Mobile Telecommunication Post-Paid Customer Satisfaction

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Abstract: Telecommunication industry in India is booming especially the cellular mobile and smartphones market. The era of liberalisation and privatisation opened up the Telecom sector in India two decades back. The monopoly of BNSL ended and private service providers entered the fray. The story has come a long way and currently broadband and 4G have become a basic necessity and smartphones an obsession. Telecom scenario has witnessed expansions as well as takeovers and the number of operators differs across the Telecom circles. Mobile number portability has also largely changed the subscriber count and telecom operators are facing the heat to retain their customers. The current scenario warrants a satisfying experience and service providers face stiff competition on this account. Research was undertaken to ascertain the satisfaction levels with telecom experience in the cellular mobile sector. The post-paid subscriber perceptions about antecedents of satisfaction with telecom experience like service quality, service delivery, support services, perceived value, cost and trust were ascertained. The satisfaction levels of subscribers were also gauged. 328 Telecom post-paid subscribers from all five telecom service providers registered in Tamilnadu Telecom circle were surveyed. This paper presents the regression analysis and the extent of impact of variables.

IndexTerms - **Telecommunication, Cellular Mobile, Subscribers, Customer Satisfaction.**
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1. TELECOMMUNICATION SCENARIO

The mobile phone market in India has witnessed rapid progress and is the fastest growing market around the globe. The telecommunication scenario has dramatically changed with the now popular 4G networks and a plethora of smartphones. The telecom subscription scenario in India as of November 2017 is shown in Table 1.

Table 1: Indian Telecom Subscription Scenario

Particulars	Wireless[@]	Wireline[@]	Total[@]
Total Telephone Subscribers (Million)	1162.47	23.41	1185.88
Urban Telephone Subscribers (Million)	664.94	19.95	684.89
Rural Telephone Subscribers (Million)	497.53	3.47	500.99
Overall Tele-density (%)	89.81	1.81	91.61
Broadband Subscribers (Million)	332.85	17.85	350.70
MNP Requests (Million)	15.99	-	330.98#

@ November 30, 2017; # Cumulative MNP requests since its implementation.
Source: TRAI (2018)

The GSM telecom subscriber base has been rapidly expanding (TRAI, 2018) and the country had a total mobile subscriber base of approximately 1,186 million (Table 1). The month of November alone witnessed approximately sixteen million Mobile Number Portability (MNP) requests. This a clear indication that customer satisfaction with telecom experience was clearly unsteady and hence subscribers were seeking a switchover to a competitor.

Table 2: Tamilnadu Circle Telecom Subscription Scenario

Telecom Service Provider Tamilnadu Circle	Mobile Subscribers (as of November 2017)
Aircel	20,691,085
Bharti Airtel	19,853,584
Idea	5,923,045
Vodafone	16,533,994
BSNL	9,916,053

Source: TRAI (2018)

Table 2 is an indication that Aircel had the maximum mobile subscriber base in Tamilnadu Circle closely followed by Bharti Airtel and Vodafone at third position. BSNL and Idea were far behind.

2. NEED FOR THE RESEARCH

The provision of Mobile Number Portability (MNP) and the customers' need to have a satisfying or delightful experience necessitates the need to research the satisfaction levels of customers and their loyalty intentions. The mobile service providers (operators) are neck deep in competition to woo the subscribers as well as to retain them. There are key major elements like service quality, service delivery, support services, perceived value, Cost and trust that define the ultimate moments of truth and subsequently satisfaction with the operator. The current research was undertaken to ascertain the satisfaction levels of cellular mobile telecommunication post-paid subscribers.

3. REVIEW OF LITERATURE

3.1 Perceived Value: Babic-Hodovic et al. (2017) examined the perceived quality, value and corporate image in mobile service sector and checked the role of technical and functional quality. This study ascertained that perceived functional quality is concerned with tangibility, reliability, responsiveness, assurance, and empathy. Perceived technical quality is concerned with network and augmented technical service provision of the mobile services. It was found that both perceived technical and functional quality are the antecedents of perceived corporate image and overall quality assessment is the outcome on it. Results revealed that both perceived functional quality and technical quality have significant relationship with corporate image. It was concluded that perceived value has significant and positive association with overall quality assessment.

