of Mobile Service Quality: A Case of Ethio-Telecom Network Operation"** by Alexander Behailu Wurga that was done under my supervision and guidance for submission to St. Mary's University for award of the Masters of Business administration.

_____

Mesfin Tesfaye (PHD) Signature and date
St. Mary's University, Addis Ababa June, 2022

Acknowledgments

Thank you, God! I would like to express my sincere gratitude to my Advisor, Dr. Mesfin Tesfaye for his constant and unreserved guidance and support in accomplishing this research work.

I am grateful to managers, experts, supervisors, specialists, and analysts who take their valuable time to respond to the questionnaire regarding their expectations and perceptions of the service delivered to them by their company, Ethio Telecom. Finally, many thanks to all those who supported me and gave me constructive ideas in all areas that need refining.

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Acronyms / Abbreviations

2G- Second Generation Wireless mobile telecommunications Technology

3G-Third Generation Wireless mobile telecommunications Technology

4G- fourth Generation Broadband Wireless mobile telecommunications Technology

3GPP- Third Generation partnership project

ECA - Ethiopian Communication Agency

ETA- Ethiopian Telecommunication Authority

ETC – Ethiopian Telecommunication Corporation

GSM-Global System for Mobile Communication

GTP- Growth and Transformation Plan

IP- Internet Protocol

ISO- International Organization for Standardization

ITU-T- International Telecommunication Union –Telecommunication standardization

IETF-Internet Engineering Task force

LTE-Long Term Evolution

MTBF-Mean Time between Failures

MMS- Multi-Media Message Service

NOSM- Network Operation and Service Management

NRI-Network Readiness Index

QFO- Quality of Service Forum

Qos- Quality of Service

SLA- Service Level Agreement

SMS-Short Message Service

SPSS- Statistical Package for Social Studies

SERVQUAL- Service Quality

TEP-Telecom Expansion Program

WTO- World Trade Organization

WCDMA- Wideband Code Division Multiple Access

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Abstract

As global mobile telecommunication technology advances at a rapid pace, telecom operators are under pressure to adopt the latest technologies. The way forward in such a swiftly transforming environment for mobile service operators is to become market-driven and put all necessary efforts into keeping the quality of service at the highest possible level. In this paper, the researcher explores how mobile network service provided by Ethio Telecom is perceived by employees of the Network Operation and Service Management (NOSM) division and key areas contributing to improving mobile network service quality. The researcher distributed 153 questionnaires to Ethio Telecom NOSM division employees, from which 146 responses were valid and usable for analysis. Responses were analyzed using SPSS statistical software version 25. Mixed research approach used in the research work by analyzing data collected using descriptive and inferential statistics and explain results qualitatively. Descriptive and inferential statistical techniques such as mean, standard deviation, correlation, and simple linear regression models. The findings of the study showed that SERVQUAL (Tangibles, Reliability, Responsiveness, Assurance, and Empathy) and Network quality Dimensions perceptions and expectations gaps are significantly impacted by perceptions, which indicates low rating responses towards perception of service. The findings indicate that their level of satisfaction with the service provided to them is low across all SERVQUAL and network quality dimensions. The researchers' results concludes the finding by recommending Ethio Telecom needs to examine the level of its internal employee satisfaction as they are key process owners in the company and employees need to balance their perceptions and expectations.

Key Word: *Service Quality, employee satisfaction, Ethio Telecom.*

Chapter one

Introduction

1.1. Background of the Study

Telecommunication services first introduced in Ethiopia by the good will of Emperor Menelik II in 1894, when a telephone line installed between Addis Ababa and Harar following the train line. Until 1953, Ethiopian Postal Services and Telecom Services shared a common historical background. (EthioPostal Service, 2016, Ethio Telecom, 2022)

The first African public telephone service provider was born as per proclamation No.131 on October 15, 1952 by the Imperial Board of Telecommunications of Ethiopia. (Ethio Telecom, 2022)

Ethiopian Proclamation No. 49/1996 declared the official separation of the Ethiopian telecommunication sector into the Ethiopian Telecommunication Corporation (ETC), which provides telecom services, and the Ethiopian Telecommunications Authority (ETA), responsible for regulatory and control functionalities. In the absence of competitors and direct government control over the sector, the Ethiopian Telecommunication Authority was merely engaged in tariff affordability adjustment. (NegaritGazeta, 1996)

Mobile network service first launched in Ethiopia on April 27, 1999 in Addis Ababa, with a 36,000-line capacity initially, which expanded later to other parts of the country, reaching 207,000 in December of 2004. (Bogale, 2005)

In 2006, Ethio Telecom agreed on a three-phase project with ZTE Company through a vendor financing from the Chinese Import–Export bank for GSM and IP-based network expansion. At its completion in 2010, the project would reach the rural and remote areas of the country, reaching a geographical network coverage of 85%. (Lili, 2012; Adam, 2009)

The Ethio Telecom brand name created on November 29, 2010 during restructuring and reform for the 2015 development goal. The 2015 GTP (growth and transformation plan) comprises the modernization of telecom services, education, health and agriculture. Following the restructuring

and brand name change, it engaged in huge national telecom expansion projects that aimed at reaching the doorsteps of all citizens. The expansion projects were mainly the installation of backbone network infrastructure, mobile network expansion, and broadband internet upgrades. (Ethio Telecom, 2021)

To accommodate the increasing demand for telecom services and data, turnkey projects granted to three international equipment manufacturers in 2013 that intended for massive network and system expansion. Huawei, ZTE, and Ericsson have agreed to undertake TEP (Telecom Expansion Program) expansion projects in various parts of the country through vendor financing, extending overall network coverage to 95% of the population and more than 85% of geographical coverage. It increased the total number of subscribers to 54.7 million, of which mobile subscribers are 52.8 million, and internet and data users reached 25 million. A 4G network introduced to Addis Ababa and 3G to all over the country during this period of expansion. (Abn-team, 2021; African Business, 2013) During this time, the country's mobile subscription rate per 100 people increased to 54.8 by the end of 2020, and population and geographic network coverage reached 95% and 85.4%, respectively. (Pai, 2021)

Ethiopia has moved up ten ranks, up to 120 in the 2016 Network Readiness Index (NRI). It was 130 in 2015, with low individual internet bandwidth usage and skills gaps. Now improvements registered when giving schoolchildren access to the internet free. (Dutta et al., 2016)

Ethio Telecom on February 2, 2020, launched an advanced LTE mobile service in selected areas of Addis Ababa. It was expected to be part of a solution to high data demands and to improve the quality of customer data service experience. The network will deliver data service at four times the speed of 4G and 14 times that of 3G networks. (Capital, 2020)Ethio Telecom launched a 4G Advanced LTE mobile network service in the City of Adama on February 18, 2021. The company plans to expand its LTE advanced mobile network coverage to other regional cities in the next few months. (Fana BC, 2021a) Ethio Telecom's advanced 4G LTE high-speed data network expansion has reached 144 municipalities across the country, and the company is going to revisit regions with high consumer demand to meet the people's ever-growing data network requirements. (Fana BC, 2021b)

The Ethiopian Communication Agency (ECA) established by Proclamation No.1148/2019 to carry out the government's policy of restructuring the telecommunications market and introducing

competition, with the primary goal of the ECA acting as a regulatory authority. The government of Ethiopia agreed to privatize the telecom sector in favor of joining the World Trade Organization and improve the coverage and quality of service delivered to the population. (Federal Negarit Gazette, 2019)As a part of the world trade organization's (WTO) requirements to privatize government holdings and ownership over business activities, the government of Ethiopia agreed to grant a license and partially sell the Ethio telecom share, amounting to 45% for foreign and local bidders. (Oshikawa, 2020)

Understanding made on Ethio Telecom profile helps in creating vivid picture of what areas were give more emphasis by the company and what elements are missing in regards to quality of service delivered both to internal and external customers. All these efforts of restructuring, reconfiguration of strategic approaches, modernization and expansions were intended to improve the quality of service delivered to customers. Mobile network quality is one of the most important factors in a mobile user's experience and be affected by many factors, including weather conditions, spare parts unavailability, capacity planning, design-related problems, employee training readiness and competency to operate service equipment, and management orientation. The goal of this research project is to identify areas that Ethio Telecom staffs believe are important contributors to service quality delivery being compromised.

1.2. Statement of the research problem

Evolution and advancements in mobile network service technology are rapidly growing in recent years that enabled access to information, ease of computing, entertainment, business functionalities, and online interactions through making use of different service suites accessible from anywhere and anytime. (Mairaj, 2020; JavaTPoint, 2022)Mobile network service provides users with voice and data services but applications and other services embedded in it bring significance. Nowadays dependence on the Mobile Network service is dynamically growing because mobile networks not only used for interconnecting, but also for running different business functionalities. Mobile banking, e-commerce, online gaming, and different service form their foundation on the mobile network service requirement of uninterrupted and dependable quality of network service presence. (JavaTPoint, 2022; ElProCus, 2014)This dependence-necessitated quality of service issues managed in systematic ways for the common benefit. Mobile Network service providers invest huge capital to maintain the quality of service and routinely enhance

service types and outlets to match the demand levels of their customers. To improve the quality of mobile network service operators consistently monitor and manage the status of their network elements and do an analysis of performance statistics to enable them to find details that mainly affect their service. Inputs from monitoring, supervision and performance analysis used for corrective and preventive, upgrade, and expand service outlet elements. These days, different network operators use various types of equipment varieties to help them closely monitor and analyze network interruptions and service degradation contributors. Better choice of analytics and monitoring tools and well-trained operation team greatly enhance daily quality service operations and management functionalities. (Keary, 2018; Hein, 2019)

Mobile network service is susceptible to quality degradations due to factors internal or external to organizations operating the service. Mobile Network service quality is dependent on the management system; daily follow-up, quality assurance process, and employee commitment profiles that were set up by the service operator. Hence, service marketing is evolving and more research has been conducted on the quality paradigm and how it influences internal and external customers. Mobile telecommunication service introduced in 1999 in Ethiopia but the service quality delivered to customers interrupted or service quality degradation observed and no studies conducted on this area (Bogale, 2005). It is also reported that (Adame, 2021) Ethiopia continues to suffer substantial negative consequences from having one of the frequently degraded telecommunication services in the world.

Motivated with above knowledge of interruptions and degradations of Ethio Telecom services this thesis tries to investigate the internal employees rating of services they are offering and offered with by their company. It will try to examine what areas employees think are main determinants of service interruptions and degradations from their knowledge while operating the service and receiving services from their company.

To address the quality of service delivery problem stated above, this study aimed at examining the main perception areas that assumed to determine mobile network service quality by the staff of the Network Operations and Service Management division of Ethio Telecom. How do employees understand the quality of service their company offers to its customers? What factors were

considered to directly affect quality service and customer satisfaction from a technical professionals' viewpoint?

1.3. Research Question

1. To what extent does SERVQUAL dimensions affect the mobile service quality in Ethio Telecom?
2. What influence does network quality have on Ethio Telecom's mobile service?

1.4. Objective of the Study

This research is designed to explore the below objectives.

1.4.1. General objective

The general objective of this research work is to identify which components of the SERVQUAL dimensions and network quality dimensions significantly determine the quality of Mobile service Quality delivered by Ethio Telecom.

1.4.2. Specific Objective

a. To examine the influence of SERVQUAL dimension on Ethio Telecom employees' perceived service quality.
b. To evaluate how network service quality influences the perceived service quality of Ethio Telecom employees.

1.5. Significance of the Study

This research tries to uncover and find out what the level of mobile network service quality was applied in Ethio Telecom from analysis on responses collected from its employees. From these results, it provides all the necessary comments necessary to improve the service quality in order to keep its customer satisfaction high and stay the first choice of customers for mobile network services. It also tries to understand the level of the gap in quality service delivered through analyzing the technical wing employees' perception of the service they provide and by employing the SERVQUAL model and Network Service Quality.

Gaps identified in the study will be used as inputs for Ethio telecom to readjust and sharpen its mobile network quality-related issues and employee management.

This study add its share on the Quality service delivery perspectives and what is expected from employee perception of the service they provide. The study may also contribute to the knowledge

in the area of quality service delivery and will help standardization bodies and scholars who perform research on mobile network service quality assurance practices that are of great essence.

1.6. Scope of the Study

1.6.1. Geographical Scope

The research is geographically delimited to Addis Ababa, Ethiopia. It only focus on Ethio Telecom wireless Network Operation and Service Management section.

1.6.2. Conceptual Scope

This research conceptually focus on understanding the Gap of Perceptions and Expectations of SERVQUAL and Network Quality dimensions to find the determinants of mobile service quality.

1.6.3. Methodological Scope

In terms of Methodology, the researcher used mixed approach design. Descriptive and inferential statistical methods to analyze data quantitatively and Explanatory design used to explain results qualitatively. Used descriptive statistical techniques such as mean, standard deviation, correlation and simple linear regression on census survey responses from 153 employees.

1.7. Limitation of the Study

Below are expected list of limitations of the study. The result obtained cannot be generalized to all divisions of Ethio Telecom Mobile Network service related divisions due to the researcher's non-probability sampling technique used, but the methodology used could be applicable to similar conditions.

Time and other resource-related requirements limited the study done on a small sample and specific sections and departments of NOSM. Hence, 153 employees, supervisors, and managers of NOSM divisions' mobile network service related departments and sections were involved in the study.

The significance of conducting such a study is greater as compared to the limitations described above because the division of the choice has fertile conceptions and understanding of what are the elements of quality service delivery. Such studies must be repeated in order to improve quality service delivery from the internal perspectives of employees.

