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SCHOOL OF GRADUATE STUDIES

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THE ASSESSMENT OF 3G AND 4G NETWORK ON CRITICAL CUTOMERS: THE CASE OF ETHIOTELECOM

BY

FASIL HAILU

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ADDIS ABABA, ETHIOPIA

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FASIL HAILU

A THESIS SUBMITTED TO THE ST. MARY'S UNIVERSITY, SCHOOL BUSINESS IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FPR THE AWARD PF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION (MBA).

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STATEMENT OF DECLARATION

I, Fasil Hailu, have carried out independently a thesis on "The impact of 3g and 4g network on critical customers: the case of Ethiotelecom "in partial fulfillment of the requirements of the degree of master of business administration with the constructive guidance and support of the research advisor. This thesis is my own works that has not been presented for any degree or diploma program in this and any other institution, and that all source of materials used for the thesis have been duly acknowledged.

Fasil Hailu **----------Signature**

ST. MARY'S UNIVERSITY, ADDIS ABABA **May, 2017**

ENDORSEMENT

This thesis has been submitted to St. Mary's University school of graduate studies for examination with my approval as university advisor.

Dr. Terefe Feyera **----------Signature**

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List of Abbreviations

1G: first generation technology

2G: second generation technology

3G: third generation technology

4G: fourth generation technology

LTE: long term evolution

GSM**:** Global System for Mobile

UMTS: Universal Mobile Telecommunications System

HSPA: High Speed Packet Access

HSPA+**:** High Speed Download/Upload Packet Access (+ designates the "Evolved" newer spec).

WiMAX: Worldwide Interoperability for Microwave Access

CDMA: Code Division Multiple Access

WCDMA, EV-DO: Wideband CDMA

IP: internet protocol

GPRS**:** General Packet Radio Service

SPSS: Statistical Package for Social Science

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ABSTRACT

Customer satisfaction is one of the most important driving factor for business sustainability and essential for corporate profitability and survival. This research was conducted to assess the impact of 3g and 4g network on critical customers: the case of Ethiotelecom. Examining the level of awareness, assessment of level of customer satisfaction, fulfillment of customer's expectation and performance issues related to 3G and 4G services were addressed as objectives of the current study. To this end, data were collected from 40 different organizations that were found in Addis Ababa. Quantitative method was used to test the significance of factors to the impact of 3G and 4G technologies. The data were encoded to SPSS software package and results were interpreted using qualitative and quantitative method in line with the research objective and question to show and interpret the results. Findings from these study shows that 3G and 4G technologies have a positive contribution on the business performance/productivity with a mean value of 3.85 followed by the awareness factor on 3G and 4G technologies and Customer satisfaction with mean value of 3.83 and 3.46 respectively. The overall level of expectation factor is the highest among all the factors in this study with a total mean range of 4.1. Even though the result showed high, the researcher recommends the organization (Ethiotelecom) to maintain and held high the 3G and 4G service to keep and attract customers in the future because customers always need to be satisfied beyond their expectation.

Key words: 3G service, 4G service, customer satisfaction, perception on impact, *critical customer*

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

Today, the world has undergone massive changes: the Internet bubble has come and gone, and emerging countries such as China and India have become prominent global providers and users of ICT equipment and services (Weforum, 2013). Struggling to emerge from the financial crisis, developed economies are striving to return to higher levels of growth and competitiveness while fighting stubbornly high unemployment rates, especially among their youth. Both emerging and developed economies are focusing on innovation, competing globally for talent, resources, and market shares. Information flows and networks have spread across borders in ways that could not be imagined before the onset of the Internet, the global adoption of mobile telephony and social networks, and the rapid growth of broadband. Business models have been redefined, the workplace has been redesigned, small start-ups have evolved into large companies, and entire functions of society are being rethought (the global information technology report, 2013).

These technological developments have a major impact on the relationship with your customer. The goal is to build a customer strategy that is future-proof. The essential principles of customer service are timeless, but consumer expectations are not (Pickard, 2015). Customers have always wanted a friendly, efficient and reliable service, but with the development of new technology, their expectations have been raised. They want a more efficient service than before. They don't just want 'friendly', they want to feel like the service has been personalized for them. The old adage of 'know your customers' is also still as true today as it ever was. And with consumer behaviour changing rapidly, businesses need to stay up-to-date with customer expectations. In today's competitive business environment marketing managers are more influenced from customer expectation and meeting the demand for customer satisfaction is very important for them (Cengiz, 2010). Every organization must define customer satisfaction regarding their market. So customer satisfaction could not be defined only standard or quality of product.

Customer satisfaction is about relationships between the customer and product or service and the provider of a product or service (Lee & Ritzman, 2000).

Ethiopian telecom enterprise began providing telephone service during Emperor Menelik II's era. Ericsson has a long history of providing telephone service in Ethiopia, and also it is the first company to develop mobile infrastructure in the early 2000s, installing mobile networks in Addis Ababa (Capital Ethiopia, 2015). Ethiotelecom has been able to introduce new products and services for the past several years and reached more customers throughout the country and realized its plan of universal access to telecommunications service to all citizens. Today's launching of the modern 4G LTE service for the first time in the country by Ethio telecom is a very good example of this pursuit of the company to meet its vision of availing a better telecommunications service and to meet the growing demand of some sectors of the society (Weforum, 2015).

Technology generation is the essence of impact that have seen the advancements of services efficiency in the field of Computer Network i.e. from a simple Telegraph, the ancient first generation (1G), or analogy cellular, then came second generation (2G), or digital cellular to developed wireless connectivity 3G (third generation) and 4G (fourth generation) networks on the verge of being implemented in Ethiopia on march2015, but 4G is the recent upgrade infrastructure has only started service in Addis Ababa . 3G launched on March 2013 and its infrastructure has been cover in Addis Ababa and other regional cities like Adama, Bahir Dar, Mekelle, Awassa; but now it works throughout the country (international Telecommunications union, 2014).

The evolution from 3G to 4G was driven by services that offer better quality to access greater technology that transforms the existing Internet speed to a superfast connection. Users of the 4G network get the advantage of superior, and uninterrupted connectivity, which enables to live stream videos and movies at a much faster rate than ever before and can also easily share information online. Moreover, the continuous expansion of technology, has not yet been implemented in Ethiopia, growth in the latest addition to this group is the fifth generation (5G) technology, which promises to revolutionaries Internet with lightning fast speeds.

The purpose of this study is assessing the impact of 3G & 4G on critical customers. Due to different reasons 3G and 4G services users are limited. However, there are some critical customers of 3G and 4G services such as: All Bank in Ethiopia, NGO, embassy of USA and Japan and the like. Thus, the researcher wishes to investigate the impacts that 3G and 4G technologies have on critical customers to help their business.

1.2. Statement of the Problem

Nowadays, the use of internet has revolutionized how companies and organizations behave in the environment. The use of internet had led to effective use of resources and infrastructure; a systematic and easy way of doing things. Maintaining efficiency and effectiveness of the business process is now fundamental responsibility of the company (the economist, 1999). It has been a while since internet technology had become an essential tool to maintain the efficiency and effectiveness of the business and it is now recognized as fundamental resource for the organizations (Elshalom, 2016). With the increased use of internet the modern consumer is well informed on the organizations visions, missions, strategies, products and management issues, since such technology is easily accessible through internet technology throughout the world (Layton, 2007). Indeed analysts concur that, the consumer does benefit from such technology but what is more, important especially to the organization, it's the positive impacts tied to such a strategy (Berry, 2004). Further, according to analysts in the business world, the use of internet is subject to limitations and benefits, both to the consumers and the organisations. However it's no doubt that, the benefits surpass the limitations (McNab, 2004). Misrak (2015) studied IT investment in Ethiopian financial sector towards qualitative measurements of an IT; while this research studies the impact of new technologies in all commercial banking services. "When we come to specific to the Financial Industry of Ethiopia, the Industry is aggressively investing on hardware, network infrastructure, and software" (Misrak, 2015).

Ethiotelecom has been conducted through various standards and technologies, and it is grouped by the level of its evolution into four generation. The 4G is recent and not widely distributed in the country, so there are some critical customers (those are selected by the company (Ethiotelecom) because of their highest service consumption). The key infrastructure design requirements and benefit of 3G and 4G wireless network that include: fast response, high session

rate, high capacity, low user charges, streaming HD vide, faster or real time sharing of large files, instantly upload and download large attachments and files, television, video conferencing to gaming services and cloud computing and Multi Media Messaging Service (MMS) (Verizon, 2012). In the contrary, due to high bandwidth transmission of 3G and 4G technologies, power consumption greatly increases which results in reduced device battery life. 3G and 4G components made for one continent is not always compatible with another continent sue to carrying frequency bands (IJIR, 2016). Another prominent issue in 4G systems is to make higher bit rates available in larger portion of the cell, especially to users in an exposed position in between several base stations. The data consumption of 3G at times becomes so heavy due to the high transmission rates that it puts a big load on the network; to alleviate which, many cellular operators implemented data usage caps which were disadvantageous to customers (IEC, 2014).

One of the main focuses of the organization is delivering knowhow to the customer and providing a satisfaction that includes before sell and after sell support. Before customer make decisions, the company should give some support to attract them, let customers feel they are at home. The relationship is like a good friend not like a business. After customers buy the services or products, company should solve the problem that customers met or respond to customers' questions immediately and according to the problems, company can ameliorate them. In the telecom industries, support is also important. Not everyone is good at different technology so they need guide on how to use the service. Sometimes, after services on the 3G and 4G technologies, customers might have questions waiting to answer, so he or she also needs support. So support is very important for customers (Rangsan & Titida, 2013).Unfortunately, there is a compliant on the tariff rates and also the users hasn't getting the highest speed as they expect as the theory of 3G and 4G network.

There is also a gap between what managers understand about internet technology and its impact on the company's overall objective and its potential benefits and impacts. This research was filled the gap by evaluating the impact of 3G and 4G on critical customers and recommend if they are any; to fully practice internet technology returns and realize 3G and 4G potential benefits. Therefore, it is important to study the impact of 3G and 4G networks in order to achieve the organizations vision. Evaluation of 3G and 4G network impact is an important issue in organizations which is often overlooked. No study so far evaluated 3G and 4G network impact

on critical customers of Ethiotelecom. As a comparison, the impact from the expected best performance of 3G and 4G as well as its disadvantage on critical customers' needs assessment and investigation.

