

Predictors of Customers Satisfaction Towards After Sales Service: A Study on Ethio Telecom Tana Cell Phone Handsets in Areka Town

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Abstract

The present world is digitally related. Social, economic, educational, technological, trade, political environment etc. has been changing on a rapid speed. The developing economy has brought a dynamic change in the lifestyle. People are not only concerned with the facility but they are more interested in the facility features. Ethiopia is also a fast developing economy. However, there is a monopoly of Ethio-Telecom in telecom sector; still tomorrow a challenging competition is likely to take place because of emerging privatisation. So, there is a need for the study of consumer satisfaction towards after sales service because market is after all consumer oriented. A study is planned to study the predictors of customer satisfaction towards after sales service on Ethio-Telecom handsets. The study aims at finding out the significant predictors of after sales satisfaction towards Ethio-Telecom Handsets in Areka town with the help of multivariate techniques. The study is expected to contribute to the policy makers of Ethio-Telecom handsets while developing strategies for after sales service. . The study was guided by Six Variables (service quality, availability of spare part, service personnel skill, working hour of service center, service center response and delay in service time). The study employed causal research design. The target population was end users of Tana cellphone apparatus who purchased from ethio telecom Areka shop. A Questionnaire was the main data collection instruments. The study employs quantitative analysis techniques by the help of casual research design. Based on the research finding the six variables were tested by using regression model and conclusion and recommendations are made based on the findings on the explanatory variables.

Keywords: Predictors of Customer satisfaction and after sale service

Introduction

Customer satisfaction is related to human activity directed at satisfying human wants through the exchange of goods and services. Satisfying the customers occupies the most important position in human management. Customer satisfaction plays crucial role as it deals with customers and their needs. The major task of organization is to satisfy customers by meeting their needs and wants.

The essence of organization is the customer and not the product shall be the heart of the entire business system. It emphasizes on customer oriented business, policies and programs which are formulated to serve efficiently the customer demand. Satisfaction of the customer is so basic that it cannot be considered as separate function. It is the way whole business seen from the point of view of its final results i.e., from the customer's point of view. After-sales service involves a continuous interaction between the service provider and the customer throughout the post-purchase product life cycle. At the time the product is sold to the customer, this interaction is formalized by a mutually agreed warranty or service contract. The exact terms of the warranty or service contract, the characteristics of the customer base, and the nature of the sold product influence the after sales service strategy of the service provider (Cohen et al., 2006; Oliva and Kallenberg, 2003) as cited in Muhammed, et al (2011).

Goffinand New, (2001) discovered that after-sales services maximize the value extracted by customers over the entire product life cycle. Kurata and Nam, 2010; and Ahn and Sohn, (2009)) agreed that after-sales services can create sustainable relationships with customers and contribute significantly to customer satisfaction by offering different after-sales services during the various stages of the primary product lifecycle, the provider can ensure product functionality and thereby customer satisfaction. This may lead to a fruitful relationship between the provider and the customer over time, allowing for more transactions. It is on this note that this research paper wishes to investigate the impact of after sales service dimensions on customer satisfaction and retention with special reference to Tana cell phone in ethio-telecom, Areka shop.

A consumer is the key agent and has the right to choose from a wide variety of offerings. He is the main person around which all business evolves. Today market is amore customer oriented in the sense all the business operations revolve around satisfying the customer by meeting their needs through effective service (Waver man,

2005).

Industry Scenario

The number of mobile subscribers globally is estimated to have reached four billion in 2008 (ITU, 2008), with mobile penetration reaching 61%. Around 58% of subscribers are in developing countries, and subscriber growth in Africa – more than 50% per year – is the highest in the world.

Studies have shown that this rapid increase in mobile penetration has contributed significantly to economic growth. Fuss, Mesachie and Waver man (2005) looked at 92 countries, both developed and developing, to estimate the impact of mobile phones on economic growth for the period 1980 to 2003. They found that a 10% difference in mobile penetration levels over the entire sample period implies a 0.6% difference in growth rates between otherwise identical developing nations. The effect of cell phone was twice in developing countries in comparison to developed ones (Waver man, 2005).

Examples of profitable operators in Africa include Safaricom and Celtel. Safaricom is the Kenyan operator with most subscribers and widest geographical coverage, and users with special SIM cards can transfer money and conduct mobile banking (Rohit Singh, 2009). Since 2006, it has made annual net profits in excess of \$100 million, with its highest figure of \$180 million in 2008.

