

# Impact of Service Quality on Mobile Broadband Service on Consumers: A Case for Developing Economies

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## ABSTRACT

Increase demand for mobile data usage has impacted greatly on mobile broadband service quality on internet service providers. That has led to an increasing number of complaints of poor service quality of mobile broadband services delivered by the various operators. Due to the current state of lockdown, there has been increased in consumers online purchasing, academic institutions are using internet data for teaching and learning, most businesses are currently working and operating remotely from home and social media usage has increased as most subscribers are at home. These have brought many challenges and has impacted on the levels of service quality being provided by the subscribers. This paper aims to identify the impact of service quality on mobile broadband internet service that is being provided by subscribers in developing economies. To achieve the applicability of the work, the paper identified some key challenges that are impacting on the levels of service quality including poor coverage and low levels of customer engagement that has led to general dissatisfaction amongst subscribers. A cross-sectional survey was implemented on a case study to determine the impact of services quality on mobile broadband internet services provision. A SERVQUAL model was used to generate the questionnaires. A stratified random sampling technique was used to analyze the data. The results show that total quality can be implemented to improve mobile broadband usage using a structured survey to determine consumer satisfaction and perceived quality.

**Keywords:** *Service Quality, Mobile Broadband, SERVQUAL Model, Consumer Satisfaction*

## 1. INTRODUCTION

Mobile broadband is a wireless technology which enables connection through portable mobile devices such as tablets or smartphones to a broadband internet connection [1]. It is also a term generally used to describe high-speed internet from mobile network operators for portable devices. It enables user's access broadband services on the move, anywhere so long as the device is within a 3G or 4G coverage area. (GSMA Mobile Economy Report, 2017) [2]. Mobile broadband services are available to users in a variety of modes: Through a SIM or micro-SIM inserted directly into a mobile device. Through a 3G/4G mobile WiFi device such as a MiFi which has the capability of connecting over 8 users concurrently. Through a 3G/4G enabled USB dongle that connects directly to a personal computer or a laptop. Mobile wireless technologies and by extension mobile data networks have undergone tremendous growth and evolution of the past few decades in Ghana. There has been a systematic revolution and evolution from the first generation of mobile technology (1G) right through to the fifth generation (5G) for the past 3 decades globally. In 1991, the first wireless internet access was introduced through the second generation (2G) of mobile technology [3]. The mobile broadband evolution has made it possible for users to access high-speed internet. for the streaming of videos, music downloads, video conferencing and general web usage. Fourth generation (4G) networks are able to offer users as much as 10 times the speed offered by 2G or 3G networks, though it must be pointed that these speeds are dependent on the prevailing network conditions. The 5G is being deployed in various countries at present and it is expected to be three times faster than 4G [3]. One of the biggest challenges however has been the inability to effectively ensure that subscribers and users are provided with quality services based on internationally approved Quality of Service (QoS) standards and parameters [1] [4].

The first mobile cellular telephony service in Ghana was launched in 1992 by Tigo (previously Mobitel Ghana Ltd.). Their services were based on an analogue telephone system which gradually became obsolete. To promote growth and expansion in the industry, the National Communications Authority (NCA) issued several licenses to operators including Scancom (MTN), Ghana Telecom (now Vodafone), Kasapa (now Expresso), Westel/Zain (now Airtel) and Globacom (Glo), to provide services based on the evolved technologies. There is currently a total of six licensed Mobile Network Operators (MNO) in Ghana (NCA Industry Report, 2013). The NCA award category of licenses called the Broadband Wireless Access (BWA). The licensees under the BWA Framework were Surfline Communications Limited, GoldKey, Broadband Home (Zipnet) and Blu Communications [5].

The study identified some key challenges that are impacting on the levels of service quality including Poor coverage and low levels of customer engagement that leads to general dissatisfaction amongst subscribers. Poor and inadequate infrastructure such as terrestrial fibre coverage, tower availability, high cost of electric

power. High costs of IP transit connectivity on the part of service providers. Lack of enforcement of regulatory and compliance standards as defined by the licenses and authorizations awarded to service providers by the NCA [5].