Therefore the main interest of this study was to measure the perception of customers concerning a service provided by Ethiotelecom and find out whether the organization has met the perception of its customers under all the dimensions of customer satisfaction, expectation and performance development as customer satisfaction is becoming key choice driver of customers.

Even though many studies have been conducted on impact of 3G and 4G technologies on customers performance, limited studies are available in Ethiopia that investigate the impact of 3G and 4G technologies on performance of Ethiopian higher organizations and the challenges thereon. Hence, more studies are still required to understand the relevance of this technology in Ethiotelecom critical customers.

1.3. Basic Research Questions

The study attempts to answer the following research questions:

1. What is the critical customers' level of awareness about the usage and impact of 3G and 4G?
2. To what extent are critical customers satisfied by the impact of 3G and 4G technologies?
3. Are critical customers getting their expectation regarding 3G and 4G technologies?
4. What is the perception of critical customers on their performance after they subscribe these 3G and 4G technologies?

1.4 Objective of the Study

The objective of the study has been stated at two levels. The first is the general objective which explains why the research topic has been raised and the specific objectives address the research questions.

1.4.1. General Objective

The general objective of this study is to assess the impact of 3G and 4G on customers' satisfaction, Expectation and perception on their performance in order to achieve the required level of customers need in the new generation telecom technology.

1.4.2. Specific Objectives

The specific objectives of this study are to:

1. Assess the customers' level of awareness about the usage and impacts of 3G and 4G.
2. Evaluate the impact of 3G and 4G on customers' satisfaction.
3. Examine the customer expectation about 3G and 4G technology.
4. Assess the customers' perception regarding performance gap of critical customers after and before they have subscribed this new technology.

1.5 Definition of Terms

Terms	Definition
Critical customer	There are 64 top customer of Ethiotelecom and the selection criteria are their service consumption.
3G and 4G Network	A 3rd and 4th generation network and this are a next version for the 1st and 2nd generation network.
Wireless broadband	Data connection (>=256 Kbps download or upload speed) over wireless transmission primarily using WCDMA, HSPA LTE CDMA EVDO TDSCDMA dWiMAX802.16.e technologies, including mobile broadband.
Internet users	Unique users accessing internet from private / shared / corporate connection.

1.6 Significance of the Study

This research assessed the impact of 3G and 4G on critical customers. So, that it will providee important information to stakeholders, investors and regulatory bodies about the positive and negative impact of 3G and 4G technologies on their businesses. It would also provide information for the service provider about their customers' level of satisfaction and their complaints on 3G and 4G technologies. Furthermore, it is expected to be significant for various bodies that may benefit from the findings. Finally, the study might also serve as springboard for further research.

1.6 Scope and Delimitation of the Study

The scope of this research is limited to the identification and evaluation of 3G and 4G network impact on critical customers of Ethiotelecom. A complete 3G and 4G analysis would require too much time and resources, which may be above the researcher's capacity. Therefore, the study focused on an investigation of the impact of 3G and 4G on critical customers in Addis Ababa and attempts to evaluate customer satisfaction. Whereas the impact was measured using variables: customer expectation, customer perception on performance, service quality, and customer satisfaction within the maintained perception of impact dimension.

1.7. Organization of the Study

This paper is organized into five chapters. The first chapter is about the background of the study, statement of the problem, objective of the study and scope and limitation of the study. The second chapter presents review of related literatures on role and impact of 3G and 4G and discus related works in that area from local and foreign literatures. The third chapter discusses the methodologies and procedures followed for the data collection, analysis and interpretations. The fourth chapter deals with analysis and presentation of data. The fifth and the last chapter bring summary of findings, conclusion and recommendations.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

2.1. Introduction

The first chapter introduced the problem to be investigated in this study along with research objectives. In order to put the study within the context of the existing literature, the subsequent section of this chapter present the review of both theoretical and empirical studies which serves as background for this study by describing concepts related to the impact of 3G and 4G networks on the existing businesses of Ethiotelecom critical customers.

Researcher of this study uses literature reviews directly or indirectly and fully or partially that are available in the internet, in books, articles and magazines, to understand what previous studies have been conducted about issues raises and discuses in this research problem.

The basic review of this study was assessed the customer satisfaction, customer expectation, business performance and evolution of G. technology.

2.2.Customer Satisfaction

Customer Satisfaction has been a central concept in marketing literature and is an important goal of all business activities. Today, companies face their toughest competition, because they move from a product and sales philosophy to a marketing philosophy, which gives a company a better chance of outperforming competition (Kotler, 2000).

Modern management science's philosophy considers customer satisfaction as a baseline standard of performance and a possible standard of excellence for any business organization. To reinforce customer orientation on a day-today basis, a growing number of companies choose customer satisfaction as their main performance indicator (Cengiz, 2010).

Customer satisfaction is the outcome felt by those that have experienced a company's performance that have fulfilled their expectations. Many researchers and academicians highlight the importance of customer satisfaction. Many researchers see that customer satisfaction has a positive effect on organization's profitability. Much empirical evidence also shows the positive connection between customer satisfaction, loyalty and retention. Now a day's all companies are realizing the significance of delivering and managing service quality, which leads to customer satisfaction. Service quality that is delivered can meet or exceed customers' expectations are mainly influenced by customer's prior expectations (Angelova and Zekiri, 2011).

The primary reason is that we seek to develop an understanding of the nature and antecedents of customer satisfaction at a level that is both descriptive and predictive of market behavior. While individual level studies provide important insights into the range of possible psychological phenomena that may affect economic behavior, many of these phenomena have a negligible effect on how customers, as a whole, behave (Johnson, 1996; Sullivan, 1996, 1993, 1980; Taylor,, 1994; Wärneryd, 1988). Sullivan (1993) describes two important benefits of aggregation in this context. First, there are a number of individual differences (such as optimism-pessimism) that constitute self-cancelling random factors in the aggregate. Second, a gain occurs in the analysis of aggregate data through the law of large numbers. Aggregate level data thus provides better measures that are more predictive of market behavior.

How one conceptualizes customer satisfaction also affects the modeling and measurement of the construct and its antecedents. Johnson et al. (1995) describe two basic conceptualizations of satisfaction, transaction-specific and cumulative. Transaction-specific satisfaction is a customer's transient evaluation of a particular product or service experience (Cronin and Taylor, 1992; Parasuraman, 1988). The cumulative model is more consistent with the literature in both economics and economic psychology (Johnson and Fornell, 1991; Meeks, 1984; Van Raaij, 1981), where customer satisfaction is conceptualized as a cumulative construct that describes the total consumption experience with a product or service to-date. Although transaction-specific satisfaction may provide insights into particular product or service encounters, cumulative satisfaction is arguably a better predictor of future behavior (customer retention) and firm performance (profitability). Our approach is both aggregate and cumulative in its orientation.

It is a subjective evaluation of a performance related to a standard which when that standard is fulfilled, results in satisfaction, or in dissatisfaction when the standard is not fulfilled (Oliver, 2010). The pleasurable level of under -and over fulfillment describes the situation where performance is a little less or a little above the standard, but still results in satisfaction.

2.2.1. Level of Satisfaction

Clients react to a combination of their expectations: the importance of the service to them, and the actual service experience, resulting in an internalized response or Perception. Satisfaction levels are a result of this perception and an internalized Assessment process. Perception is an initial response and satisfaction is a judgment of that response in relation to one's needs.

Why is Customer Satisfaction Important to Businesses? Customer satisfaction helps companies in many ways, some of which include: Customer satisfaction information helps companies to evaluate their ability in meeting customers' needs and expectations effectively (Zeithaml, 2009).It also helps companies to analyses the performance of an offering to customers in order to identify areas for improvements as well as what areas customers consider to be very important to them (Zeithaml, 2009). Companies can predict customer retention and loyalty as well as organizational profitability through satisfaction surveys. Research has suggested that customer satisfaction leads to company profitability (Bei&Chiao, 2001; Heskett, 1997). Studies have shown a positive correlation between customer satisfaction and customer retention and loyalty (Zeithaml, 1996; Heskett, 1997). Reichheld (1990) asserted that customer satisfaction accounted for about 40% of customer retention. In the automotive service industry, customers who are satisfied with a dealer might buy multiple vehicles as their income and status increase (especially high value vehicles) and also keep going back to that dealer for every service throughout their lifetime. Customers who are satisfied with a company's offering may tell others about it - positive word- of-mouth, just as dissatisfied customer also bad mouth the company to other. Suggested that dissatisfied customers tell on average ten people about the company as against people by satisfied customer also asserted that it cost five times to attract a new customer than to maintain a current customer Therefore it is imperative for service businesses to satisfied customer on a consisted basis (Goodman, 2009).

2.2.2. Determinants of Customer Satisfaction

Several studies have identified the factors that influence customer satisfaction over the years. These factors are mostly similar in what aspect of customer satisfaction they are measuring; some of them include customer's expectation, perceived service quality, product quality, perceived value, price, among others. Some of these studies were looked at in detail, examining their merits and demerits (Fornell., 1996; Yu et al 2005; Zeithaml, 2009).

2.2.3. Measuring Customer Satisfaction

Customer satisfaction can be defined as the company's ability to fulfill business, emotional, and psychological needs of its customers. In other word it is a summary of psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the consumer's prior feeling about the consumption experience (Chavan and Ahmad, 2013). However Kumbhar (2011) argued that a customer satisfaction is an ambiguous and abstract concept. He continued that, actual manifestation of the state of satisfaction was varying from person to person, product to product and service to service. It is well-researched fact that there is a strong linkage between customer satisfaction and operational performance. According to Qureshi (2013) customer satisfaction has strong influence on the efficiency and financial performance of organizations. It has great influence upon performance and profitability of the organizations. He also claimed that satisfied customers share their experiences with other people and occupy unambiguous word of mouth (grapevine) advertisement and publication of the organizations. This positive word of mouth publication is very helpful in increasing organizations relationship and interaction with the whole community. Many literatures found that there is strong relationship between customer satisfaction and organizations efficiencies, operational and financial. The state of satisfaction depends on a number of factors which consolidate as psychological, economic and physical factors. The quality of service is one of the major determinants of the customer satisfaction (Kumbhar, 2011).

