 https://doi.org/10.56279/orseaj.C2024.9

Mobile Value – Added Services' Attributes and Customer Satisfaction: Evidence from Customers of Mobile Subscribers in Tanzania

Beatrice Tianoi Francis[1] **and Severine SiritoKessy**[2]

Abstract

This paper assessed the influence of price, perceived quality and perceived value of mobile value–added services (MVAS) on customer satisfaction in Tanzania. Using questionnaires, the data was collected from 390 sampled mobile subscribers from 10 randomly selected wards in Dar es Salaam. Data was analyzed descriptively and inferentially to determine the effect of price, perceived quality and perceived value of MVAS on customer satisfaction. Findings indicate that, majority of respondents were of the view that customer satisfaction is highly influenced by the price of MVAS. Further, most of respondents were of the opinion that perceived quality of MVAS highly influence customer satisfaction. Likewise, respondents admitted that customer satisfaction is highly influenced by the perceived value of MVAS. Furthermore, price, perceived quality and perceived value of MVAS explain about 57.3% of the variability in customer satisfaction. The study concludes that price, perceived quality and perceived value of MVAS significantly and positively influence customer satisfaction. Perceived value of MVAS is the most significant attribute in influencing customer satisfaction, followed by perceived quality and price. It is therefore recommended that mobile service providers should improve and be more competitive in terms of pricing, quality and value of their MVAS. In this case policy makers in the telecommunication industry such as Tanzania Communications Regulatory Authority (TCRA) and relevant government ministries should create conducive business environment for service providers to provide best pricing, service quality and perceived value of MVAS so as to improve customer satisfaction.

Key terms: Mobile Value-Added Services, Customer satisfaction, Price, Perceived Quality and Perceived Value

Introduction

Telecommunication is an important part of the economy and has a significant impact over its growth (Atsu *et al.,,* 2014). Among other factors, telecommunication industry supports the advancement of business sector and other important aspects of the economy. In the emerging economy, telecommunication industry plays a vital part in the economic growth by increasing the level of productivity in various economic activities that may result to positive and influential impact on several macro-economic factors such as attracting foreign direct investment and enhancing GDP growth rate (Sharif, 2017). Globally, the telecommunication industry has been achieving a dramatic development since 1980s. Since then, the developed countries worldwide started to promote development in information and telecommunication technology (ICT) to maintain a constant flow of communication in which finally strengthens economic activities by facilitating a more advanced platform of communication. Likewise, developing countries took some initiatives in the communication industry when the role of telecommunication over the economic development became prudentially evident (Correa, 2006). Some of the initiatives taken includes the privatization of telecommunication industry by almost every developed counties and

[1] University of Dar es Salaam Business School
Email: bittytianoi@yahoo.com
[2] University of Dar es Salaam Business School

later by developing ones. Mobile telecommunication industry has rapidly developed globally since the worldwide adoption of telecommunication technology is more than ever in the last three decades (Sharif, 2016).

For the past few decades, mobile telecommunication in Tanzania has become very competitive with a customer base of over 80% of the population (TCRA, 2020). According to TCRA (2020), the industry has experienced significant growth in terms of services and subscribers which gave rise to increased competition over years. The main factors that were considered in determining the state of competition in the industry include operator's market shares, a measure of market concentration and other factors like control of network facility, barriers to entry, and expansion and pricing behavior of operators (TCRA, 2018). An increase in competition within mobile telecommunication has forced service operators to innovate to cater to the changing customers' demands (Moshi, 2016; TCRA, 2018). The introduction of new mobile services add value to the core mobile services. MVAS include all the non - core mobile services except voice calls and fax transmissions (Sathye *et al.,* 2018). These include short mobile internet, message service, instant messaging, multimedia messaging service, and mobile e-mail. Others are entertainment VAS (like music/songs download, caller ring back tone, jokes, games, ring-tones download, etc.), information VAS (like news, weather, education, stock updates, real estate, etc.), media, transactional services, and location-based services (Asif, 2014; Augsburg & Hedman, 2014; Kimani, 2012). After the introduction of 3G, 4G/LTE mobile broadband services, the mobile network operators have become the main providers of internet services which are the platform for the provision of value–added services (Sathye *et al.,* 2018; Chi & Lai, 2015). Mobile network service providers have put additional services that motivate customers or subscribers to use more their mobile phones which allow the network service providers to charge extra cost (Chi & Lai, 2015). Furthermore, Augsburg and Hedman (2014) reported that mobile value–added services were initiated for major two reasons. The first is to raise the perceived value of the core services, and the second is to improve on the decreasing revenue from sales of core services.

Assessment of customer satisfaction in service delivery ought to be supported on three key pillars (Bansal & Taylor, 2015). These pillars are the prices, quality, and perceived value offered to the user, customization service and identifying customer expectations. Studies have documented that pricing, quality, and perceived value of mobile services play a significant role in influencing customer satisfaction (Miah *et al.,* 2018; Oduro *et al.,* 2018; Saha *et al.,* 2016; Hossain *et al.,* 2016). Furthermore, customer satisfaction is associated with fair pricing on products or services that may improve the customers' loyalty to the company and retain them. In addition to price fairness, price level also affects customer satisfaction (Saha *et al.,* 2016; Malina *et al.,* 2012; Santouridis & Trivellas, 2010; Herrmann *et al.,* 2007). Moreover, studies indicated that the quality of mobile services positively influences perceived value. Additionally, customer satisfaction is dependent on the perceived value of mobile services which significantly affects the customer's future intentions towards the services (Sanchez *et al.,* 2006). Customer satisfaction is positively linked to a set of desirable business outcomes such as customer retention and loyalty, re-purchase intentions, positive word of mouth, increased volume of business and ultimately higher profitability (Keiningham *et. al.,* 2015). The growing market of the MVAS has led to an increase in mobile services and resulted in severe competition among telecommunication companies (TCRA, 2018). Given this competition, network operators need to offer better mobile value–added services to satisfy, retain existing customers and gain new ones. To justify that, understanding of the effect of attributes of mobile value-added services on customer satisfaction is important. However, there are limited empirical studies that have been conducted to evaluate the influence of pricing, perceived quality and value of MVAS on customer satisfaction in Tanzanian telecommunication industry. Therefore, this study bridges this knowledge gap by assessing the

role of price, perceived quality, and perceived value of MVAS on customer satisfaction in the local telecommunication industry. Specifically, this paper focused on the following objectives:

i. To determine the extent to which the price of MVAS affect customer satisfaction in telecommunication industry;
ii. To determine the extent to which the perceived quality of MVAS affect customer satisfaction in telecommunication industry; and
iii. To determine the extent to which the perceived value of MVAS affect customer satisfaction in telecommunication industry.

