

# Effectiveness of Cellphone Banking on Service Quality in Commercial Banks in Botswana

Douglas Chiguvi

Marketing Management Lecturer & PhD Candidate, Department of Entrepreneurship,  
Ba isago University, P. Bag 149, Gaborone, Botswana

**Abstract:** *The study was to analyze the effectiveness of Cellphone banking on service quality at commercial banks in Botswana in relation to customer satisfaction and customer loyalty. The primary objective was to determine the effectiveness of cellphone banking on service quality attributes at FNB bank as well as to determine how it is impacting on customer loyalty in terms of repeated use of cellphone banking and customer satisfaction of the cellphone banking users. The study was descriptive in nature and a sample of 200 cellphone banking users was drawn from five FNB Bank branches located in Gaborone, capital city of Botswana. The study adopted the EbankQual model to measure the effectiveness of cellphone banking on service quality. Data collected was analyzed using statistical analyses software package, SPSS version 20 in order to determine the service quality levels of the FNB cellphone banking facility based on ten service quality dimensions derived from the EbankQual model, a service quality scale for electronic mobile banking services. Service quality of cellphone banking was determined from the measures of central tendency. To determine the relationship of EbankQual attributes on customer satisfaction and loyalty, a regression analysis was done and the findings showed that there is a strong positive relationship between EbankQual attributes and customer satisfaction and there is a weak positive relationship between service quality and customer loyalty. It was concluded that an increase in the FNB cellphone banking service quality would result in customer satisfaction whereas it may not have any significant impact on customer loyalty. It was recommended that FNB should promote cellphone banking services through wider network coverage in order to attract more cellphone banking users. Finally it is recommended that further research be undertaken to measure effectiveness of cellphone banking on other banking performance indicators like profit, sales and market share.*

**Keywords:** Cellphone banking, Service quality, EbankQual model, Customer satisfaction

## 1. Introduction

Banks in developing countries are increasingly relying on innovative technologies such as cellphone banking, landline telephone banking, internet banking and automated teller machine (ATM) banking to penetrate existing markets and to create new markets (Berndt et al., 2010: 47). In the banking industry, innovative technology-based products and services such as cellphone banking, landline telephone banking, internet banking and automated teller machine (ATM) banking are not only seen as innovative technologies for providing financial services to existing bank customers, but also essential technologies in expanding the provision of banking products and services to poor consumers who are generally 'unbanked'. In particular, the cellphone is seen as an important technology in expanding the provision of financial services to the 'unbanked' population (Leach, Beghin, Pickens & Moran 2007).

According to (Zee and Han 2002), Information Technology is not only critical in the processing of information, but it also provides a way for the banks to differentiate their products and services hence the emerging of the various platforms of electronic banking in Botswana since the late 90s as marked by the introduction of ATMs, Point of sales, the Card system, Cellphone banking, Online banking and Internet banking. Cellphone banking is one of the latest technologies of delivering banking services in Botswana. It was first introduced in the Botswana banking sector in 2004. However, since its introduction, its adoption in the Botswana banking sector has remained sluggish despite the convenience it brings to both the customers and the banks themselves. Cellphone banking is a mobile technology that

the user used to request and receive banking information from his/her bank on the mobile phone via short message services. Cellphone banking services allow customers to carry out banking transactions such as balance enquiries, ordering cheque books, completing funds transfers, using mobile devices. On the other hand the services provided by Cellphone banking include account balance enquiries, transaction inquiry, cheque status inquiry, password change, intra bank transfers, request bank account mini statement, SMS alerts and so many services. The mobile money offers bank enormous potential as a service channel because of their ubiquity, and mobile banking can help banks to retain existing technology-savvy customers by providing value-added, innovative services whilst at the same time attracting new customers (Tiwari and Buse 2007).

Customers are not entirely satisfied with the quality of service provided by commercial banks in Botswana. Queuing time is considered reasonable at ATMs but too long in banking halls (The survey on the quality of banking services 2013 by Bank of Botswana as reported in the Botswana Gazette). It seems that part of the dissatisfaction of customers' stems from the fact that customers are not aware and knowledgeable about the full range of e-banking services provided by banks. The decline in the quality of banking services may be attributed to the fact that there has been an increase in the volume of banking transactions. Therefore, this is a clear-cut indication that commercial banks have to put in more effort into e-banking services to improve the satisfaction of their customers. Customers in developing countries seem not to trust cellphone banking due to lack of physical contact. It has also been found that older users especially in Africa have usability problems with texting on mobile phones (Kurniawan, 2008; Peeverset *al.*,

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2008). Older users have been found to be passive users of mobile phones, and can find the process of text messaging intimidating (Kurniawan, 2008). The above challenges seem to be among the real challenges which are also slowing down the adoption of cellphone banking in Botswana. Poor mobile network is another challenge which seems to compromise service quality in cellphone banking. For example, SMS technology in Botswana does not guarantee set transmission times or guaranteed delivery of the message, therefore, some messages may be delayed, blocked or lost, hence increasing customer dissonance. As a result, there has been a slow acceptance of cellphone banking by customers in Botswana causing them prefer the traditional means of banking to SMS banking. Therefore, long queues, signing of bank slips and manual balance enquiring still characterizes banking in the commercial bank sector in Botswana. Customers are still walking to the banking hall to make transactions like balance inquiries, making intra bank transfers among other services. Inside the bank, customers are still filling deposits and withdrawal slips which are time consuming and wasting of resources. Customer trips to the bank are still frequent and waiting time in teller queues is long. Hence, the application of mobile banking strategies and techniques has become a subject of fundamental importance and concern to all commercial banks and indeed a major determinant of service quality, customer satisfaction and ultimately customer loyalty. It is against this background that this study seeks to analyze the effectiveness of cellphone banking on service quality using the EbankQual model.