2.2.4. Developing Measures of Satisfaction

A consensual, yet adaptable, definition and underlying properties would increase the validity of consumer satisfaction measures. Valid measures are essential for theory development and testing

(Mohsan, Newaz and Khan, 2011), yet, researchers do not always "recognize the serious impact measurement error can have on empirical results" (Cote and Buckley1988, p. 579). Valid measures put the emphasis back on developing and testing theory. Having a grounded conceptual definition and a subsequent procedure for measuring the construct should improve the construct validity of consumer satisfaction measures.

2.2.5. Customer Satisfaction Model

Zeithaml, (2009) suggested a customer satisfaction model. This model has five factors that drive customer satisfaction; they are service quality (SERVQUAL), product quality, and price, situational and personal factors (such as emotions and moods). The concept of product quality is similar to other models presented above. Personal factors such as customer emotions affect satisfaction either in a positive or negative way advised businesses to view customer emotions as a major differentiation factor contributing to customer satisfaction, especially where customers are actively involved in the service delivery (Gremler, 2006; Liljander and Strandvik, 1997), Shaw and Ivenple, (2002).

2.3.Service Quality

Service quality is made during the service delivery process. Each customer contact is referred to as a moment of truth, an opportunity to satisfy or dissatisfy the customer. Customer satisfaction with a service can be defined by comparing perception of service perceived with expectations of service desired. When expectations are exceeded, service is perceived to be of expectations are confirmed by perceived service, quality is satisfactory (Powell, 1998).

2.3.1. Satisfaction and Quality

Customer satisfaction is the outcome felt by buyers who have experienced a company performance that has fulfilled expectations are met and delighted when their expectations are exceeded. Recently, discussion arose regarding whether satisfaction leads to quality or, whether quality results in satisfaction. Many authors posit very clearly that service quality is as antecedent of satisfaction. So, the satisfaction judgment is based on service quality. Others conclude that the two concepts resemble each other quiet closely. Service quality is the key

driver of usage rates and customer retention. Superior service quality leads to more favorable behavioral intentions by customer to stay/remain which results in on-going revenues increased spending and referred customers. On the other hand, inferior services quality was lead to unfavorable behavioral intentions by customers leading to deceased spending, lost customers and additional costs to attract new customers (Kottler, 1998).

2.4. Customer Expectations

Expectations play an important role in the satisfaction formation. The extent to which a product or service fulfills a customer's need and desire may play an important role in forming feelings of satisfaction because of the impact of confirmation or disconfirmation that have on satisfaction. Consumers expect to be delivered quality products and services; therefore companies try to offer quality products and services. The term expectations really matters to companies because they want to know what customers' expectations are. The term "expectations" has different uses, in the satisfaction literature, it is viewed as a prediction made by a consumer about what is likely to happen during an exchange or transactions (Angelova and Zekiri, 2011).

Finding that customer expectations of the service may change over time Reeves and Bandar (1994) construct a dynamic expectations model, which broke down expectations into indefinite, explicit and implicit expectations (Ojasalo, 1999). The service company must always satisfy implicit expectations and understand the indefinite expectations so that they can be made to emerge as explicit expectations. The provider of the service can then be sure of having performed a service that satisfies the customer, also by transforming explicit but unrealistic expectations into realistic expectations. For their part, over time the customers learn to carry out the same conversions (dynamic non intentional effect). Where the changing expectations are not satisfied, there is on the one hand a failure of the service provision and on the other hand the customer may switch to another provider who will satisfy his expectations (Nyquist, Bitner, and Booms, 1995).

2.4.1. Client Expectations

When clients approach a service provider on either a voluntary or involuntary basis they do so with a variety of expectations that originate from many sources. A service gap is defined as the

disparity between a client's expectations of a service and their perception of the service experience. It is logical to infer that the existence of a negative service gap (i.e. when expectations exceed actual service delivery levels) leads to a less than satisfactory service experience. Conversely, when expectations are lower than the level of service delivery, a satisfactory service experience is realized. Thus, understanding the client expectations at the onset of the service experience is crucial to addressing service satisfaction. Zeithaml's model of customer assessment of service quality identifies four key factors affecting a customer's (client's) expectations that are important for an organization to consider in relation to service quality: word of mouth, personal needs, past experience, and external communications by the service provider. For example, recent work on the creation and communication of service standards by many public organizations will likely influence expectations to a great degree. A thorough understanding of the expectations that clients bring to the service experience will provide an organization with vital information to plan for either managing expectations or targeting areas of improvement.

2.4.2. Customer Expectations and the Zone of Tolerance (ZoT)

Customer expectations defined as "pre-trial beliefs about a product or service". Samea & Shahin (2010) stated that a customer's expectations are: (1) confirmed when a product performs as expected, (2) negatively disconfirmed when the product performs more poorly than expected, and (3) positively disconfirmed when the product performs better than expected based on the disconfirmation theory (Oliver, 1980).

Proposed three definitions of customer expectations the first is equitable performance - a normative standard for performance based on implicit relationships between an individual's cost/investment and anticipated rewards. In this instance, expectations are likely to be influenced by the price paid, the effort invested, and previous product experiences The second is ideal product performance - ideal product performance scenario from a customer's perspective, such that expectations may be based on previous product experiences, messages gleaned from advertisements, or word-of-mouth communications. The third is expected product performance - product's most likely performance (Tse& Wilton, 1988). Customer's expected service can either be adequate ("minimum tolerable expectation") or desired ("should be" and "can be") service

and the amount of variation that customers are willing to accept is known as Zone of Tolerance (Zeithaml, 1993). The more important a customer deems a service encounter or dimension (for example, reliability) to be, the higher the desired service and narrower the ZoT and vice versa. When service experience exceeds the desired level, customers become delighted and are dissatisfied when service experience falls below the adequate level. Johnston (1995) identified three main applications of zone of tolerance: (1) as a description of an outcome state, (2) of a range of pre-performance expectations and (3) as the satisfactory range of in-process service performances. The outcome state: the service quality models assume this application with their three outcomes: satisfaction (adequate service quality), dissatisfaction (poor quality service) and delight (high service quality). Pre-performance expectations: this may range from "minimum tolerable" to "ideal" (Miller, 1977) cited in Johnston (1995) with "desirable" and "adequate" (Zeithaml,1993) somewhere in between.

The in-process service performances: Berry and Parasuraman (1991) suggested that the zone of tolerance is an in-process service performance and define it as"...a range of service performance that a customer considers satisfactory. A performance below the tolerance zone will engender customer frustration and decrease customer loyalty. A performance level above the tolerance zone will pleasantly surprise customers and strengthen their loyalty".

The definition offered by Berry and Parasuraman (1991) encapsulates the other two, emphasizing the variation of service performance that customers are willing to accept and that customers become dissatisfied when performance fall below the adequate level. The ZoT is dynamic and changes according to what the customer deems to be important as well the particular service encounter. Identifies the factors affecting desired and adequate service with the arrows desired service is influenced by personal service philosophy and lasting service intensifiers. Predicted service is a somewhat adequate judgment of what a customer is likely to receive in a particular service interaction and therefore influences adequate service. It is influenced by service promises (implicit and explicit), word-of-mouth communication by other customer and past service experience. Other factors that influence adequate service are temporary service intensifiers, perceived service alternatives, self-perceived service role and situational. Even though not all these factors are within the control of service firms, they can be

influenced through customer education, making realistic promises, conducting market research, among others (Zeithaml, 2009).

2.5. Performance

Performance is defined here as the customers' perceived level of product or service quality relative to the price they pay (benefits received for costs incurred). That perceived performance or 'value' has a positive effect on satisfaction follows from the notion of a value-percept disparity (Westbrook and Reilly, 1983); the greater the product's or service's ability to provide that which customers need, want, or desire, relative to the price or costs incurred, the more satisfied those customers should be with their purchase and consumption experience (Churchill and Surprenant, 1995; Wilton, 1988). Put differently, customer satisfaction should increase the more one provides desired product or service benefits per dollar (Agbor, 1971).

Expectations should have a direct positive effect on satisfaction due to their role as an anchor in the satisfaction evaluation process (Fornell and Johnson, 1993; Oliver, 1980; Van Raaij, 1989; Schelling, 1978). Customer expectations contain important information as to how a product or service has performed in the past as well as how it is likely to perform in the future. This information serves as an anchor that is continually adjusted based on more recent performance information. Assessments of satisfaction are, therefore, maintained in the vicinity of the expectations resulting in a positive expectation effect. Taken together, the positive effects of expectations and perceived performance on satisfaction may be viewed as the macro-psychological equivalent to the cognitive process of anchoring and adjustment (Chan, Gee, & Steiner, 2000).

The relative size of the performance and expectation effects should depend on the relative 'strength' of these constructs (Alloy and Tabachnik, 1984). The stronger or more salient performance information is relative to expectations, the greater the relative positive effect of perceived performance on customer satisfaction. The weaker or more ambiguous performance information is relative to expectations, the greater the effect of expectations, as an anchor, on satisfaction. In general, service performance information is weaker than product performance information (Zeithaml, 1985). Therefore, holding the strength of expectations constant, we

expect the predicted positive effect of expectations on customer satisfaction to be greater for services than for products.

Also included in the performance model is a positive effect of expectations on perceived performance. This effect should be interpreted as the ability of aggregate customer expectations' to predict performance. This predictive ability should be greatest when customers have considerable experience with a predictable, or low variance, performer.

2.6. The Gap Model

If one accepts interview that quality entails constantly meeting or exceeding customer's expectations the manager's task is to balance customer expectation and perceptions and to close any gaps between the two. Zeithmal et.al (1990) cited in Lovelock and Wirtz (2004) identified four potential gaps within the service organization that may lead to a final and most serious gap. The difference between what customers expected and what they perceived was delivered.

1. The knowledge gap: - is the difference between what service providers believe customers expect and customer's actual needs and expectations.

2. The standard gap: - is the difference between manager's perceptions of customer expectations and the quality standards established for the service delivery.

3. The delivery gap: - is the difference between specified delivery standards and the service providers' actual performance on these standards.

4. The internal communication gap: - is the difference between the company's advertising and sales personnel thinks are the products features, performance service quality levels and what the company is actually able to deliver.

