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Service Quality and Customer Satisfaction with CDMA 2000: The Case of Ethiopian Telecommunication Corporation

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**May 2011
Addis Ababa**

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The Case of Ethiopian Telecommunication Corporation**

**A THESIS SUBMITTED TO THE SCHOOL OF
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MANAGEMENT EDUCATION**

**By
Gezahegn Teshome**



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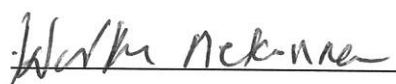
ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF BUSINESS EDUCATION

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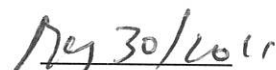
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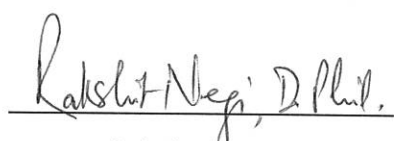
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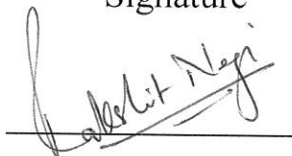
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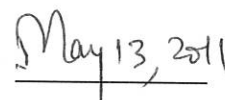
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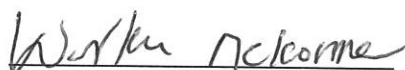
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Abbreviations and Acronyms

SERVQUAL-	Service Quality
SERVPERF-	Service Performance
CDMA-	Code Division Multiple Access
2G-	Second Generation
3G-	Third Generation
ETC-	Ethiopian Telecommunication Corporation
SMS-	Short Message Service
CSM-	Customer Satisfaction Measurement
MIS-	Management Information System
SPSS-	Statistical Package for Social Science
IMT	International Mobile Telecommunication

Abstract

The purpose of this paper is to identify and examine the determinants of service quality and satisfaction of customers of CDMA 1x. While modified SERVPERF model was used to measure the service quality aspects and customer satisfaction with CDMA 1x service of Ethiopian Telecommunication Corporation was measured by using a separate item. The modified SERVPERF instrument maintained seven dimensions namely tangibles, reliability, responsiveness, empathy, assurance, network quality, and convenience with a total of 27 statements placed on a 5-point Likert type scale (1 being strongly disagree to 5 being strongly agree). Furthermore, a sample of 240 respondents' subscribers of CDMA 1x users in Addis Ababa city was drawn using stratified random sampling approach, and 206 completely filled questionnaires were used in performing final analysis. The overall scale reliability (alpha) of the modified SERVPERF model was found to be 0.930. Additionally, findings support that three out of seven dimensions of modified SERVPERF were contributing significantly to determine overall customer satisfaction. Among these network quality was found to be the most critical determinant of customer satisfaction followed by empathy and assurance. The main limitations of this study include small sample size and the geographical coverage to Addis Ababa city. Both the overall service quality and associated customer satisfaction were found to be reported below average, therefore it can be conclude that ETC has to do a lot on attributes associated with network quality, empathy and assurance, in order to bring higher the level of satisfaction of its customers.

Chapter One

Introduction

The first chapter in this thesis introduces the background of the selected area. This will be followed by a problem area discussion that helps reader to understand the insight of the research area. Then there will be also research questions, objectives of the study, scope of the study and organization of the paper discussed in this chapter.

1.1 Background of the study

The service sector plays an increasingly important role in modern economies. Before attempting to understand the issues related to quality of services in telecommunication, it will be helpful to focus on what is understood by quality and the meaning of implied by this term in the context of quality of services.

Oodan et al. (1997) defined quality of service as in the context of the customer/user or the provider. In the context of the customer or user it is defined by the attributes or criteria which are considered to be essential in the use of the service. In the context of the service provider, quality of service is defined by parameters which contribute towards the end-to-end performance of the service, this end-to-end performance reflecting customer's requirement, Quality, as perceived by customer's stems from a comparison of what they feel the product could offer i.e. drawn from their expectations with their perceptions of the actual performance of the product. When customers buy a product they will have an expectation of how that product will perform.

Sureshchandar et al. (2002) described that service quality and customer satisfaction is inarguably the two core concepts that are at the crux of the marketing theory and practice (Spreng & Mackoy, 1996). In today's world of intense competition, the key to sustainable competitive advantage lies in delivering high quality service that will turn results in satisfied customers (Shemwell et al., 1998). The customer prominence of these to concepts is further manifested by the cornucopia of theoretical and empirical studies on the topic that have emanated over the past few years. Therefore, there is not even an iota of doubt concerning the importance of service quality and customer satisfaction as the ultimate goals of service providers.

Nimako and Azumah (2009:29) showed that customer satisfaction is a term that has received much attention and interest among scholars & practitioners perhaps because of its importance as a key element of business strategy and goal for all business activities especially in today's competitive market (Anderson et al., 1994). Measuring customer satisfaction has become an increasingly important factor for successful business operation today. Baggs and Hleiner (1996:36) pointed out that a number of methods have been developed to meet the need to measure customer satisfaction. One of the most popular methods, called SERVQUAL, was developed in 1982. This measurement method involves calculation of the differences between customer expectations and perceptions on a number of pre-specified criteria. Due to perceived shortcomings in the SERVQUAL approach, a performance-based approach to measure service quality called SERVPERF was introduced in 1992. It is therefore important to understand this terminology in detail as conceptualize in the related literature review part of this study.

Sattari (2007:15) explained that Telecommunication is an important economic sector in its own right. It also has a growing impact on our lives as individuals, on business in terms of efficiency and customer service and on every country's competitiveness as a knowledge-based economy. The telecommunication industry is undergoing a radical transformation, creating exciting new opportunities and new challenges for infrastructure and service provider. Currently, there is a new technology in the telecom sector known as CDMA, which is one of the technologies meeting the IMT-2000 requirement for a third generation (3G) global wireless communication systems.

According to CDMA development group (2006), CDMA 2000 is leading the migration from 2G to 3G and continues to strengthen its market position. It is one of the most successful wireless technologies in the world. The strength, technology leadership and competitiveness of the CDMA industry have made CDMA 2000 the leading 3G technology. The rapid growth of CDMA 2000 subscribers is due to its ability to satisfy the diverse wireless communication needs of consumers, small businesses, and large enterprises in any market worldwide, by offering a broad range of applications, such as

multimedia messaging, entertainment, information, mobile commerce, position location, and broadband Internet access.¹

The key drivers for shifting from 2G to 3G relate to:

- The increased data throughput speeds offered by 3G enable more revenue-generating data services.
- The large selection of affordable and innovative 3G devices enabled through economies of scale and advanced technologies (handsets, PC cards, embedded, etc.).
- The large selection of value-added services.
- The flexibility of CDMA 2000 network deployments (fixed, limited mobility, mobile, WLL, urban, rural, enterprise, etc.).
- The propagation characteristics of CDMA 2000 in the 450 and 800 MHz frequency bands, leading to improved coverage for valuable 3G services inside and outside of buildings.
- The ability to offering a first-to-market, differentiated and competitive advantage
- The preservation of network investments enabled by a robust and evolutionary roadmap.

Ethiopian Telecommunication Corporation (ETC), the sole telecom service provider in the nation, vision is to see the entire country connected with the state of art information and communication technology (ICT) infrastructure that provide high quality, reliable and secure communication service with affordable prices. In line with the company's vision, mission statement has been proposed to enable Ethiopian telecom to fulfil the country's development agenda. ETC has the mission to introduce ICT infrastructure across the nation to support voice, data and video services. Pursuing this mission Ethiopian telecom has intensified its efforts acquiring digital overlay switches, and transmission systems manly of fiber optic backbone, digital microwave and satellite and wireless technologies.

¹<http://www.cdg.org> CDMA Development Group August 2006

Current issue about ETC

ETC is renamed as Ethio Telecom as of December 2, 2010. The management of the sole telecommunication service provider is outsourced to France Telecom, with an intention to improve the telecom coverage and services. Ethio Telecom is mainly led by senior executives from France Telecom, although some senior management positions are reserved only for Ethiopian nationals who fit for the positions. Ethiopian government has paid due attention to the sector and has undertaken huge network expansion projects few years ago with a view to enhance the development of the telecom sector. The contract mainly eyes at knowledge transfer geared towards creating world-class telecom company capable of rendering standardized services; adding that the government is currently working to expand telecom services to the required standard through the deployment of Next Generation Network Project. The main objectives of contractor, France Telecom, is to establishment and ensuring an internationally recognized world-class telecom infrastructure and telecom service provision with the primary target of operational quality and efficiency, profitability, customer satisfaction and capacity building.²

Even though the company is renamed as Ethio Telecom, the only change is the management and organizational structure that helps in implementing better work process. So nothing is changed for the purpose of this study.

1.2 Statement of the problem

Ethiopian Telecommunication has successfully introduced diverse telecom services like fixed line, mobile, broadband internet and data network service with corresponding distinct features and value added service.

ETC has already introduced new services such as CDMA 2000 technology in 2008, with an objective to boost the number of internet subscribers in much the same way as had been witnessed when mobile telephone was introduced in the country.

²http://www.waltainfo.com/index.php?option=com_content&task=view&id=24511&Itemid=134 , 04 December 2010

These services provide to their users high-speed internet access. The major services rendered by the CDMA 2000 are fixed CDMA telephone service (limited mobility), CDMA 1x data, EVDO, CDMA mobile telephone and other supplementary services like SMS, call waiting, call divert and conference call. According to Tele Negarit quarterly magazine report, the network capacity of CDMA on October 2009 was 661,000 and the total CDMA 2000 technology subscriber customer at country level was 66,798. By July 2010, subscribers to EVDO increased to 6,679 and CDMA 1x to 47,073 from 304 and 2,359 subscribers respectively, a year ago, according to data obtained from Chinese Telecom Company, Zhong-xing Telecommunications Equipment (ZTE).³

One of the major activities of Service Company is service quality management. It is well known that service quality and customer satisfaction are becoming the most important factors of business successes. As suggested by Sattari (2007:20) today, customers carry heightened expectations for communication from their service providers. And if you do not meet those expectations, customers will take their business elsewhere, which would cause a disaster for the company offering those services. As customer needs and expectations are changing all the time, this will lead to a situation whereby customers keep setting ever higher standards, and therefore to achieve perfection is impossible (Wellington, 1995; Farson, 1997). Implementing customer satisfaction philosophy means identifying customers, then identifying their needs and expectations and finally, measuring their perceptions (Stenberg, 1997). Knowing the needs of the customer makes it easier to anticipate the ideal set of products and services in order to make more satisfied. So, in order to satisfy the existing customers and able to attract potential users, the study focuses on measuring the service quality of CDMA 1x technology based on modified dimensions of SERVPERF model and assess whether the current customers are satisfied with this technology or not.

In view of the above explanation, the study is making an attempt to see whether the customers of this newly introduced service (CDMA 1x technology) are satisfied with the quality of service extended to them?

³<http://www.addisfortune.com/Vol%2010%20No%20538%20Archive/agenda.htm>

As a result, the study is contribute significantly to ETC's higher officials to oversee the associated challenges of service quality and customer satisfaction with this new technology, and do the needful to make it a success among customers.

1.3 Research Questions

The following research questions are raised by the study in order to examine the service quality and satisfaction of CDMA 1x users.

1. What makes CDMA 1x service quality?
2. Do the determinants of service quality contribute significantly to customer satisfaction?
3. How do customers perceived the overall service quality and satisfaction with CDMA 1x?

1.4 Objectives of the study

1.4.1 General Objective

The general objective of this study is to identify and examine the determinants of service quality and satisfactions of customers of CDMA 1x.

1.4.2 Specific Objectives

This study will have the following specific objectives:

- ✓ To assess the overall perceived service quality of CDMA 1x.
- ✓ To determine the extent to which CDMA 1x service users are satisfied
- ✓ To identify the dimensions of service quality in the context of CDMA 1x.

1.5 Significance of the study

The telecommunication industry is becoming one of the most important industries for the development of ones country. ETC provides different types of service that are mentioned in the statements of problem. Even though, ETC is owned by government and the only telecom service provider in the country, those who did not satisfy with the service provider will terminate their contract and consequently decrease the number of customer and its profitability. To the management of Ethio Telecom, the finding and results that is

reported in this study provide a more reliable and perspective for describing and evaluating the level of their customer satisfaction and the service quality of this technology. Because of this fact, the higher official have an advantage of early improvement on service quality dimensions that customer's dissatisfied. Moreover, this study will be an in put for further study and can be considered as a guiding/starting point.

1.6 Scope and limitation of the study

ETC provides its service throughout the country with six zonal offices in Addis Ababa and 13 regional offices outside Addis Ababa. However, the study focuses only to Addis Ababa city, and those customers who subscribe and use prepaid CDMA 1x service. The main limitations of this study are constraints of resources, time, cost and sample size. The finance and material resource needed for a larger sample size for this study is inadequate. It is also not likely the researchers would have access to every customer and to use a larger sample size of CDMA 1x users for data collection using questionnaire. Moreover, the study is constrained by time. It is conducted within very limited academic time frame.

1.7 Organization of the paper

The study is organized into five chapters. Chapter one is the introductory chapter that covers the background of the study, problem statement and objectives of the study, research questions, scope and limitation of the study. Chapter two is review of related literature. It covers concepts and theoretical framework of service quality and customer satisfaction. Chapter three is presents the methodology used in conducting the study which incorporates the type and sources of the study. Chapter four includes the results analysis and discussions of the study. Chapter five of the study is conclusion and recommendations based on the findings.

1.8 Definitions of key terms

The researcher uses the following technical terms in the study as defined as follow:

Service quality: - the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs.

Customer: - is a generic term referring to anybody who receives a service or product from some other person or group of people. In this study, customers are those who use CDMA 1x service.

Customer satisfaction: - psychological concept that involves the feeling of well-being and pleasure that result from obtaining what one hopes for an appealing product and /or service.

Perception: - refer to what CDMA 1x user's actually experienced with service quality of ETC.

SERVQUAL: It is Gap model, measures service quality as the calculated difference between customer expectations and performance perceptions of a service encounter (Parasuraman *et al.*, 1988, 1991).