This paper aims to identify the impact of service quality on mobile broadband internet service that is being provided by subscribers in developing economies. To achieve the applicability of the work, the paper identified some key challenges that are impacting on the levels of service quality including poor coverage and low levels of customer engagement that has to general dissatisfaction amongst subscribers. A case study was used. A cross-sectional survey was implemented to determine the impact of services quality on mobile broadband internet services provision. A SERVQUAL model was used to generate the questionnaires. A stratified random sampling technique was used to analyze the data. The results show that total quality can be implemented to improve mobile broadband usage using a structured survey to determine consumer perceived quality.

## 2. RELATED WORKS

This section seeks to discuss the state of the art and related works in relation to the provision of service quality to mobile broadband consumers. The paper emphasis on several works that are relevant to the study provides include, service quality concepts, service quality models and current trends in global mobile business as well as the correlation between customer satisfaction and poor service delivery.

### 2.1 Service Quality

The ITU-T Rec. E. 800 defines Quality of Service (QoS) as a collective effect of service performance which determines the degree of satisfaction of a user of a service. Service quality has a profound effect on customer satisfaction, with user expectations and value for money for specific services [6]. There are existing works that considered the impact of service quality and customer satisfaction [7] [8] [9]. However, none of the concepts has been considered to have been effectively used on developing economies and as models to measure service quality. The concepts of service quality differ based on consumer perceptions and the nature of organizational goals [10] defines service quality is a measure of how well the service delivered meets or matches with customer expectations. Delivery of quality of service is conforming to customer expectations consistently [4]. The ITU-T Rec. E. 800 details and provides an overview of the factors which collectively contribute to the overall quality of service as perceived by a subscriber [6]. The case study considers the operator's views of the MNOs and BWAs regarding network performance as a constituent part of service quality [12]. Network performance from ITU-T recommendations is regarded as a standard concept by which the network characteristics and service providers can be defined, controlled, and measured to achieve a satisfactory level of service quality. The standard identifies two requirements: the network infrastructures encompasses the radio signals, the terminals or devices used, fibre lines, switches. The organization or service providers, operators or services providing the cellular data service including data centers.

### 2.2 Service Quality Models

Service quality models are an important factor when formulating strategies for corporate image, marketing stance and financial performance. Service quality models have been used to determine the correlation between customer satisfaction, behaviour and retention leading to long term profit. Lehtinen and Lehtinen (1982) proposed three models: SERVQUAL model, Nordic model and Hierarchical models that are used to measure service quality across multiple service areas [4] [13]. These models are used as determinants for corporate quality that considers service providers image or brand profile. Physical quality that considers the physical infrastructure and equipment. The interactive quality considers the service providers interactions with consumers. The study briefly discusses the models as follows.

The SERVQUAL model was proposed by [4] to measure the level of quality in service delivery across sectors. The model was developed to evaluate perceived quality and customer expectations of quality along the service delivery value chains. The model consisted of ten key tenets that sought to measure the gap between customer expectations and experience. The proposed five key tenets that support a high correlation of service quality and customer satisfaction namely Responsiveness, Assurance, Tangibles, Empathy and Reliability (R-A-T-E-R) as the basis of service quality [4].

- a. Responsiveness: defines a willingness to help customers through prompt service responses
- b. Assurance: defines the courtesy and knowledge of employees in conveying a measure of trust and confidence to customers

- c. Tangible: defines the appearance of the physical entities of the organization such as buildings and equipment
- d. Empathy: showing care and concern for the customer's needs
- e. Reliability: providing the requested service in a dependable and accurate manner

The Nordic model was developed by [14] to evaluate service providers total perceived service quality and customer experienced quality with defined expectations. The model considers two key components functional quality and technical quality. Functional quality involves the mode of service that is been delivered and technical quality that considers defining what the customer receives. [REF]. The model was generic and did not offer techniques on measuring the functional and technical aspects of quality.

The Hierarchical model was proposed by Brady and Cronin (2001) as an improvement to the SERVQUAL model. It emphasized more specifically on what was required to be reliable, assured, tangible, empathic and responsive to the customer's satisfaction. The model combined concepts of the refine Nordic Model by considering the perception of service quality based on customer evaluation in three dimensions. These are Interaction Quality (functional quality), Physical Environment Quality and Outcome Quality (technical quality).