5. Perceptions gap: - is the difference between what is in fact, delivered and what customers perceive they have received (because they are unable to accurately evaluate service quality.)

6. The interpretation gap: - is the difference between what a service provider's communication efforts (in advance of service delivery) promise and what a customer think was promised by these communications.

7. The service gap: - is the difference between what customers expect to receive and their perception of the service that is delivered.

Gaps 1, 5, 6 and 7 represent external gaps between the customer and the organization. Gaps 2, 3 and 4 are internal gaps occurring between different functions and departments within the organization.

The presence of any one of the above seven gaps may lead to a disappointing outcome which affects the relationship with customers. Thus it is important to avoid this gap in every service encounter for it helps to build a good reputation in the eyes of customers. Moreover identifying the specific causes of each gap and then developing strategies to close them will reduce the likelihood that one of the gaps will occur (Lovelock and Writz, 2004).

2.7. Policy

According to Robert (2013), the pricing of Internet access services for end users is one of the strongest measures of a successful policy environment, for two reasons. First, low prices themselves are evidence of a competitive market that is relatively free of bottlenecks that could raise the cost of providing services. Second, low prices generate a virtuous circle: lower prices attract more users, which increases scale and reduces unit costs, thereby increasing the utility of the Internet to citizens and businesses. This in turn further reduces prices for end users and encourages greater and more diverse use of the Internet. (Mason, Google, Telegeography, 2012).

Countries with higher prices and lower Internet use tend to be characterized by clear barriers within the sector, generally related to regulation and policy, such as a monopoly on the international gateway, a state-owned incumbent, or regulatory roadblocks in deploying long-distance and/or cross-border infrastructure. Other countries, even those with low prices or high usage, could do better still, and in particular could achieve more widespread benefits from the

Internet if they removed roadblocks, promoted investment and services, and offered high-level political vision and leadership.

Policy Recommendations

The recommendations in Analysis Mason's report (2013) presented some terms of solutions that can offer one of the following three types of improvement to internet connectivity.

Removing roadblocks: Policy makers should remove roadblocks that deter investment in and use of terrestrial fiber, including lack of liberalization; high cost of licenses; challenges accessing rights of way for deployment within countries and across borders; and high taxes on equipment and services.

Promoting investment: Governments should promote private-sector investment in infrastructure to the greatest extent possible, offering regulatory certainty to give confidence to investors and allowing or promoting infrastructure-sharing in order to reduce costs. Where private-sector investment is not likely, governments may need to use their own resources – financial and infrastructural – to ensure services are delivered, potentially using public-private partnerships (PPPs).

Leading at the highest levels of government: Development and usage of communications infrastructure should be made a high-level priority with an agency invested with oversight of all aspects of the value chain, including research and innovation, taxation, state investments in infrastructure and/or operators, and regulation. Such an agency should have the authority to address any conflicts within the government that result in roadblocks or reduced investment.

2.8. Evolution of Internet Technologies

1G means the 1st generation of wireless technology which has offered only the voice service. This generation used analogy technology by which only voice signals were communicated. This is the earliest cellular systems to be developed. This technology depends on a network of distributed transceivers to communicate with the mobile phones transmitted by method of frequency modulation. The main application of the second generation (2G) network is mobile

voice communication between people. Whereas with the Internet, e-mail and searching for, providing, and exchanging information comprise the main usage areas. In one respect, we can think of 3G as adding Internet services to the 2G network, with the combination made possible by increased bandwidth and PC-like mobile devices. 3G can also be thought of as adding mobility to limited Internet devices. 2G networks were built for voice calls and slow data transmission. But these services were unable to satisfy the requirements of present wireless revolution.

According to Ludhiana (2013) **1G** is the first generation cellular network that existed in 1980s. It transfer data (only voice) in analog wave, it has limitation because there are no encryption, the sound quality is poor and the speed of transfer is only a\t 9.6kbps. **2G** is the second one, improved by introducing the concept of digital modulation, which means converting the voice (only) into digital code (in your phone) and then into analog signals (imagine that it flies in the air). Being digital, they overcame some of the limitations of 1G, such as it omits the radio power from handsets making life healthier, and has enhanced privacy. **2.5G** is a transition of 2G and 3G. In 2.5G, the most popular services like SMS (short messaging service), GPRS, EDGE, High-speed Circuit switched data, and more had been introduced. **3G** is the current generation of mobile telecommunication standards. It allows simultaneous use of speech and data services and offers data rates of up to 2 Mbps, which provide services like video calls, mobile TV, mobile Internet and downloading (Ludhiana, 2013)..

There are a bunch of technologies that fall under 3G, like WCDMA, EV-DO, and HSPA and others. **Pre-4G** technologies such as mobile WiMAX and Long term evolution (LTE) have been on the market since 2006 and 2009 respectively, and are often branded as 4G. The current versions of these technologies did not fulfill the original ITU-R requirements of data rates approximately up to 1Gbps for 4G systems (Ludhiana, 2013). Marketing materials use 4G as a description for LTE and Mobile-WiMAX in their current forms. **4G** is the fourth generation of cellular wireless standards. It is a successor to the 3G and 2G families of standards. In 2008, the ITU-R organization specified the IMT-Advanced (International Mobile Telecommunications Advanced) requirements for 4G standards, setting peak speed requirements for 4G service at 100 Mbps for high mobility communication (such as from trains and cars) and 1Gbps for low mobility communication (such as pedestrians and stationary users) **4G** system is expected to

provide a comprehensive and secure all-IP based mobile broadband solution to laptop computer wireless modems, smartphones , and other mobile devices. Facilities such as ultra-broadband Internet access, IP telephony, gaming services and streamed multimedia may be provided to users (Ludhiana, 2013).

According to Coldewey (2010) as the big carriers continue to upgrade their network infrastructure, we're being subjected to a torrent of confusing new terms, some of them misleading, some of them only a letter or number off from another, and so on. What's a consumer to do when confronted with such a frightening array of acronyms and jargon? A little straight talk seems to be in order. Let's get some basic facts down first, then we'll talk about what matters. This is by no means a complete or definitive listing of terms, networks, and protocols; it is only a look at the ones most likely to be encountered by consumers today and in the near future. We'll go through these in basic chronological order, which also happens to be more or less in order of speed, from slowest to fastest, with some exceptions (Coldewey, 2010).

The dates I provide are general guides for popularization and common usage, not establishment or approval of the tech. A basic speed gauge to keep in mind: 800Kbps = 100KB/s. 100KB is the size of the image at the top of this post, so an 800Kbps connection would take one second to load it, an 80Kbps connection would take 10 seconds, an 8000Kbps would take a tenth of a second, etc.

2G: Second Generation. This is what your old flip-phone used to download games like Bejeweled. It was the original way of transferring data over digital cellular networks. Its speed isn't easily measurable because of the way it sends and receives data, but believes me, it's not very fast.

2.5G: Improved hardware and infrastructure led to better data speeds; though no one actually ever referred to these as "2.5G," they're essentially that, since they're slower than 3G.

There are two major varieties of 2.5G connections: **GPRS**: General Packet Radio Service. Around 30-40Kbps. **EDGE**: Enhanced Data for GSM Evolution. Three times faster than GPRS using similar technology.

3G: Third Generation. Networks were upgraded for the most part between 2004 and 2007 in order to allow for much more data traffic. 3G data may be traveling under CDMA, WCDMA, GSM, UMTS, or a number of other terms and frequencies, but all users need to know is that, their carrier either has or does not have 3G coverage in the area they are going to be living or working. The technical details users can look up for themselves, but "vanilla" 3G basically provides data rates at up to or around 2Mbps (that's 2000Kbps).

3.5G: Although some new networks should properly fall under this heading, everyone is opting for "4G" branding instead, mostly because it's sexier.

4G: Fourth Generation. This term is (like the others) essentially a marketing term when employed by carriers. As the different carriers and telecoms roll out faster data networks, some thought they would own the "4G" term by applying it to their network, though the name has little to do with the actual capabilities. While the actual term "4G" has been standardized to mean something none of them offer yet, what you'll likely be sold on is one of the following:– **HSDPA, HSUPA, HSPA, HSPA+**: High Speed Download/Upload Packet Access (+ designates the "Evolved" newer spec). This is a major upgrade to existing 3G networks that allows for (but does not currently actually show) speeds up to 21Mbps at the moment. T-Mobile is using this, and the G2 is currently the only phone using the network, though the My Touch 4G will as well when it hits the streets. I found my speeds maxed out at about 8Mbps here in central Seattle, which is about as fast as the average broadband connection and a huge improvement over 3G. The HSPA+ spec does allow for much higher bandwidths, but 21 appears to be the limit for the short- to medium-term.

LTE: Long-Term Evolution. This is intended to replace 3G networks altogether, and provides a major speed boost and improvements on the way different types of data are transmitted. Verizon's LTE-based test networks are currently showing 10-15Mbps, though the technology theoretically supports more than ten times that amount of bandwidth. AT&T is planning an LTE network as well, which they're planning on launching in 2011, but at the moment they've activated HSPA+ at a good number of sites around the country.

WiMax: Originally rolled out as a wireless home broadband service (i.e. Clear wire), but now being improved to allow for access by mobile phones. The current revision allows for up to 40Mbps and future revisions promise 1Gbps (Coldewey, 2010).

2.8.1. Evolution of 3G Network

Evolution of 3G describes updating cellular telecommunications network around the world to use 3G technologies. Japan was the first country to commercially launch 3G in 2001.The main reason for the evolution of 3G was due to the limited capacity of the 2G networks. The first pre-commercial 3G networks launched by NTTDOCOMO in japan on 1998 branded as FOMA. It was first available in may2001as pre-release (test) W-CDMA technology .the first commercial launch of 3G was also by NTTDOCOMO in Japan on 1 October 2001. Then on 11 December 2008, India entered the 3G arena with the launch of 3G enabled mobile and data services by government owned Mohan agar telephone migan LTD MTN in Delhi and later in Munbai. MTNL becomes the first 3G mobile service provider in India.

2.8.1.1. Features of 3G Network

The ITU (International Telecommunication Union) has proposed 3G telecommunications standards to provide cost efficient high quality, wireless multimedia applications and enhanced wireless communications. The features of 3G can be divided into two categories. One is data rates and the other is security.