## 2. Conceptual and Theoretical Literature

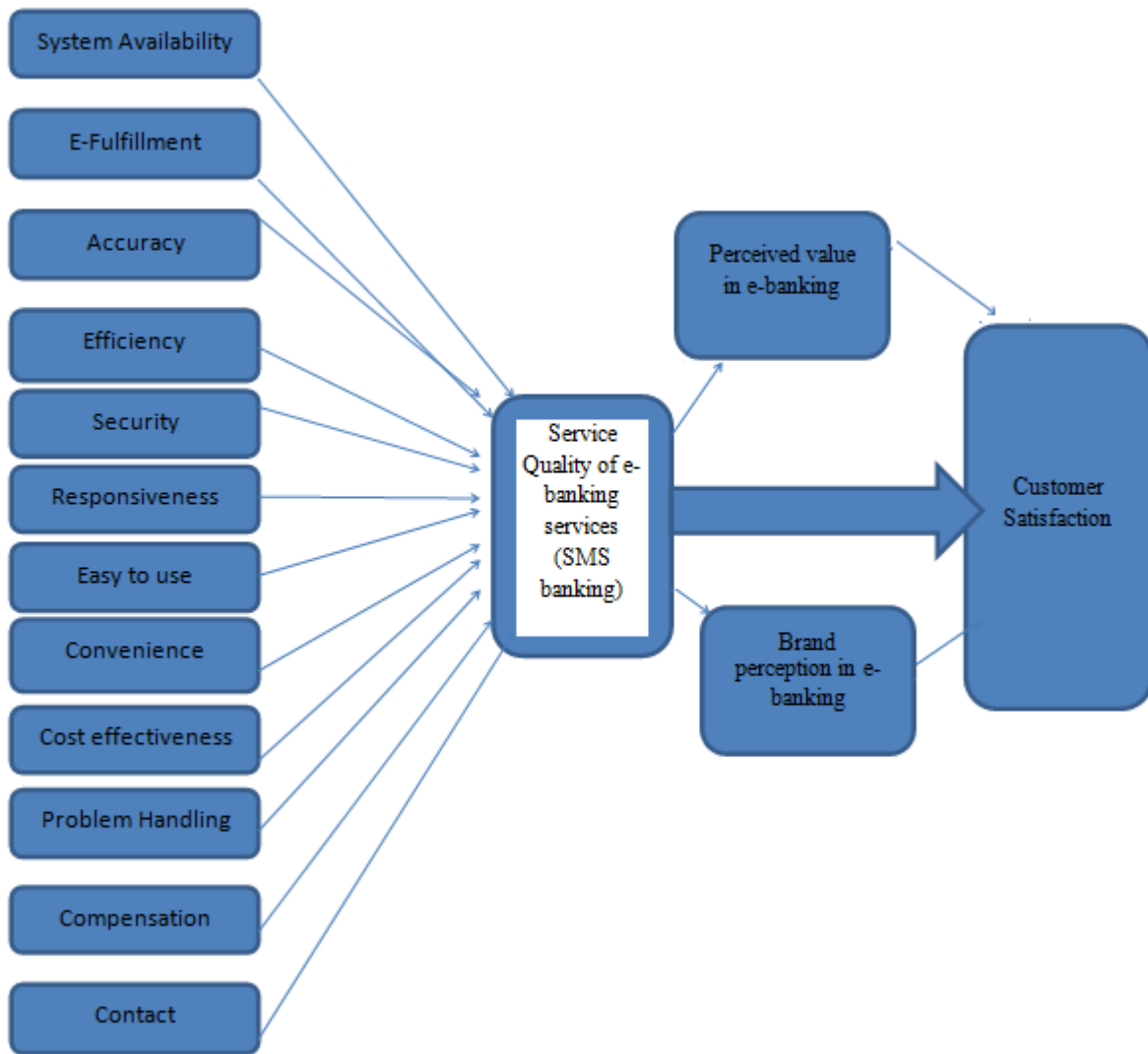
### The EbankQual Model

The EbankQual model is a service quality measurement scale that was first invented by Jayawardhena (2006) with only five dimensions of e-service quality i.e. Access, Web interface, Trust, attention and Credibility but these were not sufficient dimensions to examine service quality of electronic banking services. Therefore, based on prior studies and adding some additional factors, Kumbhar (2010) developed the revised EbankQual scale based on 12 service

quality dimensions along with brand preference and perceived value. A model –EbankQual” was developed after critical reviews of exciting literature and prior scales available to assess service quality and customer satisfaction. It is realized that, there is no any particular scale available to assess service quality and customer satisfaction in e-banking services. Therefore, EbankQual was developed in order to determine e-service quality, understand significant predictors’ of customer satisfaction in e-banking services and their relationship with customer satisfaction. The model clarifies how customer perception relating to e-banking service quality, brand and value interact with satisfaction. However, the central construct in this study model is to measure the effectiveness of cellphone banking services on service quality at FNB Bank using the EbankQual model. The model identifies the significant predictors of e-service quality and customer satisfaction in e-banking services. The 12 predictors or determinants of e-service quality of this model comprise of the *system availability, e-fulfillment, efficiency, accuracy, security, responsiveness, security, and convenience, ease of use, cost effectiveness, problem handling, compensation and contact*. However when measuring customer satisfaction using the model, brand preference and perceived value are independent variables (Kumbhar, 2012).