### 2.3 Global Mobile Business Trends

The use of mobile phones has increased exponentially especially during this pandemic. Major transformations leading to accelerated growth in services, mobile content and a broad spectrum of devices has driven consumer usage and behaviour resulting in increased revenues for operators [16]. A reported by GSMA (2016) on mobile economy indicates a global mobile subscriber growth rate has increased to more than two thirds of the world's population to mobile services represents 4.8 billion subscribers [17]. It is projected that by the year 2020, about a third of the world's population would be subscribed to some mobile service which would translate to about 5.7 billion people. Penetration rates are estimated to rise by about 50% in Sub-Saharan Africa from the current 35%, while Europe is forecasted to be at 87%. [16]. The world has experienced a steady increase in the total number of operators launching 4G services, leading to an uptake in 4G subscribers which is generally driving a surge in the adoption of mobile broadband services. Of the 4.8 billion unique subscriptions recorded in 2016, about 55% of them were driven by 3G and 4G connections. It is projected that unique 4G connections alone would jump from the current 23% to 41% by the year 2020. As has been the trend from the year 1990, the technology evolution would continue with the rollout of 5G services by operators worldwide.

There are currently developments and ongoing trials for the deployment of 5G networks. That will present a major shift in the design of cellular data networks by operators considering the high-speed capabilities of 5G and its suitability to IoT (Internet of Things) driven innovations. Forecasts show that 5G networks would cover a third of the world's population by 2025 with an adoption rate of 1.1 billion unique connections. This growth would be coupled with an extensive rollout of additional value-added services for subscribers. Operators are gradually being forced to engage in price cuts or reductions to stay competitive with the market while not necessarily driving their revenues up [3].

The study is based on the premise that user perceptions of service quality evolve and are based on perceived user experienced measured against user expectation for the same service over a period of time. Customer needs and expectations change constantly with a desire for improvement in levels of service quality being offered.

## 3. APPROACH

This section discusses the approach used for the paper. A cross-sectional survey was implemented to determine the impact of services quality on mobile broadband internet services provision. The sample space used for this study comprised of approximately 500 Busy Internet subscribers and employees [18]. Of the number of 500 questionnaires that were distributed, 320 responded. However, 20 of the respondents did not complete the questioner properly inline with the study objectives. A non-probabilistic sampling and a stratified sampling technique were used to select the respondent from 80,000 unique subscribers with a 30-day active ratio of about 65%.

### 3.1 Research Design

Structured questionnaires and scheduled interviews were used to gather data from consumers would form the basis for the data collection. The targeted survey participants include both consumers and employees of the data service providers. The questionnaire consisted of two sections. Section 1 elicited respondents demographics and section 2 comprises of the nature of service quality being offered by the subscribers.

The study answers the following questions. What are the various levels of service quality provided by data service providers? What constitutes the challenges faced by data services providers in providing quality services to consumers? What is the impact of poor service quality on consumers, businesses and the economy?

### 3.2 Research Approach

The study adopted the SERVQUAL model [4] with modifications made to suit the targeted audience space. Busy internet was used as the case study. The sample space used for the study comprised of approximately 300 BusyInternet subscribers and employees. The study sought to establish the impact on operators in the case of poor data service delivery. BusyInternet as at the time of the study had close to 80,000 subscribers [4]. The sample space selected consisted of a mix of segments as deployed by BusyInternet. The questionnaires were developed using the 5 dimensions of the SERVQUAL model (Responsiveness, Assurance, Tangibles, Empathy and Reliability), which are further broken down into 22 attributes was employed in the structuring of the survey [4].

### 3.3 Data Gathering & Analysis

The data gathering was conducted through a face-face contact with mobile device users. In all, 300 questionnaires were given out. Primary data was gathered using structured questionnaires and random sampling. Secondary data were gathered through online sources including articles, journals, publications, books websites, catalogues. The questionnaire was put to a trial run by pre-testing using thirty (30) subscribers selected at random. Each selected sample respondent responded, giving valuable inputs that led to changes and amendments in the proposed questionnaire before it was finally administered to the selected sample space. A five point Likert scale was used to collate the data as 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree and 1 = Strongly Disagree.