1.8. Operational Terms Definition

Operational and technical terms in the proposal, and they are used to mean:

Network Operation and Service Management: is a division responsible for supervising overall network elements (broadband, fixed-line, transmission infrastructure, and mobile network) visibility that includes supervision, monitoring, alarm handling, and performance management.

Supervision: is monitoring network elements to deliver on-time information about their operational status to the mobile network operator.

Operator: is a company that provides telephone services (broadband, fixed-line, and mobile) that consist of voice and data services.

Alarm Handling: is a process in which an operator oversees alarms to perform corrective, preventive, and perfective maintenance on network elements.

Performance Management: is a process an operator takes to ensure that all the service outlets are functioning as per the preplanned performance goal of effectiveness and efficiency.

1.9. Organization of the Study

This research study is organized with five chapters that have an interrelated inflow of study that introduces the main theme of the study in chapter one. Chapter 2discusses on theoretical and empirical implications of Quality service delivery in general and specifically on mobile network Service. It will also try to give a general understanding of the aspects of service, quality, quality service and products, and a brief understanding of quality service delivery and SERVEQUAL in case of mobile network service quality that lays a foundation for the chapters that may follow.

Chapter three deals with major functions of data collections and source selection, identifying and discuss the research method and methodology employed, sample size selection, conducting an interview and questionnaire distribution that will be used to analyze the problem stated in chapter one of the study incoherence and logically linking ideas to meet a thematic target of objectives defined. It will also make all necessary data ready for data analysis and interpretation.

Chapter four of this research deeply do analysis and interpretations of data collected from respondents of the interview and questionnaires distributed in line with the main goal of linking

the main objectives outlined, discussions made in chapter two for the theoretical, empirical, and conceptual framework of the study for their alignment with each chapter that follows.

Finally, chapter five of this paper provides a general summary of the finding of the research, draw conclusive ideas, and finally yet importantly try to give recommendations.

Chapter Two

REVIEW OF RELATED LITERATURE

2.1. Theoretical Literature

On this part of the review I am going to discuss conceptual definitions and theoretical review of topics related to the Quality Service Delivery Using SERVQUAL model.

2.1.1. SERVICE CONCEPT

People use the word service many times a day but when asked to define; we find it difficult to clearly state. (Pang, 2009) defined service as something a business or person provides to customers of which the most important elements are often intangible and the quality of the service is subjective and cannot be measured easily.

Service is an economic endeavor that creates value and benefits customers at specific times, and places through the process of a performance tied to the physical product that brings desired changes to its' recipients' choice. Services are gains/ advantages obtained through the performance of services or use of physical products that are intangible and do not result in ownership of any of the factors of production. (Lovelock & Wright, 1999)

Service oftentimes defined as an act of charitable and beneficial set of activities that will meet the respective needs of people involved in the exchange. The exchange in the service process involves performance and acceptance of service that includes a list of necessary service elements of provider, consumer, resource, process, and value. The service provider is the owner of a service firm that offers any form of service as a service product to the consumer on a specific set of orders put on the service product. A service consumer is a client that puts an order on a given service product to derive some form of benefit from it. The service process starts when the service consumer entered the queue of the service provision center, picks a service product that suits him/ her, consumes the service product, pays the labeled service price, and ends when the client of the service leaves the service center. In other words, describe the service process as the process of transforming service resources to a form suitable for consumers upon their order. The value of the service process is the satisfaction that service clients derive from the service and the profit accumulated by the service provider. (Qiu, 2014)

In nowadays-competitive environment of telecommunication service quality, matters and telecommunications service providers have the understanding that it is costly to win the hearts of

customers than to retain. Good services will let your customers continue to make use of your services and involve themselves in mentioning your services to friends and relatives. Customers/ end users' will walk away from you if they have a bad perception of your service hence as a service provider you will arrange incentives and service offers to potential customers as a way to positively influence their perception of good service and good value of money. This is because that perception of good service value and good value of money have a better impact than instance, the wonderful network features offer. Developing good customers' sensation is the most important thing in service but a difficult task that requires you to implement different offer packages that will convince them, they are using something tangible. (Pang, 2009)

Service denotes a performance of something done to or for a customer (client, patient, etc.). Service delivered by a service delivery system that engages in facilitating, processing, and skills required to provide the service. Most of the time services do not come in pure forms but bundled with the product the combination of goods and services provided to a customer. Since the service component of products is increasing in creating and delivering reliable customer-oriented services regarded as key competitive differentiators. Companies that plan to be successful in their business endeavor combine customer-oriented service with their products. Companies to meet the customer perception of service quality incorporate the elements of after-sales value addition and extra attention during processing the service. The value-adding process encompasses delivery, setup, warranty work, and technical assistance to customers. The extra attention element of service includes courtesy, keeping the customer informed, and attention to details while the service process is in progress. (J. Stevenson, 2011)

2.1.2. QUALITY CONCEPT

Once I have tried to deal with the idea of the service, I will proceed with a conceptual view of quality, its definitions and outlooks from the perspectives of different scholars and area experts. Since the topic "quality" researched by different scholars over the years, it makes it a bit easier to understand the term by looking through definitions and expressions they have used commonly articulate it.

As defined by (Kotler & Keller, 2006) quality based on customer-centric is the totality of features and characteristics of a product or service that, endure on its ability to fulfill stated or implied needs. It will be understood that a product or service seller is said to deliver quality if the products

or services provided meet or exceed the expectations of customers. Quality companies are those that meet the needs of their customers the majority of the time.

Quality is the degree to which a service satisfies customers by meeting their needs, wants, and expectations. Quality is a basic requirement for the business success and survival of any organization that will depend on its ability to meet or exceed both stated and implied expectations of the customer. (Mudie & Pirrie, 2006)

Quality defined in various ways by the Oxford Advanced American Dictionary, as described below.

1. [Uncountable, countable] the standard of something in comparison to other things, such as how good or bad it is. The standard of something as measured against other things of a similar kind; the degree of excellence of something.
2. A high standard [uncountable] a distinctive attribute or characteristic possessed by someone or something.
3. [Countable] a thing that is part of a person's character, especially something good personal qualities such as honesty and generosity, having leadership qualities.
4. [Countable, uncountable] a feature of something, especially one that makes it different from something else like for example the special quality of light and shade in her paintings.

As per the definition above from the dictionary, quality implies a condition of excellence, or achieving or reaching the highest standard. However, not everyone wants or can afford a high level of excellence. As a result, there are degrees of quality and service from the perspectives of people who accept quality based on their version of the service or product, as well as their financial capacity and affordability.

As (Mudie & Pirrie, 2006) considered points of contradiction, quality can be of the highest level of excellence, but it can also mean both better and cheaper. As opposed to the earlier conception of quality originating from the attachment of a product or service to more expensive ingredients, materials, skills, and equipment, it makes it difficult to settle the disputing idea on the direct hit of defining quality. A possible way of addressing the challenge of a different understanding of quality

is to regard it as the difference between how things ought to be and how things are, or to put it more simply, in respect of services.

It is not surprising that the stiffness between how things ought to be in terms of quality provision versus how things continue to be the subject of much interest. Most of the time, service organizations fail to meet service excellence standards for many reasons, including rising customer expectations and an increased search for better quality. Satisfying the gap between received and desired remains a challenge. It seems essential to comprehend how quality defined and framed as a first step to address the issue by both customers and providers. It is more likely to turn the definition as it turns to settle the disputing idea of quality definition.

Quality has been the subject of many and varied definitions, leading to the view that no one definition of quality is "best" in every situation because each definition has both strengths and weaknesses in criteria such as measurement and generalizability, managerial usefulness, and consumer relevance (Mudie & Pirrie, 2006). (Garvin, 1984) known for dividing a wide range of quality definitions into five categories.

A. **The transcendent approach**-The word quality means something absolute and collectively distinct that you will know when you see it. It stresses that quality is the mark of uncompromising standards. The origin of quality as excellence dates back to ancient Greek philosophers who referred to it to be "the best", "the highest". The question that arises here is that what about the rest products or services that do not meet the highest standards.
B. **The product-based approach**-In this view; quality emphasizes the precise and measurable variable. Products are raised according to the number of ingredients/ attributes that each possesses. An unambiguous ranking is possible only if the ingredients/attributes in question considered preferable. For service on the other hand precision and measurability represents an ongoing challenge.
C. **The User-based Approach**-The user-based approach principle believes that quality "lies in the eyes of the beholder". According to this approach, it is customers' expectation of meeting unique features of service. Service organizations may find it impractical, unreasonable, and unprofitable to achieve the expectations level of customers.

D. **The Manufacturing-based approach-**For service organizations, quality focuses on operational activities procedures, design, and models at the back office that must meet acceptable level of service specification.

E. **Quality is Value-**The value approach regards quality relative to price. Price is an index of quality and sacrifice made in purchasing a product or service. Purchasers' impression of value is a mental trade-off between perceived quality and benefits, versus the perceived sacrifice of paying the price.

According to (Feigenbaum, 1951) Quality in any absolute sense does not have the popular notion of "best" that holds for particular consumer circumstances. From this, we can conclude, "you get what you paid for" since it is difficult to judge a product or service exclusive of pricing. However, market conditions, internal expenses (material, labor, technology used, and equipment) and operational efficiencies have an impact on setting prices. From the above explanation deduction made with the below equation.

Perceived Value = Perceived benefits (gain) / perceived sacrifice (give)

Depending on the above factors, it is difficult to say price may reflect quality sufficiently but will help in making an informed judgment of quality. In this sense, “high price” may not necessarily reflect or reassure excellence of quality. (Mudie & Pirrie, 2006)

2.1.3. Product Quality

Product quality refers to the ability to integrate characteristics that can meet consumer needs (wants) as well as provide customer happiness by improving products (goods) and avoiding any unnecessary flaws or problems. When these product quality indicators meet the necessary basic requirements, the end user is satisfied. A happy customer is motivated to spend money on things that are available for purchase.

The characteristics indicating product quality must be first identified from the market research of user-based quality approach. User based quality approach needs to be translated into distinguishable product attributes, and the manufacturing process needs to be organized in such a way that product specifications are guaranteed. (Garvin, 1984)

As (Garvin, 1984) stated, the basic framework of product quality elements needs to incorporate eight dimensions. These eight dimensions of product quality are the fundamental distinguishing factors when buying similar products. Performance is the main dimension of the product's operating characteristics. It combines the quality elements of both product and user-based approaches. Features are the "bells and whistles" of the product that supplement the product's basic functioning. Reliability is the probability of a product failing within a specified period. Conformance is the fourth dimension of product quality, which is the degree to which products' design and operating characteristics match as per established standards. Durability measures the product lifetime as compared to the economic and technical dimensions of quality. Durability becomes complex when repair is possible. Serviceability is the speed, courtesy, and competence of repair. Aesthetics and perceived quality are the last items on the list that are the most subjective dimensions and closely related to the user-based approach. Aesthetics is subjective to personal judgement of how products look, feel, sound, taste, or smell. Perceived quality is a subjective measure when comparing products of different brands.

2.1.4. SERVICE QUALITY CONCEPT

As described by (Hoffman & G Bateson, 2012) service quality, one needs to differentiate it from the customer's satisfaction view. Service quality can be best described when we differentiate it from the customer satisfaction set. Experts and scholars of the service area mostly agree that customer satisfaction is a short-term, transaction-specific measure, whereas service quality is an attitude formed by a long-term, overall evaluation of performance. Without a doubt, the two concepts of customer satisfaction and service quality intertwined. However, the relationship between these two concepts is unclear because some believe that customer satisfaction leads to perceived service quality, while others believe that service quality leads to customer satisfaction. In addition, the relationship between customer satisfaction and service quality and the way these two concepts relate to purchasing behavior remains largely unexplained.

Aside from this, one significant factor that may assist consumers in receiving quality service is the satisfaction associated with the service provided to them. The logic for this position consists of the following reasons:

1. Consumer perceptions of the service quality of a firm with which he or she has no prior experience based on the consumer’s expectations.

2. Successive interactions with the firm bring the consumer through a process of disconfirmation, in which perceptions and expectations compared to obtain an updated perception of the service quality.
3. The more the number of interactions with a particular firm's service, the greater the revision or reinforcement of the service quality perception, and satisfaction will add up and equate as follows. Sat-1+ Sat-2+ Sat-3+…=Sat-n service quality.
4. In response to revised or reinforced service quality, perception consumers alter future purchase intentions to the firm.

Delivering a consistently satisfying experience necessitates an entire organizational focus on tasks such as understanding detailed quality needs, designing a system that responds and supports customer requests based on evaluation of high-quality requirements, and proactively performing tasks as they were designed to meet quality requirements. (Hoffman & G Bateson, 2012)

Quality comprehended from different perspectives. For instance, it can be seen from service provided and service received or from operational service quality and perceived service quality. Operational service quality can be an assessment of service quality as to how well service delivered to its specifications of internal standards. Operators need to understand and influence customers' expectations to guarantee that they provide a service that meets or possibly exceeds those expectations. Customer's perceived quality is satisfactions judgment of the quality service concerning customers' experience, quality of products, and perceived benefits as compared to needs and expectations of the service content. (Johnston et al., 2012)

The Difference in Quality Perspectives between Goods and Services

Establishing service quality may be the only way of differentiating oneself. Service quality differentiation can generate increased market share for firms and it ultimately means the difference between financial success and failure that results due to competing quality service offering assembly.

The cost of repeat marketing customers to service organizations is lower than that of marketing to new customers. Through repeat marketing, they gain trust in the organization, the customer's level of perceived risk reduced. For example, insurance customers tend to move existing policies to and purchase new policies from one provider.

Improving the quality of goods service has become a major strategy for increasing consumer market share. Quality defined as delivering the right product to the right customer at the right time. It follows quality control procedures that rely on identifying and eliminating overall internal and external flaws before seen by the consumer.