Jung et al. (2017) attempted to assess the data driven customer quality of experience system for a cellular network. Increasing customer perceived service quality and value through better data processing system is the main task of mobile service operations. It was found the customer perceived quality largely relied on the data service quality and connectivity quality,whereas, connectivity quality depends on connection establishment of mobile service and is concerned with internet connection, network coverage, roaming and so on. It was concluded that providing better service and connection will enhance customer perceived value.

3.2 Support Services: Ullah et al. (2017) assessed consumers' satisfaction level on Grameen phone services. Grameen phone offers voice service and value added services in the form of 3G, physical services, billing service, service network, customer care, mobile banking, information services, and new tariff offers to its customers. Customer satisfaction is mainly based on the service delivery and efficiency associated with the mobile connection. Customers are mainly using voice calls, SMS, and internet access for various purposes. It was found that mobile customers' satisfaction hinges on these parameters. It was concluded that focus on increasing customer satisfaction through provision of various support services can enhance corporate image among the customers.

Hossain (2016) examined about fostering sustainable relationships in telecommunication sectorthrough customer support service. This study identified that adequate information in the website of the mobile provider, high quality customer support services, timely service provision, communication of products, and 24-hours access are the major customer support services. Moreover, waiting time in customer centre, free phone call support, uninterrupted service, service operation in social network, and ideal customer support centre are also significant customer support services. Results revealed that providing prompt service to the customer will make extraordinary impact on better relationships. It was concluded that customer support services is significantly associated with the telecommunication industry.

3.3 Service Delivery: Sharma (2017) intended to check customers' expectations and perceptions on service delivery of Indian telecom sector. It was found that mobile network operators are finding difficulty in ensuring what customers perceive and expect from the services provided by them. This study revealed that customer behavioural intentions are largely governed by service access with lowest effort. Therefore, location of service providers' branches, website accessibility, customer care service, and network coverage are the significant expectations of customers. If their expectations are fulfilled with minimum effort, their behavioural intentions will be high. Findings concluded that service quality has significant influence on customer behavioural intentions in telecom sector.

Nwofe (2016) attempted to measure the various challenges of mobile communication access in a developing economy. This study revealed that effective and functional mobile service delivery can increase customer's service access and bring more satisfaction. It was found that communication enables the customers to communicate, which has ultimate impact on developing a nation's economy. Results revealed that the challenges of mobile service delivery are operator's inefficiency, administration of the nation,

customer's illiteracy, poverty, and other environmental factors. It was also found that the mobile network operators are not in a position to establish more communicative tower networks and there is inefficiency in tower sharing among service providers. It was concluded that these factors collectively affect service delivery.

3.4 Cost: Brake (2016) attempted to assess the 5G and next generation wireless and its implication for policy and competition. This study revealed that 5G has the ability to provide sophisticated service with much lower cost to its customers. It facilitates to move beyond networks that are used to connect televisions, systems, and other types of devices at much higher speeds. Moreover, it may reduce the cost involved in providing mobile service to the customers. In addition to that, customers can have the privilege to access larger services through their mobile networks. It was concluded that 5G can enhance competition and decrease cost involved in service provision.

Singh (2017) attempted to check the influence of Reliance Jio among Indian telecom customers. It was found that before the entry of Reliance Jio, all the companies were charging considerable cost for voice calls, messaging, internet, and other value-added services. The entry of Reliance Jio has provided a considerable jerk to Indian telecom sector; it rolled out free SIM card with the features of unlimited 4G internet service, unlimited free calls, and messaging. Thereafter, the company charged a minimum for the use of 4G service with limited and unlimited internet data and voice calls to its subscribers. It was concluded that lesser cost of its service attracted more customers.

3.5 Service Quality: Mahalaxmi and Sureshkumar (2017) assessed service quality and its influence on customer preference and satisfaction in Reliance Jio. Service quality can be measured with reliability, tangibility, assurance, responsiveness, network quality and empathy. It was found that young customers highly preferred to buy and use Reliance Jio and felt the highest satisfaction on its services. Results showed that the unlimited free voice calls and high speed 4G data connection facilities fostered large number of customers to prefer and pick its services. Findings concluded that service quality of Reliance Jio is high and customers are highly satisfied with the service provided by the company.

