

Customer Contentment and Churn Control in PTCL for Broadband (BB) services by means of Lean Six Sigma (LSS)

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Abstract

PTCL is the largest and most preferred Telecom operator in Pakistan providing services of PSTN, Broadband, IPTV, Webhosting, Corporate circuits, Wireless voice and data. The Research is focusing on faults reduction through analysis and nature faults to reduce number of faults per month in each ITR Exchange. The processes need to reengineered and tailored for improving efficiency and increasing productivity. Main faults which occur in high frequency of Broadband which is due to local loop, power issues and browsing problems. By reducing faults PTCL will be able to increase quality of service with more customer loyalty which will result in revenue boost. By network maintenance, training of staff and process redesign we can reduce faults and increase quality of service. In this Research "Customer Contentment & Churn Control in PTCL for Broadband (BB) services by means of lean Six Sigma approach", DMAIC (Define, Measure, Analyze, Improve and Control) process has been adopted for continued improvement.

Keywords-

PSTN, IPTV, Webhosting, Corporate circuits, Wireless, ITR, Efficiency, Broadband, Customer Contentment, Churn Control, Lean Six Sigma, DMAIC.

I. Introduction

In recent decades, due to the strong influence on the quality of service to customer satisfaction, loyalty, and company's well-being, it has become a firm associated with managers and researchers. The quality of the service can be described as a result of a comparison between the customer's expectations and his views on how the service was provided. By applying quality management measures, especially through Six Sigma the advantages and benefits of the service can be obtained. Six Sigma is an organized and systematic way to develop processes or products and affect customers, based on scientific and statistical methods. This method is suitable for repeat, systematic and well-known processes. The use of quality improvement strategies is appropriate for the competition in which the company operates. The chosen company for research is a national company from the telecom industry, utilizing Six Sigma projects to improve Broadband service quality. The DMAIC cycle is chosen to implement on this research.

According to DMAIC cycle:

II. D for Define Phase:

In define process we have to define what the problem is and customer wants? This process include Problem statement, Objective of research, Business Case, Financial Statement, Target Departments, Team Members, Project Planning, SIPOC and Process flow Diagram to fulfill the requirements of Lean Six Sigma.

a. Problem Statement

PTCL Broadband customers faced an unsubscribe rate of approx.10 to 15% on average in one year. PTCL broadband service is mostly down. Broadband service is slow or erratic. Customers do not get what they want, ineffective complaint management, and so on.

b. Objective of Research

- Identify and prioritize key factors contributing to customer dissatisfaction in PTCL Islamabad Telecom Region (ITR)
- Reduced churn in the ITR region of approx. 12% to approx. 7%
- To maintain customer certainty

III. M for Measure Phase:

a. Research Design:

The research is employed the Quantitative Techniques where the research hypothesis will be tested on the basis of collected data. Research design will be based on Surveys and Interviews related to specific PTCL BB ITR Churned customers, to collect the data respective customers, a survey questionnaire is designed and convenience sampling is used. Data is collected from PTCL ITR teams. The questionnaire is reviewed and reliability is checked (Cronbach’s alpha). The population of the survey consists of ITR churned customers.

b. Research Sample:

In total, 390 questionnaires are circulated. Almost 91% of the questionnaires were received as complete filled form. From 390 questionnaires, 21 questionnaires are not filled completely i.e. some questions were left unanswered. Such responses are excluded from the research and 299 responses are finalized as the final sample.

From these 299 responses of churned customers overall result is found as Disagree statement with PTCL Broadband services.

c. Factors Lead to Churn:

Key factors leading to churn are unreliable and untrustworthy service, insincerity towards resolution of problem, disregard to individual customer, lack of trust and confidence towards PTCL staff, poor QoS vs cost, unavailability of PTCL staff at customer helpline and poor delivery of Tariff delivery at customer end vs agreed contract.

d. X’s Cause and the Y’s Effect:

In order to identify the causes X’s of PTCL BBB churned customers key factors, Questionnaire and interviews have been conducted with the churned customers as well as regional ITR team to identify main causes of churn.