However, Service quality is not a measurable objective or program that can met or completed the same way as goods. An ongoing process involves close management and service production activity. That Makes service more of an art as much as a science. (Hoffman & G Bateson, 2012)

2.1.5. CUSTOMER SATISFACTION

Customer satisfaction, being one of the most studied areas in marketing, first started to get more emphasis in the early 1970s. Inflation, industrial deregulation, and labor shortages led to lower customer service standards in the 1970s. Service-related jobs were less motivating due to reasons of less pay, no future career options, no sense of pride, and a lack of training in customer relations.

Customer experience and gradually growing customer awareness of service encourage customers not to spend their hard-earned money on services that do not match their expectations. Over the years, it is becoming harder to please customers because informed customers believe that firms need to appreciate customer service business and deliver on their promises with matching expectations.

There may be many alternatives to defining customer satisfaction or dissatisfaction. One such alternative is a comparison of customer expectations to perceptions concerning actual service encounters. Marketers refer to the comparison of expectations to perception as the "expectancy disconfirmation model." As per this model, if customer expectations and perceptions met, expectations confirmed and customers are satisfied. If, on the other hand, perceptions and expectations are unequal, then the expectation is termed "disconfirmed." Disconfirmation grouped into positive and negative senses from the expectation perspective. Positive disconfirmation happens when the perception of service exceeds expectations and results in customer satisfaction, positive word-of-mouth publicity, and customer retention. Negative disconfirmation is the most undesirable type of disconfirmation, in which the actual perception of service is lower than the expectations of customers, resulting in negative word-of-mouth publicity and customer defection. (Hoffman & G Bateson, 2012)

Satisfaction can be easily defined as the customer's overall assessment of service offering's perceptions of a given service package. Perception (**P**) viewed via the lens of the service process, the customer service experience, and outcomes such as product or service quality, achieved benefits, or perceived value for money in relation to previous expectations (**E**). If the client's expectations and perception of service are in line (**P=E**), the consumer will become at least happy. When a customer's impression of a service falls short of the minimum level of expectation (**P<E**), the result is a dissatisfied customer. However, if the client's perception of the service surpasses their expectations (**P>E**), the consumer will be more satisfied or even overjoyed with the service. In the service, process customers' levels of satisfaction with the service supplied to them may range from extremely unhappy to exceedingly happy depending on their perception of the service. (Johnston et al., 2012)

Customers Expectation of service

When developing customer satisfaction evaluations, it looks a bit simple because it is just comparing expectations with perceptions. As per (Hoffman & G Bateson, 2012) three types of expectations standards used to compare current and future service encounters.

Predicted Service Expectation: Predicted Service Expectation is the probability of expectation that customers believe to be meet, based on a comparison of predicted and perceived service.

Desired Service Expectation: Desired Service Expectation is an ideal expectation of service that customers need to meet higher expectations as compared to predicted service expectations. When comparing desired service expectations to perceived service received, perceived service superiority measures occur.

Adequate Service Expectation: It is an expectation that customers develop over time or through experience of the service encounter to be at a minimum tolerable level below which they do not accept it. Comparing adequate service with perceived service produces a measure of perceived service adequacy.

Customers' perception of service - Customer perceptions are a function of earlier service encounters with service or similar services and an individual's opinion or reaction to other people's opinions. (Kasper et al., 2006). Perceptions of service expressed based on an individual's subjective orientations and understandings. The partiality of each customer is dependent on his or

her wants, needs, values, and personal experience. As (Etgar& Fuchs, 2009) stated in their study (2009), perceptions are processes that the customer customizes into their reality in connection with their expectations of the service. Additionally, post-purchase and post-experience evaluation used as reference frames to predict subsequent customer behavior and repurchase of a given service. (Parasuraman, et al., 2009)

The Perception of value

According to (Hoffman & G Bateson, 2012) customer perceptions of value represent a tradeoff between the perceived benefits obtained from purchasing the product and the perceived sacrifice in terms of the cost to be paid. Total customer costs extend beyond monetary costs and include time, energy, and psychic costs. Similarly, total customer value encompasses service, employees, and reputation value in addition to product value.

2.1.6. SERVIC QUALITY MODELS

(Parasuraman et al., 1988) explained the following ten dimensions and criteria that used to assess service quality.

Reliability: An organization ability to work to accurately towards achieving its services in time and with accordance with promises made to its clients.

Responsiveness: The willingness and tendency of services providers to assist clients and satisfy their needs, immediately reply to their inquiries and solve their problems as quickly as possible

Competence: Acquiring required information and sufficient skills to enable employee to perform their tasks properly

Accessibility: Granting easy accessibility to service concerning location and through services provided via the internet, the telephone or any other means of communication.

Courtesy: providing good treatment to client respectfully, in a friendly polite manner, taking into account their feelings, and responding to their phone calls gently.

Communication: this occurs when a customer listens to the client in a gentle manner and transmit information by facilitating external communication with people.

Credibility; it can be achieved through entire confidence and self-assurance in the service provider as well as honesty and straight forwardness.

Security: the service is free from risks and hazard, defects or doubts so that it provides bodily safety, financial security as well as privacy.

Understanding/ knowing the customer: this can be attainable through identify the customer's needs and understanding their individual problems.

Finally, (Parasuraman et al., 1988) integrated the above-defined dimensions and criteria into only five major dimensions that they agreed were appropriate to reveal customer expectations and perceptions of service and labeled it as SERVQUAL dimension. Below presented all the five SERVQUAL dimensions in detail.

2.1.6.1. SERVQUAL

According to (Hoffman & G Bateson, 2012) while measuring both customer satisfaction and service quality, comparisons of expectations and perceptions used as inputs. What makes the difference between the two concepts is the operational definitions attached to each. Satisfaction compares consumer perceptions to what they expect it to be and service quality compares perceptions to what a consumer should expect from a service delivered with high quality. Based on this definition, service quality is an instrument used to measure a higher standard of service delivery.

A widely used measure of service quality is the SERVQUAL scale. It employs diagnostic tools to uncover a firm's broad weaknesses and strengths. The five dimensions used for creating service quality essentials are tangibles, reliability, responsiveness, assurance, and empathy. These acquired through focus group interviews with customers.

The SERVQUAL measurement scale uses two units to measure the service quality of a company. It uses the relative difference between the perceptions (P) and expectations (E) of the service (P-E). A positive score defines perception as exceeding expectations, and the customer is happy. A negative score indicates an unhappy customer due to high expectations as compared to the customer's perceptions. The last form is when the score is zero, expectations, and perceptions matched.

The Tangibles Dimension - To evaluate service quality, customers need to see the tangible aspects of service associated with attractive physical appearance, equipment, and employees during the delivery of the service. The equipment and physical appearance components of tangibles include architectural design, layout, carpeting, desks, lighting, wall colors, brochures, daily correspondence, and personnel appearance quality.

The SERVQUAL compares firms' ability to achieve tangibles by comparing customer expectations to customer perceptions from two perspectives. The first dimension focuses on the equipment and facilities, and the second on personnel and communications resources in the firm. From the perspective of the tangible dimension, the measure of a firm's performance is its ability to meet customer expectations.

The Reliability Dimension - The reliability dimension of SERVQUAL focuses on the evenness of service delivered to customers that does not fluctuate over time or encounter. It focuses on whether or not firms keep their promises when dealing with respect to accurate billing, keeping accurate records, and performing service quality correctly the first time.

The Responsiveness Dimension- It is the preparedness and obligation of firms swiftly provide help, information, and service. The responsiveness component of SERVQUAL is concerned with the willingness and or readiness of the employees to deliver a service to their clients on demand and timely. It also includes firms' readiness to deliver service for an extended time, like servicing customers different from their original service time.

The Assurance Dimension-The ability of a company to inspire trust and confidence by demonstrating that it has the expertise and understanding to deliver on its promises. The assurance dimension of SERVQUAL needs to address the competence of the company to extend courtesy and security to its customers operating the service. The competence of the company reflects the professional skills and knowledge its employees possess to handle the service as promised, and the courtesy is the interaction of employees with customers and their goods. Finally, comes the trust or security issue that mainly focuses on the feelings of customers against firms whose service is free from danger, risk, and doubt in addition to physical danger.

The Empathy dimension- Empathy is the ability to pay attention to and recognize the feelings of consumers about their questions and contests, as if they were your own. Empathetic firms understand their customers' wants and needs to make their service easily accessible.

2.1.6.2. Diagnosing Failure Gaps in Service Quality

Service quality is currently facing numerous challenges because it necessitates thoughtful understanding and information from both managers' and consumers' perspectives on service perception in order to implement and evaluate it. Managers must identify gaps that are major contributors to affecting service quality from the perspectives of customers, employees, and service processes as perceived via lenses of learning, comparison, and significance in order to manage quality concerns. As it was presented by (Hoffman & G Bateson, 2012), the service quality improvement process needs to understand five gaps between expectations and perceptions of management, employees, and customers.

Of the five gaps, service firms' interest is the service gap (Gap 5), which describes the distance between customers' expectations of service and their perception of the service actually delivered to customers. The ultimate goal of a service business is to close or at least mitigate potential gaps perceived to lead to increased customer satisfaction because of the number of successful or unsuccessful service experiences. The gaps, as presented by (Hoffman & G Bateson, 2012), are discussed below.

Gap 1: The Knowledge Gap- Many managers think they know their customers' wants and needs, but they sometimes make mistakes. The "knowledge gap" refers to the difference between what managers believe customers expect and what customers actually expect from the service.

Knowledge gaps that occur in firms may result in a variety of mistakes that follow them. The mistakes that follow it are things like choosing the wrong facilities, hiring the wrong staff for the position, and providing the wrong training. Collectively, these mistakes will happen to provide a service that customers do not have an interest. Closing this gap requires a well-informed and knowledgeable understanding of customer desire and the development of a service operating system that responds swiftly.

Factors influencing the knowledge Gap -There are three major factors thought to be influencing the size of the knowledge gap. The first is the firm's research orientation, which reflects the attitude

of conducting customer research that may result in influencing the size of the gap. The more firms learn more about their customers' wants and needs, the larger the knowledge gap becomes.

The second item on the list is the amount of upward communication, which is responsible for the flow of information from front-line personnel to the upper levels of the organization. Since the front-line personnel are the people that directly interact with customers, their information and feedback matter. If the upward flow of communication increases throughout the organization, the knowledge gap must decline or become smaller.

Finally, the level of management plays a role in determining the magnitude of the knowledge gap. When the management structure becomes more complex and adds more levels, the distance between the customer's daily activities grows, resulting in a wider gap.

Gap 2: The standards gap- The standards gap is the difference between management's perception of customer expectations and the actual standards set for service delivery, even in the presence of accurately determined customer expectations. This gap mostly occurs while converting understood expectations into customer standards.

Factors Influencing the Standards Gap-Major contributors included in influencing standards gaps are management's doubt that customers' requirements for service can or should be met and their commitment to the delivery of service quality.

Other factors influencing the size of the standards gap include:

(1) A lack of a service quality culture lets management fail to understand issues involved in service quality.

(2) Management plans to meet customer requirements for quality service, but thinks it will be disadvantaged and vulnerable to measurement and conversion problems.

(3) Because of difficulties in writing specifications for particular employee behaviors, some managers feel quality measurement is not worth the effort.

Gap 3: The Delivery Gap-It is the gap that happens when the actual service performance of the quality specification set for delivery and the actually delivered service vary from the set specifications by the management. It mainly depends on the employee's willingness and ability to deliver the service as per the promised specification.

Factors Influencing the Delivery Gap-Among the major factors influencing the size of the delivery gap is employee willingness to perform the service. Common factors are the job role fit-related factors of role conflict and role ambiguity. Lack of qualifications and job fit issues can also lead to performance gaps in some organizations. As the dispersion of control widens, the delivery gap also widens.

Gap 4: The communication gap-If there is a significant communication gap, the company has betrayed its commitments to customers. This may result in a loss of future customer trust that could lead to a decline in business.

Factors Influencing the Communications Gap

The communication gap governed by two main factors. The first is when a business's inclination to overpromise arises in highly competitive business situations, as when businesses compete to surpass one another in order to attract new clients. The second factor influencing the communication gap related to the flow of horizontal communication within the firm. When a consumer asks for the service provided and the supplier has no idea what the customer is talking about, a lack of horizontal communication puts an uninformed service provider in an unpleasant position.

Gap 5: Service Gap- The service gap, as (Hoffman & G Bateson, 2012) is the function of all the above gaps altogether. The increase or decrease of each of the above gaps directly increases or decreases the service gap accordingly. In a mathematical formula, gap expressed as follows: Gap 5= f (Gap 1+ Gap 2+ Gap 3+ Gap 4).

2.2. Technical Dimension

Network Quality (quality of service (Qos))

Network quality is the sixth dimension included in the diagnosis of the quality of mobile network service. A mobile network is one of the most basic services offered by a mobile network service provider and is important both for voice calls and data services. Quality of service is the collective effect of the performance levels of all the parameters considered relevant to a service. The set of parameters for a given service may have different priorities and performance level requirements

for different segments of users, depending on the particular service or platform in use. (Plevyak & Sahin, 2010)

There is no formal definition of Qos spanning the requirements and characteristics of all the networks and networked applications. There are a number of definitions proposed in the literature and adopted by multiple organizations and forms such as ISO, ITU-T, IETF, and Qos Forum.

– ISO and ITU-T definition (**ISO/IEC, 1995**) "A set of quality requirements for one or more objects' collective behavior".

– The Internet Engineering Task Force (Kaippallimalil et al., 2015) defined bandwidth reservation and quality of service (Qos) as deterministic data delivery systems. It requires both the source application and the network infrastructure to request, set up, and enforce real-time data delivery.