Conceptualization of Mobile Value–Added Services and Customer Satisfaction

Sathye *et al.* (2018) defined a mobile value–added service (MVAS) to be all non–core services other than normal voice calls and fax transmission in mobile telecommunication services. Chi and Lai (2015), explained that MVAS are associated with the evolution of mobile communications technology from 2G, 3G to 4G LTE network resulting to a high-speed mobile broadband network. Mobile value –added services include Mobile Applications, Entertainment VAS, Information VAS, M-Commerce VAS, Short Message Service (SMS), Mobile Internet, Mobile E-mail, Instant Messaging (IM), Multimedia Messaging Service (MMS), Video Service and Mobile TV and Location-Based Services. There are different attribets of MVAS, however in this paper, price, perceived quality, and perceived value are the focus. Kotler and Armstrong (2010) established that price of a product/service is a total sum of money charged for that product or service. Further, the pricing structure is considered to be among of main elements influencing the satisfaction of customers in most organizations (Chakraborty & Sengupta, 2014; Santouridis & Trivellas, 2010). The price that consumers are ready to pay for a desired product or service is normally used as a measure of customer satisfaction. It was found by Martin-Consuegra *et al.* (2007) that fair pricing of a product or service is closely associated with customer satisfaction that may result to customer loyalty towards the provider of that product or service. Likewise, it was further established by Herrmann *et al.* (2007) and Malina *et al.* (2012) that both price fairness and price level affect customer satisfaction. Evaluation of price fairness is a subjective one that is normally considered from the purchaser's viewpoint. As a result, evaluation on price fairness is likely to be biased towards the purchaser's self-interest, that is, the purchaser tries to maximize his/her benefit when compared with the benefit of the seller/supplier of product or service (Martin-Consuegra *et al.,* 2007).

Henderson (2013) stated that quality of products and/or services has been a subject of interest for most researchers and practitioners in recent years. Mosahab *et al.* (2010) suggested that the quality of a product/service is a multi-dimensional concept. There are distinguishing features and distinct constructs for different product or service quality. For example, Kuo *et al.* (2009) suggested four dimensions of service quality of MVAS to be connection speed, network reliability, customer service/care, and content quality. Yulisetiarini and Prahasta (2019) assessed service quality by using dimensions such as accessibility speed, reliability, signal coverage, and service innovation. The perceived value of a product/service denotes an abstract concept with different meanings depending on the perspectives. Sanchez (2007) argued that the perceived value of a product/service may be described as the consumers' evaluation of the benefits of a product/service depending on the perceptions of sacrifices (what is given up) compared to benefits (what is received). It has been established by Zeithaml (1988) that the perceived value of a product/service is considered to be a trade-off between total benefits and total sacrifices (monetary or non-monetary ones). The non - monetary sacrifices are like energy, effort, time, and inconvenience. Perceived value is the outcome of comparing personal sacrifices made and personal benefits obtained after purchasing the product/service. On the other hand, Morar (2013) concludes that perceived value is considered

to be attained when a product/service fulfills the customer's needs. In the mobile telecommunication industry, the perceived value of a product/service may be described to be the customers' overall evaluation of the benefits of a product/service, depending on the consumers' sacrifices and perceived performance when consumers use the product/service (Kuo *et al.,* 2009). Despite different expressions, perceived value involves the dimensions of personal benefits, fulfilling consumers' needs, meeting consumers' expectations and sacrifices perceived by the customer when considering the provider's services or products (Morar, 2013).

With regards to customer satisfaction, Abdul *et al.* (2014) consider it as an emotional and cognitive customer's response after consuming a service and/or product. Pihlaja (2017) held that customer satisfaction is a substantial differentiation of the organization's service or product. Customer satisfaction is established to be positively correlated with indicators such as customer retention, customer loyalty, re-purchasing of a company's products/services and recommending the products/services to other customers (Kuo *et al.,* 2009). Satisfaction is a marketing terminology that evaluates how services or products provided by an enterprise meet or exceed the expectations of consumers. Organizations may expect customer retention and loyalty as well as organizational effectiveness through undertaking assessment of customer satisfaction. Studies have proposed that the satisfaction of customers may improve the profitability of the business (Bei & Chiao, 2001; Heskett *et al.,* 1997). Similarly, studies have established a strong link between customer satisfaction and customer loyalty & retention where about 40% of customer retention is accounted for by customer satisfaction (Heskett *et al.,* 1997; Zeithaml *et al.,* 1996).

According to Pihlaja (2017) satisfied consumer might persuade the consumer to support the service provider again and will endorse the provider to potential consumers. Narteh & Kuada (2014) show that the continuation of use of MVAS could be determined by customer satisfaction. Satisfied customers give positive opinions about the products/services provided to them and normally will recommend the provider to other consumers. Goodman (2009) proposed that whereas satisfied consumers speak to an average of five (5) people about the company, dissatisfied customers speak to an average of ten (10) people. Moreover, Goodman (2009) emphasized that it is five-times more expensive to attract and get a new customer than to maintain an existing one. Consequently, companies need to satisfy customers on a consistent basis. Shaban (2014) asserted that since it is difficult to measure human feelings and generalizing their perception, there is a simple way to know how a person feels and what they perceive on the service or products. In this regard, customer satisfaction can be measured in three ways. The first is by a formal survey where feedback from the customer may be converted into quantitative/measurable data. The second is by the focus group discussions coordinated by a competent moderator to collect the customers' opinions. The third way is through informal methods such as talking directly to customers and reading blocs. In this paper a survey on feedback from customers through quantitative data was adopted.

Theoretical and Empirical Perspectives

Many theories and models have been developed to understand the process through which customer satisfaction is attained. However, in this study, disconfirmation theory was used to explain the study variables. The disconfirmation theory demonstrates how the comparison of consumer's prior expectations and actual performance of the products and/or services affects customer satisfaction. Customer's prior expectations are recognized as a standard against which actual performance is compared. The theory postulates that customer satisfaction will increase when the actual performance of the products or services is higher than the prior expectations held by the customer – that is positive disconfirmation. Similarly, customer satisfaction will decrease when the actual performance of the products or services is lower than the consumer's expectation - that is negative

disconfirmation (Anderson *et al.,* 1994; Oliver, 1993). Customers satisfaction or dissatisfaction is a function of the disconfirmation which occurs as a result of differences between actual performance and prior expectations on products or services. Therefore, satisfaction is a function of the difference between prior expectations and actual performance; ie, satisfaction = performance - expectations (Gunning, 2000). The disconfirmation theory predicts that as prior expectations increase, customer satisfaction will decrease; indicating a negative association between satisfaction and expectations. The theory suggests that those involved in managing customers should try to lower the expectations of customers. This will enable service providers to offer a better service than expected by customers, which will help to increase customer satisfaction (Davidrow & Uttal, 1989).

In this study, disconfirmation theory is applied to explain how customer satisfaction is influenced when the customers compare actual service performance with expectations of MVAS. Since the customers are comparing two aspects (actual performance to expectations) they are principally confirming (or disconfirming) how well the company's products and/or services have met their expectations in terms of pricing, perceived quality, and perceived value. Depending on whether the customer's expectations have been met or exceeded (positively disconfirmed) or not met (negatively disconfirmed), the customers are either very satisfied, satisfied, neutral, dissatisfied or very dissatisfied. The satisfied customers will be positively associated with the following indicators: customer retention, customer loyalty, re-purchasing of company's products/services and recommending the products/services to other customers.