- The main feature of 3G technology is that it supports greater voice and data capacity and high data transmission at low-cost. 3G mobiles can operate on 2G and 3G technologies.
- The second major feature is the security: 3G offers greater security features than 2G like Network Access Security, Network Domain Security, User Domain Security, and Application Security.
- This technology provides localized services for accessing traffic and weather updates. Video calls and video conference is another major feature in 3G mobile technology. These features reduce the communication barriers between people that were not sacked even with mobile phones.

Date transfer rates are high and can support even live TV channels over phone. Online media is another exciting feature in 3G mobiles. 3G mobiles highly attract the music lovers as they can listen to music and watch videos online and can download huge file within less time.

2.8.2. 4G Technology

4G technology is almost becoming familiar across the world since it is superstar fastest technology until 5G technology become operational .India almost the regions are using 4G technology currently. Bharti Airtel launched India's first 4G service, using TD-LTE technology, in Kolkata on April 10, 2012. Fourteen months prior to the official launch in Kolkata, a group consisting of China Mobile, Bharti Airtel and Softbank Mobile came together, called Global TD-LTE Initiative (GTI) in Barcelona, Spain and they signed the commitment towards TD-LTE standards for the Asian region. It must be noted that Airtel's 4G network does not support mainstream 4G phones such as Apple I phone 5, Samsung Galaxy S III, Nokia Lumia 920 and others. Airtel 4G services are available in Kolkata, Bangalore, Pune, Chandigarh, Mohali and Panchkula. Airtel is currently launching 4G services in Delhi.

RIL is launching 4G services through its subsidiary, Jio Infocomm. RIL 4G Services are currently available only in Jamnagar, where it is testing the new A Study Report, to find out Market Potential for 4G Businesses in Pune 83 TD-LTE technology. RIL 4G rollout is planned to start in Delhi and Mumbai, and expand to cover 700 cities, including 100 high-priority markets

2.8.2.1. Features of 4G Technology

- Support for interactive multimedia, voice, streaming video, Internet, and other broadband services
- IP based mobile system.
- High speed, high capacity, and low cost per bit.
- Global access, service portability, and scalable mobile services.
- Seamless switching and a variety of Quality of Service driven services.
- Better scheduling and call admission control techniques.

- Ad hoc and multi hop networks (the strict delay requirements of voice make multi hop network service a difficult problem).
- Avoidance or prevention of congestion
- Seamless network of multiple protocols and air interfaces (since 4G will be all IP, look for 4G systems to be compatible with all common network technologies, including802.11, WCDMA, Blue tooth, and Hyper LAN)
- An infrastructure to handle pre-existing 3G systems, along with other wireless technologies.

2.9. The Business Benefits of 4G LTE

According to Joseph and Little (2012) as Information and Communications Technology (ICT) continues to develop, the business world is applying it ever more broadly – and across increasingly diverse applications. Critical to this is the development of mobile communications technology. The latest such technology, 4G LTE ('Fourth Generation – Long Term Evolution') provides substantial performance improvements over previous mobile technologies, and offers the promise that connectivity will no longer be a barrier to realizing the benefits of enterprise mobility. These improvements in application performance and enterprise mobility can bring a range of benefits:

- Increased sales and improved customer service
- Improvements in products and services
- Productivity gains like personal and team productivity
- Direct cost reductions
- Improved employee motivation
- Improved flexibility, agility and decision-making
- Large file transfer
- Rapid workplace set-up
- Rich machine to machine and remote
- monitoring applications
- Videoconferencing, tele-presence and rich media collaboration
- Remote access to business applications

These benefits are borne out by businesses in countries where 3G and 4G LTE is already available. In a survey, commissioned by EE, of organizations using LTE in the United States, 67% have seen productivity as a result. Furthermore, 47% have been able to cut costs, 39% say they have won more business and, when asked if 4Ghas helped their organizations 'innovate and jump the competition', more than three-quarters agree. Compared with previous mobile network technologies, 4G LTE offers much higher bandwidth (speed of data transfer), lower latency(faster response times from the network) and improved spectrum efficiency (increasing overall network capacity).In practice, this allows:

- More applications to be used on mobile devices, out of the home or office
- Faster or real-time sharing of large files and streaming media
- Near-immediate delivery of time-sensitive data, such as for real-time interaction or transactions Compared with Wi-Fi, 4G LTE allows:
- Fully-mobile use of applications that require true broadband speeds
- Improved convenience ('ownership' of the mobile connection)
- Security (no need authenticate onto another, possibly public, network)

LTE will deliver improvements in the performance of many existing applications, and make feasible new applications that depend on reliable high speed or responsive data transfer. Examples include innovative telemedicine applications, remote monitoring, fully-mobile virtual desktops and high-definition mobile videoconferencing. The improved user experience and practicality of LTE will also hasten uptake of those existing applications that already work on mobile devices but just not very well. Those critical customers use 3G and 4G to control their branches and as a backup when the fiber optic is down and to run their business with having customer satisfaction without distance limitation.

2.10. Customer Satisfaction by using 3G and 4G Service

According to Tarannum and Bangladesh (2015) combined they have 116.8 million subscribers (BTRC, July 2014). Several studies have been conducted for determining the factors influencing satisfaction with mobile operators. Ericsson Consumer Lab conducted a study across 40 countries and it concluded that across the world, there is notable variation in levels of user

satisfaction with mobile operators. Speed of the mobile network is considered one of the most important factors associated with a high level of satisfaction. Other factors are coverage of network, customer service and price.

A recent study conducted by Sylhet International University shows that, customers gave more importance on strong and wide network coverage, lower call charges, and faster internet features when it comes to choosing mobile operators. However, the respondents of the survey were selected through convenience sampling and hence the results might be biased for low reliability and for a being non-representative sample of the target population. Another study was conducted with random respondents at marketplaces, educational institutions, pedestrians, government and private institutions in Dhaka,

Chittagong and Rajshahi, which concluded that price, had the most significant positive impact on consumer selection of telecommunication service provider, followed by quality of network and promotional activity (Haque, Rahman and Rahman, 2010). On the other hand, existing customers switch to other operators in order to get low call charges, wide and strong network coverage, and other service incentives (Hasan and Dey, 2013). Similarly, a quantitative study on university students in Ghana found that the basic reason for changing mobile service operators is cost savings and network reliability, followed by peer group influence and social reputation (Keelson, 2012). A study on Malaysian big city dwellers found that Malaysian telecom customers perceived price or call rate to be the most important factor, followed by service quality, service availability, and promotion (Rahman, Haque and Ahmed, 2010).

While a study by the University of Belgrade shows that in Eastern Europe, students attributed internet as the key factor (Kuzmanovic, Radosavljevic, and Vujosevic, 2011). In contrast, in Mumbai, youth attributed call rate as the prime factor, but that study was conducted in 2004 and findings may not be valid under current situations (Macro. 2004). Meanwhile, Customer satisfaction is a measure of how products and services supplied by a company meet or surpass customer expectation. Customer satisfaction is defined as "the number of customers, or percentage of total customers, whose reported experience with a firm, its products, or its services (ratings) exceeds specified satisfaction goals." (Farris, Paul W.; Neil T. Bendle; Phillip E. Pfeifer; David J. Reibstein 2010).

Satisfaction is the consumption of the customer in pleasurable mood. High customer satisfaction increases customer retention and repurchase intentions (Anderson, 1998). According to market literature, customer satisfaction can be measured through customer loyalty and repurchase behavior. Customer Satisfaction is also increasing the company success, customer retention and long term competitiveness. Customer satisfaction leads to lower cost of a future transaction, high loyalty and increases the reputation of the company (Fornell& Lehmann, 1994). According to many studies there is direct link between service quality and customer behaviors (Reichheld & Sasser 1990; Anderson & Sullivan 1990).Customer satisfaction has a greater influence to build up customer repurchase behavior (Taylor & Baker, 1994).

Satisfied customers are also informed his positive experience with friends and relatives which develop company feat and profit (Richens, 1983; File & Prince, 1992). Customer satisfaction boosts the customer retention by improving product and service performance (Witting & Bayer 1994).According to Anderson and Mittal (2000) customer retention can increase the profit of the company. Trust is the most important element in the field of economics, management, philosophy and psychology. Davis anchorman (1995) elaborated that trust is willingness of one-party upon another party to act as expected and perform particular action.

Trust has significant effect between long-term relationships and customer loyalty (Berry, 1995; Bowen& Shoemaker, 2003; Chu, 2009). Aydin and Ozar (2005) explain that mobile service providers can develop subscriber loyalty by raising service quality, establish trust and making attractive option. Ling and Wang (2005) explained that trust and perceived value have a positive effect on customer retention and customer loyalty. According to Gaunaras (2003) trust is an essential part in all types of relationships. In short, trust have a positive effect on loyalty, outcomes and repurchase behavior (Doney et al.., 2007). Trust is also used to develop a relationship between two parties which leads to retention behavior. When we study retention elements in service sector it is linked to satisfaction, trust and commitment (Garbarino & Johnson, 1999).

The researchers may also conclude that service quality, corporate image, trust and switching cost are those elements which are antecedents of customer retention and loyalty. Customer retention is a process which makes customers loyal towards specific company and repurchase product

from this company (Cannie, 1994; Naumann, 1994). Mostly companies gain benefits from retention in form of profit, lower cost and long lasting benefits. Retention is only one element that increases profit from 5% to 85% (Zeithmal, 1996). Customer retention and satisfaction have nonlinear relationship. If the customer is satisfied from the company it leads to retention and dissatisfaction also greater negative impact on retention. Customer retention has financial impact on company which is based on the assumption that obtaining new customers are costly than retaining existing customer because for new customer different expenses occurred like advertising, operating expense and promotion (Anderson & Sullivan, 1990; Reich held & Sasser, 1990).

Rose (1990) explained that those customers who retain the company for 10 years provide more profit for the company than a customer who spend 5years in the company. As we know those mobile networks rapidly change day by day with increasing subscriber's so retention is essential elements for mobile service provider's intentions. Switching cost develop a link between customer loyalty and satisfaction (Jonathan et al., 2001). Fornell (1992) described that switching cost has influenced the relationship between customer loyalty and satisfaction. In telecom sector it occurs when the customer is moving from one Service Company to another due to trust, loyalty and change in price or company brand. Switching cost is shifting of consumer from one company to another company (Mouri, 2005).