The EbankQual is a new development in the field of e-service quality and has not gained much popularity in the research field. However, Kumbhar (2010) carried out a study on internet banking services in order to determine the service quality and also assure the reliability of the model (Kumbhar, 2012). Results of this study indicated that, all proposed dimensions of EbankQual scale are reliable and have appropriate consistency. Therefore author recommends that, EbankQual scale has good psychometric properties based on findings from reliability and validity tests and it is useful to assess service quality of e-banking services and customer’s satisfaction in this study. The table to follow illustrates the service quality dimensions of the EbankQual scale according to Kumbhar (2011).

Table 1: The EbankQual Model



Adopted from Kumbhar (2011): 'Reliability of the EBANKQUAL scale: Retesting in internet banking', *Journal of Business Excellence and Management* Vol. 2, No. (2)

#### The impact of service quality attributes on customer loyalty

In a study by Afshin, Rahmana, Alaei and Hamdam (2012), reliability, empathy, responsiveness and assurance positively affects customer loyalty. The more reliable, assuring and responsive a service is, the more it is likely to enhance repeat purchase or use of a service leading to customer loyalty. However, the aspect of tangibility and empathy are usually applicable in traditional banking and hence some of these findings cannot be generalized to all banking services especially electronic banking services. Ganguli and Roy (2011), postulates that technology easiness and reliability are the most essential elements in mobile services that determines the loyalty of a customer on the service. Therefore, Ganguli and Roy (2011) are of the notion that customers become loyal to the bank only if the technology provided is easy to use. Thus the easier it is, the more the customer is likely to repeat the use of it.

However there is no emerging consensus between the findings of Afshin et al (2012) and those of Mohammad, (2011). Mohammad (2011) argues that tangibility of

banking services has the highest positive impact on customer loyalty whereas 'empathy and assurance' have relatively lower impact on customer loyalty. The result that service quality dimensions have a positive impact on customer loyalty is consistent with the other empirical studies for instance, in a study of retail bank customers in the Netherlands, Bloemer *et al.*, (1998) demonstrated that service quality had a relationship with customer loyalty directly and indirectly. Similar findings were also reported in the works of Bell *et al.*, (2005), Lassar *et al.*, (2000), Bei and Chiao (2006) in Taiwan, Karatepe *et al.*, (2005) in Northern Cyprus, and Mosahab *et al.*, (2010) in Iran.

In a study by Brige (2006), it was realized that the use of e-banking channels in delivering banking services creates a wider platform for customer relationship management on the side of the service provider. Brige (2006) therefore asserts that customer loyalty is not only derived from satisfaction but also on the relationship between the bank and the customer. Therefore a customer is loyal if the mobile banking facility operates as a contact between the two and enhances communication that builds a relationship between the service provider and the customer. However the study also noted that other factors like image prestige, word of mouth and location also determine the loyalty of a customer towards technology based banking services. Therefore Brige

(2006) is of the notion that customer loyalty is determined not only by service quality levels but by customer lack of information on the nature of services that they can get in mobile services.

According to the findings of Lee (2010), customer satisfaction and perceived value are important antecedents of customer loyalty. Lee (2010) therefore, postulates that customer satisfaction affects customer loyalty less than service quality. Thus service quality is a major determinant of repeated use of a service while customer satisfaction plays a mediating role between service quality and loyalty. The findings of Petrova (2010) reports that, service quality and customer's awareness of the mobile service greatly impacts on the customer's perceived usefulness of the facility and their intention to use and adopt SMS banking in the future. Therefore the findings asserts that the higher the levels of perceived service quality and value by the customer the more they are likely to be loyal to the service.

### **The effects of service quality attributes on customer satisfaction**

According to a research by Chung and Kwon (2008) in Korea, customer satisfaction in mobile banking services is highly determined by information and system quality of the service. Information quality being the relevance of the information provided to the customer and is measured on the basis of accuracy, completeness, content need, and timelines of the service information. System and information quality have a positive and significant relationship with customer satisfaction. Furthermore, information presentation quality (color, design and layout of information on the mobile device) does not have a significant impact on customer satisfaction. The research findings postulated that, information presentation quality significantly affects the customer satisfaction levels for the hedonic users of mobile services only.

In a research by Saleem and Rashid, (2011), customer satisfaction in mobile banking services is determined by the mobile banking adoption levels of the service provider. Therefore it was noted that, the higher the level of organizational flexibility associated with its SMS banking adoption, leads to higher levels of customer satisfaction. Saleem and Rashid (2011), also asserts that continuous innovations in the provision of mobile services improves the levels of customer satisfaction. However the findings of this study, concurs with the works of Chung and Kwon (2008) in that functional performance, a measure of system quality of a mobile facility has a positive and significant impact on customer satisfaction levels.

In the study of Ganguli and Roy (2011), customer service, technology security and information quality, technology convenience, and technology usage easiness and reliability are major determinants of customer satisfaction levels in mobile services. However, Datta and Kundu (2012) have a different view. The two asserts that customer satisfaction in mobile services is determined by the performance of some particular transaction, facility of the SMS banking facility that are essential to the user. Thus according to Datta and Kundu (2012), the performance of a balance enquiry, bill payment, debit and credit alerts transactions are major

determinants of customer satisfaction. If one's needs are met by one of the facilities, then they are likely to be satisfied with the overall performance of a mobile facility.