With regards to empirical literature review, different studies have explained factors influencing customer satisfaction. For example, Miah *et al.* (2018) determined factors that influence customer satisfaction with products/services offered by both the international and local mobile network operators in Malaysia. A structured questionnaire (with five-point Likert scale) was employed for data collection from a sample of 150 respondents. Analysis by multiple linear regression showed that three predictor variables of price charged by the network operators, services quality and their brand image could account for 33.7% of the variation in customer satisfaction. Other factors responsible for the remaining 66.3% of the variation in customer satisfaction remain unexplained. Regardless of the fact that the study by Miah *et al.* (2018) managed to assess the effect of the predictor variables on customer satisfaction, the study had some methodological limitations including small sample size. The limitations resulted to a weak explanatory power of the research model whereby the included factors could account for only 33.7% of the variation in customer satisfaction leaving the remaining 66.3% of the variation in customer satisfaction unexplained. Hossain *et al.* (2016) also conducted a study in Bangladesh to examine the factors affecting customer satisfaction of 3G mobile telecommunication services. Closed-ended questionnaires were administered to 148 respondents in Dhaka city that were drawn through the stratified sampling technique. The researchers managed to study 17 potentials factors influencing the customer satisfaction of mobile telecommunication services. Multiple regression and factor analyses established that price, speed, promotional offer, network quality, value-added service, and availability of customer service center are the most significant aspects affecting customer satisfaction. Despite the use of multiple regression analysis which is also adopted in this paper, the sample size was considered to be relatively small to come out with strong statistical conclusions.

Another study by Rahman *et al.* (2014) investigated factors influencing the satisfaction of subscribers for one (1) network operator in Bangladesh. The multiple regression analysis indicates that about 48.6% of the variability changes in customer satisfaction could be accounted for by pricing, network coverage, service competitiveness, value-added service, fulfilling customer demand, offering, service reliability, service consistency, operator's contribution to society,

service innovativeness and brand value. While the study managed to ascertain the influence of various factors on customer satisfaction, however, this study had two major weaknesses; the data were collected from the small sample size of 140 mobile users drawn from only one (1) network operator – Grameenphone, and the explanatory ability of the research model was comparatively small. In this paper, the respondents were sampled from mobile subscribers of the three major network providers in Tanzania namely; Vodacom, Airtel, and Tigo. This helped to improve the validity of its findings. Nasser *et al.* (2012) also conducted a study in Yemen to examine how perceived quality, perceived value, customer expectation and corporate image of telecommunication services influence customer satisfaction. The multiple regression analysis established that perceived quality, perceived value, corporate image and customer expectation account for more than 57.3% of the variability changes in customer satisfaction. The major weakness of this study is that data were collected by using online questionnaires sent to 118 academic staff sampled from public universities in Yemen. The academic staff cadre cannot explain the reality of entire population as the group is privileged with awareness of many issues and services provided.

In summary, previous studies have explored various factors influencing customer satisfaction in the telecommunication industry in different countries. They have also examined the association between the predictor variables (such as pricing, perceived quality, the perceived value of mobile services) and the outcome variable (customer satisfaction) elsewhere outside Tanzania (Yulisetiarini & Prahasta, 2019; Miah *et al.,* 2018; Oduro *et al.,* 2018; Kubasu, 2018; Saha *et al.,* 2016; Hossain *et al.,* 2016; Abdul-Aziz *et al.,* 2014; Abdul *et al.,* 2014*;* Rahman *et al.,* 2014; Rahman, 2014; Khan & Afsheen, 2012; Uddin & Akhter, 2012; Nasser *et al.,* 2012). In Tanzania, studies had some methodological deficiencies such as the sampling techniques and data collection methods used (Senguo *et al.,* 2017; Moshi, 2016; Rutta, 2015; Mlekwa, 2014; Chawinga, 2014; Tusiime *et al.,* 2014; Temba, 2013). Despite the inadequacies in the Tanzania based studies, only limited studies focused on the role of MVAS on customer satisfaction in the telecommunication industry. The limited empirical literature regarding the role of MVAS on customer satisfaction in the Tanzanian telecommunication industry is a knowledge gap being addressed in this study.

Conceptual Framework

Figure 1 describes how price, perceived quality, and perceived value of MVAS (independent variables) influence customer satisfaction (dependent variable). Pricing of MVAS is measured by price affordability and rate fairness, while the perceived quality of MVAS is conceptualized by network accessibility and connection speed. Moreover, the perceived personal benefits and fulfilling needs were indicators of perceived value of MVAS. On the other hand, customer satisfaction was measured by customer retention, customer loyalty and re-purchasing of a company's products/services.

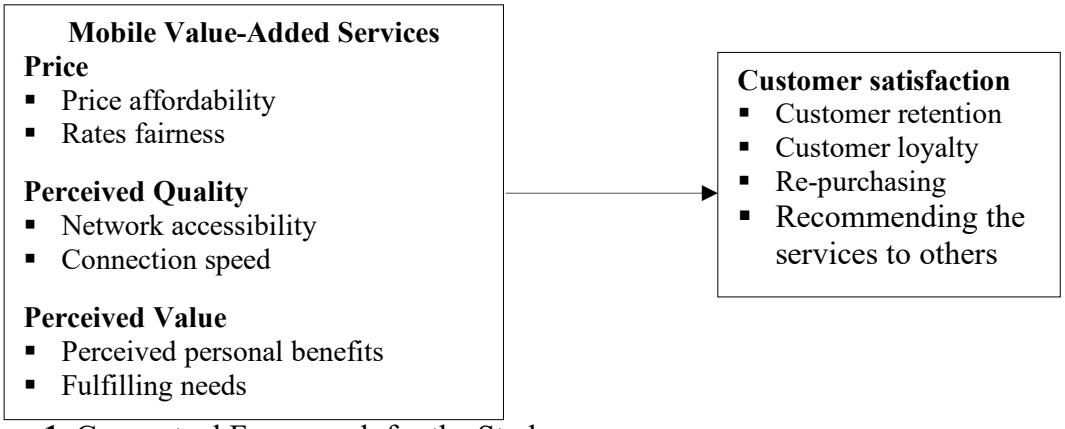

Figure 1. Conceptual Framework for the Study
***Source**:* Synthesized from Literature Review

Methodology of the Study

Explanatory design was adopted and considered to be an appropriate design for this study due to the fact it allows for the analysis of associations between dependent and independent variables (Creswel, 2009; Bergman, 2008). The study used cross-sectional to collect quantitative data from the selected mobile subscribers in Dar es Salaam. Dar es Salaam region was selected due to its economic importance in terms of commerce and industries/manufacturing in Tanzania, and the region has a relatively higher proportion of mobile subscribers than other regions in Tanzania (TCRA, 2020 & NBS, 2017). According to NBS (2019), Dar es Salaam region is estimated to have 5,275,315 residents. Further, according to the communications statistics by TCRA (2020), the penetration rate of mobile services is 88%, estimating a total number of 4,642,277 mobile subscribers in the region. The study population was comprised of mobile subscribers from three network operators with the largest market share of subscribers, namely; Vodacom (32%), Airtel (27%), and Tigo (26%). Since the total market share of subscribers for the three major network operators is 85%, the study population is estimated to be 3,945,935 mobile subscribers.

