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ANALYSIS OF EXTERNAL FAILURE COSTS IN PROCUREMENT, PTCL

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ABSTRACT

The aim of this research was to develop and test a model of customer satisfaction with cost of poor quality with respect to (PTCL) Pakistan Telecommunication Company Ltd. Its findings are beneficial for this company and telecom sector. Customer satisfaction was selected as dependent variable while cost of poor quality as independent variable. It was proposed that cost of poor quality has direct relation with customer satisfaction while external failure cost has indirect relation with customer satisfaction.PAF model was used. Population was employees and customers of this company. Two hundred employees and customers were selected on convenience. A field survey of this company was conducted with questionnaire. SPSS software was used and frequency distribution, correlation and regression were applied on recorded data. Internal failure cost has positive relation with customer satisfaction. While external failure cost has a negative and significant impact on customer satisfaction. Results showed that to improve customer satisfaction, internal cost should be increased and external cost should be decreased. A mathematical model was developed for the relationship of customer satisfaction with internal failure cost and external failure cost.

Keywords: Cost of Quality, customer's satisfaction, PTCl, mathematical model.

I. INTRODUCTION

This research is the case study of PTCL PTCL is a big telecom service provider of Landline, Broadband, and IPTV etc in Pakistan. To provide these services PTCL has to install some equipments at the customer premises .The name of these equipments are modem , STB, splitter, rosette etc. Fault relates to these equipments after installation at the customer side causes customer dissatisfaction about the service provider. Filed team (CPEI Customer premises installer or CSR (customer service representative) has to revisit the customer premises to remove the fault by replacing or resetting the CPEs to resolve the customer complaint. PTCL get charges of these equipments especially modem (Broadband) and STB (for IPTV). PTCL provides warranty of these CPEs to the customers for some period. PTCL face warranty claims by the customers. After warranty customer has to repay if CPE needs replacement. Warranty claims, complaints and loss of company reputation comes under external failure costs (cost of quality).PTCL purchases these CPEs from the supplier/vendor.

The cost of quality of these equipments is not analyzed in PTCL. Survey of literature shows that cost of quality of these equipments can be determined through CoQ models. To analyze cost of quality different models are used like opportunity cost model, process cost model, ABC model, Taguchi loss function model, but mostly PAF model is used.

Therefore PTCL will get better understanding about CPEs in terms of cost of quality. Objective of this research is to develop a relationship between cost of Quality and Customer satisfaction It will help PTCL to reduce customer complaints and ultimately more satisfaction of the valued customers. Also PTCL purchases these equipments, therefore proper analysis through CoQ will help company to make decision of vendor/supplier selection

II. METHODOLOGY

This research is the case study of PTCL (Pakistan Telecommunication Company Limited) Gujranwala Telecom Region (GTR),Pakistan.

Population:

Target population of the research is employees and customers of company in GTR(Gujranwala Telecom Region). There are about 2,37,500 users / customers / subscribers of this company and ten thousands employees working at various hierarchical levels (departments) of this company. There are about 150 employees in Regional General Manager (RGM) office..

Sampling Technique:

Researcher is the employee of the PTCL and has easy access to get required data collection to complete this research. Convenience sampling was applied being the limited time, cost and human resources.

Sample Size:

Now our sample is one district out of five districts in the GTR that is Gujranwala and two hundreds (employees and customers) of this Gujranwala district (having population ten thousand employees and one lac and fifty thousand customers) .

Research Instrument:

Selected variables have been measured by questions / statements / items. Questionnaire was used for collection of required primary data. Type of questionnaire is 7 point Likert scale:

Data Collection Procedure:

In the beginning, some interviews were conducted to know existing issues in this company and problem faced by consumers. Several Field surveys were conducted to collect data through designed questionnaire. Many visits to different offices, One Stop Shops, complaint offices of this company and exchanges and met with senior employees and customers.

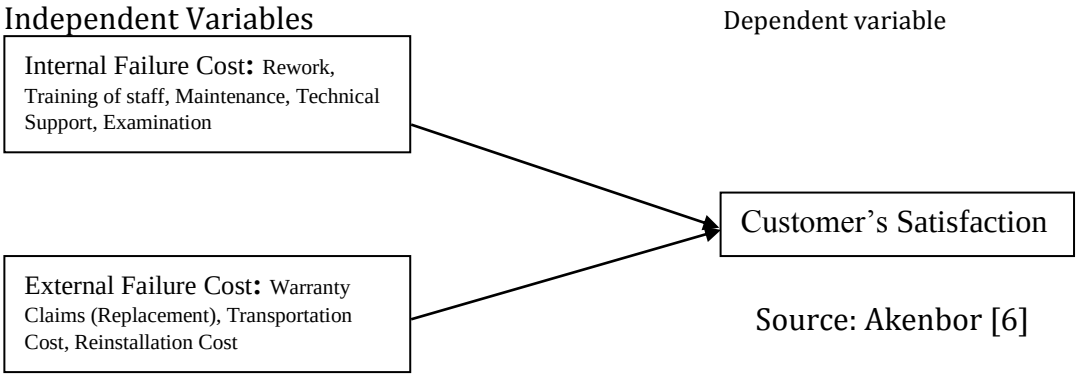
Overview of Data Analysis:

SPSS was used and all analyses were performed on all collected and recorded data. Codes were given to options of questionnaire. Then, variables were defined in software. Then, response of all questionnaires was posted in software against defined variables one by one .Frequency distribution; pearson correlation and multiple regression were applied. Software produced tables which were copied and pasted in this research report. Results were interpreted with rules of statistics under the guidance of my supervisor.