Al Hawary, Alhamali and Alghanim (2011), postulates that service quality impacts on customer satisfaction directly and there is a positive relationship between these variables. The findings concur with those of Muhammad and Hafeez (2012) as they are of the notion that an increase in service quality in banking services results in an increase in customer loyalty.

### **2.1 Service Quality**

Service quality has become a popular area of academic investigation, and has been recognized as a key factor in keeping competitive advantage and sustaining satisfying relationships with customers (Zeithaml *et al.*, 2000; Wang and Wang, 2007). In the services industries, the subject of service quality globally remains a critical one as service providers strive to maintain a comparative advantage in the marketplace. Financial services in general, particularly banks; compete in marketplace with generally undifferentiated services and products, thereby service quality becomes a key competitive weapon (Stafford, 1996). Kotler (2003) and Parasuraman, Zeithaml and Berry (1985) discovered that there is a high correlation between high quality services and high customer satisfaction. This notion has seen banks coming up with various technologies in service delivery so as to improve the quality of services by promoting convenience banking. Customers are no longer accepting floppy quality standards of products and services that were offered in the past (Doyle, 2002). For this reason, Kotler (2003) states that total quality are the key to value creation and customer satisfaction. Research has found that customers' perceived evaluations of service quality have an impact on their level of satisfaction (Clow and Kurtz, 1998). It then follows that according to the two authors, service quality can be defined as the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs. Berry, Parasuraman & Zeithaml (1997) further describes it as "the extent of discrepancy between customers' expectations or desires and their perceptions" while quality is conformance to a customer's specifications and it is the customer's definition of quality that counts. Therefore, service quality is considered as a critical success factor for modern banking services. It has been discussed conceptually as a potential alternative to traditional skills and resources, as well as empirically tested as a potential driver of improving business performance and customer satisfaction (Rapert and Wren, 1998; Newman, 2001; Kang and James, 2004). Hence the introduction of the various electronic means of delivering banking services through electronic means as marked by the introduction of ATMs, internet banking, telephone banking and SMS banking.

### **Technology Enabled Services Quality**

Although the rapid advancement in IT has had a profound impact on the delivery of banking services for the past decade, little research has been done on the quality determinants of e-service quality. The concept of electronic

service quality can be defined as the consumer's overall evaluation and judgment of the excellence and quality of e-service offerings (in this case, cellphone banking) in the virtual market place. Parasuraman (2000) proposed that flexibility, convenience, efficiency and enjoyment are examples of major positive themes of e-service quality. On the other hand, Cronin and Taylor (1992) identified security concerns, risk obsolescence as some of the negative themes in e-service quality. Parasuraman (2000) is of the notion that focusing on e-service quality is the primary concern of electronic services. While quality is relatively easy to measure in physical goods, both customers and researchers have been finding it harder to measure quality in services. Doyle (2002) found three dimensions of customer services process that makes the measurement of quality difficult to measure. He said first, it is difficult to measure e-service quality because is intangible and intangibility means that there are rarely or no physical standards that can be set and measured. Second, heterogeneity means that achieving consistency in standards is particularly difficult and third, the inseparability of production and consumption means that customer participation makes it even more difficult for management to control the quality.

Customers' perceptions of service quality result from a comparison of their before-service expectations with their actual service experience is a measure of service quality. The service will be considered excellent, if perceptions exceed expectations; it will be regarded as good or adequate, if it only equals the expectations; the service will be classed as bad, poor or deficient, if it does not meet them (Vazquez et al., 2001). The same applies to mobile banking services, when a service performance is not as responsive and convenient as before customer tend to build a negative service quality perception. Based on this perspective, Parasuraman, Zeithaml and Berry (1988) developed a scale for measuring service quality, which is mostly popularly known as the SERVQUAL model. The scale operationalizes service quality by calculating the difference between expectations and perceptions, evaluating both in relation to the 22 items that represent five service quality dimensions known as tangibles, reliability, responsiveness, assurance and empathy. Therefore these dimensions are regarded as the determinants of service quality. In 2005 Parasuraman et al developed a multi-item scale for assessment of electronic service quality, which they named as E-s-qual. The four dimensions of e-service quality in this scale were efficiency, fulfillment, system availability and privacy. Furthermore in trying to determine the service quality in e-services, Parasuraman et al (2005) also identified the importance of service recovery in e-services and came up with the E-ResS-Qual scale which consists of three dimensions of service quality; responsiveness, compensation and contact. However despite all the efforts that were made by these quality gurus, none of the scales could fully measure the e-service quality of banking services as some of the dimension (for example tangibility and empathy) developed could not be applicable to banking services. Kumbhar (2010) developed the EbankQual model in order to determine the e-service quality of banking services only.