SERVPERF: Cronin and Taylor (1992) developed an alternative method of measuring perceived service quality and the significance of the relationships between service quality and customer satisfaction. In this study service quality is evaluated by perceptions only without expectations.

Tangible: refers to the physical appearance of facilities, equipment, personnel, and materials.

Reliability: means the ability to perform the promised service dependably and accurately.

Responsiveness: refers to the willingness to help CDMA 1x user's and provide prompt service.

Empathy: means the caring, individual attention the firm provides its customers.

Assurance: defined as employees' knowledge and courtesy and the ability of the firm and its employees to inspire trust and confidence.

Network Quality: is defined as the ability of service provider to have wider network coverage and excellent connection speed.

Convenience: is defined as the availability of office near to customer, toll free number, website, easy to get scratch cards and so on.

Chapter Two

Review of Related Literature

This chapter provides a review of literature and relevant concepts associated with service quality and customer satisfaction. The section introduces the service quality theory, dimensions of service quality, perceived service quality, problems with the measurement of service quality, SERVQUAL vs. SERVPERF, customer satisfaction and its determinants, significance of measuring customer satisfaction and relationship between service quality and customer satisfaction, in order to provide a clear idea about the research area.

2.1 Introduction

As the world moves toward a global economics the service sector has become a very significant contributor. This sector has experienced rapid growth since World War II as many nations shift from a manufacturing-based economy to service economy. A major stimulus in this shift the movement to an information age spurred by the invention of the computer and advancement in telecommunications. As countries continue to shift from an agricultural and industrialized economic base, the demand for services will continue to increase. Additional factors contributing the growth of service sector are an aging population, longer life expectancies, increased leisure time pressure, more female work force participation, changing social and cultural values and advanced technology (Clow & Kurth, 2003).

Zeithaml and Bitner (2003) also suggested that technology, specifically information technology-is currently shaping the field and influencing the practice of services marketing. Technology is dramatically changing the nature of services, resulting in tremendous potential for new service offerings not imaginable even a decade ago. Technology is profoundly changing how services are delivered, enabling both customers and employees to get and provide better, more efficient, customized services. Technology facilitates the global reach of services that historically were tied to their home locations. In fact, some would argue that the internet, the king of current technologies, is “one big service” vehicles for delivering existing services in more accessible, convenient,

productive ways. Technology facilitates basic customer service functions (bill paying, questions, checking account records, tracking orders) transactions (both retails and business-to-business), and learning or information seeking.

2.1.1 Definition of Service

The service concept has gained much attention from scholars and practitioners since the first three service marketing articles were published by Regan (1963 cited in Brown *et al.* 1994:23). Service has been variously defined by many authors, as cited in Nimako and Azumah, (2009):

- “Services-broadly defined as” acts, deeds, performances, or efforts-have different characteristics from goods-defined as articles, devices, materials, objects or things” (Rathmell 1966; Berry 1980 cited in Lovelock 2005);
- Services refer to “economic activates offered by one party to another, most commonly employing time-based performances to bring about desired result in recipients themselves or in objects or other asset for which purchasers have responsibility.” Lovelock and Wirtz (2007:15)
- Services can be defined “as change in the condition of a person or something in the possession of the customer.” (Hill 1977 in Edvardsson *et al.*, 2005:112-113)
- Services “a process or performance rather than a thing.” Lovelock (1991);

Lovelock and Wright (2003) also defined service as follow:

- “A service is an act or performance offered by one party to another. Although the process may be tied to a physical product, the performance is essentially intangible and does not normally result in ownership of any of the factors of production”.
- “Services are economic activities that create value and provide benefits for customers at specific times and places, as a result of brining about a desired change in or on behalf of the recipient of the service”.

2.1.2 Characteristics of Service

The characteristics create unique challenges for services. To attract new customers and to keep current customers coming back, service, firms must find ways to meet those challenges (Clow and Kurth 2003; Matters et al. 2003; Zeithaml and Bitner 2003; Mudie and Pirrie 2006). Services possess four inherent characteristics not found in goods: intangibility, perishability, inseparability and variability.

- a. **Intangibility** refers to the lack of tangible that can be seen, touched, smelled, heard, or tasted prior to purchase.
- b. **Perishability** refers to the service can not be inventoried or stored.
- c. **Inseparability** is the simultaneous production and consumption of service. Goods can be produced and then sold at a later time; service can not.
- d. **Variability** refers to the sporadic or random levels of service quality customers receive when they patronize a service. Variability is primarily caused by the human element, although machines may malfunction causing a variation in the service. Various service employees will perform the same service differently and even the same service employees will provide varying levels of service from one time to another.

2.1.3 Expanded mix for service

Mudie and Pirrie (2006) stated that the three new marketing mix elements (people, physical evidence, and process) are included in the marketing mix as separate elements because they are within the control of the firm and any or all of them may influence the customer's initial decision to purchase a service, as well as the customer's level of satisfaction and purchase decisions.

Because services are usually produced and consumed, simultaneously, customers are often present in the firm's factory, interact directly with the firm's personnel, and are actually part of the service production process. Also, because services are intangible customers will often be looking for any tangible cue to help them understand the nature of the service experience. These facts have led services marketers to conclude that they can use additional variables to communicate with and satisfy their customers (Zeithaml and Bitner, 2003).

People: All human actors who play a part delivery and thus influence the buyer's perceptions: mainly, the firm's personnel, the customer, and other customer in the service environment. All of the human actors participating in the delivery of a service provide cues to the customer regarding the nature of the service itself. How these people are dressed, their personal appearance, and their attitudes and behaviors all influence the customer's perceptions of the service. The service provider or contact person can be very important

Physical evidence: The environment in which the service is delivered and where the firm and customer interact, and any tangible components that facilitate performance or communication of the service.

The physical evidence of service includes all of the tangible representations of the service such as brochures, letterhead, business cards, report formats, signage, and equipment. Especially, when consumers have little on which to judge the actual quality of service they will rely on these cues, just as they rely on the cues provided by the people and the service process. Physical evidence cues provide excellent opportunities for the firm to send consistent and strong messages regarding the organization's purpose, the intended market segments, and the nature of the service.

Process: The actual procedures, mechanisms, and flow of activities by which the service is delivered the service delivery and operating systems.

The actual delivery steps the customer experiences, or the operational flow of the service, also give customers evidence on which to judge the service. Some services are very complex, requiring the customer to follow a complicated and extensive series of actions to complete the process. Highly bureaucratized services frequently follow this pattern, and the logic of the steps involved often escapes the customer.

2.2 Service Quality Theory

Upal (2008) showed that the service sector is expanding at an increased rate and is becoming intensely competitive (Chen et al.1994; Johnson et al. 1988). As such, service quality has become a very important issue in marketing and has received much attention since the deregulation, and thus increased competition, within many service industries (e.g.; health care, banking and telecommunications in the 1980s and utilities in the 1990s). Service quality has become so important that some businesses not only need high levels of service quality for success, but in some cases, need it for survival (Buzzel and Gale, 1987; Chen, et al. 1994; Ford Motor company, 1990; Gernano, 1992; Hauser and Clausing, 1988; Howcroft, 1993; Kearns and Nadler, 1992; Kettinger and Lee, 1995; Koska, 1990).

In measuring customer satisfaction with service quality, it is significant to examine the service quality concept, its importance and the dimensions it has.

Service quality has been a difficult-to-define concept that has aroused considerable interest and debate in the research literature. This is because the meaning of quality can be referred to in many attributes such as the experience of the service encounters, or 'moments of truth', the evidence of service; image; price;, and so on. These form the customer's overall perceptions of quality, satisfaction and value (Zeithamal and Bitner, 1996).

2.2.1 Definition of service quality

Oodan *et al.* (1997) said that before attempting to understand the issues related to quality of service in telecommunications, it will be helpful to focus on what is understood by quality and the meaning implied by this term in the context of quality of service. Many definitions have been used in economics literature, but still there seems to be no single clear definition. Many of these definitions have been reviewed in a report published in Australia. For example, Dhrymes define quality as 'the set of identifiable characteristics exhibited by a given product'. The British Standards Institution (BIS) defined quality as 'the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs. Others such as Dorfman and Steiner' define quality as 'any aspect of a product... which influences the demand curve.' Leffer states that 'quality

refers to the amounts of the un-priced attributes contained within each unit of a priced attribute.'

Garvin identifies five major approaches to the definition of quality in the academic literature from economics, marketing, operations management and philosophy. They are classified as the transcendent, product-based, user-based, manufacturing based and value-based approaches. Garvin concludes that each approach is unique and imprecise in describing the basic elements of product quality.

All these definitions in established literature refer to quality in terms of characteristics or attributes associated with a product or service, i.e. things which can be measured. However, Crosby defines quality simple as 'conformance to requirements,' this shown that there may be more to quality than can easily be measured.

Considering the arguments above, the definition of quality of service used Oodan *et al.* (1997) is as follows:

"Quality of Service is defined in the context of the customer/user or the provider. In the context of the customer or the user it is defined by the attributes or criteria which are considered to be essential in the use of the service. In the context of the service provider, Quality of service is defined by parameters which contribute towards the end-to-end performance of the service, this end-to-end performance reflecting customers' requirements."

According to Oodan et al. (1997) the principal characteristics of quality of service of a telecommunications service are:

- a) Parameters which express quality provide benefit to the user and the service provider;
- b) Quality should be expressed on a service-by-service basis;
- c) Quality parameters could be different depending on the viewpoint taken (i.e. customer or service provider);and
- d) For the customer (and to an extent the service provider) quality parameters are expressed on an end-to-end basis.

In the past two decades, although more and more research findings have appeared concerning quality, it is still worth noting here that there are several distinct

conceptualizations of quality (Holbrook, 1994). In marketing and economics, quality often has been viewed as dependent on the level of product attributes. In operations management, quality is defined as having two primary dimensions, fitness of use (it refers to whether the product or service does what it is supposed to do and possess features that meet the needs of customers) and reliability (it represents to what extent the product is free from deficiencies). In service literature, quality is viewed as an overall assessment (Parasuraman et al., 1988) as cited on (Wang and Po Lo, 2002).

Oodan et al. (1997) also described that quality affects customers in two distinct ways. First, quality will affect their initial purchasing decision. Factors affecting purchase will be company image, similar product offerings and product expectation raised by advertising and publicity. Secondly, during the life of the product or service, quality will be influenced more by the technical performance of the product or service and the customer support service experienced with the product or service. Customer satisfaction will be positive, negative or neutral, based on the product or service in-life performance. Therefore, quality must be considered with respect to the product/service life cycle.

2.2.2 Principles of service quality

Receiving a high level of service is important to consumers but understanding how to evaluate the service quality received is more difficult. Two consumers receiving what appears to be the exact same service may evaluate the quality of the service differently. One consumer may feel the service was good while the other may feel the service was performed poorly (Clow and Kurth, 2003). When discussing the concept of service quality, three underlying principles should be kept in mind.

1. Service quality is more difficult for the consumer to evaluate than the quality of good.
2. Service quality is based on consumers' perception of the outcome of the service and their evaluation of the process by which the service was performed.
3. Service quality perceptions result from a comparison of what the consumer expected prior to the service and perceived level of service received.

The process used by consumers in evaluating services differs from the process used for goods. Services tend to be high in experience and credence qualities while goods tend to be high in search qualities. Search qualities are attributes that consumers can evaluate

prior to purchasing a service or good. Experience qualities are attributes that consumers can evaluate only during or after the consumption process. Credence qualities are attributes that consumers have difficulty evaluating even after the consumption is complete.

2.3 Service quality dimensions

Research suggests that customers do not perceive quality in a one-dimensional way, but rather judge quality based on multiple factors relevant to the context. These dimensions represent how consumers organize information about service quality in their minds. On the basis of exploratory and quantitative research, these five dimensions were found relevant for banking insurance, appliance repair and maintenance, securities, brokerage, long-distance, telephone service, automobile repair service, and others (Zeithaml and Bitner, 2003).

1. Reliability: Delivering on promises of the service dimension Reliability has been consistently shown to be the most important determinants of perceptions of service quality among customer. Reliability is defined as the ability to perform the promised service dependably and accurately. In its broadest sense, reliability means that the company delivery, service provision, problem resolution.

2. Responsiveness: Being Willing to Help Responsiveness is the willingness to help customer and to provide prompt service. This dimension emphasizes attentiveness and promptness in dealing with customer requests, questions, complaints, and problems. Responsiveness is communicated to customers by the length of time they have to wait for assistance, answers to questions, or attention to problems. Responsiveness also captures the notion of flexibility and ability to customize the service to customer needs. To excel on the dimension of responsiveness, a company must be certain to view the process of service delivery and the handling of requests from the customer's point of view rather than from the company's point of view. Standards for speed and promptness that reflect the company's view of internal process requirements may be very difficult from the customer's requirements, companies and promptness. To truly distinguish themselves on responsiveness, companies need well-staffed customer service departments as well as responsive front line people in all contact positions. Responsiveness perceptions diminish

when customers wait to get through to a company by telephone, are put on hold, are put through to a phone mail system, or have trouble accessing the firm's website.

3. Assurance: Inspiring Trust and confidence Assurance is defined as employee's knowledge and courtesy and the ability of the firm and its employees to inspire trust and confidence. This dimension is likely to be particularly important for services that the customer perceives as involving high risk and /or about which they feel uncertain about their ability to evaluate outcome-for example, banking, insurance, brokerage medical, and legal service,

4. Empathy: Treating Customers as Individuals Empathy is defined as the caring, individualized attention the firm provides its customers. The essence of empathy is conveying, through personalized or customized service, that customers are unique and special. Customers want to feel understood by and important to firms that provide service to them.

5. Tangibles: Representing the service physically Tangibles are defined as the appearance of physical facilities, equipment, personnel and communication materials. All of these provide physical representations or images of the service that customers, particularly new customers, will use to evaluate quality.

For the purpose of this study, the researcher used a modified SERVPERF model that is relevant to CDMA 1x technology. These are network quality and convenience.