Customer switching to others company has many reasons like price constraint, taste, innovation and behavior. Switching cost will change the customer decision regarding particular organization. Roos (1999) explains that switching cost is occurred when customer change service provider fully and partially. Customer switching behavior is changing due to price, trouble, ethical behavior, competition, promotion, packages, brand loyalty, corporate image and advertisement. Earlier studies have explained that switching cost has positive impact on customer loyalty (Sharma, Patterson, 2000; Sharma, 2003). Earlier studies concluded that switching cost involves those costs which occur due to change product and service. In the business field switching cost is related to consumer repurchase intentions. There is a positive correlation between switching cost and consumer repurchase intentions. Switching cost develop a link between customer loyalty and satisfaction (Jonathan et al., 2001). Fornell (1992) described that switching cost has influenced the relationship between customer loyalty and satisfaction. In

telecom sector it occurs when the customer is moving from one Service Company to another due to trust, loyalty and change in price or company brand.

In telecom, loyalty is explained as a positive attitude toward particular service provider which leads to repurchase behavior with the same organization (Fornell et al., 1996).Customer loyalty has a positive effect on attitude and behavior which related to repurchasing of particular product of organization (Chu, 2009). Customer loyalty is considered as a competitive advantage for business (Lin & Wang, 2006).Loyalty is measured through repurchase intention, recommending product and tolerance toward price (Kim &Yoon, 2004). Customer loyalty is affected by customer emotional states (Gundlach et al. 1995; Kumar et al.1995).Trust is also an important factor which has a positive impact on loyalty as well as customer behavior and attitudinal loyalty. The lack of customer trust has negative impact on customer loyalty. Brand loyalty is very constructive for company because it develops long term relationships and repurchases behavior (Assael, 1992).

Studies proved that customer loyalty boost revenue and company growth. Corporate image is a perception in the customer's mind that reflects organization. The corporate image is also defined as overall impression which is made in customer mind towards organization (Barich& Kotler, 1991). Doane and Zinkhan (1990) explained that corporate image is an emotional interpretation which consists of beliefs and feelings. Service quality is positively correlated with corporate image. Ozer (2004) explains that corporate image is built up in customer mind due to better service and experience getting from the organization. Customer loyalty has a direct positive relationship with corporate image in telecommunication, retailing and the education sector. According to perceived quality model (Gronroos, 1988) perceived quality is a relationship of expected quality which is developed through communication skill, image, customer needs and experience quality. Many studies proved that when a company provides better services to customers it satisfies consumers and have appositive effect on organizational image. According to DeRuyter and Wetzels (2000) corporate image is a tool which measures organization credibility, quality and behavior loyalty.

Speed of the mobile network is considered one of the most important factors associated with a high level of satisfaction coverage of network, customer service and price customers gave more

importance on strong and wide network coverage, lower call charges, and faster internet features when it comes to choosing mobile operators. Existing customers switch to other operators in order to get low call charges, wide and strong network coverage, and other service incentives.

CHAPTER THREE

3. RESEARCH DESIGN

The preceding chapter presented reviews of literature with respect to the theoretical perspectives studies. A different research method has their own techniques that should be clearly stated, this study focus to examine the prevailing assessment of 3G/4G network on critical customer of Ethiotelecom. This chapter outlines and explains the methodology employed to achieve the research objective in the study. It starts by providing a brief overview of the research approaches followed with the methodology adopted in the study, which in turn includes population, sampling design and actual data collection tools. The fourth section discusses about data presentation and analysis techniques used in the study.

3.1. Research approaches

The approach of this study was both quantitative and qualitative. The quantitative approach involves the generation of data in quantitative form which can be subjected to rigorous quantitative analysis i.e. descriptive survey mainly aimed at assessing the impact of 3G and 4G on critical customers of Ethiotelecom in Addis Ababa. The objective of descriptive research is "to portray an accurate profile of person's events or situation". Descriptive survey enables to obtain the current information, it is also used in fact finding studies and helps to formulate certain principles and give solutions to the problems concerning local or national issues. Descriptive survey method focus on investigating the status, practice and problem related to the impact of 3G and 4G network on critical customers of Ethiotelecom. Besides, the qualitative data constitutes approach information obtained from unstructured interview and open ended questionnaires with selected respondents using probability and non-probability sampling techniques.

3.1. The Research Settings and Population of the Study

The research setting is Addis Ababa. The population of this study is 3G and 4G critical customers of Ethiotelecom. The participants for this study are critical customer's workers who use 3G and 4G network. There are a total of 64 critical customers in Addis Ababa.

3.2. Population and Sampling Technique

The population of the study is customers using 3G and 4G technologies found in Addis Abeba only. From the total critical customers, 200 participants were selected randomly by using simple random sampling techniques. The reason for choosing these techniques is such that probability sampling ensures each population element to have an equal chance of being chosen as a sample unit. Hence, addressing all critical customers is impossible for the researcher for the fact that time and cost constraints. Accordingly, judgmental sampling was used so as to pick out respondents that have close information and knowhow with regard to service delivery. By way of selecting sample group respondents were selected from the organizations which have different level of experience, understanding and position. Based on these, 200 questionnaires were distributed to customers. The study was incorporated through categorizing sample respondents from the given different customers category, from these, 65 of the customers were government customers, 65 of respondent were business customers, 40 of respondent were NGO customers and the rest 30 of respondent were other types of customers.

3.3. Data Gathering Instrument and Procedures

Questionnaire: It is the basic instrument that was used for data collection of this study. To collect relevant and adequate data, about the impact of 3G and 4G on critical customers, questionnaire was employed. The questionnaire was prepared based on the review of related literature. The questionnaire has three parts. The first part is questions that seek information about the background characteristics of participants. The second section was included questions about the perceived impact of 3G and 4G as well as the positive and negative impact of 3G and 4G. The third section was contained a 5 point Likert scale which measures participants' satisfaction.

More specifically, the third section was had a five-point scales in which the participants were asked to mark each statement by choosing one of the five alternatives: Very good having a value of 5, good having a value of 4, medium having a value of 3, poor having a value of 2 and very poor having a value of 1. To determine the total score of an individual, the value of each item were added. A participant was considered to have high satisfaction about the use of 3G and 4G,

if they have got a mean satisfaction score value of greater than 3 and low satisfaction if they have got satisfaction mean score of less than 3.

The data collected from questionnaires was validated using SPSS based on each sample organization. This was make the findings of the research are truly valid and measure the role of internet technology in Ethiotelecom customers.

3.4.Preliminary Studies or Pilot Test

A pilot test is the method used to test the design, methods, or instruments prior to carrying out the research study. Pilot test usually involves stimulating the actual data collection process in a small scale to get feedback on whether or not the instruments are likely to work as expected in a real world situation. A typical pilot test involves administering instruments to small group of individuals that has similar characteristics to a target population and in a manner, which stimulates how data was collected when instruments are administered to target population. Therefore, in this study prior to distribution of the actual survey, a pilot study involving some employees was being conducted to validate the content of the questionnaire in terms of relevance, accuracy, and wording. For the pilot test, typical participants of 15 were selected randomly from three organizations which were not included for the main study. The data obtained were analyzed by using SPSS 20.0 to see the reliability. Reliability found from the pilot test was 0.75 and found to be acceptable to conduct the study.

3.5. Data Collection Procedure

Before the actual data collection, all the critical customer head office was visited to get permission. Then, after getting permission from the managers of each critical customer, hence the questionnaires were distributed to participants found in head office. The participants were informed about how to fill the questionnaire before the distribution. Appropriate instruction was given to the participants that the questionnaire is not a test in which there is no right or wrong answers. Emphasis was given in reminding participants to be honest with their response as much as possible and their response will be kept confidential and was not being seen by others.

In addition, instruction was also given to participants that writing names on the questionnaires is not necessary. Participants were taken an average of about 20 minutes to complete the questionnaires. The distributed questionnaires were collected after two days.

3.6. Method of Data Analysis

After the data has been collected, it was analyzed using quantitative and qualitative methods. Data obtained from survey was analyzed using descriptive analysis tools such as percentage, mean and presentation in tables. On the other hand data obtained from open ended and interview result was analyzed qualitatively. Hence mixed analysis method was employed for this research purpose.

CHAPTER FOUR

4. DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1. Response Rate

This chapter deal with, result and analysis of the quantitative data collected through questionnaires by used descriptive statistics, such as percent, mean and standard deviation, and inferential statistics such as ANOVA.

A total of 200 copies of a questionnaire was distributed to the respondents, out of which 191 (95.5%) were properly filled-in and returned to the customers.

4.2. Demographic Characteristics of the Respondents

The respondents for this study were 200 critical customer workers, who are using 3G and 4G in Addis Ababa Telecommunication. The major profile of these respondents included and attempt to describe and discussed are; the respondents' level of qualification and the experience of the respondents in using 3G/4G as summarized in the table bellows.

Table 4.2.:- Demographic Characteristics of Respondents

Background variable	Group	Frequency	Percent
Age	18-25	56	29.3
	26-30	104	54.5
	31-35	24	12.6
	>40	7	3.7
	Total	191	100.0
Educational level	Diploma	1	.5
	Degree	163	85.3
	Master and above	27	14.1
	Total	191	100.0

Background variable	Group	Frequency	Percent
Organization	Government sector	116	60.7
	Private(non-governmental)	75	39.3
	Total	191	100

As can be seen in table 4.2, a total of 191 participants participated in this study. Among the total participants, almost half, 54.5%, were in the age range of 26-30, 29.3% were in the age range of 18-25,12.6% were in the age range of 31-35 whereas the rest 3.7% were in the age range of >40. Thus this implies that respondents were young enough to give appropriate answers for the given questionnaire. Concerning educational level most of participants were a bachelor degree holder which is 85.3%, 14.1% of the participants were a Master's degree holder while only 1 participant was a diploma holder, This implies that most of the respondents have enough educational background so as to give valid answer for the research. Regarding the type of organization respondents are working for most (60.7%), of them are working for government sector while 39.3% are working in the Private (non-governmental) organization, this shows that, most of governmental sectors are using this 3G/4G technologies than private sectors.