Given the study population of 3,945,935 mobile subscribers in the region, 95% confidence level, 5% margin of error, the sample size was calculated to be 390 mobile subscribers as given by Sekaran & Bougie (2016). According to the Postcode list published in 2016, Dar es Salaam region is sub-divided into 5 municipalities comprising of 102 wards (TCRA, 2016). A sample of 10 wards (10%) was randomly selected from the list of 102 wards in Dar es Salaam region. The selected wards were Ilala, Kibada, Kijichi, Kunduchi, Mabibo, Makumbusho, Msasani, Tabata, Tandika, and Saranga. Given the sample size of 390 mobile subscribers, the sub-sample for each selected ward was 39 mobile subscribers. Due to the inaccessibility of population size for respective wards in the study area, the researcher adopted a purposive sampling method to get 39 respondents from each selected ward. Questionnaire was used to collect data from the selected mobile subscribers found in the selected wards. The questionnaire was administered to the mobile subscribers found at business centres, bus stands, households, groceries and shops. The inclusion criteria for study participants were the mobile subscribers who are: located in the selected wards, adult, subscriber of mobile operator(s), have adopted and using mobile value–added services, and who have freely agreed to participate in this study. The questionnaire consists of six major sections, namely: respondents' profile, the price, perceived quality, and value of MVAS. Further, it assesses customer satisfaction with mobile value–added services and lastly respondent's recommendations.

To ensure validity and reliability of the questionnaire, pilot study was conducted to ten selected subscribers of mobile services. Apart from responding to questions, these subscribers were

requested to review the set of questions in the questionnaire for their relevance and whether they are clear, meaningful, and answer the intended research questions. Based on this evaluation, the questionnaire was appropriately revised before administering it to the field for actual data collection. Reliability test was also conducted to identify the extent to which a scale produces consistent results if the recurrent measurements are free from random error. The internal consistency of the measurement in this study was tested using Cronbach's alpha. Cronbach's alpha coefficient represents values ranging from 0 to 1. The higher the coefficient, the more reliable the items are in measuring the variables (Malhotra *et al.,* 2007). Table 1 indicates that all measurements showed high reliabilities with the following coefficients: price (0.893), perceived quality (0.954), perceived value (0.914), and customer satisfaction (0.928). According to Cronbach (1951), a Cronbach's alpha coefficient of 0.70 is considered 'acceptable' in most studies. Since all the variables passed the reliability test, all measurements are considered to be reliable.

Table 1 Reliability Test

Variables	Cronbach's Alpha	No. of items
Price	0.893	4
Perceived quality	0.954	4
Perceived value	0.914	4
Customer satisfaction	0.928	4

Both descriptive and inferential statistics were used to analyse the collected data. The profile of respondents was summarized using descriptive statistics, while the influences of price, perceived quality, and perceived value of MVAS on customer satisfaction was performed through regression analysis. In this case, the multiple regression analysis model was employed to determine the significance and direction of the effect of the MVAS indicators on customer satisfaction. The regression model used was: $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon$. *Whereby,* Y= Customer satisfaction; β_0 = constant; X_1= price; X_2= perceived quality; X_3= perceived value; β_1, β_2, and β_3 are regression coefficients, and ε is the residual error.

Results and Discussion

Profile of Respondents

The profile of respondents shows that out of 390 respondents, 57.9% were males and 42.1% were females. In terms of age, 30.3% of respondents were aged below 26 years, 36.9% were aged between 26 – 35 years, 17.4% were aged between 36 – 45 years, 10.0% were aged between 46 – 55 years and 5.4% were above 55 years. In respect to education levels, all respondents had formal education. About 25.1% of respondents had primary education, 42.1% had secondary education, 19.2% had a college education, and 8.2% had bachelor degrees while 5.4% were postgraduates.

Out of 390 respondents, 64.6% were mobile subscribers of Tigo, 48.5% were subscribers of Vodacom and 26.4% were subscribers of Airtel; implying that most of the respondents were customers of more than one network provider. With regard to duration of using MVAS, the results show that majority (96.7%) of the respondents have been using MVAS for more than 24 months, 2.8% have been using the services for about 13-24 months and very few (0.5%) of the respondents have been using the services for about 7-12 months. The use of MVAS was dominated by short message services (100.0%), followed by transactional services (96.9%), followed by mobile internet (37.2%), followed by media (34.6%), and entertainment services (30.8%). Other services were information services (21.8%), mobile e-mail (14.1%), location-based services (8.2%), multimedia messaging services (5.4%), and others like mobile marketing and advertising services (1.5%).

The Effect of Attributes of MVAS on Customer Satisfaction

Before testing for the effect of attributes of MVAS on customer satisfaction, the conditionality of using regression analysis was diagnosed for the suitability of model use. In this case normality, multicollinearity, homoscedasticity and outlier tests were carried out. Shapiro-Wilks Test was applied to test for normal distribution of data. According to Kothari (2004), the data are normally distributed if the Shapiro-Wilks coefficient is insignificant (P > 0.05). In this study, data for all variables were normally distributed as test results are shown in Table 2 indicate that all p-values we insignificant at 5%.

Table 2. Test for Normality

Variables	Shapiro-Wilks Test		
	Statistic	df	Sig.
Price	.546	390	.102
Perceived Quality	.600	390	.128
Perceived Value	.668	390	.272
Customer satisfaction	.629	390	.324

Multicollinearity was carried out to find whether the independent variables are highly correlated or not. As presented in Table 3, the collinearity statistics shows that variance inflation factor (VIF) for price = 1.014, perceived quality = 1.014 and perceived value = 1.001. These findings are significant and acceptable complying with standard requirement criteria for collinearity statistics: VIF < 10 or tolerance >0.1 (Martz, 2013; Hair *et al.,* 2010; Coake & Steed, 2007). Thus, this result shows that autocorrelation of independent variables did not pose a problem in the regressed model since all the variables met the required criteria of tolerance >0.1 or VIF <10.