Market liberalization, in terms of allowing foreign investment and ownership, can mean rapid improvements. In Papua New Guinea, lack of competition and investment capital meant that the State-owned mobile monopoly had barely rolled out services beyond two cities after five years of operations. Once the threat of a new (foreign) entrant into the market became known, the company rolled out its network across the country with the help of foreign investment, before a competitor arrived in 2007. Competition can increase penetration. Ethiopia, for instance, has maintained a monopoly, and mobile penetration stood at just over 1% in 2007. In neighboring Somalia, which has liberalized the market and has three operators, penetration is above 6%. Both countries have troubled pasts, yet competition in Somalia means better outcomes in the mobile sector (Rohit Singh, 2009)

Although there is considerable investment in telecoms services, the sector is heavily regulated and the government of Ethiopia has complete control over networks, with virtually unlimited access to the call records of all phone users and to logs of internet traffic. Most of the technologies deployed have been provided by ZTE and Huawei.

With a population of almost 90 million, Ethiopia is Africa’s second most populous country. Although a number of major contracts have been signed with Chinese vendors since into 2013, the country’s mobile penetration remains one of the lowest in the world. Nevertheless, growth is strong and enormous growth potential remains. Albeit from a low base, mobile penetration is rising and the sector continues to benefit from the poor fixed-line infrastructure which has promoted mobile alternatives as the only viable, or robust, telecoms option in many areas.

The country's broadband market is also set for a boom following massive improvements in international bandwidth, national fiber backbone infrastructure and 3G mobile broadband services. After years of low uptake due to prohibitive pricing, retail prices are now comparable to other markets in the region that are already more developed.

Table 1.1 Estimated market penetration rates in Ethiopia’s telecoms sector – end-2014

Market	Penetration Rate
Mobile	34%
Fixed	1.0%
Internet	1.3%

Source:<http://www.budde.com.au/Research/Ethiopia-Telecoms-Mobile-and-Broadband-Market-Insights-Statistics-and-Analysis>.

Telecommunications in Ethiopia is a monopoly in the control of Ethio Telecom, formerly the Ethiopian Telecommunications Corporation (ETC). As of 2012, 20.524 million cellular phones and 797,500 main line phones were in use (Economy of Ethiopia).From this brief survey it is seen that there is a growing prospect of cell phone industry.

Research Hypothesis

Based on the statement of the problem and reviewed literature, this research has the following alternative research hypotheses:

- H₁:** Service quality has a significant impact on after sales service of Tana cell phone handsets in Areka Town.
- H₂:** Availability of spare parts has significant impact on after sales service of Tana cell phone hand set.
- H₃:** Service personnel skill has significant impact on after sales service of Tana cell phone hand set.
- H₄:** Working hour of the service centre has significant impact on after sales service of Tana cell phone hand set.

- H₅:** Service centre response has significant impact on after sales service of Tana cell phone hand set.
H₆: Delay in service time has significant impact on after sales service of Tana cell phone hand set

RESEARCH METHODOLOGY (QUESTIONNAIRE, SAMPLE AND DATA COLLECTION METHOD)

The study was focused on finding out the impact of exogenous variables on endogenous, so a multivariate study is required to be introduced based on primary data collected through questionnaire backed by secondary data. Users of Ethio-Telecom Tana cell phone Handsets at Areka town. There are about 600 different tana cell phone users at the study town. After clustering the users of Tana cell phone of the study town in to four cluster (niche) which having 150 population each, a systematic Random Sampling method was used for the specified number of sample size 60 samples from each cluster and skip interval is 3. The data collected through questionnaire was analyzed by using multivariate analysis such as factor analysis and regression with the help of IBM SPSS 20.

FINDINGS AND DATA ANALYSIS

Multiple Regressions

Multiple regressions are a logical extension of simple linear regression. It is a situation in which there are predictors and each predictor variable has its own coefficient, and the outcome variable is predicted from a combination of all the variables multiplied by their respective coefficients.

The researcher conducted a multiple regression analysis so as to test relationship among variables and their influence on after sales service satisfaction of customers for the Tana cell phone handset in the study area.

Table 5.7: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.630	.397	.386	.863	1.900

a. Predictors: (Constant), x6, x4, x2,x3

b. Dependent Variable: Y

The researcher applied the statistical package for social sciences (SPSS) to code, enter and compute the measurements of the multiple regressions for the study.