Man	Machine	Method	Material	Environment
Lack of Training	Faulty Ports	Open Loose Joints	Primary cable Problem	Heavy Rain
Shortage of HR	DP Faulty	MDF Patching Problem	Secondary cable Problem	Hot Weather
New Hiring	MDF Faulty	Incorrect DNS	Shortage of Inventory	Moisture
	Modem Splitter faulty	PIE Working Problem	Punching Tools problem	Rust

	Cabinet Issue	NOC	Network unavailability	Wind storm
	ONU/MS AG Power Failure	Transmission Problem		Thunder storm
	Customer PC Virus			Lightning

Table 1: Causes and Effects of PTCL BB service churn Key Factors

e. Sigma Level

After finding out the causes and effects of key Factors which lead to PTCL BB service churn, now there is a need to identify the Sigma level based on previous year 2017 churned customers’ data which is:

Total customers left in 2017 = 16858

Total Number of connections = 139064

Opportunities include (PSTN, IPTV, Modem) = 3

Defects per unit = Total Faults/Total Number of Connections

= 16858/139064

= 0.12

Defects per opportunity = Defects per unit/ Number of opportunities

= 0.12/3

= 0.04

Defects per million opportunities = Defects per opportunity x 10 power of 6

= 0.005006 x 106

= 40000

According to Six Sigma Level Conversion Table Figure 1 which is given below:

Process Sigma Level Conversion Table		
Yield %	DPMO	Sigma Level
94.79000	52,100	3.125
95.99000	40,100	3.250
96.96000	30,400	3.375
97.73000	22,700	3.500
98.32000	16,800	3.625
98.78000	12,200	3.750
99.12000	8,800	3.875
99.38000	6,200	4.000
99.56500	4,350	4.125
99.70000	3,000	4.250
99.79500	2,050	4.375
99.87000	1,300	4.500
99.91000	900	4.625
99.94000	600	4.750
99.96000	400	4.875
99.97700	230	5.000
99.98200	180	5.125
99.98700	130	5.250
99.99200	80	5.375
99.99700	30	5.500
99.99767	23	5.625
99.99833	17	5.750
99.99900	10	5.875
99.99966	3	6.000

Fig 1: Process Sigma Level Conversion

Year 2017 churned customers Sigma Level is = 3.25

Its means that Defects per Million Opportunities DPMO 40,000 leads to Sigma Level of 3.25 whose yield is 95.99% it means that for getting perfect sigma level of 6, DPMO must equal to 3 from 40,000.

IV. A for Analysis Phase:

After collecting required data, the key areas that require improvement have been identified. In the Measure phase, data which is collected from questionnaire shows that mostly issue are related to the BB service technical issue which leads to factor of non-reliable service. Now, after concerned with PTCL Technical teams of ITR exchanges, technical issues of BB service are related to technical issues which are contributing in customer dissatisfaction. Data has been collected on type of faults registered frequently by customers. Analysis of this data will help finding most occurring and critical faults. Root cause analysis will help resolve these faults. Data of churned customers of one year 2017 is provided by ITR exchanges.

After Preto Analysis of Registered BB Complaints KPIVs and KPOVs are:

a. Key Process Input Variables (KPIVS)

- BB services (Technical)
 - ✓ Subscriber Loop
 - ✓ Secondary cable
 - ✓ Cabinet
 - ✓ DP Faults
- Resources
 - ✓ Competence of CSR
 - ✓ Trainings of CSRs on soft and hard skills

b. Key Process Output Variables (KPOVS)

- Customer Satisfaction
- Quality of service
- Browsing Problem
- No Dial Tone

V. I for Improve Phase:

In Improve phase of lean Six Sigma Why-Why and cost benefits analysis have been done after analyzing key factors and their causes and effects which leads to customers' churn and their severity.

After applying all proposed actions of WHY-WHY analysis Expected result will be e.g. for year of 2018 the targeted churn rate is 7%. For first half year of 2018 let suppose 3.5% of previous year churned percentage of 12% will be retained. Churn rate for first half of year 2018 will be 3.5%. Improvement activities are carried in remaining half of month of 2018. Noticeable improvement can be observed in second half of month of 2018. If we assume this improvement continues then by doubling the improved churn rate we get value of 7%. Churn rate for month of September 2018 will be 0.58% half of 3.5%. So decrease in churn rate from previous year will be 5% reduce churn rate from 12% to 7% of 2017 in 2018.

a. Sigma Level Comparison

Average Total churned customers in 2018 = 843

Average Total churned customers in each month of 2018= 70

Total churned customers in 2017 = 16858

(Expected number of churned customers in 2018 will be reduce 5% of 16858)