Table 3. Test for Multicollinearity

Independent Variables	Tolerance	VIF
Prices	.987	1.014
Perceived Quality	.986	1.014
Perceived Value	.999	1.001

Homoscedasticity was also assessed to check if if all its random variables have the same finite variance. According to Tabanchnick & Fidell (1996), homoscedasticity occurs when the variance of the errors is the same across all levels of variables. When the variables differ in the variance of the errors (heteroscedasticity) may weaken the quality of regression results. The scatterplot presented in Figure 2 was used to assess if there was a problem of heteroscedasticity. The analysis of the scatterplot showed that there was no problem of heteroscedasticity since data for variables were evenly distributed. Since the data were within the required range of $-4 \leq x \leq 4$, it was concluded that data fits for regression analysis and there was no problem of heteroscedasticity. Outliers were also assed because these are extreme values that significantly deviate from other values in the dataset and they can distort statistical analyses and violate their assumptions. The dispersion of variables was checked by examining minimum and maximum values and scatterplot to reveal the most obvious outliers (Sekaran & Bougie, 2016). As indicated in Figure 2, there were no extreme values that substantially deviated from the majority of values. Therefore, the problem of outliers was not observed the collected data.

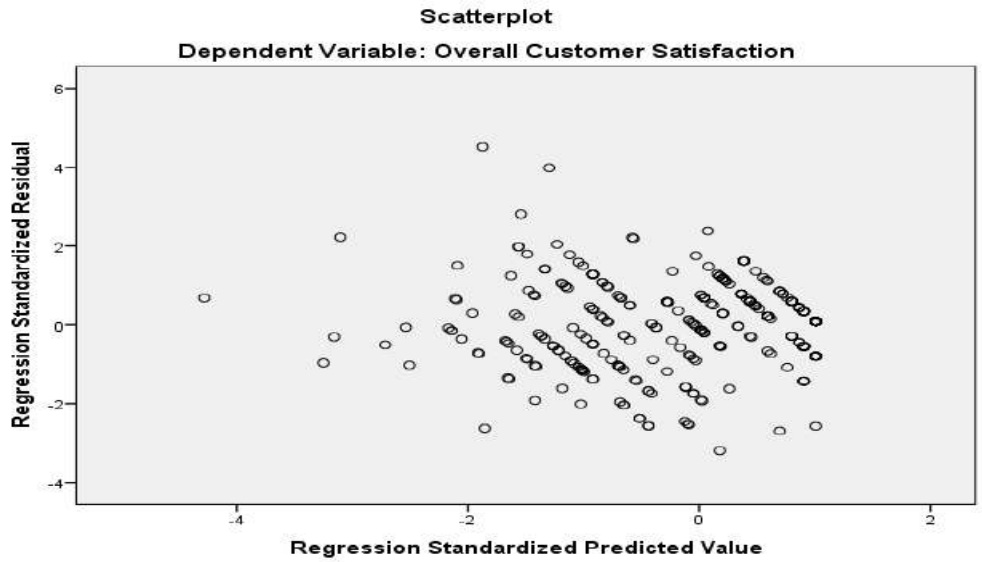

Figure 2. Scatterplot

Model Fit Results and Regression Coefficients

Multiple regression analysis was applied to test the direction and significance of pricing, perceived quality and value in influencing the customer satisfaction. The result of multiple regression analysis indicated that pricing, perceived quality and value of MVAS explain about 57.3% of the variability changes in customer satisfaction as indicated by value of R-square. This implies that the remaining percentage of the variability changes in customer satisfaction could be accounted for by other factors which were not included in the model. The model summary of multiple regression analysis is presented in Table 4. With regards to overall model fit on the collected data, Table 4 also presents the analysis of variance (ANOVA) which indicates that the results were statistically significant at 5% level of significance (F= 172.415, p = 0.000). This shows that the overall regression model was reasonably fit and there were statistically significant associations between pricing, perceived quality and value of MVAS and customer satisfaction. Specifically, the value obtained indicates that the linear regression model produced provide a better fit to the data than a model that contains no independent variables.

Table 4: Model Summary and ANOVA for MVAS and Customer Satisfaction

Model Summary					ANOVA					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		Sum of Squares	Df	Mean Square	F	Sig.
1	.757[a]	.573	.569	.842	Regression	366.491	3	122.164	172.415	.000b
					Residual	273.499	386	.709		
					Total	639.990	389			

a. Predictors: Predictors: (Constant), Price, Perceived Quality, Perceived Value
b. Dependent Variable: Customer satisfaction

The results on regression coefficients in Table 5 indicate that pricing, perceived quality, and the value of MVAS have a significant influence on customer satisfaction but at varying degrees. This means that the predictors have a varying effect on customer satisfaction depending on respective beta (β) coefficients values. It was observed that perceived value (β_3= 0.588, p = 0.000), perceived quality (β_2= 0.553, p = 0.000) and pricing (β_1= 0.505, p = 0.000) were found to be positively and

statistically significant attributes in influencing customer satisfaction. It can be noted that perceived value was found to be the most contributing attribute in influencing customer satisfaction, followed by perceived quality and pricing, as the unit change in perceived value result to 0.588 change in customer satisfaction. Thus, the results reveal that all independent variables in the regression model are key determinants of customer satisfaction.

Table 5: Regression Coefficients for MVAS and Customer Satisfaction

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-3.393	.334		-10.158	.000
	Pricing	.505	.050	.336	10.025	.000
	Perceived Quality	.553	.040	.463	13.814	.000
	Perceived Value	.588	.042	.471	14.164	.000

a. Dependent Variable: Customer satisfaction

Discussion of Findings

The results of this study show that the majority of respondents agree that customer satisfaction is affected by the price of MVAS. The regression analysis between the predictor and dependent variable confirms that the pricing of MVAS has a positive and significant effect on customer satisfaction. This study confirms that pricing of mobile value–added services is a significant determinant attribute of customer satisfaction in the Tanzanian telecommunication industry. This finding advocates that, for telecommunication companies to increase their customer satisfaction there is a need to focus on attractive pricing for its products and services. The finding in this study is similar to that of Mlekwa (2014) in which correlation analysis indicated a significant positive association between customer satisfaction and price fairness ($r = 0.848$, $p < 0.01$). Further, Kim and Lee (2011) further suggested that when network providers offer services at lower prices with the same level of quality, they may get competitive advantages as a consequence of customer satisfaction. The results also show that customer satisfaction was substantially influenced by the perceived quality of MVAS. This finding infers that higher perceived quality in terms of network accessibility and high connection speed has a positive relationship with customer satisfaction. Similar to this study, Saha *et al.* (2016) found that as the mobile operators ensure the higher network quality, the more the customer will be satisfied with the mobile services. Coner and Gungor (2002) suggested that the perceived quality of product or service has a direct association with customer satisfaction and leads to customer loyalty. In his study, Abdul *et al.* (2014) found that the network quality of the services can account for around 66.2% of the variation in customer satisfaction. Further, quality customer care service can explain about 54.9% of the variability changes in customer satisfaction in the organization. Furthermore, Yoo and Park (2007) observed that the perceived quality of services that are provided by the company is greatly related to the satisfaction of the customer. The observed finding confirms the findings of the preceding studies that show a significant and positive association between service quality and customer satisfaction.