III. PROPOSED MODEL &HYPOTHESIS

Conceptual Framework:

Selected variables and their role have been presented in figure



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Description of Model:

This is necessary to explain the proposed model or diagram. Customer satisfaction is dependent variable. (i) Internal Failure Cost and (ii) External failure cost are independent variables. It is proposed that internal failure cost has direct relation with customer's satisfaction. When internal failure cost increases, level of customer satisfaction also increases and vice versa. It is proposed that external failure cost has indirect relation with customer satisfaction. When external failure cost increases, level of customer satisfaction decreases and vice versa. Selected measures of internal failure cost are (i) training of staff, (ii) maintenance, (iii) technical support, and (iv) examination. Selected dimensions of external failure cost are warranty claims, transportation cost, & re-installation cost. It is proposed that quality non-conformance has a negative and important relationship with customer satisfaction.

Hypothesis of Study:

On the basis of role of selected factors in proposed model, following hypothesis have been developed.

Alternative Hypotheses (H1):

H1: Internal Failure cost has positive and significant impact on customer satisfaction with respect to PTCL.

H2: External Failure cost has negative and significant impact on customer satisfaction with respect to PTCL.

IV. RESULTS AND DISCUSSION

Table 4.1: Correlation

	Internal Failure Cost	**External Failure Cost**
Customer Satisfaction	0.647	-0.787
Value of P	0	0

Table shows that internal failure cost has +ve and significant relationship with customer satisfaction.

And external failure has –ve and significant relationship with customer satisfaction**.**

Table 4.2 Internal Failure Cost and Customer Satisfaction

Statistical Variables	**Values**
Regression constant(α)	-1.389
Regression Coefficient(β)	0.33
Correlation Coefficient(R)	0.839
Co-efficient of Determination(R^2)	0.699
P-value	0
t-value	7.235

Hypothesis H1 is accepted being value of p and t in within statistical range. Above Table is representing that β value is 33%, It is interpreted that internal failure cost has 33% effect on customer satisfaction.

Table 4.3 External Failure Cost and Customer Satisfaction

Statistical Variables	**Values**
Regression constant(α)	-1.389
Regression Coefficient(β)	-0.617
Correlation Coefficient(R)	0.839
Co-efficient of Determination(R^2)	0.699
P-value	0
t-value	-13.551

Hypothesis H2 is accepted being value of p and t in within statistical range. Above Table is representing that β value is 62%, It is interpreted that external failure cost has 62% effect on customer satisfaction

Mathematical Model

A mathematical model has been developed on the basis of the results of the proposed model.

Regression Equation, which was proposed in the literature review

$Y = \beta + \beta 1X1 + \beta 2X2$…. Equation No.1

If we consult the Data Table No.3.8 for the coefficients of Regression, then following important values found:

$\beta = -1.389$

$\beta 1 = 0.330$

$\beta 2 = -0.617$

Putting the values in the Equation No.1

$Y = -1.389 + 0.330X1 - 0.617X2$ …..Equation No.2

Above Equation is our Regression Equation /Mathematical Model

Explanations:

Case -1) If X1=0, X2=0,

Putting values in Equation No.2

Then Y=-1.389+0+0

Y=-1.389

This result is showing that if this company does not expense on the Internal and external failure costs, then the customer will remain dissatisfied.

Case -2) if X1=0, X2>0,

Y=-1.389+ 0.330(0)-0.617(X2>0) Putting values in equation no.2

Its showing that Y remains always -ve if X2>0

Here also we can conclude that Y is +ve if X2 <0

It is interpreted that if company minimizes the external failure cost then customer gets satisfied.

Y= -2.006 (Customers are still dissatisfied with company products)

Case-3) If X1 >0 and X2=0

Then Y=-1.389+0.330(X1>0)

Y is +ve if and only if X2=0 and X1=4.2089

It is interpreted that company must have to make expense on the internal failure cost to get satisfaction of the customers even the external failure cost is zero.

V. CONCLUSION

The purpose of this research is to improve the customer satisfaction regarding the customer premises equipments (CPEs) in terms of cost of quality. PTCL should increase the internal failure cost because it has 33% impact on the customer satisfaction and external failure must be reduced because it has 62% effect on customer satisfaction**.** More the external failure cost, more the customer dissatisfaction which ultimately cause more customer churn and less profitability. PTCL should focus on the employees trainings in terms of internal failure cost .

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