4.3. Perceived Impact and Characteristics of the Use of 3G and /or 4G

In order to determine how much of the critical customers' workers used 3G/4G and to assess awareness of customers perception regarding the impact of 3G/4G technologies, the experience of the respondents in using 3G/4G and other related characteristics; different questions were asked the sample respondents and collected their responses and analyzed as shown in the table bellows.

Table 4.3:- Use and perception on impact of 3G and/or 4G

Item	Group	Frequency	Percent	Mean
Which service are you using more	3G	126	66.0	

currently?	4G	34	17.8	1.50
	Both	31	16.2	
Years of experience regarding the 3G or 4G service?	Less than a year	9	4.7	2.37
	1-2Years	102	53.4	
	Above 2 Years	80	41.9	
	Post- paid	85	44.5	
Which types of 3G or 4G device you are using currently?	Mobile	108	56.5	1.57
	USB stick/Dongle	60	31.4	
	Router	21	11	
	Other	2	1	
Please rate your level of awareness about the usage of 3G/4G service?	Very Low	0	0	3.85
	Low	0	0	
	Medium	34	17.8	
	High	152	79.6	
	Very High	5	2.6	
Do you know about the impact of 3g and 4 g services on your organization?	Yes	183	95.8	3.96
	No	8	4.2	
If your answer for the above question is “yes” please rate your level of awareness?	Very Low	0	0	3.69
	Low	1	.5	
	Medium	67	36.6	
	High	102	55.7	
	Very High	13	7.1	

Item	Group	Frequency	Percent	Mean
If you have awareness where is the source of your awareness?	Mass media	95	51.9	1.52
	Company’s publication	81	44.3	

	Other	7	3.8	

As shown in table 4.3 the majority of participants, 66.0% reported that they have been using 3G service and 17.8% of the respondents were using 4G services while the rest 16.2% of respondents were using both 3G and 4G services, this shows that most of the respondents are using 3G service. As far as experience in using 3G/4G is concerned, almost half of the customers, 53.4% were having experiences with using 3G/4G service for about 1 – 2 years, and 41.9% of the respondents have been experienced this 3G/4G technology for more than 2 years, while the minority, 4.7%, were having less than 1 year of experience in using 3G/4G service and this implies that participants were experienced enough give appropriate response.

Regarding the type of 3G and/ or 4G devices participants using was asked. The majority of participants which is 56.5% were reported that they have been using mobile type of devices and 31.4% of respondents are using USB Dongle while the rest, 12%, reported that they have been using router and other types of devices and which implies that the study has all type of device users in order to collect different ideas.

According to the finding most of the respondents have a good awareness on using 3G/4G technologies, which is 79.6% scored High, 17.8% of respondents have a medium level of awareness and the rest 2.6% of respondents have a very high level of awareness on using 3G/4G technology, this shows that most of participants have a good awareness to give enough response. Regarding to know the impact of 3G/4G service on the specific organization, almost all respondents reported "yes" which is 95.8%. And the minority of respondents reported "no" which is 4.2%, and this implies that, all of respondents can proceed to give response.

To measure the level of awareness for the above description, more than half of the respondents have a High level awareness which is 55.7%, 36.6% of respondents were aware of the impact in a medium level, 7.1% of respondents have a very high awareness and the rest 0.5% have low awareness of the impact of 3G/4G service in the organization, most of participants have a high level awareness of the impact of 3G/4G service in the organization so they are capable to give appropriate response.

Finally, the source of awareness was asked. Most the participants are referring there organizations status from Mass media and which is 51.9%, 44.3% participants gathered information from their own company publication and the rest 3.8% of respondents collect information through personal observation and other sources.

4.4. Prefer to the Use of 3G and/ or 4G (Satisfaction1)

Because of high technologies and additional devices 3G and 4G systems are expected to provided many functions and allowed to use different additional services rather than using 1G and/or 2G. Hence, the preferences of using 3G & 4G by critical customers question were asked the respondents "The services how often used", their responded are summarized in the table bellows

Table 4.4.:- Preference to Use of 3G and/ or 4G

S.N	**Item**	Poor (%)	Fair (%)	Good (%)	Very good (%)	Excellent (%)	Mean
1	Mobile TV	27.2	7.9	35.6	11	18.3	2.85
2	Internet	5.2	2.1	8.4	26.7	57.6	4.29
3	Video calling/conferencing	14.7	11.0	22.0	16.2	36.1	3.48
4	Maps	26.2	14.7	39.8	11.0	8.4	2.61
5	Social networking	14.7	5.8	6.8	14.7	58.1	3.96
6	Entertainment	17.3	8.4	4.7	16.8	52.9	3.80
7	Gaming	24.1	11.0	18.3	14.7	31.9	3.19

As can be seen in table 4.4 participants were asked to rate the use of 3G and/or 4G for the purpose of mobile TV. The majority of participants, 35.6%, reported that the use of 3G and/or 4G is good for mobile TV. On the other hand 11% and 18.3% of respondents were rate very good and excellent respectively, 27.2% of participants were responded that the use of 3G and/or 4G for the use of mobile TV was poor and the rest 7.9% were rate as fair, this implies that customers were somehow satisfied to use mobile TV.

As far as the use of 3G and/or 4G for the purpose of internet is concerned, 57.6% and 26.7% of participants reported that the use of 3G and/or 4G for the purpose of internet was excellent and good respectively. Whereas minority of participants, 2.1% and 5.2%, responded that the use of 3G and/or 4G for the purpose of internet was fair and poor respectively, which shows that customers are very satisfied to use internet through 3G or 4G connection. The interview made supports the finding. The interviewee said

> " We are satisfied to have the upgraded data which is 3G/4G and it has a good impact on our business compared to the past performance but the company has failed to be supportive after we have been subscribed the new service. "

Participants were asked to rate the use of 3G and/or 4G for the purpose of video calling/ conferencing. 14.7% and 11% reported that the use of 3G and/or 4G for the purpose of video calling/conferencing was poor and fair respectively. On the other hand 36.1% and 16.2% responded that the use of 3G and/or 4G for the purpose of video calling/conferencing was excellent and very good respectively. Almost one fourth of participants, 22%, rated as good, which reflects that respondents have a very good satisfaction on video calling/conferencing.

The use of 3G and/or 4G for the purpose of maps is concerned, the majority of participants, 39.8%, reported that it was good while the minority, 8.4%, said that it was excellent and this reflect customers were less satisfied to use map. For social networking, the majority of participants, 58.1%, responded that the use of 3G and/or 4G for the use of social networking was excellent. On the other hand the minority of participants, 5.8% and 6.8%, responded that the use of 3G and/or 4G for the purpose of social networking was fair and good respectively, which reflects that respondents have a very good satisfaction on social networking.

Regarding the use of 3G and/or 4G for the use of entertainment, the majority of participants, 52.9%, rated the use of 3G and/or 4G as excellent while the minority of participants, 4.7%, rated as good, this implies that customers were highly satisfied to use 3G or 4G services for entertainment. Finally, the use of 3G and/or 4G for the use of gaming, the majority of participants, 31.9%, rated as excellent while the minority of participants, 11%, rated as fair, this implies that customers were somehow satisfied to use gaming.

4.5. Factors that Influence to Use 3G and 4G Technologies in Terms of Satisfaction

It is the fact that, 3G & 4G technology have several advantages. These 3G and 4G technologies enabled systems for further advantages, capable of providing maximum services and enhanced alternative and critical applications. In general, some common and most important services of these technologies were asked the respondents and their answers are summarized in the following table.

Table 4.5.:- Factors that influence to Use of 3G and 4G service

	N	Minimum	Maximum	Mean
Security	191	1	5	3.34
Internet speed	191	1	5	3.76
Service support	191	1	4	2.40
In terms of its Cost	191	1	4	2.34
Its power consumption	191	1	5	2.86
Amount of data transmission	191	1	5	3.66
Valid N (listwise)	191			

In a 5-point Likert scale the expected score ranges from 1 to 5 and 3 (2.5-3.5) become the hypothetical mean score. A mean score of greater than 3.5 could be considered as high mean score (very influential) and less than 2.5 as low mean score (poorly influential). Therefore, as can be seen in table 4.5, the mean score of amount of data transmission and internet speed were greater than 3.5. These mean scores imply that participants perceived the use of 3G and 4G service is very influential to use in terms of amount of data transmission and internet speed. The mean score of its power consumption and Security were greater than 2.5 or in the range of 2.5-3.5. However, the mean value of cost and service support were less than 2.5 which implies that participants perceived the advantage of 3G as fair or poorly influential in terms of cost and service support.

4.6. Satisfaction and Perception on Performance Related to the Use of 3G and/or 4G Service

The service provider plans to extend these services was required to achieve expected customer needs. Thus some of the most important factors associated with a high level of satisfaction

should be considered, such as Speed of the mobile network, coverage of network, customer service and price customers gave more importance on strong and wide network coverage, lower call charges, and faster internet features when it comes to choosing mobile operators. Unless and otherwise if other service providers comes existing customers will switch to other operators in order to get low call charges, wide and strong network coverage, and other service incentives.

Table 4.6.:- Satisfaction and Perception on Performance

		Very Low	**Low**	**Medium**	**High**	**Very High**	
		%	**%**	**%**	**%**	**%**	**Mean**
A	How do you rate the quality of 3G and/or 4G in your organization's service?	**0**	**13.1**	**51.8**	**25.1**	**9.9**	**3.32**
B	How do you evaluate the value of 3G and/or 4G services as compared with the price you paid?	**13.1**	**9.9**	**28.3**	**37.2**	**11.5**	**3.24**
C	How do you compare 3G and 4G service with the Previous technologies (2G) in Addis Ababa?	**1.6**	**3.1**	**22**	**35.1**	**38.2**	**4.05**
D	How do you rate the positive contribution of 3G and/or 4G on your business?	**0**	**5.8**	**24.6**	**44.5**	**25.1**	**3.89**
E	To what extent has 3G/4G affected employee performance/productivity in discharging their duties and responsibilities?	**1.0**	**5.2**	**29.8**	**33.5**	**30.4**	**3.87**
F	How far you recommend the 3G and/or 4G services to other business sectors?	**5.2**	**3.1**	**28.3**	**34.6**	**28.8**	**3.79**
G	What is your overall level of satisfaction	**2.6**	**3.7**	**32.5**	**32.5**	**28.8**	**3.81**

	with the use of 3G and 4G services?						