– According to the Qos forum definition (**QFO**), "a collective measure of the degree of quality service delivered to the client" includes basic performance criteria such as availability (low downtime), error performance, response time and throughput, lost calls or transmissions due to network congestion, connection set-up time, and problem detection and correction speed.

– As defined by Ferguson and Huston's definition (Ferguson & Huston, 1998), people use quality to describe the process of delivering data in a reliable manner, or even somehow better than normal. Quality is a distinguishing characteristic or property that people use to describe specific characteristics of networking applications or protocols as presented below.

Qos is defined (Mellouk, 2007) as the behavior of service providers according to multiple parameters (delay, jitter, etc.) and levels of user satisfaction. Qos taken into account at various communication layers (physical, data link, network, transport, and application) as well as the requirements of various mechanisms (negotiation, resource reservation, scheduling, routing, and so on).

End-to-end Qos- What counts is how users perceive Qos; all intermediary networks must function together and comprehend each other's Qos levels. Users' expectations for the speed with which specific functions performed are the beginning point for considering its Qos. Meeting user-end-to-end Qos requirements usually requires cooperation of all the system components.

Data (IP) Classes of quality of service Qos–Different degrees of IP Qos, ranging from deterministic to best effort, been proposed to take into account the features and needs of

applications and networking infrastructures. Different commitments referred to as the "levels of guarantee" as discussed below.

– **Guaranteed (or deterministic) service:** The Quality of Service (Qos) is the agreement between the user and the network. Intended for real-time applications, such as time-critical applications. In most cases, Qos achieved by assessing worst-case traffic and allocating adequate resources.

– **Best-effort service:** Best-effort does not consider the specific requested Qos parameters of the applications. All parties use their best efforts to meet the user requirements. If the expected Qos not attained in practice, there is no commitment to monitor or take corrective action. It is basic connectivity with no guarantee.

Predictive service: The Qos bounds maintained under the assumption that the provider's future load corresponds to the load currently observed. Predicted Qos achieved by adaptively tuning the network conditions. This grade of Qos should only use by tolerant apps that can recover from potential Qos degradations.

Controlled-load: The IETF defines a new service class, intended for multimedia applications where time delay is not critical but delivery quality is. This provides the client data flow with a Qos that is very close to what it would receive from an unloaded network element. It employs capacity (admission control) to guarantee the service delivered during network overload.

Compulsory service: The provider must monitor the achieved Qos and the service aborted if it degrades below the compulsory level. However, if the desired Qos not guaranteed, then it deliberately degraded to allow a higher precedence demand for service to be satisfied. (ISO/IEC, 1995)

Probabilistic Qos: Qos does not guarantee 100% performance parameters, but it does deliver that performance with some probability rather than absolute certainty.

Statistical Qos: Quality of Service (Qos) achieved by using stochastic methods to analyze the traffic's statistical behavior, and the implementation of statistical Qos necessitates the modeling of traffic sources.

Better-than-best-effort: Some individuals assume the preceding six levels quality require probabilistic or statistical Qos assurances, whereas best effort provides no such guarantees. Better-

than-best-effort service levels provide no quantitative obligations but promise to carry traffic with lower latency or at higher rates.

Qos parameters and application classification

Qos parameter types: Different applications have different requirements regarding the handling of their traffic in the network. Some applications can tolerate a degree of traffic loss, while others cannot. The framework proposed for Qos in ISO standards (ISO/IEC, 1995) highlights the Qos parameter classes summarized. (Mellouk, 2007)

Timeliness parameters: timeliness parameter define a class of metrics that measure time-related entities. These include latency, transfer (or transit) delay, end-to-end transfer delay, response time, jitter, connection establishment delay and connection release delay. Delay and jitter are the parameters most commonly required by applications.

a. **Transfer delay (**or simply delay) Latency is the amount of time it takes for a data packet to travel from one device to another. The global (or end-to-end) delay is the sum of transmission delays, propagation delays, queueing delays, and processing delays at all the nodes and links on the path from source to destination.
b. **Jitter** (also called transfer delay variation or delay variance) is a distortion of the inter-packet arrival times compared to the original transmission. This distortion is particularly damaging to multimedia traffic. For example, the playback of audio or video data may have a jittery or unstable quality.
c. **Bandwidth:** the bandwidth of a flow defines the amount of user data transferred in a certain time unit between source and destination. Bandwidth defined as bits per second, or by combining packet size and interval time.
d. **Error-related parameters:** this parameter specifies aspects related to various types of errors. The loss behavior of a flow described by a single loss behavior, which denotes the upper bound of the tolerated packet losses, hiding the reason why messages are lost. A loss ratio gives the proportion between lost packets and the total number of transmitted packets. Alternatively, a loss ratio interpreted as a loss probability. Real-time applications may have different packet loss tolerances. For instance, video conferencing may tolerate more packet loss than a movie transmission session.

e. **Reliability:** the reliability of systems (in general and networks in particular) is one of the most critical challenges for end users. Different parameters such as MTBF (mean time between failures), availability (which specifies the proportion of time that satisfactory service is available) and fault tolerance are used to describe reliability in networks.
f. **Security:** Security is a full-fledged network discipline. It has its own set of protocols, processes, and policies, and it be handled independently of the other Qos criteria. It is worth noting that many service providers now regard availability as a security concern.
g. **Cost-related parameters:** Cost may represent a business cost view, including the investment necessary to provide the required Qos (in terms of memory, storage, processing power, etc.). Cost may depend on many technical or business factors, and treated differently from other Qos parameters such as quality and relevance.

Quality of Service (Qos) requirements: Qos requirements vary by application and be met or broken by a wide range of software and hardware. Teleconferencing, telephony, video-on-demand, and multimedia messaging services all have quality of service (Qos) requirements.

3GPP's emphasizes that loss or error is a major criterion for application classification with regard to network Qos capabilities. As they are presented below

a. **Conversational class:** This traffic depends on real-time conversations conducted between peers (or groups of live (human) end users. This is the only scheme where required characteristics are determined solely by human perception.
b. **Streaming class:** Real-time data flow is always aiming at a live (human) destination. The end-to-end flow jitter shall be limited, to preserve the time relation (variation) between packets. Acceptable delay variation thus given by the limits of human perception.
c. **Interactive class:** Acceptable delay variation explained by the limits of human perception. End-to-end flow jitter must be kept to a minimum in order to preserve the time relationship (variation) between packets.
d. **Background class:** Data files will be transferred transparently using a very low bit error rate for services like email, SMS, MMS, and downloading of databases when sent and received by the end user.

2.2. Importance of service Quality in Telecommunication

Mobile telecommunication is one of the drivers of the information era of the 21st century due to its ability to interconnect people from any corner of the globe. Mobile telecommunication is currently moving towards high-speed data service that can accommodate simultaneous service of voice, video, and pictures with relatively better speed and quality rates. Due to the mobile characteristics of the customers of the mobile network, mobile telecom service providers need to keep the quality of their service in areas of their coverage and erect systems that can let their customers swiftly switch between connecting with other telecom service providers. Maintaining the quality of the mobile network not only benefits the users but also helps the service provider gain acceptance from users and improve its image value. Mobile network service is more susceptible to service quality degradation issues due to the fact that the wireless signals get lost or blocked by different buildings, constructions, and weather conditions and can be easily attenuated by external radio signals in the area. Maintaining mobile network service quality requires a solid understanding and knowledge of selecting an appropriate location, planning capacity, routine maintenance, and optimization and fine-tuning of network elements, and undergoing expansions and capacity upgrades to meet customer demand. (Kumar, 2004)

Users of mobile network services expect the best quality possible or at least quality that is proportional to the price they pay for it. Depending on different scenarios, the quality of the mobile network can rapidly change unless continuously monitoring and appropriate measures of quality service not taken.

2.3. Empirical Review

In the dynamically changing service-marketing environment, keeping employees satisfied with jobs and the service quality they deliver to their customers' demands great attention since an unsatisfied employee can leave a company in pursuit of professional and intellectual satisfaction. These days, firms tend to formulate authentic business strategies that keep both internal and external customers satisfied and loyal to them because of their customer-centric quality service delivery.

The SERVQUAL scale is one of the most widely used tools to measure service quality and customer satisfaction in many different firms running service businesses. Measuring employees' levels of understanding of the quality of service they deliver to their customers helps firms plan

their way out of their business challenges and position themselves in the right strategic direction to achieve their objectives of being a preferred and competitive service provider in the market they are operating. Measurement of service quality used as a reference frame for locating firms' areas of strength and weaknesses. Identifying areas of weakness or strength could further used as the basis for triggering strategic responses to improve and repair flaws, as well as apply recommendations to boost strengths. (Parasuraman, et al., 2009)

In a study conducted in the Information Technology Enabling Service (ITES)-BPO industry in Mauritius (RamseookMunhurrun et al., 2010), it was found that the SERVQUAL dimensions were found to have significant negative relationships with an employee's overall satisfaction and needed modifications to measure internal customer quality of service and satisfaction. Call center employees do not allow for tangible elements in assessing their level of satisfaction. Managers must take into account and focus on human services rather than tangibles.

As per the study result of (Abu-El Samen et al., 2013), analyses of mobile SERVQUAL comparative analysis of customers' and managers' perceptions showed that, from customers' and managers' points of view, SERVQUAL is in fact a three-dimensional construct rather than five as proposed by the original hypothesized model. This finding is consistent with literature that finds that the five dimensions are different across service industries and countries. As can be seen from the customers' point of view, SERVQUAL consists of three facets: reliability, tangibility, and interaction quality (empathy, assurance, and responsiveness). From managers' point of view, SERVQUAL consists of three facets: empathy, tangibility-reliability, and responsiveness-assurance. The second objective of their research was to examine the effect of SERVQUAL dimensions on customer satisfaction and business performance, respectively. The structural findings from the customer sample supported the current literature that finds that service quality is essential to improving the probability of customer satisfaction. The findings from the managers' sample supported the notion that service empathy exerted the strongest influence on both financial and marketing performance. The SERVQUAL dimensions positively and significantly influenced financial and marketing performance, where service empathy exerted the strongest influence.

An empirical assessment and application of SERVQUAL in a mainland Chinese department store done by (Zhao et al., 2002) indicated that using the SERVQUAL instrument helps a company to identify important areas for improvement in its business. Nevertheless, their assessment of the data

collected does not support the five-factor structure as proposed by (Parasuraman et al. 1988). However, the five dimensions are still useful as a foundation for discussion and determination of where to improve. The cultural differences between China and Western countries may have had a role in the results' variability.

The authors of the Analysis of SERVQUAL Application to Service Quality Measurement and Its Impact on Loyalty in Ghanaian Private Universities (Banahene et al., 2017) have noted the wide use of the SERVQUAL method in evaluating service quality across service sectors, but it failed to measure satisfaction using the gap score difference between expectations and perceptions. The use of satisfaction as a percentage of perceived performance highlights specific areas of service quality that need addressed through marketing. The worse the percentage, the more marketing action to improve service quality is required.

A service quality delivery investigation by (Naidoo &Mutinta, 2014) using the SERVQUAL model showed that the reliability service quality dimension had the lowest ranking by staff in the study. This could be so because staff do not understand students' needs and wants so well. This also attributed to a lack of systems and procedures developed to ensure that the core service delivered as reliably and consistently as possible.

With the technological advancement, use of mobile networks and smart phones are increasing day by day. In the study (Sharma & Madan, 2020) researchers have tested influence of mobile network service quality on m-commerce adoption and find that that there is a difference in actual and promised network services quality which also affects the e-customers' satisfaction level.

The network quality dimension recently been added to measure service quality from functional aspects. As a study revealed (Meel, 2020), network service quality is the first of the significant four dimensions of service quality, followed by empathy, reliability, and assurance in measuring service quality.

The quality of mobile network service from the technical staff's perspective needs examination with the view of assisting its measurement. Numerous studies conducted to investigate the perspective of telecom service operators' technical perceptions research done by (Al-Hashedi&Abkar, 2017) found that network quality scored the highest in measured perceived technical service quality of mobile telecom companies in Yemen.

2.4. Conceptual Framework

Foundation of this research is being built on clearly and critically analyzed on theoretical and empirical review part the SERVQUAL and Network Quality dimensions' significance in setting the perceived quality of service. The nature of perceived service quality will define the state of firms Quality Service Delivery and conceptual framework drawn as shown on below diagram.

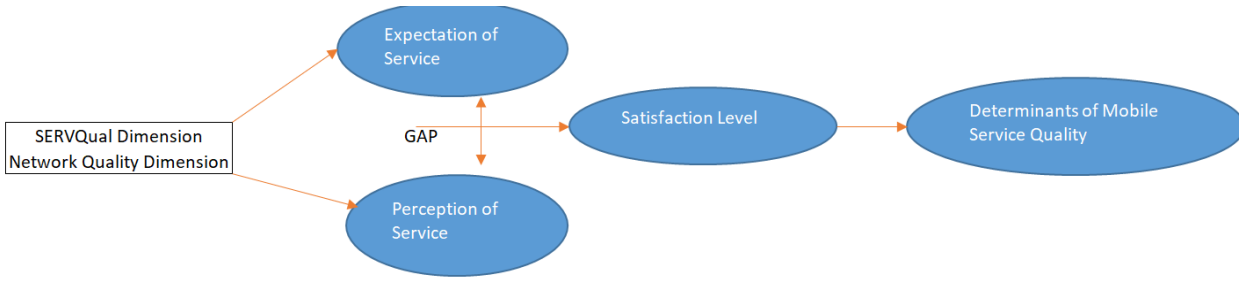


Figure 2.1. Conceptual framework of the research

2.5. Research Hypothesis

The hypotheses of the study formulated to answer the questions and objectives outlined in chapter one of this research work. Below are listed hypothesis designed for this study.