In table 5.10 the three independent variables (spare part availability, service personnel skill, Working hour of service center, and delay in service time) that were studied, explain 39.7% of the factors affecting customer satisfaction in after sales service according to the response of the respondents of Tana cell phone users of Areka town as represented by the R². This indicates that there are other factors left not studied is 60.3% of the factors which affects the after sales service satisfaction of customers for the Tana cell phone handset at the study town. One reason that makes other factors not studied large is that, one variable is excluded during factor analysis. Therefore, further research should be conducted to investigate the other factors which are left not touched by this research (60.3%) that influence the after sales service satisfaction of customers for Tana cell phone handset.

Table 5.8: ANOVA

ANOVA(b)						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	106.981	4	26.745	35.912	.000a
	Residual	162.355	218	0.745		
	Total	269.336	222			

a. Predictors: (Constant), X6, X2, X4

b. Dependent Variable: Y

The study further used one way Analysis of Variance (ANOVA) in order to test the significance of the overall regression model. Green &Sal kind (2003) Explains that one way Analysis of Variance helps in determining the significant relationship between the research variables.

Table 5.8 shows the regression and residual (error) mean squares (variance). The variance of the residuals (errors) is the value of the mean square which is 0.745 and the mean square of the regressed variables is 26.745. The predictors X2(spares part availability), X3 (service personnel skill), X4(Working hour of service center) and X6(delay in service time) represent the independent variables; as the major factors determining customer satisfaction towards after sales service of Tana cell phone handset.

Table 5.8 presents the results of ANOVA test which reveal that the four independent variables; have a significance influence on customer satisfaction towards after sales service of Tana cell phone handset.

Since the F-statistics has value equal to 35.912 with p value 0.00 which is less than 5% level of significance is large enough to conclude that the three independent variables significantly determine customer satisfaction towards after sales service of Tana cell phone handset.

After a stepwise checking of these factors for their significance, and co linearity by removing those

variables which are not entered or not loaded, the following results obtained.

Table 5.9: a stepwise checking of Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.671	.181		14.758	.000
X2	.561	.058	.543	9.610	.000
2 (Constant)	.049	.381		.130	.897
X2	.479	.053	.464	9.009	.000
X4	.551	.073	.391	7.593	.000
3 (Constant)	-.292	.390		-7.748	.455
X2	.431	.054	.417	7.918	.000
X4	.447	.079	.317	5.672	.000
X6	.238	.077	.180	3.099	.002

a. Dependent Variable: Y

From the above table, X2, X3, X4 and X6 are selected based on the level of significance and number of variable used for further analysis.

In table 5.12 the regression model below has established that taking four independent variables into account namely; spares part availability, service personnel skill, working hour of service center, and delay in service time and constant values. The after sales service customer satisfaction of Tana cell phone handset decrease by 0.537 units when keeping other four independent factors influence at zero. The effect of each independent variable can be discussed simultaneously by taking each result by keeping others not changing (constant). A unit increase in spare part availability leads to a 0.382 increase in after sales service satisfaction of Tana cell phone hand set; a unit increase in service personnel skill results in 0.213 increase in after sales service satisfaction of Tana cell phone hand set, working hour of service center leads to 0.392 increases in after sales service satisfaction of Tana cell phone hand set; and a unit increase in delay in service time leads to 0.178 increase in after sales service satisfaction of Tana cell phone hand set. Therefore independent variables can be set according to their degree of influence that spare parts availability followed by working hour of service center, service personnel skill and delay in service time determines after sales service satisfaction of Tana cell phone hand set.

- a. Predictors: -(Constant),
- Spares part availability, X2
 - Service personnel skill, X3
 - Working hour of service center, X4 and
 - Service center response, X6

b. Dependent Variable: After sales service customer satisfaction.

From the regression findings, the substitution of the equation

$$(Y = \beta_0 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_6 X_6)$$

$$\text{Becomes: } Y = -0.537 + 0.382x_2 + 0.213x_3 + 0.392x_4 + 0.178x_6$$

Where Y is the dependent variable (After sales service customer satisfaction of Tana cell phone hand set) X₂ is spares part availability, X₃ is Service personnel skill, X₄ is Working hour of service center, and X₆ is delay in service time.

From the results it can be seen that spares part availability has a greatest contribution (6.503) for after sales service satisfaction of Tana cell phone as compared to spares part availability and service center response. While service personnel skill contributes the least; this has the smallest t value of 2.108, to after sales service customer satisfaction of Tana cell phone handset.