## 2.2 Customer satisfaction

In the banking industry, a key element of customer satisfaction is the nature of the relationship between the customer and the provider of the products and services i.e. banks. Thus, both product and service quality are commonly noted as a critical prerequisite for satisfying and retaining valued customers. Customer satisfaction is defined as the customer's overall evaluation of the performance of an offering to date (Johnson and Fornell 1991). According to Sivadas and Baker (2000), customer satisfaction is the degree of satisfaction provided by a good or service of a company as measured by the number of repeat customers. Hunt (1977) describes it as the favorability of the individual's subjective evaluation of the various outcomes and experiences associated with using or consuming a service or product. This overall satisfaction has a strong positive effect on customer loyalty (Fornell 1992; Fornell *et al.*, 1996). While customer loyalty refers to the continuity of customers to believe that an organization's products or services offerings remains their best option (Hunt, 1977). As an overall evaluation that is built up over time, satisfaction typically mediates the effects of product quality, service quality, and price or payment equity on loyalty (Fornell *et al.*, 1996). In this situation, customer satisfaction has been regarded as a fundamental determinant in maintaining long-term customer relationship behaviors (Oliver, 1980; Zeithaml, Berry, & Parasuraman, 1997; Athanassopoulos, Gounaris, & Sathakopoulos, 2001; Fornell, 1992; Levesque, & McDougall, 1996). Therefore, enhancing customer satisfaction should be a key driver for banks in maintaining a long term relationship with their customers. Sivadas and Baker (2000) examined that there is an increasing recognition that the ultimate objective of customer satisfaction measurement should be customer loyalty. Mobile services have resulted in banks drawing closer to personalized offers (self-service technologies) and rewards to customers irregardless of location and time. This kind of service helps customers feel valued and reinforces the idea that the bank understands their needs. Optimizing the mobile channel therefore stands to improve the customer experience and ultimately grow loyalty - and profitability (Cronin and Taylor; 1992).

Fornell (1992) found that high customer satisfaction will result in increased loyalty for the firm and that customers will be less prone to overtures from competition. This view was also shared by Anton (1996) who stated that satisfaction is positively associated with repurchase intentions, likelihood of recommending a product or service to other potential users, loyalty and profitability. Loyal customers would adopt the use of a particular service (Anton 1996). Guiltinan, Paul and Madden (1997) also examined that if a customer is satisfied with the service that are offered by a bank he/she is likely to be repeat (and even become loyal) customers to the bank itself or the service/product and therefore they do not think to switch to other service providers. Similarly, Bontis, Lorne and Serenko (2007) examined the causal construct between customer satisfaction and customer loyalty in the North American banking industry and found that there is positive association between customer satisfaction and customer loyalty. Rust and Zahorik (1993) stated that greater customer satisfaction

leads to greater intent to repurchase. According to Anderson and Sullivan (1993), a high level of customer satisfaction will decrease the perceived need to switch service provider, thereby increasing customer repurchase and ultimately enhancing profitability of the organization (Bowen and Chen, 2001). However, Kotler and Armstrong (2006) are of the notion that customer satisfaction on a product or service offering does not automatically lead to loyalty but a satisfied customer is likely to be loyal. The other perspective sees customer complaints as opportunities to create loyalty among dissatisfied customers. Hunt, (1977) provided a relatively clear definition on consumer retail satisfaction (dissatisfaction) which is positive (negative) response resulting from the consumers' feedback of retail experiences. Thus, consumer dissatisfaction or satisfaction is a resulting state of feeling by the consumer after a service provision or product usage which is intrinsic.

The relationship between expectation, perceived service quality and customers satisfaction have been investigated in a number of researches (Zeithaml, *et al.*, 1988). They found that, there is very strong relationship between quality of service and customer satisfaction (Parasuraman *et al.*, 1985; 1988). Increase in service quality of the banks can satisfy and develop attitudinal loyalty which ultimately retains valued customers (Nadiri, *et al.*, 2009). The higher level of the perceived service quality results in increased customer satisfaction. When perceived service quality is less than expected service quality customer will be dissatisfied (Jain and Gupta, 2004). According to Cronin and Taylor (1992) satisfaction super ordinate to quality-that quality is one of the service dimensions factored in to customer satisfaction judgment.

To link the service quality, customer satisfaction and customer loyalty is important. Kumar *et al.*, (2009) stated that high service quality will result in high customer satisfaction and increases customer loyalty. Heskett *et al.*, (1997) argued that profit and growth are stimulated primarily by customer loyalty and loyalty is a direct result of customer satisfaction. Sheth (1971), states that consumers enter into a purchase with certain expectations about a product or a service and satisfaction is the hoped-for-outcome. Those expectations are based on past buying experience, service connotations, word-of-mouth, the firm's promotional material and communication, the competitors' promises, individual persuasibility, perceptual distortion and price. In this context, customer loyalty occurs as a result of customer satisfaction because consumers commit to a certain brand, product, service or organization based on favorable attitudes and behavioral responses (Heskett *et al.*, 1997).

### 3. Methodology

A descriptive research design was applied in this research. The design for the research was more quantitative than qualitative. A qualitative approach was done in a bid to obtain the customers' view and perceptions on how best FNB Bank can improve its cellphone banking services hence derive some recommendations. The quantitative approaches made it easier to collect, quantify, present and analyze the data. A questionnaire have been personally administered on a sample size of 200, with a response rate of 81% chosen on a convenient basis from the customers of five branches of FNB Bank in Gaborone Botswana. The respondents were asked to rate their expectations of cellphone banking services offered by FNB Bank. A five point Likert scale was used. The factors for measuring service quality and customer satisfaction as well as customer loyalty were adopted from a questionnaire designed in a research by Ganguli and Roy (2011). However, all the questions were chosen in line with the study objectives. Generally, service quality is viewed as a multidimensional concept, as clients assess and evaluate a variety of dimensions when considering the services of a firm. Research by Parasuraman *et al.*, (1985) has revealed that, regardless of the type of service, consumers basically use similar criteria in evaluating service quality. These criteria fall into ten key categories, labeled "service quality determinants". These dimensions are in table 1.0: A service quality model, namely EbankQual, was developed by Kumbhar (2011). The ten service quality dimensions and their descriptions served as the basic structure of the service-quality domain, from which items were derived for the EbankQual scale. In this model, ten items are used to measure the ten service quality dimensions, in order to determine effectiveness of cellphone banking on service quality of FNB Bank in Botswana. A pilot study was conducted where the questionnaire was piloted on 17 FNB customers. From the pilot study, 85% (15) of the sample were cellphone banking users whilst the remaining 15% were not. The researcher considered a margin of error with the plus or minus 5% range and a level of confidence of 95%. Therefore the sample size was 200 and 40 cellphone banking users were selected from each branch.