H1: SERVQUAL dimensions perceived service quality would have a positive significance on Quality service delivery.

H2: Network Quality of perceived service quality will have a positive significance on quality service delivery.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1. Research Approach

Based on the nature of the research problem or issue addressed, the researchers personal experience and respondents of the study. There are three fundamental research approaches to research qualitatively, quantitatively and mixed methods. Quantitative survey is the most appropriate method used to describe the degree of relationship between variables. Qualitative research approach used to understand the behavior and observations of target audience with reference to a specific topic. Accordingly, the research conducted using mixed research approach.

3.2. Research Design

An explanatory research design undertaken for this study, since the study was designed to investigate the level of employee satisfaction and its relationships and effects on the determining quality of mobile network service. To better-understand the dimensions of quality service and network service quality, the effects of questionnaire responses quantitatively analyzed and explained to level appropriate and significant to map how employee satisfaction determines quality of mobile network service delivered.

3.3. Population and Sampling Technique

3.3.1. Target Population

A population is a group of people or objects known to exhibit similar characteristics. The target population is the total number of well-defined collections of individuals from which the researcher is interested in collecting data for his research study extrapolation. The target population of this study consists of Ethio Telecom's corporate division of Network Operation and Service Management (NOSM). According to the division's strategic plan data for 2021, there are 397 employees and management staff in this division, with 153 wireless mobile network service related employees (Wireless proactive monitoring and support, Wireless Service management, IP RAN

monitoring and support management, Wireless Network Monitoring and Support, and Power and Environment Monitoring and Support,).

3.3.2. Sampling Technique

The number of employees at Ethio Telecom Wireless Network Operation and Service Management (NOSM) was 153 employees and management staff. Based on this population of the department, the researcher decided to use the Census survey because the population size under investigation is manageable to do the research work.

3.3.3. Sample Size

Calculation of sample size was not done because the number of employees under the wireless Network Operation and Service Management (W-NOSM) was 153 and the researcher opted to do a census survey of all employees, hence there is no need to conduct sample size determination calculation.

3.4. Data collection tools/ instrument

This research study used primary data collection from the target population using the SERVQUAL dimensions and network quality dimension. The SERVQUAL dimensions (Tangibles, Reliability, Responsiveness, Assurance, and Empathy) subdivided into 22 questionnaire items and the Network Service Quality dimension into 5 questionnaire items, which focused on measuring the service quality at the NOSM division of Ethio Telecom. As per the SERVQUAL model, the questionnaire divided into two parts. The first part designed to measure the expectations of employees, and the second part measures their perceptions. There is also a part formulated to collect how they rate the quality of the mobile network, and that significantly influences the level of quality of service delivery. The first part in the questionnaire is a demographic data collection part used to collect general information about the respondents' age, educational background, service year, gender, and estimated monthly salary range.

3.5. Variables and Measurement Procedure

There are two types of variables in use, which are dependent and independent variables. Dependent variables vary depending on other variables that determine their state. (Saunders &Rojon, 2011) independent variable causes variation in the dependent variable. Since this research designed to

understand the quality of service delivery by Ethio Telecom, it obviously used as the dependent variable of this research. The SERVQUAL model used to assess employees' expectations and perceptions of the service quality of Ethio Telecom. Both expectations and perceptions measured using a 5-point scale rate that identifies the level of their agreement or disagreement. The scale magnitude measures are "1- strongly disagreed" "2-disagree," "3-neutral," "4-agree," and "5-strongly agree."

3.6. Data analysis

Data analysis is the examination of what has been collected from a survey or experiment and the making of deductions and inferences. Collected data from respondents processed through editing, classification, coding, and tabulation. Then completeness, accuracy, and uniformity of each of the data are checked. Data collected from respondents intended to be analyzed using descriptive statistics technique and explanatory approach used to explain results to significant level. These techniques chosen to describe the central tendency and measures of variability or depression of a data set. The measure of central tendency consists of the mean, median, and mode, while the measure of variability consists of the standard deviation, the minimum and maximum values of the variables, Kurtosis, and skewness. The Statistical Package for Social Studies (SPSS) Version 25 used for the analysis. Descriptive data analysis and inferential data analysis used to present quantitatively the results of the data collected for analysis.

The researcher used the mean to measure central tendencies, correlation to measure the level of relatedness of expectations and perceptions, regression to measure how dependent variables impacted by the independent variables, and the standard deviation to measure the variation of the data set.

3.7. Validity and Reliability

3.7.1. Validity

As defined by (Kothari, 2004) validity is, the most critical criterion that indicates the degree to which an instrument measurement measures what it supposed to measure. In other words, the extent to which differences found from measuring instruments reflect true differences among those being tested. The researcher used IBM SPSS statistical software version 25 to measure correlation

between each question in the questionnaire to check if the concept or the construct is acceptable. A 0.05 or less correlation measure of significance is valid and anything above that is invalid (it will be excluded/removed).

3.7.2. Reliability

According to (Kothari, 2004) measuring instrument is reliable if it provides consistent results. Reliability is the ability to secure consistent results with repeated measurements of the same person and with the same instrument.

Table 3.1. Reliability Coefficients

			Expectations			Perceptions	
Dimension	Items	Number Of Items	Cronbach's Alpha	Cronbach's Alpha if Item Deleted	Items	Cronbach's Alpha	Cronbach's Alpha if Item Deleted
Tangibility	ETan1	4	0.75	0.736	PTan1	0.81	0.737
	ETan2			0.679	PTan2		0.734
	ETan3			0.697	PTan3		0.816
	ETan4			0.656	PTan4		0.748
Reliability	ERel1	5	0.78	0.694	PRel1	0.83	0.804
	ERel2			0.735	PRel2		0.801
	ERel3			0.746	PRel3		0.787
	ERel4			0.732	PRel4		0.772
	ERel5			0.785	PRel5		0.808
Responsiveness	ERes1	4	0.71	0.588	PRes1	0.75	0.720
	ERes2			0.630	PRes2		0.648
	ERes3			0.615	PRes3		0.636
	ERes4			0.749	PRes4		0.760
Assurance	EAsu1	4	0.86	0.829	PAsu1	0.86	0.814
	EAsu2			0.792	PAsu2		0.825
	EAsu3			0.781	PAsu3		0.806
	EAsu4			0.858	PAsu4		0.832
Empathy	EEmp1	5	0.81	0.769	PEmp1	0.84	0.797
	EEmp2			0.786	PEmp2		0.822
	EEmp3			0.746	PEmp3		0.825
	EEmp4			0.763	PEmp4		0.790
	EEmp5			0.796	PEmp5		0.802
Network Quality	ENqu1	5	0.83	0.804	PNqu1	0.86	0.852
	ENqu2			0.790	PNqu2		0.811
	ENqu3			0.761	PNqu3		0.797
	ENqu4			0.797	PNqu4		0.824
	ENqu5			0.833	PNqu5		0.872

Source: Own survey (2022)

The following ways improve reliability: standardizing the conditions under which the measurement takes place, using trained and motivated people, and broadening the sample of items used. The researcher conducted Cronbach's alpha (α) value test using the SPSS analytics instrument. The Cronbach alpha is used to measure how closely related a set of test items are as a

group. Lee Cronbach develops it in 1951 to measure reliability or internal consistency. Cronbach alpha (α) measure value of greater than 0.8 is considered to be very good result, if it is less it will be questionable for its reliability.

As the result of the reliability illustrated in the below table 3.1, except for the expectations responsiveness dimension, all others have well to very good reliability scores ranging from 0.75 to 0.85. A reliability and validity test done for all 146 respondents who were willing to respond to the questionnaire. The result obtained shows that the instrument used for the research is acceptable. According to (Kothari, 2004) reliability is the degree to which measures are free from error caused by either the researcher's bias or subjective judgement during data collection. A measuring instrument is reliable if it provides consistent and stable results free from error.

3.8. Ethical considerations

The first page of the questionnaire gives introductory information on the research title and objective of the research to the respondents. The researcher aimed developing confidence in the minds of respondents to the questionnaire that the data collected from them intended only for academic research purposes. Distribution of the questionnaire done after checking respondents' willingness to respond to it and after recognizing that they are secure from any potential harm or threat to their job security. The researcher using the APA referencing standards recognizes all reference articles, books, and documents used in doing a review of essential theories, concepts, and ideas.

CHAPTER FOUR

Data Analysis and Interpretation

4.1. Response Rate

This section of the study details the analyzed result from the responses of respondents. The data presentation, analysis and interpretations are organized as per the objective of the study. The collected data were edited, coded and inserted to SPSS version 25 statistical software. The collected data were analyzed using descriptive and inferential statistics, accordingly, the result data was presented in table and mean standard deviation, correlations and simple linear regression were computed. A total of 153 questionnaire were distributed to participants and 146 questionnaire were responded and collected (response rate was 95.42%)

4.2. Demographic characteristics of respondents

A total of 146 responses were analyzed to measure the gap between employee expectations and perceptions that determines the level of perceived service quality and hence helps to identify what factors are responsible for affecting mobile network service quality.

The demographic characteristics of respondents illustrated in table 4.1. Regarding the gender characteristics of respondents, 44 (30.1%) of the respondents were female and 102 (69.9%) of the respondents were reported to be male. From observation of the above gender demographic characteristics, it can be deduced that majority of the Network Operation and Service Management (NOSM) division of Ethio Telecom is dominated by male employees.

In terms of job title distribution of employees, it is found that 13 (8.9%) were analysts, 11 (7.5%) were experts, 4 (2.7%) of the population were managers, 98 (67.1%) were specialists, and 20 (13.7%) were reported to be supervisors. From this, it is possible to generalize that the NOSM division structured to hold a mainly higher number of specialists in their respective areas of specialty. Supervisors take the next head count, followed by analysts, experts, and managers.

Regarding the experience of service year, 0 to 5 years' service contributed 11 (7.5%), above 15 years of service contributed 19 (13.0%), 10 to 15 years' service contributed 40 (27.4%), and 5 to

10 years' service contributed 76 (52.1%). As observed from the distribution of service years, one can understand that nearly 60% of employees served in the division for less than 10 years, which refers that the employees at Wireless Network Operation are mostly young with relatively good experience at work.

The educational background of the respondents shows that all of the employees' educational status were found to be graduate and above, of which 99 (67.8%) were graduates and the remaining 47 (32.2%) were postgraduate. This will make respondents mature enough in understanding and knowhow to respond appropriately to questionnaires.

Table 4.1. Demographic characteristics of respondents.

Sr. No.	Respondents	Characteristics	Frequency	Percent of Respondents
1	**Gender**			
	Female		44	30.1
	Male		102	69.9
2	**Job Title**			
	Analyst		13	8.9
	Expert		11	7.5
	Manager		4	2.7
	Specialist		98	67.1
	Supervisor		20	13.7
3	**Service Year**			
	0 to 5		11	7.5
	10 to 15		40	27.4
	5 to 10		76	52.1
	above 15		19	13.0
4	**Educational Background**			
	Graduate		99	67.8
	Post Graduate		47	32.2
5	**Salary Range**			
	<= 15,000		9	6.2
	<=10,000		2	1.4
	<=20,000		29	19.9
	<=25,000		48	32.9
	<=30,000		17	11.6
	>30,000		41	28.0

Source: Own survey (2022)

Concerning the salary range of respondents: Two (1.4%) respondents reported earning salary range of < = 10,000 Birr. Nine (6.2%) responded to earning a salary in the range of < = 15,000 Birr. Seventeen (11.6%) responded to earning a salary in the range of < = 30,000 Birr. twenty-nine (19.9%) responded to earning a salary in the range of < = 20,000 Birr. Forty-one (28.0%) responded to earning a salary in the range of > 30,000 Birr, and forty-eight (32.9%) responded to earning a salary in the range of < = 25,000 Birr. From this data the researcher noted that majority (92.4%) of employees earn a salary of fairly greater than 20,000 Birr and only 7.6% of employees earn salaries below 20,000 Birr .

4.3. Ethio Telecom Employee Service Quality expectations Analysis

Measures of central tendency (Mean=M) and dispersion (standard deviation=SD) for the SERVQUAL and Network service quality dimensions for expectations of Ethio telecom employees are presented in table 4.2 below. (Mudie & Pirrie, 2006) define expectations of quality service as a basic requirement that guarantees a firm's ability to meet or exceed stated and implied needs by its customers.

As it is shown on the table, expectations of network service quality scored the lowest score (M = 4.12) as compared to other expectations dimensions because network service quality requirements expected by different respondents have different criteria against which they label it. Network service quality dimension of service has broad and different definitions depending on the different criteria set by different network quality standardizing organizations as presented by (Plevyak and Sahin, 2010) the company needs to accept and familiarize itself with single standardized criteria for understanding network service quality. What makes this criterion somehow difficult to standardize and create common understanding is that different network elements have their own standardization, like for mobile equipment, transmission link equipment, and IP equipment, which have their own different standardization bodies that govern and define standards.

The variations in expectations response from the lowest to highest is shown as follows: Responsiveness (SD = 0.51), Tangibility (SD = 0.52), Assurance and Reliability (SD = 0.53), Empathy (SD = 0.55), and Network Service Quality (SD = 0.69). The highest variation recorded for the network quality dimension. The minimum and maximum scores indicate that all of the

dimensions agree with the maximum of (max=5) and the minimum values vary from dimension to dimension, with the highest minimum (min=3.0) being certified with Reliability.