Nkwede and Okpara (2017) measured the association between service quality aspects and customer loyalty through customer satisfaction. Provision of high quality service with reasonable price, value added services and network coverage can increase customer satisfaction. This study revealed that mobile operators have to improve their service assurance aspect of service quality to create trust and confidence among their customers. Moreover, tangibility, reliability, responsiveness, network quality, and empathy can increase service quality strength of the company. Findings also confirmed that augmented service quality facilitates can increase customer satisfaction and that customer satisfaction can lead to greater customer loyalty.

3.6 Trust: Hafez and Akther (2017) examined the determinants of customer loyalty in telecommunication sector in Bangladesh. This study revealed that customer loyalty is the end result of customer satisfaction on the services provided. Finding indicated that service quality, corporate image, customer satisfaction, and customer trust have significant connection with customer loyalty in telecom sector. It also stressed that trust is the most significant determinant, which leads to use particular telecom services frequently. Customer trust on a service provider can assist in enlarging its market size. The findings suggested that mobile service provider should put more stress on increasing service quality, corporate image, customer satisfaction, and trust to increase customer loyalty.

Osho and Ogunode (2016) assessed the impact of service quality on customer satisfaction in telecommunication sector. This study also assessed customer trust and it can be increased through the delivery of better service quality of the company. Results indicated that the customers are satisfied with the services offered by the mobile operators. It was also found that perceived value, perceived service quality, and trust can increase customer satisfaction. Moreover, speedy service, network coverage, connectivity, and other value-added services establishmore trust. Findings of the study concluded that service quality has significant relationship with customer satisfaction through customer trust.

3.7 Customer Satisfaction: Brahmani and Vamsi (2017) endeavoured to check customer satisfaction on the usage of Reliance Jio mobile service. Results indicated that customer are highly satisfied due to its cost effective service in the form of unlimited free voice calls, 4G data, no roaming, free channels, and voice clarity. Based on demographic data, young generation mostly preferred to buy Reliance Jio and expressed highest level of satisfaction on it. Rural customers revealed that lower speed and inadequatecoverage were the significant dissatisfaction factors. Findings revealed that, by and large, customers are highly satisfied with the service provided by Reliance Jio and are not interested to switchover to other networks.

Saha et al. (2016) investigated the factors influencing customers' satisfaction of mobile phone customers in Bangladesh. This study revealed that because of intense competition, mobile operators are trying to capture maximum market share through new

packages, and promotional offers. In addition to that mobile service providers planned to offer value-added services to fulfil customer needs and to enhance their satisfaction. Results showed that customers are satisfied with the network quality, product diversity, price, facilities provided by the mobile operators. It was also found that lack of transparency, poor rural network, and high cost of SMS, ringtones, e-transaction, and games led to high dissatisfaction.

4. RESEARCH METHODOLOGY

Cellular mobile telecommunication subscribers at Chennai city (capital city of Tamil Nadu state in Southern India) were surveyed with a structured questionnaire. The research instrument was available in English as well as Tamil (local language). The sample size was 328 respondents. Quota sampling was followed and quota was equally divided among the five registered service providers at Chennai (Aircel, Bharti Airtel, Idea, Vodafone, and BSNL). Random sampling was then employed within each operator.

5. RESULTS AND DISCUSSION

The Dependent variable was Satisfaction of the Customer (Y) and the Independent variables were Perceived Value (X_1), Support Services (X_2), Service Delivery (X_3), Cost (X_4), Service Quality (X_5), and Trust (X_6). The model summary is depicted in Table 2 and the analysis of variance in Table 3.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.825[a]	0.680	0.674	2.135

Table 4: ANOVA[a]

	Model	Sum of Squares	df	Mean Square	F	p
1	Regression	3108.345	6	518.057	113.626	0.000[b***]
	Residual	1463.545	321	4.559		
	Total	4571.890	327			

a. Dependent Variable: Satisfaction of the Customer.

b. Predictors: (Constant), Perceived Value, Support Services, Service Delivery, Cost, Service Quality, Trust.