The data was analyzed using the stratified random sampling technique. Microsoft excel was as the data analysis tool for study. The analysis focus on the overall service quality as perceived by consumers. Comparisons were made from responses gathered, the results of tests on data service quality. The frequency distribution provides the number of respondents that answered the questionnaires.

## 4. RESULTS AND ANALYSIS

This section provides the results and analysis of the data gathered. As discussed in section 3, the data were structured into three main sections for the analysis. The analysis will address the following questions. What are the various levels of service quality provided by data service providers? What constitutes the challenges faced by data services providers in providing quality services to consumers? What are the impact of poor service quality on consumers, businesses, and the economy?

Table 1 indicates that internet users across most operators are predominant for users in the age bracket of 18 to 45 years. This trend indicates the increase in internet usage dues to the increased in social media usage and online learning. Most schools and universities are shut down due to the COVID 19 pandemic. That has led to most academic institutions adopting the online learning platforms, organizations and businesses are working from home using remote access that requires extensive mobile broadband usage. Further, the table provides a breakdown of the age arrange of the 300 the residence and an idea of the possible amount of money they may spend on mobile data purchases from the subscribers and their expectation of quality based on how much they are paying for the service. From table 1, it can be seen that 43 (14.33%) of the respondents were below 18 years, 146 (48.67%) were between 18 and 30 years, 87 (29%) were between 30 and 45 years and 24 (8%) were above 45 years.

Table 1. Distribution of Ages by Range

Age Range	Frequency	Percentage
Below 18 years	43	14.33%
18 – 30 years	146	48.67%
30 – 45 years	87	29.00%
Above 45 years	24	8.00%

#### 4.1 Distribution by Educational Background

Table 2 breaks down the respective educational backgrounds of the various respondents. In terms of educational backgrounds, the respondents had attained several levels with the most falling in the category of University/HND or Tertiary Degree. These account for 161 (53.67%) of the respondents. It can be seen from the table that 24 (8%) have JHS Certificates, 66 (22%) with SHS Certificates, 21 (7%) with Diplomas and another 28 (9.33%) with other educations qualifications, which included artisanal or some forms of technical training. The rationale for the data was to indicate the relevance of the usage of mobile data of students due to the increase in online learning. The data will provide further information on monthly expenditure.

Table 2. Respondents Educational Background

Educational Background	Frequency	Percentage
Junior High School / JSS	24	8.00%
Senior High School / SSS	66	22.00%
Diploma / professional post SHS Certificate	21	7.00%
University /HND or Tertiary Degree	161	53.67%
Other	28	9.33%

Table 2 provides an overview of respondents that spending power to purchase an average of about \$25 per month on mobile broadband services. This is referred to as ARPU (Average Revenue Per User). ARPUs for pure mobile broadband operators are higher than normal mobile voice telephony services which hover around \$4 - \$8 per month. This data infers that most mobile broadband operators enjoy the chunk of their revenue from this customer segmentation. The SOHO and Corporate segments offer very high ARPUs of about \$500 per month, thus it becomes necessary for any operator to ensure they receive quality services.

#### 4.2 Distribution by Mode of Access

Figure 1 provides the distribution mode of mobile data on the 4G device respondents used in loading data for accessing the network. Data shows that mobility is key for the 4G subscribers of Busy hence the high number of MiFi users. The MiFi is a portable pocket-sized WiFi enabled device that can connect mobile devices and provide mobile broadband data. Most of the customers are a young or workers who are usually on the move and require access to the internet for various needs and services such as accessing e-mails, posting advertisements, social media engagement and general online business activities. USB Dongle uses were only 8 respondents with 3%. Mifi uses were 219 with 73%. Respondents with smartphone uses were 34 with 11%. Further, respondents with indoor routers were 22 with 7% and finally, respondents with outdoor router were 17 with 6%.