Hypothesis Testing

Table 5.11: Hypothesis testing

Hypothesis No.	Alternate Hypothesis ($H_a(a=1,,6)$)	Sig.	P- Value
H1	Reduced during factor analysis	-	0.000
H2	Accepted	.000	0.000
H3	Accepted	.000	0.000
H4	Accepted	.030	0.000
H5	Reduced during factor analysis	-	0.000
H6	Accepted	.036	0.000

H2:- Availability of spare parts has significant effect on after sales service of Tana cell phone hand set.

_ At 5% level of significance the actual value obtained ($p=0.000$ is less than 0.05) and therefore availability of spare part has a significant effect on Customer satisfaction in after sales service of Tana cell phone hand set.

Therefore H2, Availability of spare parts has significant effect on after sales service of Tana cell phone hand set, is **accepted**

H3:- Service personnel skill has significant effect on after sales service of Tana cell phone hand set.

_ At 0.05% level of significance (since actual p value $0.000 < 0.05$) therefore, service personnel skill has a significant effect on Customer satisfaction in after sales service of Tana cell phone hand set.

H4:- Working hour of service center has significant effect on after sales service of Tana cell phone hand set.

_ At 0.05% level of significance (since actual p value $0.000 < 0.05$) therefore, Working hour of service center has a significant effect on Customer satisfaction in after sales service of Tana cell phone hand set.

Therefore H4:- Working hour of service center has significant effect on after sales service of Tana cell phone hand set is **accepted**.

H6:- delay in service time has significant effect on after sales service of Tana cell phone hand set.

_ at the given level of confidence interval, 95%; i.e., delay in service time has significant effect on Customer satisfaction in after sales service of Tana cell phone hand set.

Therefore the alternative hypothesis H6:- delay in service time has significant effect on after sales service of Tana cell phone hand set is **accepted**.

Correlation

In this section multiple regression and correlation are used to measure a single variable from the weighted linear sum of multiple variables and to measure the strength of this relationship. For the purpose of assessing the objectives of the study, Pearson's Product Moment Correlation Coefficient and regression analyses were performed. With the aid of these inferential statistical techniques, conclusions are drawn with regard to the sample and decisions are made with respect to the research hypothesis.

Pearson's Product Moment Correlation Coefficient

It is a measure of the degree of linear dependence between two variables giving a value between +1 and -1 inclusive, where 1 is total positive correlation, 0 is no correlation, and -1 is total negative correlation. Therefore Pearson's Product Moment Correlation Coefficient was used to determine whether there is significant relationship and what type of relationship exist between service quality, spare part availability, service personnel skill, working hour of the service center, service center response, delay in service time with customer satisfaction in after sales service. The following section presents the results of Pearson's Product Moment Correlation on the relationship between independent variables and dependent variable. The table below indicates that the correlation coefficients for the relationships between customer satisfaction in after sales service and its independent variables are linear and positive ranging from substantial to medium level coefficients.

Table 5.12 Pearson's product moment correlation

Independent Variables	Correlations, probability values and sample size	Customer satisfaction in after sales service (value of Correlations, probabilities and sample size)
Spare parts availability	Pearson Correlation	.510**
	P. value	.000
	N	223
Service personnel skill	Pearson Correlation	.507**
	P. value	.000
	N	223
Working hour of the service center	Pearson Correlation	.374**
	P. value	.000
	N	223
Delay in service time	Pearson Correlation	.383**
	P. value	.000
	N	223

** . Correlation is significant at the 0.05 level (1-tailed).

The above table 5.8 provides a matrix of the correlation coefficients for the four variables. Each variable is positively correlated with dependent variable which is customer satisfaction in after sales service and perfectly correlated with itself showing correlation coefficient equals 1 along the diagonal of the table.

After sales service customer satisfaction is positively correlated to spare part availability with a Pearson correlation coefficient of $r = .510$ and the significance value is less than 0.001. Service personnel skill is also positively correlated with after sales service of $r = 0.507$. Hence, the researcher can say that there is a positive relationship between after sales service customer satisfaction and delay in service time.

After sales service customer satisfaction is also positively correlated to working hours of the service center with r equals 0.374 and the significance value is less than .001. Therefore, the researcher can say that there is significant positive relationship between customer satisfaction towards after sales service and service center response. After sales service customer satisfaction is positively correlated to delay in service time with a Pearson correlation coefficient of $r = 0.383$ and the significance value is less than 0.001 showing a significant positive relationship between after sales service customer satisfaction.

Analysis Based on Coefficient of Determination (R^2)

The coefficient of determination, R^2 is a measure of the amount of variability in one variable that is shared by the other. It is interpreted as the proportion of the variance in the dependent variable that is predictable from the independent variable.