Table 4.2. Expectation dimensions

Descriptive Statistics						One-Sample Statistics Test Value = 0		
						95% Confidence Interval of the Difference		
Expectation(E)	N	Mini	Maxi	Mean	Std. Deviation	Sig. (2-tailed)	Lower	Upper
Expectation Tangibility	146	2.75	5.00	4.38	0.52	0.000	4.30	4.47
Expectation Reliability	146	3.00	5.00	4.25	0.53	0.000	4.17	4.34
Expectation Responsiveness	146	2.75	5.00	4.32	0.51	0.000	4.23	4.40
Expectation Assurance	146	2.75	5.00	4.35	0.53	0.000	4.26	4.44
Expectation Empathy	146	2.80	5.00	4.24	0.55	0.000	4.15	4.33
Expectation Network Quality	146	2.00	5.00	4.12	0.69	0.000	4.01	4.23
Grand Mean Expectation	4.28							

Source: Own Survey (2022)

According to the analysis results on table 4.2, the true population parameter estimation concludes that the expectation dimension for each falls between the lower and upper limits as follows: the lower and upper tangibility measures are 4.3 and 4.47 respectively, the lower and upper reliability measures are 4.17and 4.34 respectively, the lower and upper responsiveness measures are 4.23 and 4.40 respectively, the lower and upper assurance measures are 4.26 and 4.44 respectively, lower and upper empathy measures are 4.15 and 4.33 respectively, and lower and upper network quality measures are 4.01 and 4.23 respectively.

Based on the result of the above figure representation, network quality is a less dependable dimension because of low mean when considering expectations of service quality and is also less consistent or has a higher distribution from the mean score. Responsiveness, tangibility, assurance, reliability, and empathy scores have better consistency or are more evenly distributed from the mean score value. Tangibility was found to be more dependable when expectation dimension is considered.

4.4. Ethio Telecom Employee service Quality Perceptions Analysis

The mean and standard deviation of perceptions used to measure the central tendency and dispersion of employee responses. As it was stated by (Kasper et al**.,** 2006**)** perception of service to customers are function of previous service come across to service or opinions and reactions to similar services by other people. The mean of perception dimension responses, as shown in table

4.3, are as follows: Assurance (M = 3.63), Responsiveness (M = 3.55), Empathy (M=3.49), Tangibility (3.48), Reliability (M = 3.40), and Network Service Quality (M = 3.18). Perceptions response dispersion score of (SD = 0.80) is exhibited by the Network Service Quality dimension, followed by Reliability (SD = 0.72), Tangibility and Empathy (SD = 0.68), Assurance (SD = 0.67), and Responsiveness (0.64).

As the result displayed on table 4.4 indicates, the analysis of true population parameter estimation for perception dimensions presented as follows. It was found that the true population parameter estimation falls between 3.37 lower and 3.59 upper limits for tangibility; 3.28 lower and 3.52 upper limits for reliability; 3.44 lower and 3.65 upper limits for responsiveness; 3.52 lower and 3.74 upper limits for assurance; 3.38 lower and 3.60 upper limits for empathy; and 3.05 lower and 3.31 upper limits for network quality; all with a 95% confidence interval.

When analyzing the central tendency and distribution of the responses, it indicated the lowest mean recorded by reliability, which implies that the company needs to improve their ability to deliver service as they have promised dependably and accurately. From the distribution perspective of the responses, the highest distribution observed on network quality dimension.

Table 4.3. Perceptions dimension

Descriptive Statistics						One-Sample Statistics Test Value = 0		
						95% Confidence Interval of the Difference		
Perception	N	Mini	Maxi	Mean	Std. Deviation	Sig. (2-tailed)	Lower	Upper
Perception Tangibility	146	2.00	5.00	3.48	0.68	0.000	3.37	3.59
Perception Reliability	146	2.00	5.00	3.40	0.72	0.000	3.28	3.52
Perception Responsiveness	146	2.00	5.00	3.55	0.64	0.000	3.44	3.65
Perception Assurance	146	1.50	5.00	3.63	0.67	0.000	3.52	3.74
Perception Empathy	146	1.60	5.00	3.49	0.68	0.000	3.38	3.60
Perception Network quality	146	1.00	5.00	3.18	0.80	0.000	3.05	3.31
Grand Mean Perception	3.45							

Source: Own Survey (2022)

4.5. Ethio Telecom Employee service quality Perceptions and Expectations Gap analysis

According to (Hoffman & G Bateson**,** 2012**)** both customer satisfaction and service quality measured by computing the difference between perceptions (P) and expectations (E) of the service. It is expressed mathematically as (P-E). The result from the computed gap score can

indicate a customer is happy if it is positive and their perceptions of the service exceed their expectations. If the gap score result turns out to be negative, it is an indication that customers are not satisfied or unhappy with the service delivered to them. Finally, if the difference between the perception and expectation generated is zero, it means that the customer's needs matched.

The Gap score of employee responses are indicators of the difference observed between expectations and perceptions of service quality delivered by Ethio Telecom in regards to tangibles, reliability, responsiveness, assurance, empathy, and network service quality. As observed from the gap score result displayed on table 4.4, the gap score indicated on the table for all dimensions is negative. The negative gap score of the respondents shows that Ethio Telecom employee expectations for quality service dimensions are highly overstated as compared to what they perceive of the service they provide. These negative Gap scores indicate how dissatisfied Ethio Telecom employees are with the service quality provided to them and their customers. This is because customers, whether internal or external, evaluate the quality of service delivered to them compared to what they expect the service to fulfill. As (Parasuraman, et al., 2009) stated in his study the gaps identified on this result can be used to trigger strategic measures to correct problem observed for future progress of employee perception of service offered to them.

Table 4.4. The Gap score of Employee respondents

Employees Responses	Expectations Mean	Performance Mean	Gap Scores(P-E)
Tangibles	4.38	3.48	-0.91
Reliability	4.25	3.40	-0.85
Responsiveness	4.32	3.55	-0.77
Assurance	4.35	3.63	-0.72
Empathy	4.24	3.49	-0.75
Network service Quality	4.12	3.18	-0.94
Overall Gap			-0.82

Source: Own Survey (2022)

4.6. Pearson Correlation result analysis

According to (Sekaran & Bougie**,** 2016) the Pearson correlation matrix (r) will indicate the relationship direction, strength, and significance of the bivariate relationships among all the variables measured at an interval or ratio level. The correlation derived by assessing the variations in one variable as another variable also varies. It has a value between -1 and 1, with -1 representing total negative linear correlation, 0 representing no correlation, and + 1 representing

total positive correlation. The significance factor ‘p’ generally accepted as the conventional level in social science research.

Table 4.5. SERVQUAL and Network service quality dimensions correlation with respective perceived gap

	Correlations			**Correlations**		
		ETan	Tan Gap		PTan	Tan Gap
Pearson Correlation	ETan	1	-.530**	PTan	1	.763**
Sig. (2-tailed)			0.000			0.000
Pearson Correlation	Tan Gap	-.530**	1	Tan Gap	.763**	1
Sig. (2-tailed)		0.000			0.000	
		ERel	Rel Gap		PRel	Rel Gap
Pearson Correlation	ERel	1	-.483**	PRel	1	.762**
Sig. (2-tailed)			0.000			0.000
Pearson Correlation	Rel Gap	-.483**	1	Rel Gap	.762**	1
Sig. (2-tailed)		0.000			0.000	
		ERes	Res Gap		PRes	Res Gap
Pearson Correlation	ERes	1	-.580**	PRes	1	.762**
Sig. (2-tailed)			0.000			0.000
Pearson Correlation	Res Gap	-.580**	1	Res Gap	.762**	1
Sig. (2-tailed)		0.000			0.000	
		EAsu	Asu Gap		PAsu	Asu Gap
Pearson Correlation	EAsu	1	-.554**	PAsu	1	.750**
Sig. (2-tailed)			0.000			0.000
Pearson Correlation	Asu Gap	-.554**	1	Asu Gap	.750**	1
Sig. (2-tailed)		0.000			0.000	
		EEmp	Emp Gap		PEmp	Emp Gap
Pearson Correlation	EEmp	1	-.524**	PEmp	1	.727**
Sig. (2-tailed)			0.000			0.000
Pearson Correlation	Emp Gap	-.524**	1	Emp Gap	.727**	1
Sig. (2-tailed)		0.000			0.000	
		ENqu	Nqu Gap		PNqu	Nqu Gap
Pearson Correlation	ENqu	1	-.505**	PNqu	1	.671**
Sig. (2-tailed)			0.000			0.000
Pearson Correlation	Nqu Gap	-.505**	1	Nqu Gap	.671**	1
Sig. (2-tailed)		0.000			0.000	
N		146	146		146	146
**. Correlation is significant at the 0.01 level (2-tailed).						

Source: Own Survey (2022)

Depending on the significance coefficient ‘p’ value, we can be sure that there is a true or significant correlation between the two variables if the significance coefficient is less than or equal to the ‘p’ value. For instance, if the ‘p’ value is 0.01, then it means that the probability of it not being true is 1% or less.

As shown in table 4.5, the correlation matrix indicates that expectations dimensions negatively correlated with the service satisfaction gap. The values for each are tangible ($r = 0.530$, $p<0.01$), reliability ($r = 0.483$, $p<0.01$), responsiveness ($r = 0.580$, $p<0.01$); assurance ($r = 0.554$, $p<0.01$); empathy ($r = 0.524$, $p< 0.01$); and network service quality ($r = 0.505$, $p<0.01$). All of these expected quality dimensions exhibited a moderate negative correlation with the service quality gap. The network service quality is the least scored item in the list.

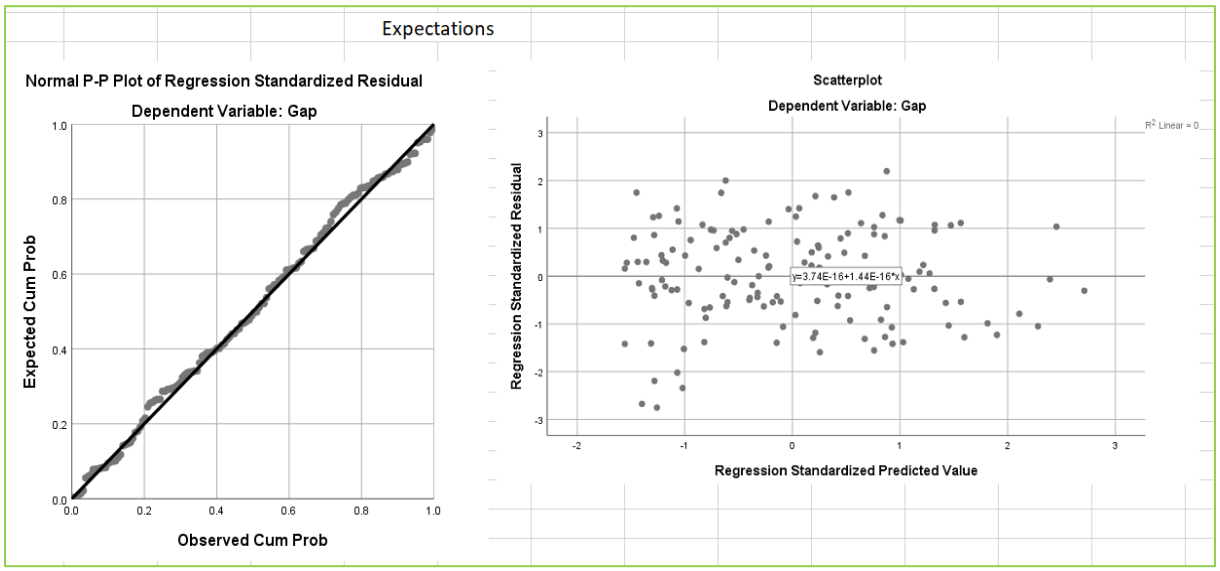
In a similar fashion, table 4.5 illustrates how perceptions of quality service items correlate positively with service quality satisfaction gaps. The observation result indicates each dimension resulted in correlation values of: tangibles ($r = 0.763$, $p<0.01$), reliability ($r = 0.762$, $p<0.01$), responsiveness ($r = 0.762$, $p<0.01$), assurance ($r = 0.750$, $p<0.01$), empathy ($r = 0.727$, $p<0.01$) and network service quality ($r = 0.671$, $p<0.01$). The correlation value for all dimensions indicates that they are highly correlated to the service satisfaction gap, except for network service quality that correlates moderately. In other words, the results indicate that responsiveness is the most important service quality dimension, which proves Ethio Telecom's preparedness, and obligation to provide swift help is dominant in perceived service quality, whereas network service quality is the least dominant of the dimensions. Similarly, a study by (RamseookMunhurrun et al., 2010) on SERVQUAL dimension showed significant negative relationship with employees’ satisfaction.

4.7. Regression assumption test

Before proceeding with regression analysis, I will try to check the data for regression assumptions. The researcher made the decision to test the data regression assumptions for overall individual expectations and perception dimensions versus gaps. To check this normality, linearity, homoscedasticity, and absence of multi-collinearity, tests were done individually.