6. Network quality: Network quality is defined as the ability of service provider to have wider network coverage and excellent connection speed.

7. Convenience: Convenience is defined by Negi (2009) as the availability of office near to customer, toll free number, website, easy to get scratch cards and so on.

2.4 Perceived Service quality

Baron and Harris (2003) defined perceived service quality as the degree and direction of the gap between consumers' perceptions and expectations (of a service). Defining and monitoring the quality of service is very different from defining and monitoring the quality of a tangible product. From an internal perspective, a manufacturer can grade pieces of fruit received from a supplier according to certain objectives quality criteria; for example, weight, size, color, texture and so on. Similarly, from an external perspective

assessment of the fruit can be made in the supermarket prior to purchase, by touching or feeling the merchandise, albeit at a more subjective level. In both cases, the quality assessment relates clearly to the finished product. With services in contrast customers make judgments about the quality of the service delivery of the service delivery process, as well as on the final outcome.

In fact, with the role of the customer changing gradually (Prahalad and Ramaswamy, 2000), customer perceived service quality has been given more and more attention for its specific contribution to the competitiveness of business and there have been a variety of studies on different issues concerning service quality over the last several years (Oodan, et al. 1997).

They also stated that the role of customer's perception is a major consideration in the specification of quality. It is difficult to understand how customers perceive the product offering and more important, how they evaluate the quality of the product offering. Some authors when writing on quality suggest that judgments being perhaps more properly described in terms of their attitude to the product. Additionally, it is also important to make the distinction between quality and satisfaction.

Satisfaction is associated with the entire customer product-ownership experience. This is extremely important because satisfied or highly satisfied customers will become loyal customers, and loyal customers will allow the companies which serve them to outgrow and out earn their less proficient competitors. Satisfaction will only occur when customers' negative perceptions associated with a product are disconfirmed and thus, in general, this variable tends to be confined to particular transactions, such as using the product for the first time. However, quality as viewed from the customers' perspective can only be achieved through repeated incidents of satisfaction.

A customer's perception of quality is a judgment made by the customer about the overall excellence, or otherwise, of the delivered product or service. Therefore, customer perception is an essential factor in the successful management of product or service. Customer perception is the main criterion by which service providers can assess and measure the true value of the quality they deliver. Established industries, particularly in competitive environments, regularly, carry out customer-perception surveys to assess

how well their products and service are being perceived by customers. Indeed, the service provider's decision-making process would be incomplete without this information. However, the information contained within customer-perceptions surveys is usually very subjective and therefore likely to change over time with changes in the industry structure, environment, technology, competitive activity and good or bad media commentary. Therefore, a service provider must constantly review customer perceptions of its products and services and take any remedial action necessary to improve or correct the current perceptions (Oodan, et al.1997). Customer perception surveys usually fall into two parts. One asks the customer questions built around 'are you happy with the current product or service?' and the other is concerned with areas of dissatisfaction. There is a great many statistical data quoted to describe customer dissatisfaction with quality and their behavior towards a service provider.

Venugopal and Raghu (2001) described that customer's expectation and experiences of service can vary of a single organization. While one customer praises the services, the other would relate it as a horror story, yet it is the perception of each customer that counts. The customer perception is their reality. Customer service is about perception. Perceptions are consumer judgment about the actual service performance or delivery by a company. Perceived value is customers' overall assessment of the organization service based on the complete experience of the service delivery process, they are subjective. As services are intangible, customers search for evidence of service in every interaction they have with a service firm. The evidence of service as experienced by the customer is people, process and physical evidence.

2.5 Problems of service quality

Quality management concepts are basically very simple, but putting them into practice is often faced with difficulties. Getting quality service is more of an exception than a rule. Service businesses are blamed to miss out on quality more often than manufacturers. This is essentially because to bring about improvements in quality requires considerable organization changes in the behavior of the people, changes in the internal and external relationships, changes in the management tools and techniques and the changes from

impence to interdependence. Venugopal and Raghu (2001) identified four reasons of why the service firms fail to provide quality service. These are:

a. People Oriented

The delivery of service involves both the service provider and the customer. Though the degree of interaction varies from firm to firm, this inseparable nature has great influence on the customer perception of service quality. The emotions, moods and willingness to deliver the service on part of the employee and to receive the service on the part of the customer may be a major barrier to quality service.

b. Lack of support

The frontline staff that interacts with the customer must be motivated and supported adequately by the backstage and supervisory personnel. The front line staff needs sufficient training and equipment to handle the service transaction. Inadequate support from the operation, marketing and human resource may hinder the front line staff in delivering quality service.

c. Lack of Communication

Unless there is a two way communication the service provider will not be in a position to understand the needs of the customer and find out if his needs are satisfied. Service managers do not have solid measures to recognize quality and on other hand, customers who are dissatisfied with the service quality do not complain. This forces service firms into a vicious circle of quality deterioration.

d. Lack of Quality Behavior

More often quality is treated as a programme within a limited frame work of time, rather than as a continuous and committed activity.

2.6 Measurement of Service Quality: SERVQUAL VS. SERVPERF

Gilmore and McMullan (2009) reported that a variety of methods and approaches has been used to measure service dimensions, process and outcomes coinciding with the rise in importance of services. These attempts, over the past four decades, have focused on conceptualizing and measuring various aspects of service marketing. However, the specific, multi-dimensional and complex characteristics of services need to be considered before trying to measure both tangible and intangible aspects of the service product and delivery, and take account of the specific context in which a service occurs.

Researchers also agree that a central topic in service research is service quality, which is a critical determinant of business performance as well as firms' long-term viability (Bolton and Drew, 1991; Gale, 1994). This is because service quality leads to customer satisfaction which in turn has a positive impact on customer word-of-mouth, attitudinal loyalty, and purchase intentions (Gremler and Gwinner, 2000). The view that service quality results from customers' evaluation of service encounter prevails in the literature (Cronin and Taylor, 1992; Parasuraman *et al.*, 1985). Under this perspective, researchers further agree that service quality is best represented as an aggregate of the discrete elements from the service encounter such as reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding, and tangible elements of the service offer (Cronin and Taylor, 1992; Dabholkar *et al.*, 2000; Parasuraman *et al.*, 1985) as cited in (Carrillat, *et al.* 2007).

On the other hand, the question of the operationalization of service quality has continued to evoke discussion. This discussion has been primarily centered on two important issues. The first relates to the debate of whether SERVQUAL or SERVPERF should be used for measuring service quality (Cui *et al.*, 2003; Hudson *et al.*, 2004; Jain and Gupta, 2004; Kettinger and Lee, 1997; Mukherje and nath, 2005; Quester and Romaniuk, 1997). SERVQUAL grounded in the Gap model, measures service quality as the calculated difference between customer expectations and performance perceptions of a service encounter (Parasuraman *et al.*, 1988, 1991). Cronin and Taylor (1992) challenged this

approach and developed the SERVPERF scale which directly captures customers' performance perceptions in comparison to their expectations of service encounter.

Caruana and Malta (2000) found that in operationalising the service quality construct, Parasuraman et al. (1985, 1988, and 1994) have made use of qualitative and quantitative research following generally accepted psychometric procedures. This result in the development of the original 22-item SERVQUAL instrument that represents one of the most widely used operationalisations of service quality. It has provided researchers with the possibility of measuring the performance-expectations gap (gap 5) ostensibly composed of five determinants. In further developing the expectations side of their gap model, Berry and Parasuraman (1991) and Zeithaml et al. (1993) argue that expectations can be conceptualized to exist at two levels, the desired, and the adequate. In between there exists a zone of tolerance reflecting the degrees of heterogeneity individual customers are willing to accept.

While there has been a consensus that service quality has a distinct construct, discrepancies still remain over some issues regarding its measurement. The SERVQUAL instrument proposed by Parasuraman *et al.* (1988) posits the computed disconfirmation approach whereby the difference (or gap) between a customer's expectation and the actual performance (both measured after the service) is calculated. This approach has been heavily criticized by several authors for a number of weaknesses. The alternative approach, referred to as SERVPERE, is that measurement of the customer's perception of the performance of service provides adequate assessment for service quality (Gronoos, 1988, 1990; Cronin and Taylor, 1992; Peter *et al.*, 1993; Brown *et al* 1993; Bebeko, 2000). The increasing body of research continues to provide preferential support for the "perceptions only" approach (Cronin and Taylor, 1992; Andaleeb and Basu, 1994; Zeithaml *et al.*, 1996). Since the weight of evidence in the literature supports the use of performance perceptions to measure service quality (Cronin *et al*; 2000) as cited in (Olorunniwo *et al.*, 2006).This paper adopts the "perceptions only" or SERVPERF approach.

2.6.1 SERVQUAL

Lee *et al.* (2000) discussed on their journal that Parasuraman (1985) proposed ten dimensions determine service quality; reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowing the customers, and tangibles. Thus, they proposed that the differences between perceived performance and expected performance of these ten dimensions determine overall perceived service quality.

Parasuraman *et al.*'s (1985) measure of service quality was based on Oliver's (1980) disconfirmation model. While Oliver (1980) proposed that satisfaction is a function of the disconfirmation of performance from expectation, Parasuraman *et al.* (1985) proposed that service quality is a function of difference between expectation and performance along the quality dimensions.

Through an empirical test, Parasuraman *et al.* (1988) developed SREVQUAL from modification of the ten dimensions proposed in 1985 to 22 items/five dimensions in 1988: tangible, reliability, responsiveness, assurance, and empathy. In their study, the data on the 22 attributes were analyzed and resulted in five dimensions. Lee *et al.* (2000) continued their discussion that SERVQUAL was revised later by Parasuraman *et al.* (1991) based on the result of an empirical study on five service companies. The differences of the revised version from the original version are as follows.

First, since the "should" terminology in the original version might contribute to unrealistically high expectation scores, a slightly different wording was adopted. The revised wording focused on what customers would expect from companies delivering excellent services. To illustrate, the statement, "Telephone companies should keep their records accurately." was modified to the statement, "Excellent telephone companies will insist on error-free records."

Second, the negatively worded items in the original version were all changed to a positive format. Third, two new items were substituted for two original items to more fully capture the dimensions and to incorporate suggestions from managers.

Critiques on SERVQUAL model

Carman (1990) cited Lee *et al.* (2000) argued that SERVQUAL could not be a generic measure that could be applied to any service. It needed to be customized to the specific service. Babakus and Boller (1992) also maintained that the dimensionality of service quality may depend on the type of service under study. In addition, in their empirical analysis, perceptions-only measures had higher correlation with an overall service quality measure and with complaint resolutions score than did the SERVQUAL measure. Cronin and Taylor (1992) and Teas (1993) questioned the validity of SERVQUAL and proposed alternative model. Brown *et al.* (1993) challenged conceptualizing service quality as a difference score measure.

Clow and Kurth (2003) also identified three potential problems of SERVQUAL instruments. First, SERVQUAL measures customers' expectations of the ideal firm in a particular service industry. The second problem with SERVQUAL is its general nature as mentioned by Carman (1990). Since it is not industry specific, it does not measure variables that may be important to a particular industry. He gives an example, in the airline business, on time arrival is a very important dimension to travelers, but SERVQUAL does not measure travelers' perceptions of this variable. The third problem with SERVQUAL deals with the gap theory methodology used for measuring the level of service quality. Measuring consumer expectations after a service has been provided will bias consumers' responses. If customers had a positive experience at service provider, they will tend to report lower scores for their expectations, so there is a measurable gap between what they expected and the actual service they received. If customers had a negative experience, the opposite occurs.

Moreover, Gilmore and McMullan (2009) identified that there have been many criticisms of the various scales used to measure services, particularly SERVQUAL as it has been most widely used. Fundamentally the problem of measuring expectations is used as a major criticism of the SERVQUAL scale. For example, some researchers think that measuring expectations is unnecessary and that measuring service outcomes or perceptions of outcomes should be enough. "Expectations," as a term is deemed to have

many meanings. Some suggest that expectations and perceptions should be measured on a single scale, rather than using two scales.

Service quality is viewed as a multi-dimensional concept. Consumers assess and evaluate a number of factors or dimensions. The fifth gap in the Gaps Model of service quality gave rise to SERVQUAL, a self-administered questionnaire purported to be a generic measure of service quality. In other words, it was designed to be applicable to a wide variety of services. The dimensions to be measured in this scale are (Mudie and Pirrie, 2006).

2.6.2 SERVPERF

Cronin and Taylor's work (1992) as cited in Gilmore and McMullan (2009) measuring service quality attempted to offer an alternative to SERVQUAL, which they called SERVPERF. They investigated the conceptualization and measurement of service quality and the relationships between service quality, consumer satisfaction and purchase intentions. Their work focused on trying to overcome the "perceptions-minus-expectations" measurement focus of SERVQUAL. The development of the SERVPERF model aimed to provide an alternative method of measuring perceived service quality and the significance of the relationships between service quality, customer satisfaction and purchase intentions.

Upal (2000) also discussed that performance only model presupposes that performance instead of "performance-Expectation" determines service quality. Service quality is evaluated by perceptions only without expectations and without importance to weights. The authors investigated the concept and measurement of service quality and its link with consumer satisfaction and purchase intentions. They compared estimated difference scores with perception to conclude that perceptions only better predictor of service quality. They challenged the framework of Parasuraman *et al.* (1985) with its SERVQUAL instrument that it confounds satisfaction and attitude. As a result they developed measurement instrument based on performance only and called it SERVPERF. By this they portray that service quality is an enhanced means of measuring service quality.

By considering the arguments of the above authors, the model used in this study is SERVPERF. Because it can measure Customer's expectation and perception at the same time using single scales rather than using two scales. Moreover, CDMA 1X is a recent new technology, it is difficult to measure the customer expectation of service quality and it is believe SERVPERF is best to measure customer satisfaction and service quality of this new technology.

Here is a conceptual framework designed for this study that helps to measure the performance/perception only of CDMA 1x subscribers.