Table 5.13 square of correlation coefficient (coefficient of determination) of dependent and independent variables

o	Factors	Correlation	correlation coefficient squared (R^2)	Share of each factor
2	Spare parts availability	.510	$(.510)^2 = 0.2601$	26.01%
3	Service personnel skill	.507	$(.507)^2 = 0.257049$	25.70%
4	Working hour of service center	.374	$(.374)^2 = 0.139876$	14.00%
6	Delay in service time	.383	$(.383)^2 = 0.146689$	14.67%

Source :(Field Data 2015)

From the above data it can be seen that the coefficient of determination of Spare parts availability is 26.01% let alone. This indicates that the proportion of this variable over customer satisfaction in after sales service is highest and more attention should be given for this variable. R^2 is used to shows that how much of this variability is shared by each factor. Service personnel skill shares 25.70% and Working hour of service centers shares 14.00 % of customer satisfaction in after sales service, Delay in service time 14.67% of customer satisfaction in after sales service affecting factors. The other two factors left not analyzed because they are rejected during factor analysis.

Conclusions

From the findings and discussion made above, the following conclusion was drawn:

- ❖ From the demographic data analysis it has been observed that most of the Tana cell phone users are low income (family dependent) young aged below 20 yrs. and old aged simultaneously.
- ❖ Out of six independent variables developed by researcher, four variables left out of analysis by the help of factor analysis and the rest three entered in to the analysis:-

- Availability of spare parts
- Service personnel skill
- Working hour of service centre
- Delay in service time
- ❖ Factor analysis has shown the reliability and validity of the independent variables which are included in the analysis.
- ❖ Pearson's product moment correlation coefficient (r) has shown correlation between the dependent variable that is customer satisfaction in after sales service of Tana cell phone hand set and the independent variables spare parts availability, Service personnel skill, working hour of service centre and delay in service time with r equals to 0.510, 0.507, 0.374, and 0.383 respectively.
- ❖ The proportion of the effects of each independent variables (spare part availability, Service personnel skill, Working hour of service centre and delay in service time) over the dependent variable (customer satisfaction towards after sales service of Tana cell phone hand set) is identified by using coefficient of determination, R^2 and equals to 26.01%, 25.70%, 14.00% and 14.67% respectively.
- ❖ From multiple regression analysis by using adjusted R^2 39.7% of customer satisfaction in after sales service of Tana handset is predicted /explained by the independent variables and the rest 60.3% remain unexplained.
- ❖ From one way ANOVA analysis F-statistics has also showed the three independent variables significantly affect the dependent variable, after sales service customer satisfaction of Tana hand set, with regressed variables variance, 26.745 and variance(mean square) of residual (error) equals 0.745. At 5% level of significance F-statistics, 35.912 with p value $0.00 < 0.05$ tells that independent variables are accepted as significant.
- ❖ A multiple regression model is established by using the three independent variables and a constant factor.
- ❖ Availability of spare parts affects customer satisfaction in after sales service by 0.382 times when other factors held unchanged. And service personnel skill affect by 0.213 times.
- ❖ Working hour of service centre and delay in service time also affect the dependent variable by 0.392 and 0.178 times respectively by keeping other factors constant.
- ❖ The regression model looks like:

$$Y = \beta_0 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_6 X_6$$

$$Y = -0.537 + 0.382x_2 + 0.213X_3 + 0.392x_4 + 0.178x_6$$

- ❖ The entire null hypotheses are rejected and the alternative hypotheses are accepted; the four independent variables have significant effect on customer satisfaction in after sales service of Tana cell phone handset.

Recommendations

- ❖ There is no spare parts of Tana cell phone hand set in the market currently so that there must have channels to supply spare parts to the market in order to compete in the market.
- ❖ The features of Tana cell phone hand set should be designed in such a way to be able to use other spare parts like battery, charger of other type in order to reduce spare part shortage.
- ❖ Service personnel should train updated customer handling skill continually.
- ❖ In order not obsolete in market and keep up with tough competition of mobile market the company should always learn by doing be up to date with technological innovations
- ❖ There is no maintenance service in the market for the damaged Tana cell phone apparatus therefore technical maintenance training should be given for service personnel.
- ❖ Tana cell phone customers should be patiently treated and warmly welcomed either the feedback is 'yes' or 'no' and the service centre response should be polite.
- ❖ Due to different limitations the research was confined to some specific points and area so that 60.3 % of dependent variable is left unexplained so that it is open for further study.

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