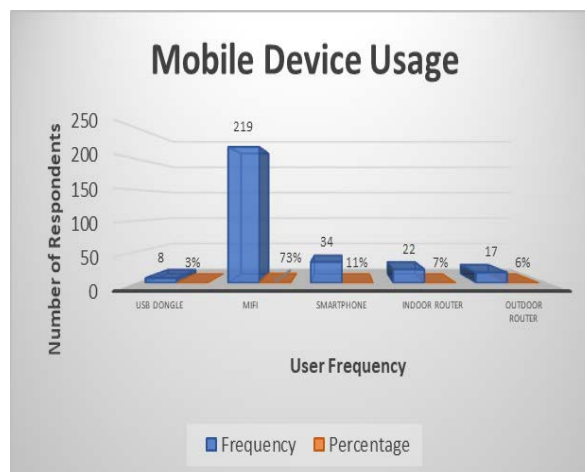


Figure 1. Distribution by Mode of Access

Several limitations impacts on the distribution of mode of internet services that are contributed to the service quality being provided to the consumers. These factors include limited footprints, lack of response from the respondents, and population of the surveyed area used to ascertain the impact of poor data service delivery by Busy Internet Mobile Broadband Internet Providers.

- a. Busy Internet as a service provider has limited coverage footprint, which spans from Kasoa to Prampram in the Greater Accra Region. That means the survey cannot be carried out on a nationwide scale. However, the views expressed by respondents are reflective of general data consumers in the country.
- b. Not all subscribers approached were willing to respond to the survey. This is normally the case when it comes to mobile subscribers across the telecom industry. Some would consider requests to participate in surveys as spam and lack of trust in the service providers, hence not participate at all.
- c. The study was limited to a population of 500 subscribers' due to challenges with access to subscribers and financial constraints in reaching out to more.
- d. The challenges of carrying out field tests in support of the user perception data which was gathered from the data collection process.

Due to these challenges and limitation, some engineers of Busy Internet were included in the survey process to provide quality and subjective expert opinion.

#### 4.3 Distribution by Internet Data Usage

Respondents were asked for information on their internet activity through the various means of access earlier written about. From data, Figure 2 indicates that the use of social media ranks highest in the internet data activity of respondents, making up 20.55%. Activities such as accessing of news (8.35%), connecting with family & friends (14.85%), data voice & video calling (12.76%) are some of the most frequently accessed services with the available internet.

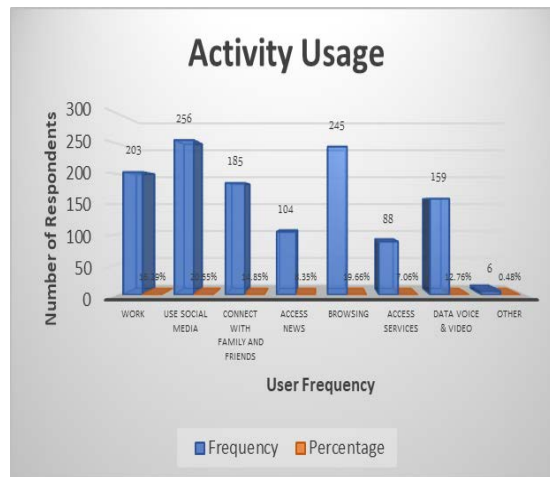


Figure 2. Distribution by Internet Data Usage

**A. What are the various levels of service quality provided by data service providers?**

4.4 User Perception of Service Quality

To assess the perception of service quality for mobile broadband users, it is essential to analyze all the elements that work together to create the quality of service for a subscriber. These include the number of years each user has been with the provider, excellent network coverage and reach, ease of access to top-up or purchase points, contact centre engagement satisfaction and the perception of speeds of their data service. The study considers the number of years each user has used the service provider. the number of years respondents have been subscribed to broadband services from Busy. Most of the respondents have been with subscribers for up to two years with a combined percentage of 91.67%. The remaining 8.33% are corporate or business customers who have been subscribed to Busy for upwards of 3 years. These customers were primarily WiMAX subscribers on the old Busy technology platform.