The findings further established that perceived value of MVAS significantly affects customer satisfaction in the industry. This study finding implies that the more the perceived value of MVAS, the greater the customer satisfaction and vice versa. This means that, as the network operators offer higher valued services to customers in terms of personal benefits and fulfilling needs, then the customer satisfaction level improves. These findings are in agreement with the findings of the

previous studies, as McDougall and Levesque (2000) established that consumers who perceive to have received value for money of the provided services or products are satisfied more. Additionally, Turel and Serenko (2006) suggested that customer satisfaction is strongly affected by the degree of the perceived value of the services. Likewise, Yulisetiarini and Prahasta (2019) found that customer value has a significant positive impact on customer satisfaction. The concluded that customer satisfaction leads to customer retention and loyalty with the telecommunication network provider. In summary, the results reveal that price, perceived quality and perceived value of MVAS in the regression model had significant role in influencing customer satisfaction.

Conclusion and Implications

Generally, the attributes of pricing, perceived quality and value of MVAS explain about 57.3% of the variation in customer satisfaction. These attributes of MVAS have significantly and positively influences customer satisfaction in the Tanzanian telecommunication industry. Additionally, perceived value of MVAS is the most contributing attribute with the highest coefficient in influencing customer satisfaction, followed by perceived quality and price. Emanating from these findings, this paper recommends the following:

- Mobile network service operators need to improve and be more competitive in terms of pricing, quality and value of their mobile value-added services. Success in those attributes will result in more satisfaction, and hence more retention and creation of new customers. Ultimately, that gives long-term sustainability payoffs to the service providers.
- The results of this study offer some implications to practitioners and policy makers in Tanzanian telecommunication industry. From a managerial perspective, perceived value, perceived quality and price are an important influencing factor on customer satisfaction. Firms should understand the importance of assuring the perceived value, perceived quality and attractive price of their services to customers. Thus, the positive effect of quality, low price, and perceived value makes customers satisfied. Managers should have planning to ensure increased perceived value, service quality and competitive price of services to achieve competitive advantages over their rivals.
- Furthermore, policy makers in the telecommunication industry such as TCRA and relevant government ministries should create conducive business environment for stakeholders to provide best pricing, service quality and perceived value of MVAS so as to improve customer satisfaction.

References

Abdul-Aziz, A. R., Saeed, B. I. I. & Alexander, A. (2014). Customer satisfaction of mobile telecommunication networks in Ghana: service delivery perspective. *The Journal of Accounting and Management,* Vol 4, No. 1.

Abdul, F. A., Salman, A., & Olota, O. O. (2014). Impact of customer satisfaction on mobile telecommunication service provider. *Journal of Research in National Development*, *12*(2), 139-152.

Amin, M. (2005). *Foundations of Statistical Inference for Social Science Research.* Makerere University Printery, Kampala.

Anderson, E. W., Fornell, C. & Lehmann, D. R. (1994). Customer satisfaction, Market Share and Profitability: Findings from Sweden. *Journal of Marketing,* 58(3), 53-66

Anderson, E. W., Fornell, C. & Mazvancheryl, S. K. (2004). Customer satisfaction and shareholder value. *Journal of Marketing,* 68(4), 172-185. https://doi.org/10.1509/jmkg.68.4.172.42723

Asif, M. (2014). Personalization of Mobile Services. Thesis submitted for the award of degree of Doctor of Philosophy, Norwegian University of Science and Technology.

Atsu, F., Agyei, C., Phanuel Darbi, W., & Adjei-Mensah, S. (2014). The impact of telecommunication revenue on economic growth: Evidence from Ghana. *African Journal of Economic and Management Studies*, *5*(2), 195–208. doi:10.1108/ajems-102011-0076

Augsburg, C. & Hedman, J. (2014). Value Added Services and Adoption of Mobile Payments. *ResearchGate.* doi: 10.1145/2617848.2617851

Bansal, H.S. & Taylor, S.F. (2015). The Service Provider Switching Model (SPSM): A Model of Consumer Switching Behaviour in the Service Industry. *Journal of Service Research*, 2(2), 200-218.

Bei, L. & Chiao, Y. (2001). An Integrated Model for the Effects of Perceived Product, Perceived Service Quality, and Perceived Price Fairness on Consumer satisfaction and Loyalty. *Journal of Consumer satisfaction, Dissatisfaction and Complaining Behavior,* 14, 125.

Berger, J., Draganska, M. & Simonson, I. (2007). The influence of product variety on brand perception and choice. *Marketing Science,* 26(4), 460-472.

Bergman, M. M. (Ed.). (2008). *Advances in Mixed Method Research.* Thousand Oaks, CA: SAGE

Bujang, M. A. & Baharum, N. (2017). A simplified guide to determination of sample size requirements for estimating the value of intraclass correlation coefficient: A Review. *The Journal of the School of Dental Sciences*, *12*(1), 1-11

Chakraborty, S. & Sengupta, K. (2014). Structural equation modeling of determinants of customer satisfaction of mobile network providers: Case of Kolkata, India. *IIMB Management Review*, 26(4), 234-248.

Chawinga, E. I. (2014). Factors affecting customer satisfaction in banking industry in Tanzania: a case of national microfinance bank (NMB) Bagamoyo branch. A Dissertation Submitted for Award of the Degree of Master of Business Administration (MBA) of Mzumbe University, Tanzania.

Chi, H. & Lai, Y. (2015). The Influence of 4G Mobile Value Added Services on Usage Intention: The Mediating Effect of Perceived Value of Smartphone and Phablet. *International Journal of Marketing Studies, 7*(6), ISSN 1918-719X

Coakes, S. J. & Steed, L. G. (2007). *SPSS: Analysis without anguish: Version 14.0 for windows.* John Wiley & Sons Australia.

Coner, A. & Gungor, M. O. (2002). Factors affecting customer loyalty in the competitive Turkish metropolitan retail markets. *Journal of American Academy of Business,* 2(1), 189-195.

Correa, L. (2006). The economic impact of telecommunications diffusion on UK productivity growth. *Information Economics and Policy*, *18*(4), 385–404.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *psychometrika*, *16*(3), 297-334.

Creswell, J.W. (2009). Editorial: Mapping the Field of Mixed Methods Research. *Journal of Mixed Methods,* 3(2), 95-108.

Davidrow, W. H. & Uttal, B. (1989). *Total Customer satisfaction*. Harper and Low, USA.

DeCuir-Gunby, J. T. (2008). Designing mixed methods research in the social sciences: A racial identity scale development example. In Osborne, J. (Ed.), *Best Practices in Quantitative Methods*, 125-136. Thousand Oaks, CA: Sage.

Goodman, J. A. (2009). Strategic Customer Service, Managing the Customer Experience to Increase Positive Word of Mouth, Build Loyalty, and Maximize Profits. 1st edition, AMACOM, New York

Gunning, J. G. (2000). Models of customer satisfaction and service quality as research instruments in construction management. 16th Annual ARCOM Conference, 6-8 September 2000, Glasgow Caledonian University. *Association of Researchers in Construction Management,* Vol. 1, 21-30.