### 4. Analysis and Results

The measures of central tendency (mode, mean, standard deviation, minimum and maximum) were calculated for each of the service quality dimensions of the EbankQual model in order to determine the effectiveness of cellphone banking on service quality at FNB. Table 1.1 below, shows SPSS output for descriptive statistics for the measures of central tendency.

**Table 1.1:** SPSS Output for Descriptive Statistics

	N	Minimum	Maximum	Mean	Mode	Std. Deviation
System Availability	162	1	5	1.64	1	.793
E-fulfillment	162	1	5	2.64	3	1.240
Efficiency	162	1	5	1.84	2	1.120
Accuracy	162	1	5	2.01	1	1.072
Security	162	1	5	2.70	2	1.332
Responsiveness	162	1	5	2.13	2	1.115
Convenience	162	1	5	2.27	2	1.299
Ease of use	162	2	5	3.67	4	.958
Cost Effectiveness	162	1	5	3.94	5	1.341
Problem Handling	162	1	5	2.00	1	1.081
Valid N (list wise)	162					
				2.48		

**Source: Raw data**

*Note: Responses were based on a scale of: 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree or Disagree, 4 = Agree, 5 = Strongly Agree.*

### System Availability

The system availability measure has a mean score of 1.64 and a mode of 1 with standard deviation of 0.793. The mean score of 1.64 therefore denotes that most of the cellphone banking users disagree to the view that the facility is always available beyond regular working hours. The mode score of 1 depicts most of the clients indicated that at times the cellphone banking facility is hardly available. Salkin (2008) postulates that the larger the standard deviation, the bigger the amount of variation between the scores. The observed standard deviation of 0.793 is less than the observed mean of 1.64, therefore, there were no outliers which might have pulled the mean to one end. Hence it can be inferred that there was a consensus among the FNB cellphone banking users that there is no consistency on the availability of the cellphone banking services. Connectivity challenges could be an accountable factor to this outcome.

### E-fulfilment

The observed mean score of the e-fulfilment scale item was 2.64 and a mode score of 3 was realised. The results show that on average the users neither agree nor disagree to the view that the FNB cellphone banking facility provides clients with all the essential banking information they need. Lack of knowledge on what mobile banking services should offer and instability in the performance of cellphone banking services could be factors leading to the failure of the facility to meet the expectation of the user. The observed standard deviation score denotes that the amount of variation between the responses from the mean was 1.240 which shows that there were significant discrepancies in the responses from clients. Lack of system stability may result in the cellphone banking facility performing in either a positive or negative way to different users hence the discrepancies in the responses obtained.

### Efficiency

Efficiency recorded a mean score of 1.84 inferring that clients disagree with the notion that the cellphone banking facility allows for a quick completion of transactions. The mode score of 2 indicates that most of the clients concurred with the assertion above. The amount of variation from the mean score of 1.84 was 1.12 (standard deviation).

### Accuracy

The accuracy factor attained a mean score of 2.01 revealing that on average clients have encountered system errors while carrying out their transactions on cellphone banking. The mode score of 1 shows that cellphone banking users strongly disagree to the view that they have never encountered any system errors on cellphone banking. The observed mean score is almost twice the standard deviation score of 1.072 inferring that on average the amount of variation between responses from the mean was insignificant.

### Security

The mode score of 2 shows that most of the customers disagree to the view that their personal information while using cellphone banking is held private by FNB. However, on average, customers neither agree nor disagree as denoted by a mean score of 2.70. The observed minimum and maximum scores were 1 and 5 respectively which could have accounted for the 1.332 (standard deviation) amount of variation between responses from the mean. However, it can be inferred that most of the users are not aware of the security measure that are taken by the bank in insuring privacy of their transactions and hence the majority neither agree or disagree to the notion that their personal information is held private by the bank.

### Responsiveness

The responsiveness factor realised a mean score of 2.13 and a mode score of 2 with a standard deviation of 1.115. On average there was a consensus among clients in disagreeing to the view that the cellphone banking facility provides customers with prompt responses and feedback upon application. It was therefore noted that FNB is not responding to applications in time. Furthermore, the Cellphone banking facility proved to be slow in providing responses during a transaction due to consistent technical errors. However, the insignificant difference between the mean and the mode is indicative of the assertion above.

### Convenience

The observed measures of central tendency mean and mode scores of 2.27 and 2 respectively are indicative that FNB clients prefer interacting with a bank teller to using the cellphone banking facility. It can therefore be inferred that the clients find it inconvenient to use the cellphone banking

facility and are of the notion that the facility does not provide personalised services. Failure to provide prompt responses and allow a quick completion of transaction could be causal factors resulting to this outcome. The standard deviation score of 1.299 depicts that outliers in the set of scores could have accounted for the amount of variation between responses as some find the facility more convenient than others.