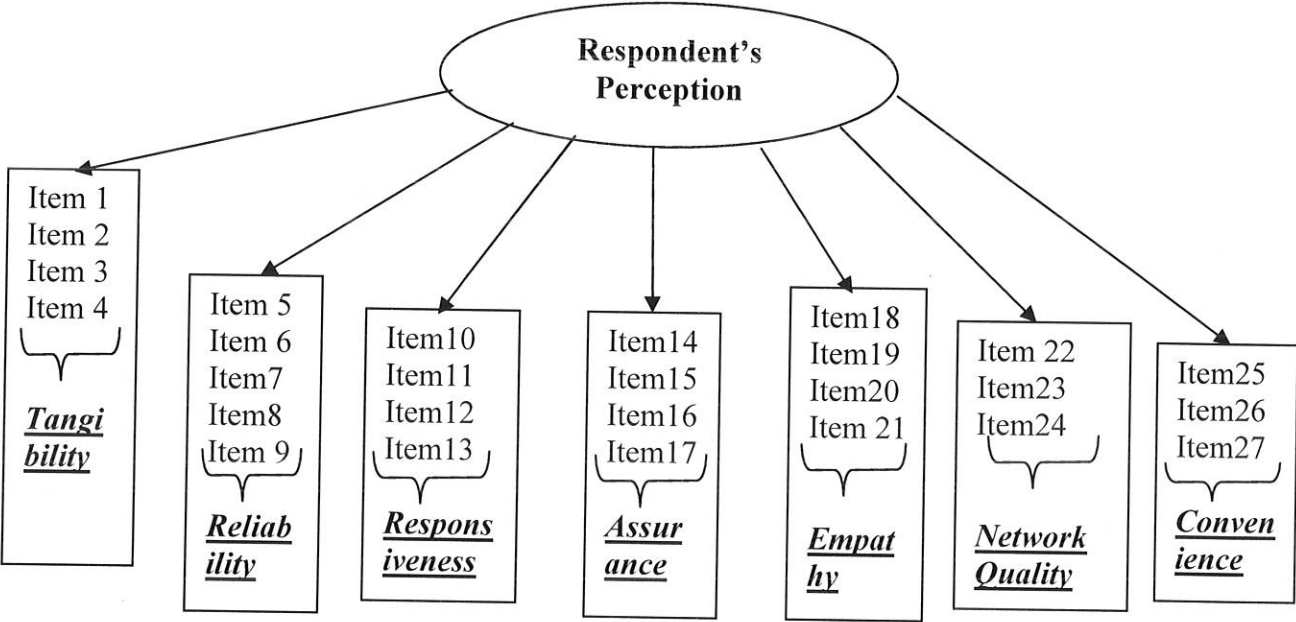


Figure 1: Conceptual framework

2.7 Customer Satisfaction

The term 'customer' is commonly used to refer to end-users of a product. Hayes (1997:16) as cited in Nimako and Azumah (2009) opinions that "customers' is a generic term referring to anybody who receives a service or product from some other person or group of people". Broadly, there are internal and external customers, where internal customers refer to the staff or employees and external customers refer to stakeholders of an organization. Within the external customer group there are several customer categories: clients, compliers, consumers, and constituents.

According to Kotler:405 cited in Sattari (2007) in any business, customers are the most important aspect of a successful company and the customers must be looked after and managed properly. In the past, many companies took their customers for granted. Customers often did not have any alternative suppliers, or other supplies were just as poor in a quality and service, or the market was growing so fast that the company could lose 100 customers a week, but gain another 1000 customers and consider its sales to be satisfactory. Such a company, operating on a 'leaky bucket' theory of business, believes that there will always be enough customers to replace the defecting ones.

The concept satisfaction is an abstract one. The achievement of satisfaction can be complex and precarious process. The roles played in the service encounter by service personnel and consumers contribute to this. In the same way that totally satisfied customers are hard to find, the totally dissatisfied customer is also an elusive creature. While one should understand the extent of customer satisfaction (i.e. how much customers are satisfied), it is perhaps more important to understand the underlying cause of the satisfaction/dissatisfaction (Peter and Prior, 2000)

Lovelock and Wright (2003) described that customers experience various levels of satisfaction or dissatisfaction after each service experience according to the extent to which their expectations were met or exceeded. Because satisfaction is an emotional state, their post purchase reactions can involve anger, dissatisfaction, irritation, neutrality, pleasure, or delight.

2.7.1 Definition of Customer Satisfaction

Customer satisfaction (CS) is a term that has received much attention and interest among scholars and practitioner perhaps because of its importance as a key element of business strategy, and goal for all business activates especially in today's competitive market (Anderson *et al*, 1994). Some of the definitions give by scholars for customer satisfaction are as follows as cited on (Nimako and Azumah, 2009):

- CS is a “psychological concept that involves the feeling of well-being and pleasure that result from obtaining what one hopes for an appealing product and /or service” (WTO,1985);
- CS “as an attitude-like judgment following a purchase act or a series of consumer product interactions.” Youjea Yi, (1990 cited in Lovelock and Wirtz 2007);
- CS is “a consumer's post-purchase evaluation and affective response to the overall product or service experience.” (Oliver, 1992);
- “Satisfaction is merely the result of things not going wrong; satisfying the needs and desires of consumers.” (Besterfild,1994);
- Satisfaction as pleasure; satisfaction as delight (Kanji and Moura, 2002);
- “Satisfaction is a person's feeling of pleasure or disappointment result from comparing a product's performance (outcome) in relation to his or her expectation.” (Kotler and Kevin , 2006:144).

To improve its customer satisfaction levels, a company must first find out how satisfied or dissatisfied its current customers actually are. One common way of measuring satisfaction is to ask customers first to identify what factors are important in satisfying them and then to evaluate the performance of a service provider and its competitors on these factors. Many firm use a five-point scale to measure customer satisfaction, with the following formats:

1= very dissatisfied	2= somewhat dissatisfied	
3= neutral	4= somewhat satisfied	5= very satisfied

The results of these satisfaction surveys can be used to estimate the number of loyal customers a firm has, as well as how many are at risk of defecting. Once a company has gathered satisfaction data from its customers, the next step is to decide on the most

appropriate strategies for increasing satisfaction levels. If most of the satisfaction ratings fall in the 2-3 range, there is probably a problem with the firm's delivery of the core service-the basic package of benefits that customers expect every business in an industry to be able to provide. We can describe them as the "do-or-die" elements of service.

Neutral or satisfied customers (the 3s and 4s) are probably happy with the core service but would like to have a consistent set of supplementary service that make the basic product more effective or easier to use. Service providers with a high proportion of neutral and satisfied customers need to increase their range of supporting service and provide responsive service recovery processes so that customers don't slide into the dissatisfied category when problems do occur. Formalized service recovery programs can help supplement the bundle of benefits provided by the core product and decrease the likelihood that customers will defect to competitors' service.

Completely satisfied customers believe that a company thoroughly understands and addresses their own personal preferences, needs, expectations, and problems. Service providers whose customer satisfaction ratings are 5s have obviously listened carefully to their customers and, as a result, have been able to incorporate a significant number of innovative elements into their core offerings.

Olorunniwo *et al.* (2006) stated that satisfied customers who stay with a company for a long period tend to impact the profitability of the company in several ways. First, their repeat business generates income for the company. Second, because of the expenditure involved in advertising, promotion, and start-up activities, acquiring new customers can cost much more than retaining existing ones. Third, loyal (and satisfied) customers often "spread the good news" and recommend the services to several others (Anderson and Sullivan, 1990; Reichheld and Sasser, 1990; Zethaml *et al.*, 1996).

There has been a growing interest in studying customer satisfaction over the last few decades. This is evident from the large number of books, journal articles, and research studies dealing with different aspects of the subject in different disciplines. Owing to the crucial role of customer satisfaction, it is generally accepted that its determinants must be analyzed and be compared across firms, industries, sectors and nations (Fornell *et al.*, 1996). For this purpose, different models have been developed for determining various

influencers of customer satisfaction. Social psychologists, and students of consumer behavior, have extensively studied the concept of customer satisfaction and dissatisfactions. The increasing importance of quality in both service and manufacturing industries has also created a proliferation of research, with more than 15,000 academic and trade articles having been published on the topic of customer satisfaction in the past two decades (Peterson and Wilson, 1992). Several conferences have been devoted to the subject and extensive literature reviews have been published (Day, 1977; Hunt, 1977; LaTour and Peat, 1979; Smart, 1982; Ross., 1987, Barsky, 1992: Oh and Parks, 1997) as cited in (Sattari, 2007).

Customer satisfaction is forward-looking indicator of business that measures how well customers will respond to the company in the future. Other measures of market performance, such as sales and market share, are background-looking measures of success. They tell how well the firm has done in the past, but not how well it will do in the future (Best, 2005). Thus, customer satisfaction is a good leading indicator of operating performance. A business may have produced excellent financial results while under whelming and disappointing a growing number of its customers because customers exit and reductions in sales and profitability. For many businesses, quarterly measures of customer satisfaction provide an excellent way to anticipate future performance. If customer is on the decline, an early warning signal is given, providing the opportunity to correct the problem before real damage is done.

2.7.2 Determinants of Customer Satisfaction

A lot of factors that drive customer satisfaction need to be examined in order to reliably measure it. In the work of many scholars and practitioners, CS is found to be drive by the quality of service and the customer service experiences (Oliver, 1980; 1993a; Parasuraman, et al., 1988 Lovelock, 1991, 1992, 2001, 2000; Lovelock and Wirtz, 2007; Gronroos, 1994, 2002, 2001; Wang and Hing-Po Lo 2002; Kotler and Keller, 2006). “A service experience is defined as the service encounter and/or service process that creates the customer’s cognitive, emotional and behavioral responses which result in a mental mark, a memory” (Gronroos, 2005 in Bo Edvardsson, 2005). It is generally accepted by most scholars that service quality basically relates to what the customer perceives of the

product/service performance. Recent empirical studies have shown that customer satisfaction is not only driven by cognitive dimensions of customer perceptions of service quality but also by affective dimensions which have positive impact on post-purchase behavior like repeated purchase, customers loyalty, switching intention, and likelihood to recommend (Erevelles, 1998; Oliver, 1993a). This is consistent with the work of two perceived service quality guru's, Gronroos and Edvardsson (Gronroos, 2001; Edvardsson 2005; Edvardsson *et al.*, 2005), who postulate that perceived service quality is an important determinant of customer satisfaction that have both cognitive and affective dimensions beyond just cognitive assessment of customers of the offering of service providers (Nimako and Azumah, 2009).

Conceptually, since what he/she gives is based on the performance of the product/service, what he/she gives become a standard for comparison. In this, a sort of disconfirmation occurs in that the customer becomes satisfied if the performance of product/service is equal to what he/she gives (positive disconfirmation); he/she is dissatisfied if the product/service performance is perceived to be below what he/she gives (negative disconfirmation). If what he/she gives exceeds perceived product/service performance, the customer is highly satisfied. Therefore we coin the term value-disconfirmation. A number of researches attest to the fact that there is some kind of intertwine relationships among all the antecedents of customer satisfaction (Wang and Hing-Po Lo, 2002).

2.8 Customer complaints

Customers are not always happy with the quality and value of the services they receive. People complain about late deliveries, incompetent personnel, inconvenient service hours, poor performance and needlessly complicated procedures. Dissatisfied customers are not likely to keep the bad news to themselves. At the same time as deciding not to buy the service again they are probably spreading the bad news. Mudie and Pirrie (2006) suggested that customer complaints are actually helpful to the organization for several reasons. First, they give the organization a change to recover its original customer. Indeed, there is some evidence to suggest that customers whose complaints lead to a successful recovery of service experience, end up more satisfied than those customer who found the initial service encounter satisfactory. It also diminishes the risk of bad

publicity, either from personal word-of-mouth communication or in more damaging leaks through the press to the general public, and it provides information that should be useful for development of the service.

2.9 Significant of Customer Satisfaction and its Measurement

Mattres *et al.* (2003) suggested that good customer service and high customer satisfaction requires the commitment of management, supervisors, and front – line employees to create and maintain a strong business philosophy. These factors are influential in any business. Mastering these aspects means becoming more competitive in the marketplace today. Excellent companies know their customers; they know their customers' needs and requirements. Although each company may approach it in different ways, they usually go to great lengths to gather this information. This information allows them to design effective and efficient services and delivery systems that satisfy customers, to position and market services effectively, and to forecast and manage demand.

Customer satisfaction measurement (CSM) is not an end in itself; it is a useful means to achieving several objectives of business organizations (Parasuraman *et al.*, 1988; Gronroos, 1991; Reichheld 1996 and Kotler and Keller 2006).

- CSM enables organizations to evaluate their abilities and capabilities to meet customers' expectation, desires and needs effectively.
- CSM process is one of the projective ways of getting into the minds of customers and obtaining certain hidden, but valuable continuous feedback from customers; this is a basic element in Total Quality Management (Zairi, 1994).
- CSM enables organizations to analyze the performance of an offering to customers to identify areas of improvements as well as customers' priorities, which can serve as the bases for customer segmentation.
- CSM can be used to compare the performance of separate business units of an organization in various times and location (Jones and Gryna, 1988 in Mehdi, 2007).
- CSM can be used by suppliers to demonstrate their customer-centric philosophy to win customers' attention and concerns so that customers talk favorably about the company and its products or services (Kotler and Keller 2006).

2.10 Relationship between service quality and customer Satisfaction

While service satisfaction and service quality clearly related, researchers do not share common definitions of the terms, nor is there clear understanding expressed in the literature of how the two relate. One explanation of the difference between service quality and customer satisfaction is highlighted Bate son (Baron and Harris, 2003). Quality is generally can conceptualize as an attitude, the customer's comprehensive evaluation of a service offering. It is built up from a series of evaluated experiences and hence is less dynamic than satisfaction. Satisfaction is the outcome of the evaluation a consumer makes of any specific transaction. There is the possibility that practitioners may pose the question 'so what?' too much of the debate on service quality and customer satisfaction, particularly in view of the attention gives to which preceded the other. Cronin and Taylor suggest that service quality is an antecedent of customer satisfaction and that customer purchase intentions are related more closely to levels of satisfaction than to perceptions of service quality. Thus, other elements of customer satisfaction- price or availability- may require greater management attention than a striving for even higher quality. Authors concerned with service profitability and the relationships between profitability, quality and satisfaction also view service quality as the antecedent of customer satisfaction. There mathematical equations, conclusion and managerial actions and implications depend on the assumption that service quality precedes customer satisfaction.