Hair, J.F., Black, W.C., Babin, B.J. & Anderson, R.E. (2010). *Multivariate Data Analysis.* Seventh Edition. Prentice Hall, Upper Saddle River, New Jersey.

Henderson, R. (2013). Service quality: a critical literature review. *Global Journal of Management and Business Research,* 13(8), 1–6.

Herrmann, A., Xia, L., Monroe, K. B. & Huber, F. (2007). The influence of price fairness on customer satisfaction: an empirical test in the context of automobile purchases. *Journal of Product & Brand Management,* 16(1), 49–58.

Heskett, J. L., Sasser, W. E. & Schlesinger, L. A. (1997). The service profit chain: how leading companies link profit and growth to loyalty, satisfaction and value. New York: Free Press.

Hossain, A., Sultana, J. & Mazmum, F. (2016). Addressing the Factors Influencing Customer satisfaction of 3G Mobile Phone Services: A Case of Dhaka City, Bangladesh. *Global Journal of Management and Business Research: G interdisciplinary,* XVI (II), 1-9.

Johnson, R.B. & Turner, L.A. (2003). Data collection strategies in mixed methods research. In Tashakkori, A. & Teddlie, C. (Eds.), *Handbook of mixed methods in social and behavioral research*, pp. 297-319. Thousand Oaks, CA: Sage.

Keiningham, T.L., Aksoy, L., Komarova, Y.A. & Nejad, M. (2015). The chain of effects from customer satisfaction to customer profitability. In Kumar, V. & Shah, D. (Eds.), *Handbook of Research on Customer Equity in Marketing,* pp: 265–282, eISBN: 9781781004982. doi: https://doi.org/ 10.4337/978178100 4982.00019.

Khan, S. & Afsheen, S. (2012). Determinants of customer satisfaction in Telecom Industry. *Journal of Basic and Applied Scientific Research*, 2(12), 12833 - 12834.

Kim, Y. & Lee, J. (2011). Relationship between corporate image and customer loyalty in mobile communications service markets. *African Journal of Business management,* 4(18), 4035-4041.

Kimani, K. (2012). Mobile Value–added Services Adoption and Customer Stickness in Kenya. Nairobi: University of Nairobi.

Korauš, (2002). Quality of services in the financial sector and types of client behavior. BIATEC, Volume X.

Lai, F., Griffin, M. & Babin, B.J. (2009). How quality, value, image, and satisfaction create loyalty at a Chinese telecom. *Journal of Business Research,* 62, 980-986.

Lee, C-K., Yoon, Y-S. & Lee, S-K. (2007). Investigating the relationships among perceived value, satisfaction, and recommendations: The case of the Korean DMZ. *Tourism Management,* 28, 204-214.

Kothari, C. R. (2004). *Research Methodology: Methods and Techniques.* 7th Edition, New Delhi, India.

Kotler, P. & Armstrong, G. (2010). *Principles of Marketing.* 13th Edition. Pearson Education, Inc., Upper Saddle River, New Jersey.

Kubasu, K. (2018). Factors influencing customer satisfaction with services offered by Safaricom mobile cellular network. A Thesis Submitted for the award of a Master in Business Administration (MBA) Degree of the Strathmore University.

Kuo, Y. F., Wu, C. M. & Deng, W. J. (2009). The Relationships among Service Quality, Perceived Value, Customer satisfaction, and Post-Purchase Intention in Mobile Value–added Services. *Computers in Human Behavior,* 25(4), 887–896

Malhotra, N. K. & Peterson, M. (2006). *Basic Research Marketing: A Decision-Making Approach.* 2nd Edition. New Jersey: Pearson Education, Inc.

Malhotra, N., Décaudin, J. & Bouguerra, A. (2007). *Etudes Marketing avec SPSS.* 5th Edition. Paris: Pearson Education France.

Malina, H. A. K., Najihah, A.R., Norhusniyati, H., Rosfatihah, C.M. & Irwan, I. (2012). The role of price fairness, cleanliness and physical environment on customer retention in family restaurants. In Artinah, Z., Salleh, M.R., Rahmat, H., Chemah, T.C. & Rozita, A. (Eds), *Current issues in hospitality and tourism: Research and innovations,* pp. 291-296, Taylor & Francis Group, London, UK

Martz, W. (2013). Evaluating Organizational Performance: Rational, Natural, and Open System Models. *American Journal of Evaluation,* 34(3), 299–319. https://doi.org/10.1177/1098214013479151

Martin-Consuegra, D., Molina, A. & Esteban, A. (2007). An Integrated Model of Price, Satisfaction and Loyalty: An Empirical Analysis in the Service Sector. *Journal of Product & Brand Management,* 16(7), 459–468.

McDougall, G. & Levesque, T. (2000). Customer satisfaction with services: putting perceived value into the equation. *Journal of Services Marketing,* 14(5), 392-410.

Miah, I., Azad, A. K. & Ferdous, J. (2018). Factors Influencing the Customer Satisfaction On Local and Foreign Telecommunication Companies in Malaysia. *International Journal of Scientific & Engineering Research,* Volume 9, Issue 4, April 2018. ISSN 2229-5518

Mlekwa, M. D. (2014). The Effect of Price Fairness and Customer Service on Customer satisfaction - The Case of Mobile Phone Users of Tanga City. A Dissertation Submitted for Award of the Degree of Master of Business Administration (MBA) of Mzumbe University.

Morar, D. D. (2013). An overview of the consumer value literature – perceived value, desired value. International Conference 'Marketing – from information to decision', 6th Edition, 2013.

Mosahab, R., Mahamad, O. & Ramayah, T. (2010). Service quality, customer satisfaction and loyalty: a test of mediation. *International Business Research,* 3(4), 72–80.

Moshi, A. A. (2016). An examination of the relationship between customer satisfaction and service quality in telecommunication industry in Tanzania: A case study of Vodacom Tanzania. A Dissertation submitted for the award of the degree of masters of project management of the Open University of Tanzania.

Narteh, B. & Kuada, J. (2014). Customer satisfaction with retail banking services in Ghana. *Thunderbird International Business Review,* 56(4), 353 - 371.

Nasser, M. H. A., Salleh, S. & Gelaidan, H. M. (2012). Factors Affecting Customer satisfaction of Mobile Services in Yemen. *American Journal of Economics,* 2(7), 171-184

NBS, (2019). Tanzania in Figures, 2019. National Bureau of Statistics. Dar es Salaam, Tanzania. https://www.nbs.go.tz/index.php/en/tanzania-in-figures/533-tanzania-in-figures-2019. Retrieved on 5th August, 2020.