**Ease of Use**

Results show that on average, FNB clients find it easy to use the cellphone banking facility as denoted by a mean score of 3.67. The observed mode score of 4 indicates that most of the clients find it easy to navigate and follow instructions on the cellphone banking facility. While, standard deviation score of 0.958 shows that the amount of variations between responses from the mean is insignificant hence the user agree to the view that FNB cellphone banking is easy to use.

**Cost effectiveness**

The cost effectiveness factor realised the highest mean of 3.94 and the highest mode of 5. The results show that the cellphone banking facility is cheap. The mode score of 5 concurs with the mean score of 3.94 suggesting that the cellphone banking facility is cost effective. The standard deviation of 1.341 shows that the average amount of variation between responses from the mean is significant which might be explained by the discrepancy between the minimum score of 1 and a maximum score of 5

**Problem Handling**

The problem handling factor recorded one of the lowest mean score of 2 inferring that customers are not informed of any system challenges. The observed mode score of 1 therefore shows that most of the customers, strongly disagree to the view that FNB Bank quickly address system challenges. The amount of variation between responses is denoted by a standard deviation score of 1.081 which is insignificant.

An overall mean score of 2.48 (Table 1.1) shows that cellphone banking service quality offered by FNB Bank is poor as the score depicts that on average, cellphone banking users disagreed to the positive views of service quality based on the ten service quality dimensions adopted from the EbankQual model. From the mean scores obtained, it has been noted that the system availability factor realised the lowest mean score which requires FNB to focus on this aspect in order to improve the performance of cellphone banking facility. The previous findings of a study by Trivellas and Santouridis (2010) denoted that security, accuracy, problem handling and convenience are important antecedents of service quality in electronic services. With this in mind, the findings of this research have noted a major gap in these areas with regards to the cellphone banking facility at FNB Bank and hence the low levels of service quality are realised. However FNB Bank needs to attend to other factors like security in order to build trust and confidence within the cellphone banking users. There is also need to address the rate of responsiveness in terms of the cellphone banking system and feedback to cellphone banking applications. Although it has been noted that the cellphone banking is easy to use, it was important for FNB

Bank to ensure that every user has received a user guide. Cellphone banking has been said to be cost effective. However, should the bank aim to enhance customer satisfaction through improvements in service quality, it would make sense if the low charges are associated with stability in the system's availability, good problem handling, convenience, accuracy and e-fulfilment. Therefore ZB Bank needs to address these factors in order to enhance better performance of cellphone banking.

**4.1 Discussions**

**The impact of the cellphone banking service quality attributes on customer satisfaction**

Linear regression was used to determine the impact of FNB cellphone banking service quality on customer satisfaction using SPSS version 20 to compute the regression analysis as follows.

**Correlation between SMS banking service quality and customer satisfaction**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.787 <sup>a</sup>	.619	.617	.633

**Table 1.2**  
a. Predictors: (Constant), Service Quality

According to the model of summary calculations (Table 1.2), it is observed that the amount of correlation coefficient between the FNB cellphone banking service quality and customer satisfaction is 0.619 (R square = 0.619). Therefore it can be inferred that the service quality of cellphone banking accounts for 61.9% of the variation in customer satisfaction. While the remaining 38.1% variation in customer satisfaction cannot be explained by the service quality of cellphone banking alone, there could be other factors.

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.762	.130		5.885	.000
	Service Quality	.720	.045	.787	16.128	.000

**Table 1.3**  
a. Dependent Variable: Customer Satisfaction

According to R square =0.619 (Table 1.3), it is observed that service quality of cellphone banking is an effective factor on customer satisfaction. According to (Salkin, 2008), a coefficient value between the range 0.6-0.8 indicates a strong positive relationship, therefore the observed R square value of 0.619 depicts a strong positive relationship between customer satisfaction and the service quality of cellphone banking provided at FNB bank. The observed significant value of 0.0% (Table 1.3) the probability that the obtained R square value of 0.619 was obtained by chance is less than 5% hence the effect service quality of cellphone banking has on customer satisfaction is significant. The coefficient B of 0.762 (Table 1.3) denotes that, the effect service quality of cellphone banking has on customer satisfaction is direct. Therefore, the researcher concluded



that the FNB cellphone banking service quality has a significant impact of customer satisfaction.

The findings showed that there is a strong positive relationship between cellphone banking service quality and customer satisfaction at FNB Bank. Thus an increase in the levels of service quality in cellphone banking facility would result in a significant increase in the satisfaction levels of the cellphone banking users. The aspect of cost effectiveness and ease of use could be factors to consider as accountable to the relationship obtained. There is also emerging consensus with the findings of Trivellas and Santouridis (2010) in that, there is a more significant positive influence between service quality and customer satisfaction. The findings concur with those of Al-Hawary, Almadi and Alganim (2011). Basing of the Servqual model to determine the impact of service quality on customer satisfaction, it was obtained that service quality impacts on customer satisfaction directly and thus there is a positive relationship with customer satisfaction. In another research by Saleem and Rashid (2011), findings showed that the mobile banking service quality factors; security, authenticity and reliability have a significant positive impact on customer satisfaction. The findings also agree with the notion that customer satisfaction is an outcome of service quality (Saif, 2009). Tariq and Moussaoui (2009) and Ehigie (2006) also agree to these findings.

**The impact of cellphone banking service quality attributes on customer loyalty**

To determine the impact of SMS banking service quality on customer loyalty at FNB Bank, linear regression was applied using SPSS to compute the regression analysis as follows.