4.5 Perception of Mobile Broadband Service Quality

Table 3 analysis the perceptions of the mobile broadband service quality that is being a provider to the consumers. The respondents were asked to provide their views on their perceived levels of service quality that is been as offered by Busy Internet. Of the 300 respondents, 11.33% indicated they enjoyed excellent service quality meaning they had excellent coverage, excellent access, ease of top-up and recharges amongst other measuring parameters. Further, 28.33% of the respondents indicated overall mobile broadband service quality was ‘Very Good’, 42% indicating ‘Good’, 14.67% indicating ‘Poor’ service and 3.67% indicating ‘Very Poor’ service. The perceptions of the respondents were critical in ensuring service quality, the increase is customer base, trust, and economic growth. That goes to explain the concepts used in the SERVQUAL model [4]. As discussed in 2.2, the proposed five key tenets that support a high correlation of service quality and customer satisfaction namely Responsiveness, Assurance, Tangibles, Empathy and Reliability when applied well in service delivery creates trust between consumers and the mobile broadband service provider.

Table 3. Perception of Mobile Broadband Service Quality

Overall Mobile Service Quality	Frequency	Percentage
Excellent	34	11.33%
Very Good	85	28.33%
Good	126	42.00%
Poor	44	14.67%
Very Poor	11	3.67%

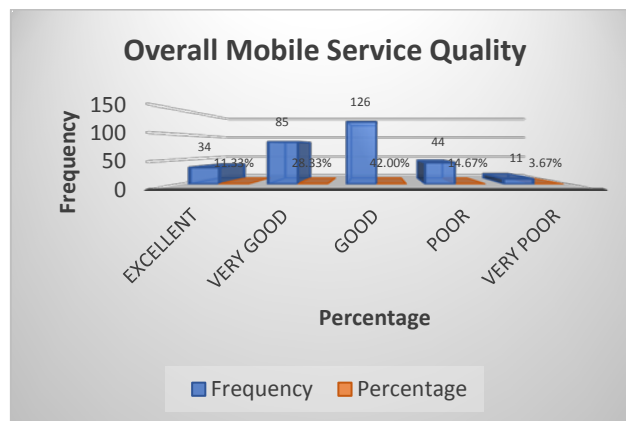


Figure 3. Perception of Mobile Broadband Service Quality

**B. What constitutes the challenges faced by data services providers in providing quality services to consumers?**

**4.5 User Satisfaction Analysis of various Service Quality Indicators**

Figure 4 analyses the level of satisfaction of users based on the various indicators that contribute to service quality. Network coverage is a very essential component in providing quality service for mobile broadband services. It is an important consideration for the dimensioning of all mobile broadband networks. Emphasis is placed on the expected levels of coverage to be expected in indoor and outdoor scenarios as this plays a huge part in the speed of services offered. As a rule of thumb, most operators would dimension their networks such that subscriber at cell edge would enjoy at a minimum 512kbps which is sufficient for the minimum. Figure 3 indicates that 18.67% of subscribers are ‘Very Satisfied’ with the coverage levels received from Busy. Another 53% of respondents are ‘Satisfied’ with their coverage. To translate this to an actual measure, it means their signal levels would range between -80dBm and -95dBm, which in layman terms shows as 3-4 bars on the signal indicative of a mobile device. The percentage of ‘Dissatisfied’ (10.67%) and ‘Very Dissatisfied’ (3%) are those respondents who reside or use the service in areas of very bad coverage which cannot guarantee a good level of service quality. Figure 4 is a graphical representation of the coverage simulation of BusyInternet coverage area.