Let Suppose Total Number of connections at end of 2018 = 139064

Opportunities = 3 (BB, IPTV, PSTN)

Defects per unit = Total Faults/Total Number of Connections

= 70/139064

= 0.000503

Defects per opportunity

= Defects per unit/ Number of opportunities

= 0.00505/3

= 0.00168

Defects per million opportunities (DPMO)

= Defects per opportunity x 10⁶

= 0.00168 x 10⁶

= 168

New Sigma Level = 5.125

Old Sigma Level = 3.25

*calculations are done by following the Lean Six Sigma Rule

VI. C for Control Phase:

The control plan which lists all the product and process checkpoints needed to deliver the perfect result, which is critical for long-term maintenance

Activity	Responsibility	Control Measure	Control Method	Frequency	Control Instrument
Competence of CSRs	Customer care	1. Frequency of trainings 2. Training evaluation	Training Plan development and implementation	According to training plan	Quarterly Meeting between GM operations, GM Customer care and Business Manager
	Customer care	Evaluation of CSRs	1. CSR evaluation. 2. Training need analysis	Monthly	Evaluation forms
Introducing New packages and promotion	1 Marketing 2 Customer Care	SOP for Promotion timeline	-	According to SOP	Quarterly audit of promotion timeline validity
Network Health					
1 Subscriber Loop resolution	1 Technical Department 2 Business Zone 3 customer care	Standardization of cable usage time	Formation of SOP	semi annually	Semiannually inspection of Local Loops to ensure timely replacement.
2 DP faults removal	1. Business Zone 2. Development department	1. 100% rejumping of DPs require Jumping. 2. 100% replacement of faulty DP strips. 3. 100% cover installation of open DPs	1. Re Jumper 2. DP strips replacement 3. DP cover installment	Monthly	Rejumping of at least 20 % of faulty DPs in a month

of process control.

Table 2: Process Control Plan

VII. Recommendation / Implementation Plan

Performance enhancement of OSS and customer care department.

a. Conducting training for employees.

The purpose of training is to improve performance all customer service representatives.

b. Conduct briefing before assigning work to all employees.

All new and existing employees at OSS of ITR are briefed on updated information, customer complaints and areas that need improvement. For this purpose teams of ISO certified OSS and other departments visited the said OSS and shared the practices of Quality Management Systems.

c. Evaluation of employees' performance and rewarding the best Performance employee

Recognition and reward is required to provide motivation to Customer Service Representatives in order to serve the customers better.

d. Quality of network performance

Network problem is a problem where the solution is carried out by the technical division. This is the main feeblest area in view of customers with rating of (Disagree) and (Strongly Disagree) on five point Likert scale. It is required to collect the complaints data related to Network issues on daily basis. Weekly analysis of data will help in finding potential root causes and ultimately customer satisfaction.

e. Improving retention programs that can increase customer loyalty

Retention program is a program designed for existing customers in order to increase customer Loyalty. Offers for retention of customers already available are:

- E-billing facility
- SMS alert for reminders
- Contact center dial out
- Top priority complaint handling at exchange. Customers need to be fully aware of these offers. Proper communication with customers must exist in this regard. With proper training of CSRs.

VIII. Limitations

The research is limited by the cross sectional nature as the data is collected once only. Moreover, the data is collected only from Islamabad Technical Region of PTCL and may not accurately reflect the perception of the all regions of PTCL which are

basically in large number with three main Zones which are Central, South and North.

IX. Future Course of Research

The study has the potential of expansion into a three zones of PTCL Central, South and North. Comparative study on different telecom industries can be done for comparison of the churn rate and Six Sigma implementation to retain them.

X. Conclusion

Due to the current situation, companies are increasingly under the pressure of global competition to increase their competitiveness, reduce their costs, increase their productivity and, most importantly, take advantage of the Six Sigma approach to improve sustainably. The Lean Six Sigma approach, developed in the 1980s, has great potential to improve the organizer's (PTCL) competitive advantage among other competitors. The study showed that the implementation of PTCL's Lean Six Sigma in ITR increases Customer Contentment, which in turn will become more profitable for organization PTCL. In the study, the implementation of the Six Sigma approach, the cost-benefit results will be Total Cost/year = 470 Million and Total Benefits/year analysis = 1997.7 Million. This calculation only applies to the ITR exchanges of PTCL.

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