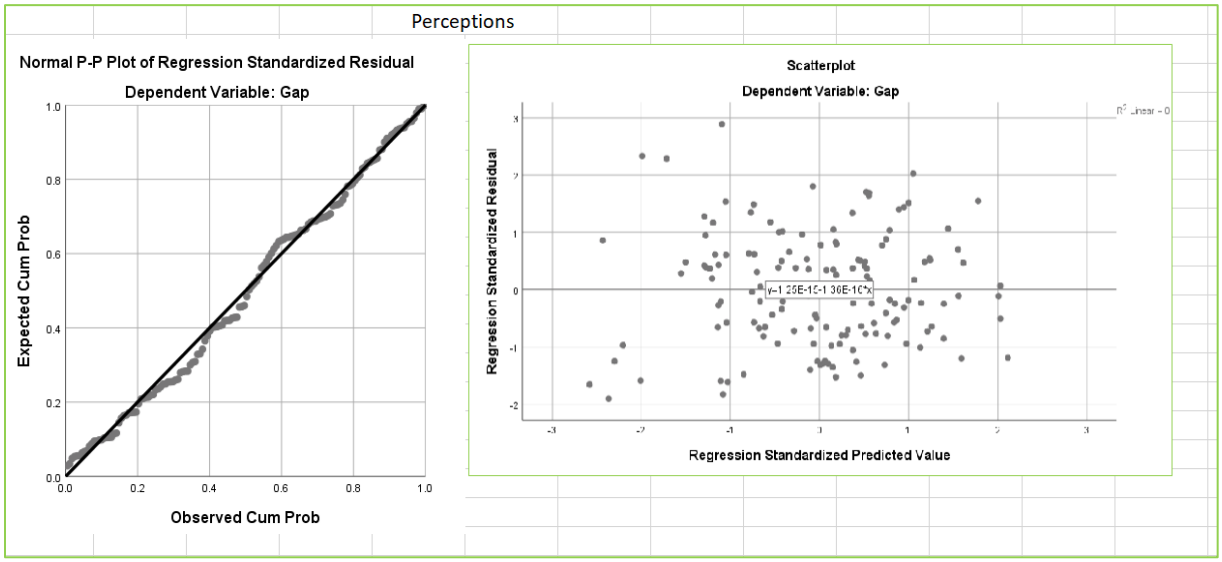
A. **Normality assumption test:** AS shown on figure 4.1, and 4.2. On the left side of the picture, there is probability –probability (P-P) plot that indicates the data is normal since the small circle follow the normality line 45% in the middle of the x-axis and y-axis

Figure 4.1. Expectation dimensions Versus Gap P-P plot and Scatter plot result



Source: Own survey (2022)

Figure 4.2. Perception dimensions Versus P-P plot and Scatter plot test result



Source: own survey (2022)

From this plot, it was concluded that the data is normally distributed. As the result illustrated on table 4.6 Independence of test checked by Durbin - Watson coefficient that guarantee the test is independent and normality is ok for values greater than 1 and less than three and since my result for both expectation and perception dimensions 1.844 and 1.695 respectively it is proved that it passes.

B. **Homoscedasticity assumption test:** Homoscedasticity checks for the equality or similarity in the distribution of standard predicted value and standard residual. As is depicted on figure 4.1 above the standardized predicted value and standardized residual have equal variance or distribution on scatter plot and the value is between the acceptable value range of -3.29 and 3.29 on both x-axis and y-axis.

Table 4.6. Durbin- Watson normality test result

Expectations Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.502[a]	0.252	0.219	0.56543	1.844
a. Predictors: (Constant), ENqu, ETan, EAsu, ERes, EEmp, ERel					
b. Dependent Variable: Gap					
Perceptions Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.760[a]	0.578	0.560	0.42454	1.695
a. Predictors: (Constant), PNqu, PRes, PTan, PRel, PEmp, PAsu					
b. Dependent Variable: Gap					

Source: Own survey (2022)

C. **Linearity assumption test:** As shown in table 4.7 below, if the value of sig. deviation from linearity is greater than 0.05, then the relationship between the independent variables and dependent variables is linear.

Table 4.7. ANOVA table for Deviation from Linearity test

ANOVA TABLE		
	Gap * expectations	**Gap * perceptions**
	Sig.	Sig.
(Combined)	0.030	0.008
Linearity	0.000	0.000
Deviation from Linearity	0.198	0.474

Source: Own survey (2022)

The results for each of the independent and dependent linearity sig. are greater than 0.05 as follows: Expectation (0.198) and perception (0.474) Furthermore, since the homoscedasticity is

okay and residuals are normally distributed, then predictor variables in the regression have a straight-line relationship with the outcome variable, hence linearity is okay.

4.8. Regression Analysis

According to (Sekaran & Bougie**,** 2016) simple regression analysis used to understand the effect of independent variable on a dependent variable. In my case, the independent variables are expectations dimensions of service quality used to understand the degree and character of relationship with the dependent variable, perceived service gap. The size of each regression coefficient indicates how much an increase of one unit in the independent variable would affect the dependent variable.

Table 4.8. Expectations dimensions vs Gap regression

									Unstandardized Coefficients	Standardized Coefficients		
Model		df	R	R 2	Adjusted R2	F	Sig.		B	Beta	t	Sig.
ETan	Regression	1	.530[a]	0.281	0.276	56.312	.000[b]	Tan Gap	2.648	-0.530	5.551	0.000
	Residual	144						ETan	-0.811		-7.504	0.000
	Total	145										
ERel	Regression	1	.483[a]	0.233	0.228	43.793	.000[b]	Rel Gap	2.257	-0.483	4.764	0.000
	Residual	144						ERel	-0.731		-6.618	0.000
	Total	145										
ERes	Regression	1	.580[a]	0.336	0.331	72.890	.000[b]	Res Gap	3.078	-0.580	6.781	0.000
	Residual	144						ERes	-0.891		-8.538	0.000
	Total	145										
EAsu	Regression	1	.554[a]	0.307	0.307	63.698	.000[b]	Asu Gap	2.892	-0.554	6.345	0.000
	Residual	144						EAsu	-0.830		-7.981	0.000
	Total	145										
EEmp	Regression	1	.524[a]	0.274	0.269	54.391	.000[b]	Emp Gap	2.414	-0.524	5.587	0.000
	Residual	144						EEmp	-0.746		-7.375	0.000
	Total	145										
ENqu	Regression	1	.505[a]	0.255	0.249	49.182	.000[b]	Nqu Gap	1.734	-0.505	4.494	0.000
	Residual	144						ENqu	-0.648		-7.013	0.000
	Total	145										

Source: Own survey (2022)

Table 4.8 displays the individual results of the expectations dimensions and perceived service gap regression models, which are statistically considered to have strong significance because the significance value for all independent variables is alpha (<0.05). The significance level for each

of the independent variables is expressed as for ETan (F (1,145) =56.312, p=.000), ERel (F (1,145) = 43.793, p=.000), ERes (F (1,145) =72.890, p=.000), EAsu (F (1,145) =63.698, p=.000), EEmp (F (1,145) =54.391, p=.000) and ENqu (F (1,145) = 49.182, p=.000). When analyzing the adjusted R2 relationship to the perceived service gap, the researcher discovered that ETan (27.6%), ERel (22.8%), ERes (33.1%), EAsu (30.7%), EEmp (26.9%), and ENqu (24.9%), which indicates that all of them explain less than 35% of the variance individually. Expectations dimensions also have an R-squared (R2) value of ETan (R2 = 0.281), ERel (R2 = 0.233), ERes (R2 = 0.336), EAsu (R2 = 0.307), EEmp (R2 = 0.274) and ENqu (R2 = 0.255), respectively.

The table also shows the result of the simple correlation coefficient (R) for all the independent and dependent variables, indicating that slightly more than half the observed variation can be explained. The regression sensitivity for dependent variable variation when incrementing a unit of independent variable is expressed using the unstandardized coefficient (B) and its significance checked by comparing the T-test significance level.

Equations for all variation computed using the unstandardized coefficient (B) expectations dimensions as the level of variation and the constant unstandardized coefficient (B) as the y-intercept. The equations are as follows for each dimension: ETan Y = 2.648-0.811X, ERel Y = 2.257-0.731X, ERes Y = 3.078-0.891X, EAsu Y = 2.892-0.830X, EEmp Y = 2.414-0.746X, and ENqu Y = 1.734-0.648. From these equations, the researcher understands that when the independent variable increases by one unit, the dependent variable decreases by the amount of unstandardized coefficient (B) of the independent variable, and hence they have a negative relationship.

Table 4.9. Illustrates perceptions dimensions and the perceived service gap regression model is statistically considered to have strong significance since for all independent variables the significance value is alpha (< 0.05). The significance level for each of the independent variables is expressed as for PTan (F (1,145) = 200.072, p = 0.000), PRel (F (1,145) = 199.686, p= 0.000), PRes (F (1,145) = 198.809, p= 0.000), PAsu (F (1,145) = 185.678, p= 0.000), EEmp (F (1,145) = 161.265, p= 0.000) and ENqu (F (1,145) = 117.660, p=0.000). Analyzing the adjusted R2 data from the regression analysis, all of the perception dimensions account for above 50% variance except for PNqu as compared to the perceived service gap, PTan (57.9%), PRel (57.8%), PRes (57.7%), PAsu (56.0%), PEmp (52.5%) and ENqu (44.6%). Each independent variable has the

following R2 values: PTan (R2 = 0.581), PRel (R2 = 0.581), PRes (R2 = 0.580), PAsu (R2 = 0.563), PEmp (R2 = 0.528), and PNqu (R2 = 0.450).

Table 4.9. Perceptions dimension Vs Gap Regression

									Unstandardized Coefficients	Standardized Coefficients		
Model		df	R	R 2	Adjusted R2	F	Sig.		B	Beta	t	Sig.
PTan	Regression	1	.763[a]	0.581	0.579	200.072	.000[b]	Tan Gap	-4.001		-17.960	0.000
	Residual	144						PTan	0.890	0.763	14.145	0.000
	Total	145										
PRel	Regression	1	.762[a]	0.581	0.578	199.686	.000[b]	Rel Gap	-3.755		-17.897	0.000
	Residual	144						PRel	0.853	0.762	14.131	0.000
	Total	145										
PRes	Regression	1	.762[a]	0.580	0.577	198.809	.000[b]	Res Gap	-4.074		-17.111	0.000
	Residual	144						PRes	0.931	0.762	14.100	0.000
	Total	145										
PAsu	Regression	1	.750[a]	0.563	0.560	185.678	.000[b]	Asu Gap	-3.961		-16.376	0.000
	Residual	144						PAsu	0.893	0.750	13.626	0.000
	Total	145										
PEmp	Regression	1	.727[a]	0.528	0.525	161.265	.000[b]	Emp Gap	-3.660		-15.661	0.000
	Residual	144						PEmp	0.835	0.727	12.699	0.000
	Total	145										
PNqu	Regression	1	.671[a]	0.450	0.446	117.660	.000[b]	Nqu Gap	-3.292		-14.702	0.000
	Residual	144						PNqu	0.740	0.671	10.847	0.000
	Total	145										

Source: Own Survey (2022)

The table also shows the result of the simple correlation coefficient (R) for all the independent and dependent variables, indicating most likely 70% and above of the observed variation can be explained. The regression sensitivity for dependent variable variation computed by the following equations: PTan Y=-4.001+0.890X, PRel Y=-3.755+0.853X, PRes Y=-4.074+0.931X, PAsu Y=-3.961+0.893X, PEmp Y=-3.660+0.835X and PNqu Y=-3.292+0.740X. From these equations, the researcher understands that when the independent variable increases by one unit, the dependent variable increases by the amount of unstandardized coefficient (B) of the independent variable, and hence they have a positive relationship.

4.9. Hypothesis Test result

Based on this result of correlation and regression analysis above;

a. Expectation of SERVQUAL and network quality dimensions were negatively correlated to the service gap.
b. Perception of SERVQUAL and network quality dimensions were positively correlated to the service gap
c. Unstandardized coefficient (B) for expectations of SERVQUAL and network quality dimensions show negative relationship with service quality gap.
d. Unstandardized coefficient for Perception of SERVQUAL and network quality dimensions indicated positive relationship with service gap.

From the above-summarized correlation and regression analysis results, it was concluded that the hypotheses formulated in chapter two of this research work was found to be statistically valid and accepted. The dependent variable of the study is quality service, which was expressed in terms of satisfaction. The service gap result shows a negative score for all SERVQUAL and network quality dimensions that resulted in employee dissatisfaction. The perception of SERVQUAL and network quality dimensions were directly correlated and have a positive relationship with the service gap. The researcher concluded that since the perceived service gap and perception of service quality were positively correlated and have a positive relationship, this result shows that when the perception of service increases by one unit, the perceived service gap increases by the beta factor. Therefore, all SERVQUAL dimensions (Tangibility, Reliability, Responsiveness, Assurance, and Empathy) and network service quality perceived service quality have a positive significance on the quality of mobile network service delivered.

There is lack of resources and limitation of study materials that directly match with the research done on Ethio Telecom employee perceived service quality implication on service quality of mobile network. Most of resource that were referred when doing this research were mainly to what end did service quality lead the satisfaction of customers , since customers derive satisfaction from the level of quality they come across.

CHAPTER FIVE

Findings, Conclusions and Recommendations

5.1. Summary of Findings

The aim of this study was to understand level of employee satisfaction with services delivered to them and predict what elements of SERVQUAL dimension and Network Service quality dimension that most determine mobile service quality.