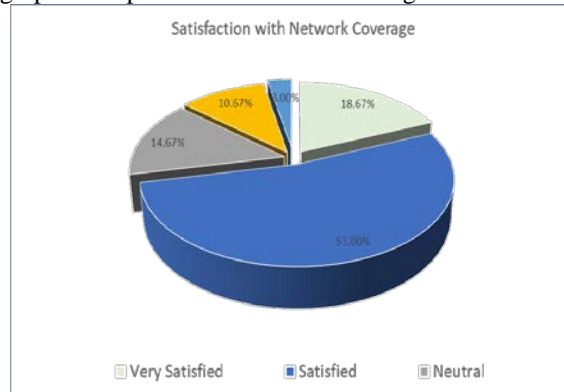


Figure 4. User Satisfaction with Network Coverage

**4.6 User Satisfaction with Data Service Quality**

Figure 5 breaks down the user satisfaction levels of respondents concerning the quality of data service they enjoy from Busy. Satisfaction the quality of data service has to do with the customer’s ability to have fast uninterrupted and stable internet to carry out the set of activities earlier stated. The satisfaction of respondents with data service quality was as follows: 15.74% were ‘Very Satisfied’, 44.68% were ‘Satisfied’, 21.34% were ‘Neutral’, 13.04% were ‘Dissatisfied’ and 4.6% were ‘Very Dissatisfied’.

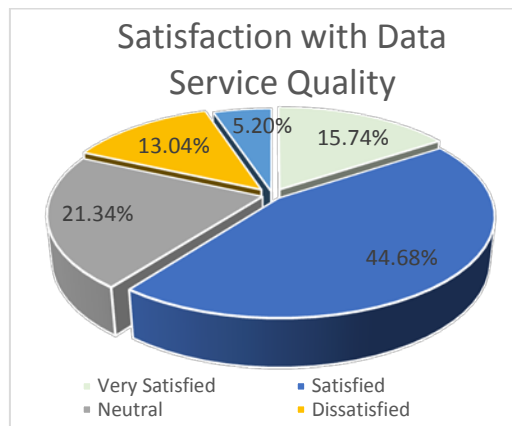


Figure 5. User Satisfaction with Data Service Quality

**C. What are the impact of poor service quality on consumers, businesses, and the economy?**



### 7.7 User Satisfaction with Contact Centre Engagement

Contact centres provide essential user satisfaction and customer engagements in addressing or resolving customer complaints, the user or product enquiries. These include call centres, retail shops, customer care and centres. How promptly a customer’s issue is addressed by the contact centre plays a key part in the customer’s satisfaction levels. Some operators contact centre telephone lines are not toll-free which means users end up paying for the cost of calls when they call these contact centres. It then becomes necessary for the operator to ensure a reduction in waiting time in call queues before customers are attended to by contact centre agents. Hence, waiting time is a key satisfaction metric among customers. Figure 6 provides results of the level of satisfaction of respondents with the contact centres response whenever they call for assistance were distributed as 35.65% were ‘Very Satisfied’, 31.27% were ‘Satisfied’, 17.38% were ‘Neutral’, 11.34% were ‘Dissatisfied’ and 4.36% were ‘Very Dissatisfied’. This analysis considered the concepts in [4] to determine the overall customer engagement and satisfaction with the contacted centres.

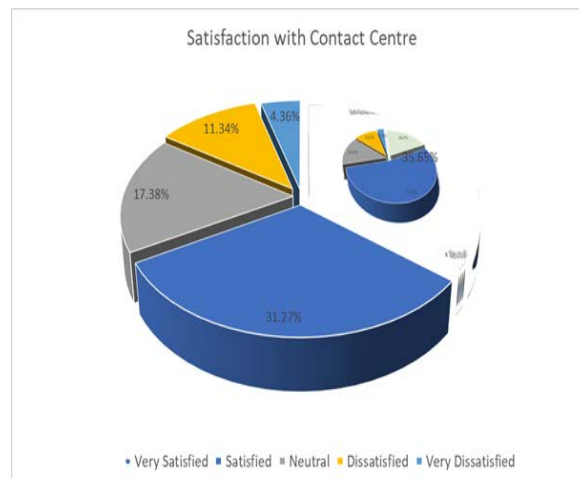


Figure 6. User Satisfaction with Contact Centre Engagement

## 5. DISCUSSIONS

There are several issues and challenges that have combined to impact on the service quality of mobile broadband services in the industry. Discussion regarding data gathering was organized among the staff of Busy Internet (technical & non-technical). There were interviewed and engaged to gather their perspective on the challenges they perceive to contribute to service quality challenges in the industry. Additionally, inputs were sought from the regulator on the same issues to determine the impacts as follows. Insufficient network infrastructure usually comes at very high costs for network operators. These include the cost of tower build, active network equipment (antennas, base stations), passive network equipment (grid and off-grid power), data centre (costs and equipment). Unfortunately, after investing CAPEX (Capital Expenditure) in these infrastructures, most operators are not able to generate enough revenue to cover the capital costs and the running operational costs. That means as subscribers on the network increases, the network is not expanded in line with the growth to ensure there are no issues with congestion or capacity bottlenecks. That causes a degradation in service quality because there would be inadequate coverage and capacity to support the numerous subscribers to the services of the operator.