**Correlation between service quality and customer loyalty**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.581 <sup>a</sup>	.338	.334	.796

**Table 1.4**  
a. Predictors: (Constant), Service Quality

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.451	.163		8.912	.000
	Service Quality	.507	.056	.581	9.038	.000

**Table 1.5**  
a. Dependent Variable: Customer Loyalty

The observed R Square value (Table 1.4) denotes that the amount of correlation coefficient between cellphone banking service quality and customer loyalty is 0.338 inferring that service quality accounts for 34% of the variation in customer loyalty. Salkin (2008), postulates that an R square value within the range of 0.2 to 0.4 is a weak relationship. Based on the assertion above, the observed R square value of 0.338 depicts a weak positive relationship between service quality of cellphone banking and customer loyalty. The observed significant value of 0.0% (Table 1.5) is less than 5%

therefore the obtained r square value was not obtained by chance. Since 56% of the variation in customer loyalty cannot be explained by the quality of service of cellphone banking alone, it can be inferred that the impact that service quality of cellphone banking has on customer loyalty is not significant.

The findings showed that, there is a weak positive relationship between service quality and customer loyalty among the cellphone banking users. The findings contradicts with Talebi, Dadashi, Ezzatdoust and Farajy (2012), as they postulate that there is a no relationship between customer loyalty and service quality in banking services. The findings were supported by the low adoption levels in cellphone banking in Iran, where mobile banking is rarely considered by both banks and customer as an alternative channel for conducting banking transactions. In the findings of Trivellas and Santouridis (2010), pricing structure and customer service quality dimensions in SMS banking, have a significant positive relationship with customer satisfaction, which in turn has a strong positive impact on customer loyalty. These findings showed that customer satisfaction plays a mediating role between service quality and loyalty. This notion has been supported by the findings of Caruana (2000). In the findings of Ganguli and Roy (2011), customer service and technology, ease of use and reliability in mobile banking have a positive significant impact on customer loyalty. However, the findings of this study show that, an increase in service quality of the cellphone banking facility may not improve the loyalty levels of the users significantly. The presence of other banking channels like ATM, Internet banking and the traditional means of banking at the exposure cellphone banking users, which as well seem to be more convenient to them than using cellphone banking could be accountable factors to this finding (results indicated that the cellphone banking users 'disagree' to the view they find it convenient than interacting with a bank teller). However it is important to note that improving the service quality levels in order to enhance satisfaction is not the only factor influencing the loyalty level of the users. A great impact on loyalty level can be derived from other factors such as: image, prestige and word of mouth. Lack of trust in the cellphone banking facility is also another factor to consider. Low trust levels enhance low loyalty levels. Results indicated an average score of 2.70 in the security factor denoting that the majority 'neither agree nor disagree' to the view that their banking information is held confidential by FNB Bank. Furthermore, poor problem handling by FNB could also be another influencing factor on the weak relationship between service quality and loyalty. This notion has been derived from the findings of Shahidan, Nushazelin, Ramayah and Yap (2012).

**Limitations**

First, the limited number of commercial banks (only one bank) covered under the study. The sample size is limited and it may affect the accuracy of findings. The respondents were chosen through convenience sampling.

**Conclusion and Suggestions**

Although FNB Bank has a cellphone banking facility in place, it can be concluded that it is of poor quality as

denoted by the low score obtained. The strong positive relationship between service quality and customers satisfaction has proven that ZB Bank needs to address the quality dimensions outlined in the study in order to enhance customer satisfaction. The research concludes that an increase in the cellphone banking service quality may not promote repeat use of the facility. This could be attributed to the low adoption levels in cellphone banking services by the FNB customers. However, the research was a roadmap for FNB Bank to identify the aspects in cellphone banking crucial to the customers. It is important for FNB to look at these aspects with the view of meeting the needs and expectations of the customers. In light with the above conclusions, the researcher recommends system upgrade in order to rectify the technical challenges that could be associated with the system availability challenges. Engage more network providers considering that the cellphone banking facility is currently provided on the Orange network only, there is a high possibility of system problems associated with congestion of the network. It is recommended that FNB Bank should introduce cellphone banking on other network service provider such as Mascom and BTC in order to enhance a wider reach and hence improve availability of the system anywhere and anytime. As a result, convenience is enhanced. FNB Bank should build confidence in the cellphone banking users. FNB Bank should take further strong security measures in every aspect of cellphone banking. This would enable users to feel secure when using facility. FNB Bank should also keep their customers informed. It is always important for a service provider to apologize to the customers in the event of a system down turn. A system back up promotes system availability at all times. It is also recommended that FNB Bank should adopt ECRM on the cellphone banking platform. This can be done by sending congratulatory, messages to clients, anytime and messages to the cellphone banking users. This would promote a customer service approach that focuses on building long-term and sustainable customer relationships that add value both for the customer and the bank. The researcher recommends that further research be conducted on other electronic banking channels at FNB bank such as Internet banking, Point of Sale, Online banking in order to enhance an overall evaluation of the ZB electronic banking service quality and pave a way for quality improvements. Also the researcher is urging other researchers to use the EbankQual scales to measure other business performance indicators like profit, sales and market share.

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## Author Profile

**Douglas Chiguvu** received the B.Com 'Hons' Mktg, M.Comm Mktg, and MBA degrees from Midlands State University and Zimbabwe Open University respectively. Currently a Doctorate of Technology Student in Public Administration at Durban University of Technology and Marketing Management Lecturer at Ba isago University in Botswana.