*** significant at $p < 0.001$

The Multiple R value was 0.825 while the R Square value was 0.68. The F value was observed to be 113.626 and p values was significant at 0.1%.

The multiple correlation coefficient being 0.825 measures the degree of relationship between the actual values and the predicted values of the Satisfaction of the Customer. Because the predicted values are obtained as a linear combination of Perceived Value (X_1), Support Services (X_2), Service Delivery (X_3), Cost (X_4), Service Quality (X_5), and Trust (X_6), the coefficient value of 0.825 indicates that the relationship between Satisfaction of the Customer and the six independent variables is quite strong and positive.

The Coefficient of DeterminationR-squaremeasures the goodness-of-fit of the estimated Sample Regression Plane (SRP) in terms of the proportion of the variation in the dependent variables explained by the fitted sample regression equation. Thus, the value of R square is 0.68 simply means that about 68% of the variation in Satisfaction of the Customer is explained by the estimated SRP that uses Perceived Value (X_1), Support Services (X_2), Service Delivery (X_3), Cost (X_4), Service Quality (X_5), and Trust (X_6)as the independent variables and R square value is significant at 0.1% level.

The multiple regression values for the variables are summarised in Table 4.

Table 5: Variables in the Multiple Regression Analysis

Variables	Unstandardised co-efficient B	Std. Error of B	Standardised co-efficient Beta	t value	p value
Constant	2.011	0.802	-	2.508	0.013*

X_1	0.389	0.061	0.372	6.357	0.000***
X_2	0.077	0.033	0.084	2.321	0.021*
X_3	0.125	0.052	0.111	2.397	0.017*
X_4	0.325	0.066	0.218	4.913	0.000***
X_5	0.078	0.052	0.070	1.487	0.138
X_6	0.173	0.056	0.171	3.093	0.002**

* Denotes significant at 5% level; ** Denotes significant at 1% level; *** Denotes significant at 0.1% level

The multiple regression equation is

$$Y = 2.011 + 0.389X_1 + 0.077X_2 + 0.125X_3 + 0.325X_4 + 0.078X_5 + 0.173X_6$$

The coefficient of X_1 is 0.389 represents the partial effect of Perceived Value on Satisfaction of the Customer, holding the other variables as constant. The estimated positive sign implies that such effect is positive that Satisfaction of the Customer would increase by 0.389 for every unit increase in Perceived Value and this coefficient value is significant at 0.1% level.

The coefficient of X_2 is 0.077 represents the partial effect of Support Services on Satisfaction of the Customer, holding the other variables as constant. The estimated positive sign implies that such effect is positive that Satisfaction of the Customer would increase by 0.077 for every unit increase in Support Services and this coefficient value is significant at 5% level.

The coefficient of X_3 is 0.125 represents the partial effect of Service Delivery on Satisfaction of the Customer, holding the other variables as constant. The estimated positive sign implies that such effect is positive that Satisfaction of the Customer would increase by 0.125 for every unit increase in Service Delivery and this coefficient value is significant at 5% level.

The coefficient of X_4 is 0.325 represents the partial effect of Cost on Satisfaction of the Customer, holding the other variables as constant. The estimated positive sign implies that such effect is positive that Satisfaction of the Customer would increase by 0.325 for every unit increase in Cost and this coefficient value is significant at 0.1% level.

The coefficient of X_5 is 0.078 represents the partial effect of Service Quality on Satisfaction of the Customer, holding the other variables as constant. The estimated positive sign implies that such effect is positive that Satisfaction of the Customer would increase by 0.078 for every unit increase in Service Quality and this coefficient value is not significant.

The coefficient of X_6 is 0.173 represents the partial effect of Trust on Satisfaction of the Customer, holding the other variables as constant. The estimated positive sign implies that such effect is positive that Satisfaction of the Customer would increase by 0.173 for every unit increase in Trust and this coefficient value is significant at 1% level.

6. CONCLUSION

Based on standardised coefficient of multiple regression analysis, Perceived Value (0.372) is the most important factors to extract Satisfaction of the Customer, followed by Cost (0.218), Trust (0.171), Service Delivery (0.111), Support Services (0.084), and Service Quality (0.07).

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