Oduro, E., Boachie-Mensah, F. O. & Agyapong, G. K. Q. (2018). Determinants of Customer Satisfaction in the Telecommunication Industry in Ghana: A Study of MTN Ghana Limited. *International Journal of Marketing Studies;* Vol. 10, Issue 3, 2018. doi:10.5539/ijms.v10n3p101

Oliver, R. L. (1993). Measurement and Evaluation of Satisfaction Process in Retail Settings. *Journal of Retailing,* 57(3), 25–48.

Pihlaja, J. (2017). Customer satisfaction Survey Case: Advertising & Graphic Design Agency X. Finland: Laurea University of Applied Sciences.

Rahman, M. H. (2014). Factors affecting customer satisfaction in mobile telecommunication industry in Bangladesh. *Business, Management and Education*, *12*(1), 74–93. http://dx.doi.org/10.3846/bme.2014.06

Rahman, M. H., Redwanuzzaman, M., Masud-Ul-Hasan, M. & Rahman, M. A. (2014). Factors Affecting Customer satisfaction on Grameenphone users in Bangladesh. *Global Journal of Management and Business Research: E-Marketing, 14*(3), Version 1.0. Online ISSN: 2249-4588

Rutta, L. F. (2015). Factors influencing customer satisfaction in Tanzania banking sectors: a case study of Tanzania postal bank in Dodoma. A Dissertation Submitted for the Award of the Degree of Master of Business Administration of the University Dodoma, Tanzania.

Saha, N., Islam, M. R., & Hoque, A. U. (2016). Factors affecting customers' satisfaction of mobile phone subscribers: an empirical study on mobile telecommunication Industry in Bangladesh. *International Journal of Business and Management*, *11*(6), 252.

Sanchez, J., Callarisa, L L. J., Rodriguez, R. M. & Moliner, M.A. (2006). Perceived value of the purchase of a tourism product. *Tourism Management*, 27(4), 394-409.

Sanchez, R. & Iniesta-Bonillo, M. A. (2007). The Concept of Perceived Value: A Systematic Review of the Research. *Marketing Theory*, 7(4), 427- 451.

Santouridis, I. & Trivellas, P. (2010). Investigating the impact of service quality and customer satisfaction on customer loyalty in mobile telephony in Greece. *The TQM Journal*, 22(3), 330-343.

Sathye, S., Prasad, B., Sharma, D., Sharma, P. & Sathye, M. (2018). Factors influencing the intention to use of mobile value-added services by women-owned microenterprises in Fiji. *Electronic Journal of Information Systems in Developing Countries,* 84:e12016. https://doi.org/10.1002/isd2.12016

Saunders, M., Lewis, P. & Thornhill, A. (2007). *Research Methods for Business Students.* 4th Edition. London: Prentice Hall.

Sekaran, M. & Bougie, R. (2016). *Research Methods for Business. A Skill building Approach. 7th* Edition, New York, John Wiley.

Senguo, R. A., Xixiang, S., & Kilango, N. C. (2017). Marketing communication based on customer satisfaction and loyalty: Zantel Tanzania. *International Journal of Innovation, Management and Technology*, *8*(4), 284-288. doi: 10.18178/ijimt.2017.8.4.742.

Shaban, A. (2014). The Effect of Mobile Banking on Customer satisfaction: A Case of NMB Dar es Salaam Zone. Mzumbe University.

Sharif, S. H. (2016). The Role of Telecommunication over the Economic Development of Bangladesh. *International Journal of Social Science and Humanities Research,* 4(3), 307-315. ISSN 2348-3164.

Sharif, S. H. (2017). Telecommunication and Its Impact over the Economic Development of SAARC Countries. *International Research Journal of Interdisciplinary & Multidisciplinary Studies (IRJIMS), 3*(1), 114-124.

Siddiqui, M. A. (2013). Towards Determination of Interest Rates Spread of Commercial Banks. Empirical evidence from Pakistan. *A journal of Business Management, 6*(50), 1851-1862.

Tabachnick, B.G. & Fidell, L.S. (2013). *Using Multivariate Statistics.* 6th Edition, Boston, MA: Pearson.

TCRA, (2016). Postcode list for the United Republic of Tanzania. Tanzania Communication Regulatory Authority. https://www.tcra.go.tz/ publication-and-statistics/postcode-list. Retrieved on 10th August, 2020.

TCRA, (2018). Competition Assessment in Tanzania Telecommunication and Broadcasting Markets, 2018. Dar es Salaam: Tanzania Communication Regulatory Authority. https://www.tcra.go.tz/report/Report%20on%20 Competition%20Assessment% 20In%20 Tanzania% 20Telecommunication%20And%20Broadcasting%20Markets.Retrieved on 25th July, 2020.

TCRA, (2020). Quarterly Communications Statistics: January - March 2020 Operator's Submission. Dar es Salaam: Tanzania Communication Regulatory Authority. https://www.tcra.go.tz/statistic_document/8/ march. Retrieved on 15th July, 2020.

Temba, M. L. (2013). The Assessment of service quality and customer satisfaction using SERVQUAL model: A case of Tanzania Telecommunication Company Limited. A Dissertation submitted for the award of MBA degree at Open University of Tanzania, Tanzania.

Thakur, A., Kaur, M. & Sharma, H. (2017). Subscriber Behavior & Mobile Value–added Services: A Critical Review. *International Journal of Science Technology and Management, 4*(1), 126-132.

Turel, O. & Serenko, A. (2006). Satisfaction with mobile services in Canada: An empirical Investigation. *Telecommunications Policy, 30,* 314-331.

Tusiime, W., Ahimbisibwe, A., & Nangoli, S. (2014). Relationship between Perceived Factors for Effective Logistics and Customer Satisfaction: A Case of Tanzania's Telecommunication Industry. *ORSEA JOURNAL,* eISSN 2591-6947

Uddin, M. B. & Akhter, B. (2012). Customer satisfaction in mobile phone service in Bangladesh: A survey research. *Journal of Management and Marketing, 10*(1), 20-36.

Viljoen, K., Wacker, T., Pshenichnaya, N., Tricarico, D., Ngumi, W., Cargo, M. & Zechner, K. (2018). Creating mobile health solutions for behaviour change; A study of eight services in the Nutrition Initiative portfolio. UK: GSMA.

Yoo, D. K. & Park, J. A. (2007). Perceived service quality: Analyzing relationships among employees, customers, and financial performance. *International Journal of Quality & Reliability Management*, *24* (9), 908-926.

Yulisetiarini, D. & Prahasta, Y. A. (2019). The Effect Of Price, Service Quality, Customer Value, And Brand Image On Customer satisfaction Of Telkomsel Cellular Operators In East Java Indonesia. *International Journal Of Scientific & Technology Research, 8*(3), 2277-8616

Zeithaml, V.A. (1988). Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence. *Journal of Marketing, 52*, 2-22.

Zeithaml, V. A., Berry, L. L. & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of Marketing*, *60,* 31-46.

Zeithaml, V. A., Parasuraman, A. & Berry, L.L. (1990). *Delivering Quality Service, Balancing Customer Perceptions and Expectations.* The Free Press, USA.