As for the relationship between service quality and customer satisfaction, Oliver (1993) also suggested that service quality would be antecedent to customer satisfaction (regardless of whether these constructs were measured for a given experience or over time. Up to now, there are already some other researchers who have found empirical support for the view of point mentioned above (Anderson and Sullivan, 1993; Anderson *et al.*, 1994a,b; Fornell *et al.*, 1996; Spreng and Mackoy, 1996), wherein customer satisfaction is a consequence of service quality.

Chapter Three

Research Methodology

This chapter explains the research methodology used for the study. It begins with an explanation of the research design, followed by research quality standards, sampling technique, types of data source, designing of data collection instrument and procedures, and finally describes the data analysis approach being used by the study.

3.1 Research design

The research design, as defined by Kothari (2004:31) is “the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure”. It is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data. This part includes detailed description of manner in which decisions have been made about the type of data needed for the study, the tools and approaches used for their collection, and the method by which they have been collected.

Data are empirical evidence or information that should be gathered carefully by following certain rules or procedures. The data can be quantitative (i.e. expressed in numbers) or qualitative (i.e. expressed in words, pictures, objects). According to Holeme and Solvang (1997, cited in Dornyeic 2007) the main difference between the two methods concerns the use of numbers and statistics. Both methods have advantages and disadvantages where selection should be based on the purpose of the study. A quantitative method is formalized and structured by surround information that can be measured and valued numerically. A quantitative approach is usually applied when the purpose is verified existing theories or test hypotheses developed based on previous research. Qualitative methods are on the other hand deeper to create understanding of the studied problem, collecting, analyzing and interpreting data that cannot be expressed in numbers. For this study, quantitative research method was used.

The 27 questions are classified among the seven modified SERVPERF dimensions: four items for tangibles, five items for reliability, four items each for responsiveness,

assurance, and empathy, and finally three items each were used to measure network quality, and convenience, as given below in the table 1 and 2.

Table 1: Standard SERVPERF dimensions/Items

Dimension	Code	Items
Tangibles (T)	T1	ETC has up-to date equipment.
	T2	ETC's physical facilities such as office layout, guest chairs, car parking is visually appealing.
	T3	Employees are well dressed and appear neat in ETC.
	T4	Materials associated with service (such as pamphlets or statements) are visually appealing at ETC service center.
Reliability (R)	R1	When ETC's service providers promise to do something by certain time, they do so.
	R2	When you have a problem, employees show a sincere interest in solving it.
	R3	Employees perform the service right the first time.
	R4	Employees provide their service at the time their promises to do so.
	R5	Employees keep their records accurately.
Responsiveness (Rs)	Rs1	Employees tell you exactly when service will be performed.
	Rs2	Employees give you prompt service.
	Rs3	Employees are always willing to help you.
	Rs4	Employees are never too busy to respond to your request.
Assurance (A)	A1	The behavior of employees instills confidence in you.
	A2	You feel safe in your transactions with ETC.
	A3	Employees in service area consistently courteous with you.
	A4	Employees have the knowledge to answer your question.
Empathy (E)	E1	Employee gives you individual attention.
	E2	ETC has operating hours convenient to all its customers.
	E3	ETC has your best interest at heart.
	E4	Employees understand your specific needs.

Table 2: Added dimensions/Items to SERVPERF

Dimension	Code	Items
Network Quality (N)	N1	ETC' CDMA 1x service network have excellent connection speed.
	N2	ETC' CDMA 1x service has wider network coverage.
	N3	ETC' CDMA 1x service network has free from or minimum disconnection problem.
Convenience (C)	C1	ETC has sufficient offices in different geographic areas.
	C2	ETC has toll-free number, websites, knowing account status, and so on by customer.
	C3	It is easy to get scratch cards from ETC.

3.2 Research Quality Standards

There are two important concepts one should keep in mind when writing a report; validity and reliability. Validity is the ability of chosen instrument to measure what it is supposed to measure. Validity refers to the degree to which a study accurately reflects or assesses the specific concepts the researcher is attempting to measure. Validity is concerned with the study's success at measuring what the researchers set out to measure (Howell et al. 2005) as cited in Farzad (2006). Validity also defined by Hair et al.(2003) as the extent to which differences in observed scale scores reflect the true differences among objects on the characteristics being measured. In simple words, by testing validity researcher can decide is the scale measuring what it is meant to measure. Reliability, on the other hand, is the extent to which research results would be stable or consistent if the same techniques were used repeatedly. Moreover, the way the measurements are conducted and how the information is processed affect the reliability (Wiedersheim-Paul and Eriksson, 1999) cited in Farzad 2006. The role of reliability is to minimize the errors and biases in a study (Yin 1994). According to Bryman and Bell (2003) as cited in Jalili (2008), there are prominent factors to considering whether a measure is reliability: stability, internal reliability and inter-observed consistency. In this study, internal reliability was considered. Bryman and Bell (2003) suggested that a multiple-item

measure in which each answers to each questions are aggregated to form an overall score, we need to be sure that our indicators are related to each other. It can be test using Cronbach's alpha method. The result of 0.60 and above implies an acceptable level of internal reliability. By using validity and reliability we can further analyze the data that respondents provide us in more accurate way.

3.3 Population and Sampling

3.3.1 Population

Successful statistical practice is based on focused problem definition. In sampling, this includes defining the population from which our sample is drawn. According to Hair et al. (2003), population can be defined as an identifiable total group or aggregation of elements (e.g. people, products, organizations, physical entities) that are of interest to the researcher and pertinent to the specified information problem.

Because the researcher was lacking on various resources including time and money to gather information from everyone takes part in the population, the goal becomes finding a representative sample of the population. The population of the study was conducted to be the total customers in Addis Ababa city, which are 26,536 subscribers of CDMA 1x, according to data obtained from MIS report of ETC around October 2010.

3.3.2 Sampling Technique

Sampling is the part of statistical practice concerned with selection of an unbiased or random subset of individual intended to yield some knowledge about the population of concern, especially for the purpose of making predictions based on statistical inference. Sampling is an important aspect of data collection. It is a critical issue in descriptive research usually time, money and effort involved do not permit a researcher to study all possible members of population. Sampling comes to support this research work by enabling the researcher to study a portion of the population rather than the entire population. Moreover, there are different kinds of sampling design depending on the type of study being conducted and kinds of conclusion the researcher would like to draw from the study result. For the purpose of this study stratified sampling technique were used to

select respondents from the population. Stratified random sampling is defined by the two step procedure it involves. In the first step the population is divided into mutually exclusive and collectively exhaustive sub populations, which are called strata. In the second step, a simple random sample of elements is chosen independently from each group of strata. This technique is used when there is considerable diversity among the population element. The major aim of this technique is to reduce cost with out loss in precision (Paurav, 2008).

3.3.3 Sample size

A sample of 240 subscribers were obtained using stratified random sampling by dividing the whole city into six zones to have representative of the entire Addis Ababa users population. Therefore, samples of 40 subscribers were selected from each zone (strata) using convenience/available method from the list of subscriber.

3.4 Types of data sources

Information sources are usually classified into two broad categories: the primary and secondary. Secondary data are data collected for some purpose other than the problem at hand. Primary data, on the other hand, are originated by the researcher for the specific purpose of addressing the research problem. Both primary and secondary data were used in conducting this study. The primary data were collected through questionnaires which were distributed to the respondents during the data collection phase. Secondary data were collected from related books, journals, research papers and internet.

3.5 Data collection instrument

There are wide varieties of primary data gathering tools available to researchers. Some of the more important data collecting methods for descriptive research studies are questionnaire, interviews schedule, observations, focus group discussions and case study methods. Questionnaires are an inexpensive way to gather data from a potentially large number of respondents. Often they are the only feasible way to reach a number of reviewers large enough to allow statically analysis of the results. A well designed questionnaire that is used effectively can gather information on both the overall performance of the test system as well as information on specific components of the

system. If the questionnaire includes demographic questions on the participants they can be used to correlate performance and satisfaction with the test system among different groups of users.

Primary data of this study were collected using questionnaire. The format (nature) of the items in a questionnaire was closed ended type. The question were contained two parts: part one is maintaining questions related to service quality by modifying the original SERVPERF model to make it fit with CDMA 1x service. The responses of customers on this part of the questionnaire were measured using a five point Likert type scale (1-“strongly disagree”, 2-“disagree”, 3-“neutral”, 4-“agree” and 5-“strongly agree”). Part two is about demographic profile of the respondents and it has five questions. The questionnaire was translated into Amharic to avoid misunderstanding and misinterpretation by the respondents, by professional translators.

3.6 Procedure of data collection

Before distributing the final questionnaire, there was a pilot test used with 20 CDMA 1x subscribers. There was a comment on redundancy (overlap) between statement number 18 and 19 (developed by Parasuraman et al, 1988). Statement number 18 says ‘the firm should not be expected to give customers individual attention’ and statement 19 says ‘employees of these firms cannot be expected to give customers personal attention’. The corrected and final questionnaire was distributed into six zones by the researcher. Samples of 40 subscribers were selected from each zone (strata) randomly from the list of subscriber at the system and manually from the file in customer service section. Moreover, some of the questionnaires were provided to those customers who come to sales office when they encounter problem related to this technology. As shown below in table 3 there is data that describe the number of subscribers in each zone as of October 2010 MIS report data and the rate of response.

Table 3: Summary of questionnaire distribution and collection

No.	Zone	Number of subscribers	Questionnaire Distributed	Questionnaire Collected	Response rate (%)
1	North Addis Ababa	4041	40	38	95
2	West Addis Ababa	4452	40	36	90
3	Southwest Addis Ababa	3894	40	34	85
4	South Addis Ababa	2690	40	31	77.5
5	East Addis Ababa	6227	40	36	90
6	Central Addis Ababa	5232	40	38	95
Total		26,536	240	213	88.75

3.7 Data analysis approach

After collected the questionnaire, the data has to be processed and analyzed. Technologically speaking, the term processing implies editing, coding, classification and tabulation of collected data so that they amenable to analysis. The term analysis refers to the computation of certain measures along with searching for patterns of relationship that exist among data-groups. The results of the survey were analyzed using descriptive statistics. There are many basic techniques for analyzing quantitative data. In this study, the researcher used the statistical package for social sciences (SPSS) 15.0 for windows to analyze data collected from the SERVPERF instrument (questionnaire) shown in the Appendix I.

The researcher was using a variety of statistical methods to summarize and analyze data. Data collected from primary sources were analyzed by using descriptive statistical tools like mean, standard deviation and percentage. Additionally, multivariate (multiple regression) analysis was applied inline with the research objectives.

However, to review the internal consistency of the scale items Cronbach coefficients (alpha) were computed and the overall scale reliability was found to be 0.930 much higher than the benchmark value of 0.60 (Hair et al. 1998). This is an indication of the acceptability of the items for further analysis. Cross-tabulations were obtained for demographic profiles to assess their level of association.

Chapter Four

Data Analysis and Discussion

This chapter presents the analytical tools applied to test the validity and reliability of the collected data, and the analysis carried out, in line with the stated research objectives.

4.1 Construct Validity

Construct validity is the bridge between theory and the scale. It explains the question what construct or characteristic the scale is measuring and what deductions can be made concerning the theory underlying the scale (Paurav, 2008).

The original SERVPERF model is tested for validity by Cronin and Taylor (1992) and many other researchers, so need not to be tested again to check its validity in this study. However, the other two (additional) dimensions i.e. network quality and convenience was tested for their validity (construct) and before checking the reliability. Therefore, factor analysis was carried out to assess the unidimensionality and suitability of these (added) service quality dimensions, for the subsequent analysis. The exploratory factor analysis was conducted using principal component method of factor extraction and direct oblimin rotation considering that the items within the dimensions are interrelated. The two dimensions of the service quality performance measure were loaded separately into two factors with 0.50 or higher value (factor loading). As a result, the study is found to be maintaining a total of seven dimensions (five standard SERVPERF plus two added dimensions of network quality and convenience), to form the modified SERVPERF model to be used for further analysis (see Appendix III) in this study.

4.2 Scale Reliability

Reliability is the extent to which an experiment, test, or any measuring procedure yields the consistent result on repeated trials. Without the agreement of independent observers able to replicate research procedures, or the ability to use research tools and procedures that yield consistent measurements, researchers would be unable to satisfactorily draw conclusions, formulate theories, or make claims about the generalizability of their research. Reliability is concerned with estimates of the degree to which a measurement is free of random or unstable error (Howell et al, 2005) as cited in Farzad (2006).

To test the reliability of the modified SERVPERF instrument, which helps to review the internal consistency of each scale item, Cronbach coefficients (alphas) were computed per dimensions and items. The internal consistencies of the scale items are found to be quite high. The alpha coefficient range from 0.640 to 0.892, which are higher than the cutoff value of 0.60, as suggested by many of the literatures. The new dimensions of network quality and convenience developed in this study, also demonstrate high internal consistencies, and reported with the coefficient values as high and low with alpha of 0.892 and 0.640 respectively (see table 4). However, overall scale reliability, as computed through coefficient alpha, was found to be 0.930 and indication of acceptability of the scale instrument for further analysis.

Table 4: Scale Reliability (Cronbach Alphas)

Dimension	No. of items	Alpha coefficients for dimensions
Tangibles	4	0.691
Reliability	5	0.834
Responsiveness	4	0.800
Assurance	4	0.817
Empathy	4	0.711
Network Quality	3	0.892
Convenience	3	0.640
Reliability of the total scale	27	0.930

4.3 Respondents’ Demographic Profile

A total of 240 questionnaires were distributed among CDMA 1x subscribers. Out of which, 213 were returned and, 206 completely filled, were retained for the final analysis. The response rate was 88.75 percent.