Frequent disruptions in transmission networks from using traditional microwave transmission medium in connecting sites to the use of underground fibre. Damage to the fibre could result in a loss of transmission and access to essential network resources which impact on the disruption of services to subscribers. Instability in the power supply due to power outages result in loss of service to subscribers as the network infrastructure supplying the service are reliant on the grid power. Operators are forced to run on alternate power sources such as generators which run on diesel at very prohibitive costs.

Natural conditions from heavy rainfall, thunderstorms and severe harmattan impact on the wireless systems run by the operators are highly susceptible to these natural conditions resulting in disruption of services. For instance, wireless microwave links which provide transmission between network nodes tend to go off during heavy rains or thunderstorms resulting in a disruption in services, thereby affecting the quality of service. The quality of mobile devices and handsets used by subscribers are also factors that could impact the quality of service. Regulator indifference in enforcing quality directives to effectively managed the quality requirements set out in the licenses and authorizations to operators is lacking. Some operators have been fined heavily for failing to meet certain thresholds set out by the regulator. More emphasis must be in place to ensure that operators are held accountable for not meeting service quality standards.

The study has shown that the impact of service quality challenges is not limited to subscribers only. Service quality challenges impacted greatly on mobile broadband providers as they experience a significant downfall in revenue when they fail to provide quality services to subscribers. The main impact areas include Revenue Loss, High Operational Costs, Regulatory Sanctions & Penalties and loss of faith in the brand. The data collected and the ensuing analysis gave a very good insight into the perspective of consumers on what they perceive in terms of service quality.

Data that were collected and analyzed indicated that 63% of respondents were dissatisfied with the quality levels being provided by the mobile broadband service providers. These respondents enjoyed excellent coverage, network access and availability and good response from contact centres when required. A combined 33.34% were either dissatisfied or very dissatisfied with the quality of service being provided by the subscriber, emanating from poor coverage, lack of access and poor contact centre experience. A combination of other factors also contributes to the perception of poor quality. These include latency, multiplexing, slow or bad internet service within a coverage area, data drops when making voice or video calls, fast dissipating or disappearing bundles and a general lack of outlets or education on bundle recharge points or procedures.

The results provided an idea into what most subscribers used the mobile broadband services for. Most indicated using it for learning, work activities or for connecting with social media hence not having quality services affected them severely.

## 6. CONCLUSION

The study has discussed the impact of service quality on mobile broadband internet service on consumers from developing economies perspective. Further, the increase in demand for mobile data has also led to an increasing number of complaints of poor service quality of mobile broadband services delivered by the various operators. These challenges have led to the study of identifying and analyse the causes. To achieve that, the study identified some key challenges that are impacting on the levels of service quality including poor coverage and low levels of customer engagement that leads to general dissatisfaction amongst subscribers. Poor and inadequate infrastructure such as terrestrial fibre coverage, tower availability, high cost of electric power. A cross-sectional survey was conducted to determine the impact of services quality on mobile broadband internet services subscribers. The analysis focus on the overall service quality as perceived by consumers. The paper has addressed the various levels of service quality provided by mobile broadband data service providers, the challenges faced by data services providers in providing quality services and the impact of poor service quality on consumers, businesses and the economy. The results indicate that poor quality of service, inadequate network infrastructure, frequent disruptions in transmission networks, and damage to the fibre cables are the main factors impacting on mobile broadband service provisions. Future works will consider the deployment of 5G technology in developing economies. The study will consider the implication, infrastructure challenges and the issues of service quality after deployment.

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