From the factors under this level of satisfaction and perception on performance category the 3G and 4G service were more preferable than the previous technologies which are 1G and 2G services, it has positive contribution on the business, it effects employee performance/productivity positively in discharging their duties and responsibilities, regarding satisfaction the participants has a very well overall level of satisfaction with the use of 3G and 4G services,the respondents recommend other organizations to use this 3G and 4G technology, 3G and 4G services has a good quality and also the value of 3G and/or 4G services are moderately comparable with the price that customers have been paid. Scored high with a mean of 4.05,3.89, 3.87, 3.81, 3.79, 3.32, and 3.24 respectively. The in-depth interview with the section head of business organization department revealed that these 3G/4G service has a positive contribution on their business but even there is a positive change on their business performance, customers have been dissatisfied with the network fluctuation problem and because of that they are losing what they belong to have.

Table 4.7.:- Expectation Before using 3G/4G Technology

		Frequency	Percent	Valid Percent	Cumulative Percent	Mean
Valid	Low	5	2.6	2.6	2.6	4.10
	Medium	33	17.1	17.3	19.9	
	High	90	46.6	47.1	67.0	
	Very High	63	32.6	33.0	100.0	
	Total	191	99.0	100.0		
Total		193	100.0			

Among customer's expectation before using 3G and 4G technology scored 4.10, this shows that, there was a very high expectation and also regarding the open ended questions for those who rates a High/Very High, their average aspects were moderately good. Moreover according to the interview with the section head, their expectation was so high because there was an exaggerated promotion before the service has launched but after they experience it, they have found it below the expectations and the result can also derived customers in to dissatisfaction factor.

CHAPTER FIVE

SUMMARY OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter briefly states that the research problem and review the major findings used in the study. The major sections of this chapter summarize the results and discuss their implications. In addition, recommendation for further research will be provided.

5.1. Summary of the Findings

Most of respondents were capable of giving appropriate response for the finding which is 54.5%, respondents were in the age range of 26-30 and also 85.3% respondents were a bachelor degree holder.

With a mean of 3.83, it can be said that 3G and 4G service is high in terms of critical customers' level of awareness about the usage and impact of 3G and 4G technologies. From the factors under this category all of the factors scored high among the factors knowing the impact of 3G/4G service, under their organization at employee level is very high and it scored with a mean value of 3.96.

With the overall mean 3.46. It can be said that the critical customer satisfaction factor has also a good influence on the eservice quality and they prefer to use this 3G and 4G technology of Ethiotelecom indicating.

Under the listed items on this factor, cost and service support scored the lowest with the mean value of 2.34 and 2.40 respectively which shows that customers were paid more for the service and also they are not getting after sales support from Ethiotelecom.

With the overall mean of 4.10 Expectation factor scored very high and from the factors under this study critical customer were expected in very high level.

With the overall mean of 3.85, the perception on performance scored high indicating that this 3G/4G service has a positive contribution on their organization and employee performance/productivity.

5.2. Conclusions

Ethio telecom's 3G Internet Package Service is a tailor-made mobile broadband Internet Service. The package is designed to meet the demand of both residential and enterprise customers. The Fourth Generation (4G) Long-Term Evolution (LTE) service on March 21st 2015 in line with the company's commitment to avail modern and state of the art technologies to all its customers. Ethio telecom has been able to introduce new products and services for the past several years and reached more customers throughout the country and realized its plan of universal access to telecommunications service to all our citizens.

The purpose of this study is assessing the impact of 3G & 4G on critical customers. Due to different reasons 3G and 4G services users are limited. However, there are some critical customers of 3G and 4G services. These critical customers are those top customers selected by the company (Ethiotelecom) because of their highest service consumption. Therefore the main interest of this study is to measure the perception of customers concerning a service provided by Ethiotelecom and find out whether the organization has met the perception of its customers under all the dimensions of customer satisfaction, expectation and performance development as customer satisfaction is becoming key choice driver of customers.

Based on basic research questions and results obtained the following points are forwarded as concluding remarks:

The overall level of 3G/4G service of Ethiotelecom regarding the level of awareness about the usage and impact of 3G and 4G is high with a total mean of 3.83 which is more than the satisfaction factor but less than customer's expectation and perception on performance factors.

The overall level of customer satisfaction is with a total mean of 3.46 which is good and the lowest among all the variables under this study.

The overall level of customer's expectation factor before using this 3G/4G technology is the highest among all the factors in this study with a total mean range of 4.1.

The overall level of customer's perception on performance factor on the 3G/4G service is high with the total mean range of 3.85 which is more than the level of awareness about the usage and impact of 3G and 4G factor and customer satisfaction factor but less than the level of customer's expectation factor.

Generally, the participant's image for the available service and also to the service provider is good.

5.3. Recommendations

Recommendations are forwarded based the findings and conclusions made so that it can help them in their attempt to make informed decisions in the area of their interest.

Every organization would like to explore the client's expectations and the underlying effects for clients' loyalty to a telecom service. By this means Ethiotelecom can serve its clients better and increase the quality of their service. In this direction, measuring the customer's expectation, level of awareness, level of customer's satisfaction and customer's perception on performance is crucial. Therefore, the followings recommendations are forwarded based on the findings.

- The Critical customer's expectation was very high according to the study but still when compared to other factors like customer's satisfaction, level of awareness and their perception on performance was on average lowest so that Ethiotelecom needs to work to fulfill its customer expectation.
- The service provider should enhance the service support as well as the reasonable cost of 3G and 4G because customer's level of satisfaction is mainly directly related with fairness of the cost and service support provided.
- The service provider should enhance the advertisement practices about the unique features and contents of 4G through mass-media and other ways.
- In order to offer the best service and enhance customers' satisfaction, the service provider should extremely maximize the network facility and network coverage.
- If the service provider provides the service with service level agreement and having additional value of service with reasonable device price the internet penetration will increase.

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APPENDICES

ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

GENERAL MBA PROGRAM

Dear Respondents,

The purpose of this questionnaire is to gather relevant data that will be used in undertaking a study on the topic ***"Impact of 3G and 4G Network on Critical Customers: The Case of Ethiotelecom"*** as a partial fulfillment of the requirements for the Masters of Business Administration. It's is also intended as a high level diagnostic tool to highlight opportunities for possible solutions to the problems.

I would, therefore, like to express my sincere appreciation and deepest thanks in advance for your willingness, effort and cooperation in completing this questionnaire.

Section one: Demographic Data (please circle the appropriate number**)**

1. Sex
   A. Male B. Female
2. Age?
   A. 18 – 25 Years B. 26 – 30 Years C. 31- 40 Years D. > 40 Years
3. Your Academic Year?
   A. Certificate
   B. Diploma
   C. Degree
   D. Master and above
4. Which of the following best describes your organization?
   A. Government sector b. Public (non-governmental) C. Private (non-governmental)

Section-Two:-Perceived Impact of the 3G and 4G

For each of the question in the following section, please circle your appropriate answer

1. Which service are you using more currently?

A. 3G B. 4G C. Both

2. Years of experience regarding the 3G or 4G service?

A. Less than 1 year

B. 1-2 years

C. Above 2 years

3. Which type of payment you are using now?

A. Pre- paid

B. Post- paid

4. Which types of 3G or 4G device you are using currently?

A. Mobile

B. USB stick/ Dongle

C. Router

D. Other

5. Please rate your level of awareness about the usage of 3G/4G service?

A. Low B. Low C. Medium D. High E. Very High

6. Do you know about the impact of 3G and 4G services on your organization?

A. Yes B. No

7. If your answer for the above question is "yes" please rate your level of awareness?

A. Very Low B. Low C. Medium D. High E. Very High

8. If you have awareness where is the source of your awareness?

a. Mass media b. Company's publication c. If there is any other please specify

…….

Section Three: - Questions meant assess Impact of 3G and 4G Network on Critical Customer

1. **Rate your level of preferences to the various 3G and/or 4G services which you are using. (1=Least Preferred; and 5= Most preferred)**

S/N	Statements	1	2	3	4	5
A	Mobile TV					
B	Internet					
C	Video calling/conferencing					
D	Maps					
E	Social networking sites					
F	Entertainment (Music, movies, etc.)					
G	Gaming					

2. **Rate the following factors according to the extent to which you have been influenced for using 3G services: (1= Very Poor 5= Very Good)**

S.No	Statements	Very Poor	poor	Medium	Good	Very Good
A	Security					
B	Internet speed					
C	Service support					
D	In terms of its Cost					
E	Its power consumption					
F	Amount of data transmission					

3. Rate the following factors according to the extent to which you have been influenced for using 4G services: (1= Very Poor 5= Very Good)

S.No	Statements	Very Poor	Poor	Medium	Good	Very Good
A	Security					
B	Internet speed					
C	Service support					
D	In terms of its Cost					
E	Its power consumption					
F	Amount of data transmission					

4. The following items measure your perceived satisfaction with services of 3G and 4G. Please make a tick (√) inside the box that represents your level of satisfaction.

S/N	Statements	Very Low	Low	Medium	High	Very High
A	How do you rate the quality of 3G and/or 4G in your organization's service?					
B	How do you evaluate the value of 3G and/or 4G services as compared with the price you paid?					
C	How do you compare 3G and 4G service with the Previous technologies (2G) in Addis					

	Ababa?					
D	How do you rate the positive contribution of 3G and/or 4G on your business?					
E	To what extent has 3G/4G affected employee performance/productivity in discharging their duties and responsibilities?					
F	How far you recommend the 3G and/or 4G services to other business sectors?					
G	What is your overall level of satisfaction with the use of 3G and 4G services?					

5. What was your expectation before you become using this 3G/4G technology?

a. Very Low b. Low c. Medium d. High e. Very High

6. If your rating for **Q5** is High/Very High, what aspects of your expectation are met?

If your rating is Low/Very Low, what expectations are not yet met?

……

…….....**.....**

What do you think are the main challenges that discourage customers to use Technology-based products and services provided by the Ethiotelecom?

……

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……

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Thank You for Your Time

End