As shown in table 5, the demographic profile of the respondents was found to be diversified with a majority (65.5%) of male and the remaining (34.5%) female. Regarding to age distribution less than one fifth (15.5%) of the respondents were in the

range of 18-25 years, while over half (51%) were found to be reported between 26-35 years, with another one-fourth (25.2%) who claimed to be within the range of 36-45 years and remaining (8.3%) was above 45 years. On the education part, less than one fifth (44.7%) were reported with first degree, followed by diploma (32.5%), and the rest of the respondent (15.5%) and (7%) were second degree and high school and below respectively.

Table 5: Demographic profile of the respondents

Characteristics	Percentage(%)
<i>Gender</i>	
Male	65.5
Female	34.5
<i>Age</i>	
18-25	15.5
26-35	51.0
36-45	25.2
Above 45	8.3
<i>Education</i>	
High school and below high school	7.3
Diploma	32.5
First degree	44.7
Second degree and above	15.5

Table 5: Demographic profile of the respondents continued

Characteristics	Percentage(%)
<i>Occupation</i>	
Government employee	39.8
Private employee	21.4
Self employment	18.0
Trader	7.3
Student	1.9
Others	11.7
<i>Monthly Income</i>	
Below 2000	23.8
2000-5000	43.7
5001-10000	22.8
Above 10000	9.7

Respondents related to occupation (39.8%) was reported as employed in government, while (21.4%) was employed in private sector, (18%) was reported as self employment and the rest of the respondents are reported as (7.3%) trader, (1.9%) was student and (11.7%) was others. On monthly income per month, a little less one-fourth (23.8%) were reported below 2000, near to half (43.7%) were reported as in between 2000-5000 income per month, (22.8%) reported with the range of 5001-10000 and the remaining (9.7%) was above 10,000.

4.4 Descriptive Analysis: Overall Service Quality and Customer Satisfaction

Table 6 presents the mean scores of 7 dimensions of SERVPERF model, was ranging from as low as 2.409 to as high as 3.612 as a five point of scale. Therefore, ETC performed above average (3.058) on the dimension of tangibles, responsiveness (3.108),

assurance (3.078) and convenience (3.612) dimensions. However, the mean value of reliability, empathy and network quality are below the average (3.0). This indicates that ETC's performance across the dimensions of service reliability (2.602), i.e. doing certain things as promised, interest in problem solving and keeping the records were poor and perceived less reliable by the respondents. On the performance of the dimension service empathy (2.779), i.e. ETC's employees were not giving individual attentions for their customers, they don't understand customer's specific needs and the company has no convenient operating hours suitable for customers. Regarding dimension of network quality (2.409): customer's rate below average (3.0) (disagree) with ETC's CDMA 1x service. This is because of CDMA 1x has low connection speed, network coverage and faces a disconnection problem. The overall service quality (2.949) indicate ETC's performance were below the average (3.0) in service quality performance. Therefore, ETC should consider and concentrating on these shortfalls and improving the attributes under these dimensions.

Table 6: Descriptive statistics

Dimension	Mean	Std. Deviation
Tangible	3.058	0.768
Reliability	2.602	0.820
Responsiveness	3.108	0.815
Assurance	3.078	0.810
Empathy	2.779	0.741
Network Quality	2.409	1.106
Convenience	3.612	0.814
Overall Service Quality (OSQ)	2.949	

In addition to the modified SERVPERF model, consisting of 27 items, respondents were further asked to rate their level of overall customer satisfaction with CDMA 1x, by using a five point Likert scale (1-“highly dissatisfied”, 2-“dissatisfied”, 3-“neutral”, 4-

“satisfied” and 5-“highly satisfied”). Descriptive statistics were used to determine the overall customer satisfaction. As shown in table 7, 8.7% of the respondents said highly dissatisfied, while 2.9% was respond highly satisfied and the majority 38.8% of the respondent’s opinion were neither satisfied nor dissatisfied with service quality of CDMA 1x. When we compare the respondent’s rate between below average and above average, the former was 38.3% (sum of highly dissatisfied and dissatisfied) while the later was 22.8 (sum of highly satisfied and satisfied).

Table 7: Overall customer satisfaction

Scale	Percent (%)
Highly Dissatisfied	8.7
Dissatisfied	29.6
Neutral	38.8
Satisfied	19.9
Highly Satisfied	2.9

Additional attempt was made to compute the mean value (2.79), as shown in table 8. This describes that the majority of CDMA 1x customers are tending to below average level of satisfaction i.e. dissatisfied with the service quality of this new technology.

Table 8: Mean score for overall customer satisfaction

No.	Items	N	Mean	Std. Deviation
1	Overall customer satisfaction (OCS)	206	2.79	.959

4.5 Cross Tabulation of Respondent’s Profile and Overall Customer Satisfaction

Cross tabulation is extremely useful when the researcher wishes to study relationships among and between variables. According to Hair et al. (2003) the purpose of the cross tabulation is to determine whether certain variables differ when compared among various subgroups of the total sample. Table 9 shows cross tabulated responses of the respondents on overall customer satisfaction with demographic variables.

Table 9: Cross tabulation analysis

Demographic variables		χ^2	Significance
Gender	Male	.893	.926
	Female		
Age	18-25 years	6.091	.911
	26-35 years		
	36-45 Years		
	above 45 years		
Education	High school and below	18.867	.092
	Diploma		
	First degree		
	Second degree and above		
Occupation	Government	18.224	.573
	Private		
	Self		
	Trader		
	Students		
	Other		
Monthly Income	Below 2000	6.266	.902
	2000-5000		
	5001-10000		
	10000 and above		

A number of testes are available to determine if the relationship between two cross-tabulated variables is significant. One of the more common tests is chi-square. If we look at the cross-tabulation table, it might appear that the only thing we have accomplished is to make the table larger and harder to interpret. The lower the significance value, the more likely that the two variables are dependent (related). But if we look at the above table of chi-square statistics, we can easily see that in all but one of the education categories a little bit near to 0.05, the apparent relationship between demographic

variables and overall customer satisfaction insignificant i.e. significant value greater than 0.05 (see appendix IV). We can conclude that there exists some relationship between respondent's education and their level of satisfaction with CDMA 1x services; however, it is not statistically significant at 5% confidence level.

4.6 Correlation Analysis

Correlation coefficient take on values between -1 and +1, ranging from being negatively correlated (-1) to uncorrelated (0) to positively correlated (+1). The sign of the correlation coefficient (i.e. positive or negative) defines the direction of the relationship. A positive sign indicates that as one variable gets larger the other also tends to get larger, while a negative sign indicates that as one variable gets larger the other tends to get smaller. The absolute value indicates the strength of the correlation. Correlation analysis helps gain insight into the strength of the relationship between variables. Undertaking correlation analysis before conducting regression analysis is an essential step in developing a model using regression (Croft 1983).

In this study, the result of Pearson correlation coefficient indicates the existence of positive relationships between SERVPERF dimensions with overall customer satisfaction. Table 10 presents the summary of the correlation analysis matrix.

Table 10: Summary of correlation coefficients

	T	R	Rs	A	E	N	C	OCS
T	1							
R	.620**	1						
Rs	.570**	.642**	1					
A	.615**	.683**	.750	1				
E	.561**	.659**	.543**	.630**	1			
N	.439**	.568**	.350**	.418**	.475**	1		
C	.417**	.190**	.309**	.334**	.378**	.168*	1	
OCS	.493**	.563**	.479**	.591**	.657**	.648**	.322**	1

Note: ** significance at 0.01 (2-tailed) level; * significance at 0.05(2-tailed) level;
T=Tangible, R=Reliability, Rs=Responsiveness, A=Assurance, E=Empathy, N=Network
quality, C=Convenience and OCS=Overall customer satisfaction.

As shown in the above table, the magnitude of relationship ranges from a low of 0.168 i.e. between convenience and network quality to as high as 0.750 between assurance and responsiveness. Moreover, the correlation between modified SERVPERF dimensions with overall customer satisfaction was range from 0.322 to 0.657. Higher coefficient value among all predictor variables shows that, there exists a strong relationship between SERVPERF dimensions and overall customer satisfaction.

4.7 Modeling overall SERVPERF dimensions with customer satisfaction

Multiple regression analysis can be used by the marketing researcher to examine the relationship between a single dependent variable and two or more independent variables in terms of their contribution to the dependent variable. The regression used SERVPERF dimensions as independent variables against the separate measure of overall customer satisfaction. The items are summed up to produce seven dimensions and analyzed against each other i.e. in the presence of each other to reveal the level of contribution exerted in estimating overall customer satisfaction.

All the dimensions requested for the analysis has been approved and thus entered the regression analysis. The model summary table reports the strength of relationship between the model, the dependent variable and customer satisfaction. R, the multiple correlation coefficients, is the linear correlation between the observed and model predicted values of the dependent variable. R Square, the coefficient of determination, is the squared value of the multiple correlation coefficients. R and R Squared values range between 0 and 1 with the larger values indicating stronger relationship or influence. The adjusted R Square value tells us that the percentage of the variation/contribution model accounts. The standardized Beta coefficients give a measure of the contribution of each

variable to the model (see appendix V). A larger value indicates that a unit change in the predictor variable has a large effect on the criterion variable.

Therefore, linear regression using 'Enter' method was used to compute the value of dependent scale variable (i.e. overall customer satisfaction) based on its relationship with modified SERVPERF dimensions of tangible, reliability, responsiveness, assurance, empathy, network quality and convenience, as independent variables.

The multiple regression analysis resulted in one model for overall customer satisfaction as shown in appendix V. In this model, the regression analysis included all the seven SERVPERF dimensions namely tangible, reliability, responsiveness, assurance, empathy, network quality and convenience. This model is statistically highly significant ($F=44.289$, $p<0.001$) with adjusted R^2 of 0.596 indicating that all modified SERVPERF dimensions explains 59.6% variation in the overall customer satisfaction. The remaining (40.4%) of may be explained by other factors those are not being considered or remained outside SERVPERF dimensions.

Regarding to individual influence of SERVPERF dimensions on overall customer satisfaction, a regression analysis was generated beta value that measure how strongly each predictor variable influences the criterion variable. Thus, the higher the beta value the greater the impact of the predictor variable on the criterion variable. The beta regression coefficient is computed to allow us to make such comparisons and to assess the strength of the relationship between each predictor variable to the criterion variable.

The regression coefficient result (beta value) of SERVPERF dimensions taking as independent variable and overall customer satisfaction as dependent variable using Multi collinearity and Enter method.

As shown in figure 1, dimensions such as network quality ($\beta=0.421$), empathy ($\beta=0.332$) and assurance ($\beta=0.228$) contribute significantly ($p<0.05$) in evaluating overall satisfaction level of the customers. On the other hand, SERVPERF dimensions such as tangibles ($\beta=-0.010$), reliability ($\beta=-0.060$), responsiveness ($\beta=0.004$) and convenience ($\beta=0.064$) were reported to be insignificant contributors to overall customer satisfaction.

Network quality appeared to be the most significant determinant of customer satisfaction in ETC CDMA 1x users along with empathy and assurance. The newly added network quality dimension to the original SERVPERF, thus contributes significantly to determine overall customer satisfaction. Convenience, however, was not appeared to be a determinant to the overall customer satisfaction among the CDMA 1x users.

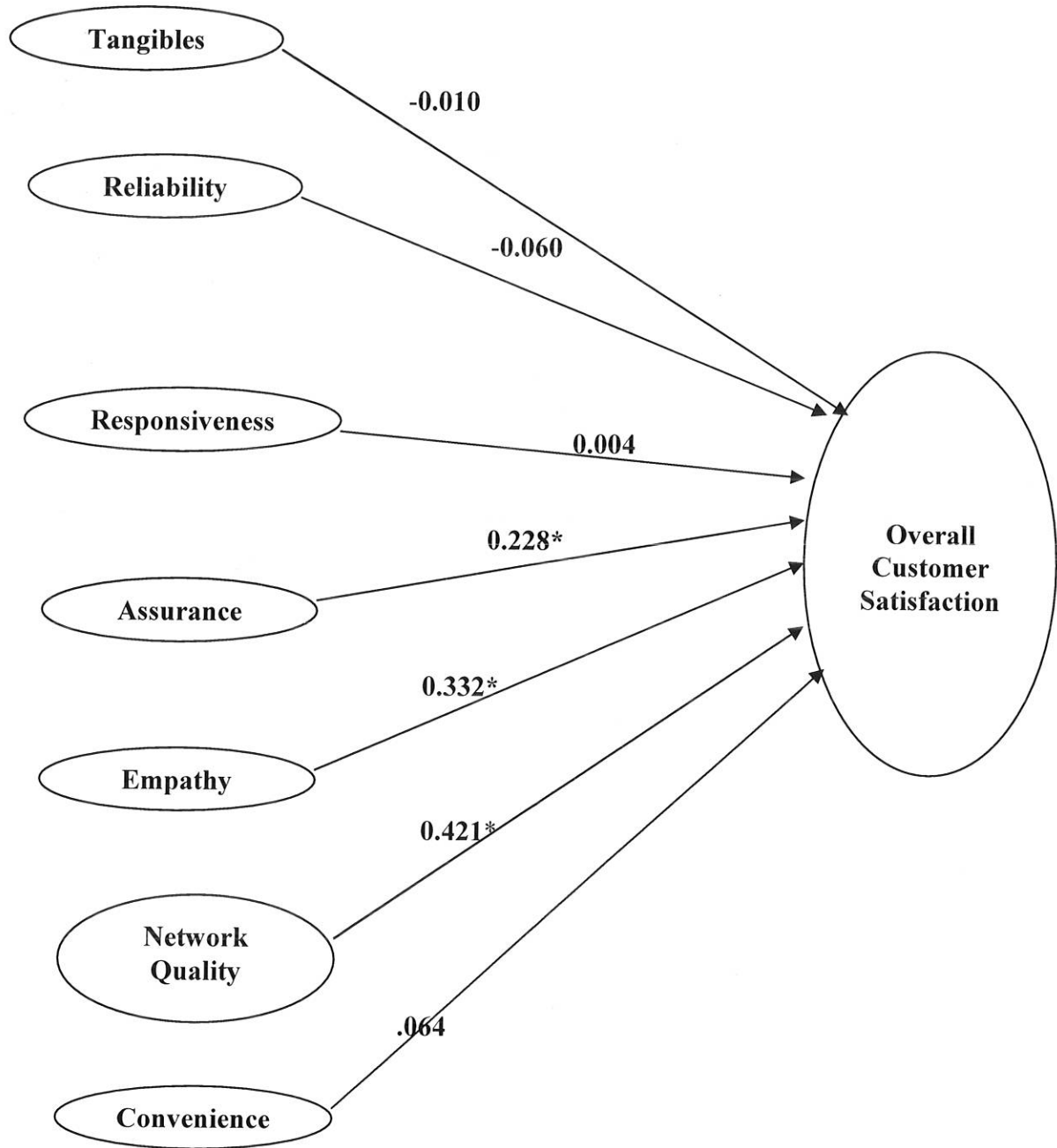


Figure 2: Modified SERVPERF Dimensions and Overall Customer Satisfaction

* Significance at 0.05 levels

4.8 Discussion

The main purpose of this study was to identify and examine the determinants of service quality and has these contribute to customer satisfaction of CDMA 1x users.