- Expectation dimensions of SERVQUAL dimensions mean score and standard deviation indicated by tangibility (M = 4.38, SD =0.52), Reliability (M = 4.25, SD = 0.53), Responsiveness (M = 4.32, SD = 0.51), Assurance (M =4.35, SD = 0.53), and Empathy (M=4.24, SD = 0.55) concludes that they have moderate consistency or spread out from stated respective mean value. However, for Network quality dimension (M= 4.12, SD = 0.69) indicates lesser spread out or higher consistency with the mean value.
- Perception dimensions of SERVQUAL dimensions mean score and standard deviation indicated by tangibility (M = 3.48, SD =0.68), Reliability (M = 3.40, SD = 0.72), Responsiveness (M = 3.55, SD = 0.64), Assurance (M = 3.63, SD = 0.67), and Empathy (M= 3.49, SD = 0.68). It is possible to make that perceptions of SERVQUAL dimensions are more consistent than expectation. Network quality dimension (M= 3.18, SD = 0.80) for both expectation and perception is high but for perception scenario it is even more consistent score.
- It was found that the expectation (E) grand mean score (M = 4.28, SD = 0.44) and perception (P) grand mean score (M = 3.45, SD = 0.58) with the gap score (P – E) resulting to negative 0.83, which indicates that employees expectations and perceptions of service are greatly unmatched.
- Overall Expectations dimension items individual correlation with respective perceived service gap score (P-E) correlation indicates negative moderate relationship ETan (mean tangibility) score (r = 0.53), ERel (mean reliability) score (r = 0.483), ERes (mean responsiveness) score (r = 0.58), EAsu (Mean assurance) score (r = 0.554), EEmp (mean empathy) score (r = 0.524) and ENqu (Mean network quality) score (r = 0.505). For Perception dimension have high positive correlation scores of PTan (mean tangibility)

score (r = 0.763), PRel (mean reliability) score (r = 0.762), PRes (mean responsiveness) score (r = 0.762), PAsu (Mean assurance) score (r = 0.75), PEmp (mean empathy) score (r = 0.727) and PNqu (Mean network quality) score (r = 0.671). From this result, deduction made is that perception correlates with high positive and expectation with negative moderate correlation.

- When it comes to linear regression analysis result it indicates that Expectations dimensions are negatively related to respective perceived service gap as shown by the following equations ETan Y = 2.648-0.811X, ERel Y = 2.257-0.731X, ERes Y = 3.078-0.891X, EAsu Y = 2.892-0.830X, EEmp Y = 2.414-0.746X, and ENqu Y = 1.734-0.648. In addition, the observed variations are explained by less than 35% as adjusted R2 values for each shows; ETan (27.6%), ERel (22.8%), ERes (33.1%), EAsu (30.7%), EEmp (26.9%), and ENqu (24.9%). Perception dimensions items are positively related to respective perceived service gap for which the following equations derived from unstandardized coefficient of beta (B) of both as follows, PTan Y=-4.001+0.890X, PRel Y=-3.755+0.853X, PRes Y=-4.074+0.931X, PAsu Y=-3.961+0.893X, PEmp Y=-3.660+0.835X and PNqu Y=-3.292+0.740X. finally the observed variation can be explained by more than 52% except for Network quality dimensions indicated by adjusted R2 values as ,PTan (57.9%), PRel (57.8%), PRes (57.7%), PAsu (56.0%), PEmp (52.5%) and ENqu (44.6%).
- In regression, sensitivity equations for Perceptions dimension items Y- intercept for all shows negative value as on above summary. The negative y – intercept value most likely describes that from the result obtained from respondents perceived service gap is frequently negative and also the value for perceptions item is not equal to zero or less than one, hence it is ok.

5.2. Conclusions

Quality is the parameter used to measure if the service delivered to customers meets their needs, wants, and expectations. Modern and forward-thinking businesses always spend large sums on studies that primarily focus on understanding customers' preferences, behaviors, and needs and wants in order to align their services and products to encompass the main components of stated or implied expectations standards in order to sustain in a rapidly evolving market. Keeping and

continuously improving the quality of products and services will increase the satisfaction of customers, and it will earn firms as many loyal customers as possible.

To understand the level of customers' satisfaction, the SERVQUAL dimension and Network Service quality dimensions are among the most widely used parameters in use to date. The SERVQUAL dimension is comprised of or summarized into five main components against which customer expectations and perceptions of service are measured. Tangibles measure the level of attractiveness of the physical appearance of service equipment and employees. Reliability measures the dependability of firms to keep their promises or not. Responsiveness measures the readiness of firms to provide any kind of help regarding their service at any time. Assurance measures trustworthiness and instills confidence in customers' hearts. Empathy measures attention-paying and understanding customer feelings. Network service quality is another parameter used to measure the level of telecommunication service quality attributes like fast speed data connection, call drop free voice service connection and many more.

The fast growing and competitive market nature necessitates firms to improve their service continuously to stay competent in the market, so they are familiarizing themselves with conducting survey studies to understand the gap between expectations and perceptions of the service they deliver to their customers. The more they know about the service gap, the more they can tune and improvise their quality service process to maintain their customers' needs and wants.

According to above summary of the finding the researcher concluded that tangibility, reliability, responsiveness, assurance, empathy and network quality dimensions of quality have negative significance on quality service delivery. This is because of the fact that the perceived service gap score of negative implies that there is unmatched needs and wants as compared to the delivered service offer and hence this results in dissatisfied employee. If employees are dissatisfied the likelihood for them to perform their jobs to the level expected from them will decline, increased absenteeism, talented employees will barely transfer their skills, fail to deliver tasks on time and employee retention will be difficult.

5.3. Recommendations

A quality management system may improve companies' internal functions by increasing productivity of both employees and facilities, improving efficiency and reducing costs when providing service. Improved internal functions of companies play a detrimental role in creating a positive effect on customer satisfaction and allow them to increase sales and market share, which creates loyalty, attracts new customers and improves the company image. To manage service quality appropriately, the selection of sound measuring instruments plays a key role in defining the dimensions of the service and evaluating their impact on their clients' overall satisfaction.

Based on the result of this research analysis to manage service quality gaps between expectations and perceptions, the elements of service quality dimensions used are namely the SERVQUAL dimensions and the Network Quality Dimension to determine the level of satisfaction obtained by Ethio Telecom employees. This finding of this research indicates heightened expectations and low levels of perceptions of service that concludes employees are dissatisfied by service they receive from their company. Therefore, in order to improve the satisfaction level of employees, both Ethio Telecom and employees require a redefined understanding of facts and possible attainable baselines for service expectations and perception dimensions to compare with. To settle such unmatched perceptions and expectations gaps, researchers recommend the following measures to minimize the gap.

- Ethio Telecom needs to conduct study on tangible aspects of service and standardize the physical appearance of service office, equipment and employee dressing code to improve employee satisfaction level.
- Ethio Telecom needs to assess why its employees rated it less reliable company.
- It needs to revise its responsiveness element of service.
- It needs to reconsider its trustworthiness and implement corrective measures to instill confidence on its employees.
- To what level did Ethio Telecom understand its internal customers and pay attention for their service request? It is necessary to define what kind of attentions and understandings must exist.
- It needs to improve voice call drop and data speed related problem on mobile network.

Finally, the satisfaction of customers is dependent on the subjective and objective interpretation of customers, but as a service company, Ethio Telecom needs to understand and interpret customer expectations to elevate the perceptions of their service. Improvements in the perceptions of internal customers will lead to improved external customer perspectives of the firm providing service as (Zhao et al., 2002) indicated the results will be used for improvements. If internal customers are satisfied with management and service delivered to them, their willpower to be involved with full potential to meet the objectives and goals of their company improves, and hence satisfied external customers will arise.

5.4. Indication for future research

Further studies should be carried out to better understand the concept of perceived service quality and its impact on quality service delivery. Knowledge of employee perceived service quality will help organizations clearly identify what parts of their firm need improvement and reinforcement. Conducting similar research with a larger sample size could enable researchers to generalize the results to a larger population. Generalization to a larger population would be possible if research were conducted with a sample that included all divisions of Ethio Telecom. Similar research could also be conducted on different service companies with slight modifications by modifying scenarios that match the nature of their service.

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APPENDIX I

A Questionnaire filled out by employees of Ethio Telecom

St. Mary's University ቅድስት ማርያም ዩኒቨርስቲ

Commited to Excellence

School of Graduate studies

Master's in Business Administration

Questionnaire

I would like to thank you for agreeing to participate in this survey study. As part of my Masters of Business Administration (MBA) project, I'm evaluating employees' expectations and perceptions of mobile network service quality. The surveys are only to be used as part of a research project to evaluate service quality using the SERVQUAL Model and Network Quality Dimensions. So, dear participants, feel free to fill in your real perspective, as it will only be used to complete the educational research thesis study. I would appreciate it if you could take the time to fill out the questions below.

Instruction

- No Need to Mention Your Name
- Questionnaire will be filled Voluntarily

Please, be assured that your response and all the information collected through this Questionnaire will be treated anonymously. **Thank You!**

Masters of Business Administration

St. Marys' University

Alexander Behailu phone: 0911248092

The Questions are divided into three parts

1. Part on which you provide Demographic data regarding your sex, Education background, service year and salary range.
2. Expectations- it is the rating you expect the Mobile Network service needs to fulfill/meet.
3. Perceptions or performance- It is the service quality you experienced while using the service and when doing your job.

Please answer below questions by putting "X" mark in space provided with answers you think best matches your opinion.

Demographic Question

Gender: ☐M ☐F

Job Title ☐Manager ☐Expert ☐Supervisor ☐Specialist ☐Analysts☐

Service Year: 0 to 5☐ 5 to 10☐10 to 15☐15 and above☐

Educational Background: Diploma☐ First Degree Master's Degree☐ PHD☐

Salary Range :<=10,000☐<=15,000☐ <=20,000☐<=25,000☐<=30,000☐>30,000☐

Questionnaires

Below are Questionnaire questions on expectations and perceptions of the Mobile Network service quality divided into two. Part one is expectation and part two is perceptions. Weight is shown below

Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
5	4	3	2	1

No.	Item name	Questionnaire(Expectations Item Questions)Part One	5	4	3	2	1
1	Tangibles	Excellent companies will have modern looking equipment.					
2	Tangibles	The physical facilities at excellent companies will be visually appealing.					
3	Tangibles	Employees of excellent companies will be neat in appearance.					

4	Tangibles	Materials associated with the Network service will be visually appealing in an excellent company.					
5	Reliability	When excellent companies promise to do something by a certain time, they will do so.					
6	Reliability	When customers have a problem, excellent companies will show a sincere interest in solving it.					
7	Reliability	Excellent companies will perform the service right the first time.					
8	Reliability	Excellent companies will provide their services at the time they promise to do so.					
9	Reliability	Excellent companies will insist on error-free records.					
10	Responsiveness	Employees of excellent companies will tell customers exactly when services will be performed.					
11	Responsiveness	Employees of excellent companies will give prompt service to customers.					
12	Responsiveness	Employees of excellent companies will always be willing to help customers.					
13	Responsiveness	Employees of excellent companies will never be too busy to respond to customer requests.					
14	Assurance	The behavior of excellent companies' employees will instill confidence in customers.					
15	Assurance	Customers of excellent companies will feel safe in their transactions.					
16	Assurance	Employees of excellent companies will be consistently considerate with customers.					
17	Assurance	Employees of excellent companies will have the knowledge to answer customer questions.					
18	Empathy	Excellent companies will give customers individual attention.					
19	Empathy	Excellent companies will have operating hours convenient for all their customers.					
20	Empathy	Excellent companies will have employees who give customers personal attention.					
21	Empathy	Excellent companies will have the customer's best interest at heart.					
22	Empathy	Excellent companies Employees will understand the specific needs of their customers.					
23	Network Quality	Excellent Mobile Network Service connects immediately to a dialed number.					
24	Network Quality	Excellent Mobile Network Service handles all calls successfully without call drops.					
25	Network Quality	Excellent Mobile Network Service maintains excellent voice quality without interruption.					
26	Network Quality	Excellent Mobile Network Service maintains excellent data quality with fast speed.					
27	Network Quality	Excellent mobile network service providers have wider network coverage areas.					
No.	Item name	**Questionnaire(Perceptions(Performance) Item Questions)Part Two**					
1	Tangibles	Ethio Telecom have modern-looking equipment.					

2	Tangibles	Ethio Telecom have physical facilities that are visually appealing.					
3	Tangibles	Ethio Telecom have been neat in appearance.					
4	Tangibles	Ethio Telecom Materials associated with the Network service are visually appealing.					
5	Reliability	Ethio Telecom promise to do something by a certain time, it does so.					
6	Reliability	Ethio Telecom have sincere interest solving customer problems.					
7	Reliability	Ethio Telecom perform the service right the first time.					
8	Reliability	Ethio Telecom provide our services at the time we promise to do so.					
9	Reliability	Ethio Telecom insist on error-free records.					
10	Responsiveness	Ethio Telecom tell their customers when exactly service will be performed.					
11	Responsiveness	Ethio Telecom give their customers prompt service.					
12	Responsiveness	Ethio Telecom are always willing to help their customers.					
13	Responsiveness	Ethio Telecom are never too busy to respond to customer requests.					
14	Assurance	Ethio Telecom behavior instills confidence in customers.					
15	Assurance	Ethio Telecom make customers feel safe in their transactions.					
16	Assurance	Ethio Telecom is consistently considerate with their customer.					
17	Assurance	Ethio Telecom employee have adequate knowledge to answer customer questions.					
18	Empathy	Ethio Telecom provide individual attention to their customers.					
19	Empathy	Ethio Telecom have operating hours convenient to all of their customers.					
20	Empathy	Ethio Telecom have employees who give personal attention.					
21	Empathy	Ethio Telecom have customers' best interests at heart.					
22	Empathy	Ethio Telecom understand customers' specific needs.					
23	Network Quality	Ethio Telecom Mobile Network Service connects immediately to a dialed number.					
24	Network Quality	Ethio Telecom Mobile Network Service handles all the calls successfully without call drops.					
25	Network Quality	Ethio Telecom Mobile Network Service maintains excellent voice quality without interruption.					
26	Network Quality	Ethio Telecom Mobile Network Service maintains excellent data quality with fast data speed.					
27	Network Quality	Ethio Telecom mobile network services have wider network coverage areas.					

What would you like to recommend be done to improve Mobile service quality? Briefly explain

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If you have any comments on service quality dimensions, please mention them

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