The following discussion focuses on answering the specific objectives rose in the beginning of this study.

- ✓ To asses the overall perceived service quality of CDMA 1x.
- ✓ To determine the extent to which CDMA 1x service users are satisfied.
- ✓ To identify the dimensions of service quality in the context of CDMA 1x.

Research suggests that customers do not perceive quality as a one-dimensional way, but rather judge quality based on multiple factors relevant to the context. These dimensions represent how consumers organize information about service quality in their minds. Service quality measures have been developed and widely tested for different service provider companies. But it is not widely known whether these measures posses significant properties when applied in telecommunications and particularly in CDMA 1x services. However which quality aspects significantly affect service quality and overall customer satisfaction are main issues in this dynamic sector. To address this issue, the study presents an application of the modified SERVPERF model as measure of service quality and customer satisfaction in ETC.

The mean scores of the modified SERVPERF dimensions were obtained by summing the data through SPSS about each statement, and dividing by the number of items in each dimension. The analysis of the data indicates that, Ethiopian telecommunication has performed well in four dimensions of SERVPERF model such as tangible, responsiveness, assurance and convenience. The mean values of these dimensions are above three in five point scales. However, the rest of three dimensions such as network quality, reliability and empathy are below the average in five point scales. In addition, the analysis of the data shows that the overall service quality have lower average with mean value 2.949. This shows that the overall performance measure of service quality of CDMA 1x is low. Therefore CDMA 1x makes service quality when ETC improve the performance of the entire item under network quality, reliability and empathy.

The overall satisfaction level of customers was measured using five point Likert scale range from highly dissatisfied (1) to highly satisfied (5). 38.3% the respondents are dissatisfied and 22.8% are satisfied and the remaining 38.8 are neither dissatisfied nor satisfied. There is also mean value 2.79 that shows the overall customer satisfaction is below average. As a result, the overall customer satisfaction explains that, the majority users of CDMA 1x are dissatisfied with the service provided by ETC. This indicates that customer's perception about overall service quality with CDMA 1x is low.

The analysis of regression shows that network quality, empathy and assurance are the critical determinants of the overall CDMA 1x service quality provided by ETC. This means that CDMA 1x users of ETC use these service quality dimensions in their assessments of quality. In this study, network quality appeared to be the most critical determinant of customer satisfaction followed by empathy and assurance. Service qualities related to network quality like excellent connection speed, have wider network coverage and free from or minimum disconnection problem are the aspects of those customers uses to assess CDMA 1x service. In addition to this, the empathy dimension in the modified SERVPERF model was found to be the second best predictor for service quality. Giving individual attention, having convenient operating hours and understand their specific needs are the critical point those customers uses to evaluate CDMA 1x service. Assurance is also the third predictor of service quality. The service qualities associated with assurance like behaviors of employee, feel safe in their transactions with ETC, employees consistently courteous with them and employees knowledge to answer their questions are the aspects those customers uses to evaluate CDMA 1x service.

Moreover, regression analysis resulted in the model for predicting the overall customer satisfaction, the modified SERVPERF dimensions are significant predictor explains 59.6% the variation in CDMA 1x customer satisfaction. The remaining (40.4%) of the variation may be explained by other factors those are not being considered or remained outside SERVPERF dimensions. Even if it is difficult to generalize, factors such as availability of laptop or personal computer, price of CDMA 1x and others may affect satisfaction.

Chapter Five

Findings, Conclusion and Recommendations

This chapter of the research presents findings, conclusion, recommendation, implications and direction resulted from the data analysis and discussions.

5.1 Findings

The main objective of the study was to identify and examine the determinants of service quality and satisfaction level of customers associated with CDMA 1x service of ETC. The study conducted by distributing questionnaires to 240 subscribers from which 213 have been collected and 206 were selected for further analysis. To know the research quality standards, validity and reliability of the data factor analysis and Cronbach coefficients (alpha) were computed. The factor loading were computed only for new two (additional) dimensions i.e. network quality and convenience, and there were greater than 0.5. The Cronbach coefficient (alpha) was computed and the overall scale reliability found to be 0.930 much higher than the minimum value of 0.60. The newly added SERVPERF dimensions demonstrated high internal consistency in network quality (0.892) and convenience (0.640).

The results concerning overall service quality as measured using a five point Likert scale described that ETC performed best in convenience (3.612) followed by responsiveness (3.108), assurance (3.078) and tangibles (3.058). However, the mean score value of reliability (2.602), empathy (2.779) and network quality (2.409) were below the average (3.0). Moreover, the overall service quality value (2.949) indicates ETC's performance were below the average in service quality.

Similarly, respondents were asked to rate their feeling towards the overall customer satisfaction of CDMA 1x using five point Likert scale (1-“highly dissatisfied”, 2-“dissatisfied”, 3-“neutral”, 4-“satisfied” and 5-“highly satisfied”). Descriptive statistics were used to determine the overall customer satisfaction. As a result, 8.7% of the respondents said highly dissatisfied, while 2.9% was respond highly satisfied and the majority 38.8% of the respondent's opinion were neither satisfied nor dissatisfied with

service quality of CDMA 1x. In addition to this, the mean value of overall customer satisfaction (2.79) shows below average value.

The cross tabulation resulted from respondent's profile and overall customer satisfaction showed that in all but one of the education categories a little bit near to 0.05, the apparent relationship between demographic variables and overall customer satisfaction insignificant i.e. significant value greater than 0.05. Therefore, there exists some relationship between a respondent's education and their level of satisfaction with CDMA 1x services; however, it is not statistically significant 5% confidence level.

Correlation analysis were undertaken before conducting regression analysis in order to see the strength of the relationship between modified SERVPERF dimension and overall customer satisfaction. The results of Pearson correlation coefficient indicates that the magnitude of relationship ranges from a low of 0.168 i.e. between convenience and network quality to as high as 0.750 between assurance and responsiveness. Higher coefficient value among all predictor variables shows that, there exists a strong relationship between SERVPERF dimensions and overall customer satisfaction. This is an essential step in developing a model using regression analysis.

The influence of modified SERVPERF dimensions on overall customer satisfaction was measured using linear regression model. In this model, the regression analysis included all the seven SERVPERF dimensions namely tangible, reliability, responsiveness, assurance, empathy, network quality and convenience. As a result, the model is statistically highly significant ($F=44.289$, $p<0.001$) with adjusted R^2 of 0.596 indicating that all modified SERVPERF dimensions explain 59.6% variation in the overall customer satisfaction. The remaining (40.4%) of the variation in customer satisfaction may be explained by other factors outside SERVPERF dimensions. Regarding to individual influence of SERVPERF dimensions on overall customer satisfaction, a regression analysis was generated beta value that measure how strongly each predictor variable influences the criterion variable. As a result, the significant variables are network quality ($\beta=0.421$), empathy ($\beta=0.332$) and assurance ($\beta=0.228$) respectively in evaluating overall satisfaction level of customers. Whereas, SERVPERF dimensions such as

tangibles, reliability, responsiveness and convenience were reported to be insignificant contributors to overall customer satisfaction.

Generally, the findings of the study indicate that network quality is the most significant determinant of customer satisfaction in ETC CDMA 1x users, along with empathy and assurance. The newly added network quality dimension to the original SERVPERF thus provided to be its importance, not only in determining service quality but also the overall customer satisfaction. Convenience, however, was not appeared as significant determinant of overall customer satisfaction with the CDMA 1x.

5.2 Conclusion and Recommendations

The conclusion reached as the result of data analysis is given below:

- ETC performed best in four modified SERVPERF dimensions such as convenience, responsiveness, assurance and tangibles. With the rest of three dimensions i.e. reliability, empathy and network quality were below the average. Moreover, the overall service quality value indicates ETC's performance were below the average in service quality.
- Similarly, respondents were asked to rate their feeling towards the overall customer satisfaction of CDMA 1x using five point Likert scale. The study result showed that, a 38.3% of the respondents said dissatisfied, while 22.8% was respond satisfied and the remaining 38.8% of the respondent's opinion were neither satisfied nor dissatisfied with service quality of CDMA 1x. In addition to this, the mean value of overall customer satisfaction (2.79) shows below average value.
- The finding of the regression analysis reveal that CDMA 1x users perceived service quality provided by ETC was determined largely by three factors; namely, network quality, empathy and assurance. The rest of four dimensions such as tangibles, reliability, responsiveness and convenience are not determinant factor for customer satisfaction. Moreover, the regression analysis resulted in the model for predicting the overall customer satisfaction, the modified SERVPERF dimensions are significant

predictor explains 59.6% the variation in CDMA 1x customer satisfaction. The remaining 40.4% of the variation in customer satisfaction may be explained by other factors that were outside in modified SERVPERF dimensions.

Based on the above conclusion, the following recommendations are drawn:

- ETC should work hard on the three dimensions i.e. reliability, empathy and network quality in order to improve the service quality of CDMA 1x.
- We have seen that the sum of dissatisfied and neutral subscribers in overall customer satisfaction is more than three-fourth (77.1%). In an era where service providers are working for customer delight, these score shows that ETC CDMA 1x users are approaching dissatisfaction. This indicates that ETC has to do a lot to bring improvement on the part of customer satisfaction through improved service quality of CDMA 1x.
- The model developed for the dependent variable (overall customer satisfaction) was determined by three dimensions: network quality, empathy and assurance. Results of this study suggest that ETC should concentrate on providing superior network quality on first hand, followed by empathy and assurance in the sequence as appeared through their contribution. In short, if ETC provides excellent connection speed, wider network coverage and networking free from or minimum disconnection problems, then the existing level of overall customer satisfaction among customers are likely to be higher. On the other hand, based on the regression analysis, poor in connection speed, network coverage and connection (features of network quality dimension) are likely result in significantly lower levels of overall customer satisfaction.
- Furthermore, empathy appeared as the second determinant of overall customer satisfaction; it seems that ETC should try to give individual attention, have operating hours convenient, and have customer's best interest and ETC's personnel particularly those working in customer service counters need to understand the specific requirements of the customers. Hence focus should be directed to enhancing the

performance of front line staff, and emphasis should be placed on selection and training frontline personnel.

- The third dimension namely assurance, was also reported to be contributing significantly in determining overall customer satisfaction. ETC should be confident about safe transactions, consistently courteous behavior of employees and knowledge to answer customer's questions. As expected of this study, ETC needs to be more marketing oriented; to choose carefully the personnel who interact with the customer, in order to regularly collect information about their needs/requirements/wants, thus ensure customer satisfaction.

5.3 Direction for future research

CDMA 2000 technology includes CDMA 1x, EVDO, and other value added services; it is difficult to say customers of ETC are satisfied or dissatisfied based on the present study, in general with the CDMA 2000 technology. Because it needs further study, more on other CDMA 2000 technology supported services as provided to the customers.

The sample size used in this study is 240, there should be a large sample size applied to further test the applicability of SERVPERF model. Finally, ETC is on the transformation of its service providing process with a new name as Ethio-Telecom and aim to provide world class services, this study will be an input for further study and can be considered as a guiding/starting point.

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Appendix
(Results from SPSS)
And
(Questionnaire)

Appendix II: Questionnaire in Amharic

አዲስ አበባ ዩኒቨርሲቲ ኢ.ዲ.ኤችን ኮሌጅ ቢዝነስ ኢ.ዲ.ኤችን ድፖርትመንት (ማርኬቲንግ ማኔጅመንት ኢ.ዲ.ኤችን)

የተከበሩ የጥናቱ ተሳታፊዎች

እኔ በአዲስ አበባ ዩኒቨርሲቲ የማርኬቲንግ ማኔጅመንት የሁለተኛ ድግሪ ተማሪ ስሆን የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን የሲ.ዲ.ኤም.ኤ ዋን ኤክስ ደንበኞች እየተጠቀሙበት ያለውን ቴክኖሎጂ የአገልግሎት ጥራት እና የደንበኞችን የእርካታ መጠን ለማወቅ ጥናት በማከናወን ላይ እገኛለሁ።

ስለዚህ በጥናቱ ተካተው በዚህ አዲስ ቴክኖሎጂ የአገልግሎት አሰጣጥ ላይ ያለዎትን አስተያየት ያለ ምንም ተፅዕኖ እንዲገልፁልኝ እየጠየኩ የሚሰጡት መልስ ሚስጥራዊነቱ ተጠብቆ ለትምህርት አላማ ብቻ የሚውል መሆኑ እገልጻለሁ። ለሚያደርጉልኝም ትብብር በቅድሚያ አመሰግናለሁ።

ከሰላምታ ጋር!

ገዢዎች ተሾመ
የድህረ ምረቃ ተማሪ
አዲስ አበባ ዩኒቨርሲቲ

ክፍል አንድ፡

የሚከተሉት ጥያቄዎች የሲ.ዲ.ኤም.ኤ ዋን ኤክስ ተጠቃሚዎችን የአገልግሎት ጥራት እና የደንበኞች እርካታ መጠን ለመለካት ታስቦ የተዘጋጁ ጥያቄዎች ናቸው። የአገልግሎት ጥራት እና የደንበኞች እርካታ መጠን ለመለካት ከ1-5 አማራጭ ቁጥሮች ተቀምጠዋል። ስለሆነም የእርሶዎን ስምምነት ይወክላል የሚሉትን አማራጮችን በማክበብ እንዲመልሱ በአክብሮት እየጠየኩ ቁጥሮቼ የሚከተለውን ይወክላሉ።

አማራጭ	ቁጥሩ የሚወክለው
1	በጣም አልስማማም
2	አልስማማም
3	መካከለኛ አስተያየት አለኝ
4	እስማማለሁ
5	በጣም እስማማለሁ

በመካከል ያሉ ቁጥሮችን በመጠቀም ምን ያህል አመለካከት እንዳለዎት ያሳዩ።

ተ.ቁ	ጥያቄ	ውጤት				
1	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን ዘመናዊ የሆኑ የስራ መሳሪያዎች አሉት።	1	2	3	4	5
2	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን መሳሪያዎች ለምሳሌ የእንግዳ መቀመጫዎች፣ የተሽከርካሪ ማቆሚያ እና የቢሮ አቀማመጥ ለእይታ የሚስቡ ናቸው።	1	2	3	4	5
3	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን ሰራተኞች አለባበስ እና አጠቃላይ ገፅታ ፅዱ ሆነው ይታያሉ።	1	2	3	4	5
4	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን ከአገልግሎት ጋር የተያያዙ መሳሪያዎቹ ለምሳሌ (በራሪ ወረቀቶች እና መግለጫዎች) ለእይታ የሚስቡ ናቸው።	1	2	3	4	5
5	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን አንድ ነገር ለማድረግ ቃል ከገባ ይፈፅማል።	1	2	3	4	5
6	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን ደንበኞች ችግር ሲገጥማቸው በተገቢው መልኩ ችግራቸውን ለመፍታት ጥረት ያደርጋል።	1	2	3	4	5
7	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን በመጀመሪያው ቅጽበት (ጥያቄ) ስራውን ያከናውናል።	1	2	3	4	5
8	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን ቃል በገባው መሰረት ስራውን ያከናውናል።	1	2	3	4	5
9	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን ሰራተኞች መረጃዎችን በአግባቡ ያስቀምጣሉ።	1	2	3	4	5
10	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን ሰራተኞች ደንበኞች አገልግሎቱን በትክክል መቼ እንደሚያገኙ ያስረዳሉ።	1	2	3	4	5
11	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን ሰራተኞች ተገቢ የሆነ አገልግሎት ለደንበኞቻቸው ይሰጣሉ።	1	2	3	4	5
12	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን ሰራተኞች ደንበኞችን ለማገልገል ሁልጊዜም ፈቃደኞች ናቸው።	1	2	3	4	5

13	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን ሰራተኞች ለደንበኞች ግልጋሎት በስራ መጨናነቅን ምክኒያት አያደርጉም።	1	2	3	4	5
14	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን ሰራተኞች ባህሪ በተጠቃሚው ላይ መተማመንን ያሳድራል።	1	2	3	4	5
15	ደንበኛው በኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን ሽያጭ ወቅት መተማመን አለው።	1	2	3	4	5
16	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን ሰራተኞች ለደንበኞች የሚሰጡት እንክብካቤ አስተማማኝ ነው።	1	2	3	4	5
17	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን ሰራተኞች ለደንበኞች ጥያቄ መልስ የመስጠት ብቃቱና ዕውቀቱ አላቸው።	1	2	3	4	5
18	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን አገልግሎት ሲፈጽም ለእያንዳንዱ ተገልጋይ በተናጠል ትብብር ያደርጋል።	1	2	3	4	5
19	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን ደንበኞች የሚጠቀሙበትን ሰዓት አመቻችቶ አቅርቧል።	1	2	3	4	5
20	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን የደንበኞችን ጥቅም የሚያስጠብቅ አላማ ያራምዳል።	1	2	3	4	5
21	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን ሰራተኞች ደንበኞች ሊኖራቸው የሚችለውን ፍላጎት ቀድመው ተገንዝበዋል።	1	2	3	4	5
22	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን ግሩም የሆነ የሲ.ዲ.ኤም.ኤ ዋን ኤክስ ኢንተርኔት ፍጥነት ያለው ኔትዎርክ አለው።	1	2	3	4	5
23	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን የሲ.ዲ.ኤም.ኤ ዋን ኤክስ ሰፊ ሽፋን ያለው ኔትዎርክ አለው።	1	2	3	4	5
24	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን የሲ.ዲ.ኤም.ኤ ዋን ኤክስ የኔትዎርክ መቆራረጥ አንስተኛ ወይም ፈፅሞ የማይጋጥም ነው።	1	2	3	4	5
25	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን በተለያዩ ቦታዎች ላይ በቂ የሆነ አገልግሎት መስጫ ጣቢያዎች አሉት።	1	2	3	4	5
26	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን የነፃ ጥሪ መስመሮች፣ ዌብሳይት፣ የመሳሰሉ የመረጃ መስጫ እና የተለያዩ ችግሮች እንዲሁም ደንበኞች ያላቸውን ቀሪ ሂሳብ ማሳወቂያ እና ሌሎች መረጃ መስጫ አሉት።	1	2	3	4	5
27	የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን አገልግሎት በሚሰጥበት ወቅት ተፍቀው የሚሞሉ ካርዶችን ደንበኞች በቀላሉ ማግኘት ይችላሉ።	1	2	3	4	5

ባጠቃላይ የኢትዮጵያ ቴሌኮሙኒኬሽን ኮርፖሬሽን በሚሰጠው የሲ.ዲ.ኤም.ኤ ዋን ኤክስ አገልግሎት ምን ያህል እረክተዋል?

1. በጣም አልረካሁም
2. አልረካሁም
3. መካከለኛ አስተያየት አለኝ
4. እረክቻለሁ
5. በጣም እረክቻለሁ

ክፍል ሁለት: የግል ሁኔታ

1. የታ ሀ) ወንድ ለ) ሴት
2. እድሜ ሀ) ከ18-25 ዓመት
 ለ) 26-35 ዓመት
 ሐ) 36-45 ዓመት
 መ) ከ45 ዓመት በላይ
3. የትምህርት ደረጃ
 ሀ) ሁለተኛ ደረጃ (10ኛ/12ኛ ክፍል) እና ከዚያ በታች
 ለ) ድፕሎማ (10+1፣10+2፣10+3)
 ሐ) የመጀመሪያ ድግሪ
 መ) ሁለተኛ ድግሪ እና ከዚያ በላይ
4. የስራ ሁኔታ
 ሀ) የመንግስት ሰራተኛ ተቀጣሪ
 ለ) የግል ድርጅት ተቀጣሪ
 ሐ) የግል ስራ
 መ) ነጋዴ
 ሠ) ተማሪ
 ረ) ሌላ
5. ወርሃዊ ገቢ(በኢት. ብር)
 ሀ) ከ2000 በታች
 ለ) 2000-5000
 ሐ) 5001-10000
 መ) ከ10000 በላይ

አመሰግናለሁ

Appendix I: Questionnaire in English

**Addis Ababa University
College of Education
Department of Business Education
(Marketing Management Education)**

Dear Participants

I am a post graduate student at Addis Ababa University in marketing management education and conducting a study on service quality and customer satisfaction on CDMA 1x user of Ethiopian Telecommunication Corporation (ETC) customers. Therefore, you are kindly requested to participate in the survey intended to assess the level of service quality and customer satisfaction of CDMA 1x.

Please feel free to share your comments about any specific issues you think and your level of agreement about this new technology. The information is totally required for academic purpose and shall be kept strictly confidential. Thank you very much in advance for your kind help and cooperation.

Sincerely yours

Gezahegn Teshome
Postgraduate student
Addis Ababa University

Part One

The following items are planned to measure service quality and customer satisfaction of CDMA 1x users. Please respond by circling any of the response that best represent your degree of agreement to each item using the following five scales:

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

Circling “1” means that you are strongly disagree that ETC has that feature and circling “5” means you are strongly agree. You may circle any of the numbers in between that to show how strong your feelings.

No	Item	Score				
		1	2	3	4	5
1	ETC has up-to date equipment.					
2	ETC’s physical facilities such as office layout, guest chairs, car parking is visually appealing.					
3	Employees are well dressed and appear neat in ETC.					
4	Materials associated with service (such as pamphlets or statements) are visually appealing at ETC service center.					
5	When ETC’s service providers promise to do something by certain time, they do so.					
6	When you have a problem, employees show a sincere interest in solving it.					
7	Employees perform the service right the first time.					
8	Employees provide their service at the time their promises to do so.					
9	Employees keep their records accurately.					
10	Employees tell you exactly when service will be performed.					
11	Employees give you prompt service.					
12	Employees are always willing to help you.					
13	Employees are never too busy to respond to your request.					
14	The behavior of employees instills confidence in you.					
15	You feel safe in your transactions with ETC.					
16	Employees in service area consistently courteous with you.					

17	Employees have the knowledge to answer your question.	1	2	3	4	5
18	Employee gives you individual attention.	1	2	3	4	5
19	ETC has operating hours convenient to all its customers.	1	2	3	4	5
20	ETC has your best interest at heart.	1	2	3	4	5
21	Employees understand your specific needs.	1	2	3	4	5
22	ETC' CDMA 1x service network have excellent connection speed.	1	2	3	4	5
23	ETC' CDMA 1x service has wider network coverage.	1	2	3	4	5
24	ETC' CDMA 1x service network has free from or minimum disconnection problem.	1	2	3	4	5
25	ETC has sufficient offices in different geographic areas.	1	2	3	4	5
26	ETC has toll-free number, websites, knowing account status, and so on by customer.	1	2	3	4	5
27	It is easy to get scratch cards from ETC.	1	2	3	4	5

Overall, how satisfied are you with the CDMA 1x service provided by ETC?

1. Highly Dissatisfied
2. Dissatisfied
3. Neutral
4. Satisfied
5. Highly Satisfied

Part Two: Demographic Profile

1. Gender a) Male b) Female
2. Age (years)
 - a) 18-25
 - b) 26-35
 - c) 36-45
 - d) Above 45
3. Level of education
 - a) High school (10th or 12th) and below
 - b) Diploma (10+1, 10+2, 10+3)
 - c) First Degree
 - d) Masters and above
4. Occupation
 - a) Government employee
 - b) Private organization employee
 - c) Self employment
 - d) Trading
 - e) Student
 - f) Other
5. Monthly income (Ethiopian Birr)
 - a) Below 2,000
 - b) 2,000-5,000
 - c) 5,001-10,000
 - d) Above 10,000

Thank you

Appendix III: Factor analysis for additional dimensions of SERVPERF

Structure Matrix

	Component	
	1	2
Network Quality1	.912	.160
Network Quality2	.918	.127
Network Quality3	.884	.137
Convenience1	.164	.746
Convenience2	.240	.747
Convenience3	-.038	.797

Appendix IV: Cross tabulation of overall customer satisfaction with demographic variables

Variables		Overall Customer Satisfaction					Chi-Square (χ^2)	Sig. Level
		Highly Dissatisfied	Dissatisfied	Neutral	Satisfied	Highly Satisfied		
Gender	Male	10	41	53	27	4	.893	.926
	Female	8	20	27	14	2		
Age	18-25	3	11	11	6	1	6.091	.911
	26-35	10	27	43	21	4		
	36-45	3	16	19	13	1		
	> 45	2	7	7	1	0		
Education	High school and below	1	3	3	6	2	18.867	.092
	Diploma	8	17	25	14	3		
	1 st Degree	6	34	36	15	1		

	2 nd Degree	3	7	16	6	0		
Occupation	Govern ment	8	26	33	14	1	18.224	.573
	Private	3	14	18	7	2		
	Self	3	9	13	11	1		
	Trader	1	4	5	4	1		
	Student	0	0	1	2	1		
	Other	3	8	10	3	0		
Monthly Income	<2000	3	15	16	13	2	6.266	.902
	2000- 5000	7	25	36	19	3		
	5001- 10000	5	14	20	7	1		
	>10000	3	7	8	2	0		

Appendix V: Regression for measuring the contribution of each dimension

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.781(a)	.610	.596	.609

a. Predictors: (Constant), Convenience, Network quality, Responsiveness, Empathy, Tangible, Reliability, Assurance

ANOVA (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	115.096	7	16.442	44.289	.000(a)
	Residual	73.506	198	.371		
	Total	188.602	205			

a. Predictors: (Constant), Convenience, Network quality, Responsiveness, Empathy, Tangible, Reliability, Assurance

b. Dependent Variable: Overall customer satisfaction

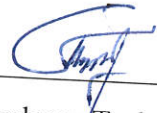
Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	-.186	.231		-.807	.421
	Tangible	-.013	.080	-.010	-.157	.875
	Reliability	-.070	.090	-.060	-.779	.437
	Responsiveness	.004	.083	.004	.051	.959
	Assurance	.270	.091	.228	2.963	.003
	Empathy	.430	.085	.332	5.053	.000
	Network quality	.365	.048	.421	7.647	.000
	Convenience	.076	.061	.064	1.245	.214

a. Dependent Variable: Overall customer satisfaction

DECLARATION

I, the undersigned, declare that this thesis submitted in partial fulfillment of the requirements of the degree of Master of Arts in Marketing Management Education is my own work and that all contributions from any other sources are properly and dually cited. I further declare that, it has not been submitted for any degree in this or any other university.



Gezahegn Teshome