

An Empirical Study to Measure Customer Experience for Telecom Operators in Indian Telecom Industry

Menachem Domb, Joshi Sujata, Bhatia Sanjay, Roy Arindam, and Saini Jypti

Abstract—as Indian Telecom industry matures itself, service providers understand the essence of Customer Experience as the prime differentiator towards business success. This paper will provide a rundown of the extant literature on customer experience studies done in Telecom industry. This research paper also attempts to identify the determinants of Customer Experience for Telecom operators in Indian Telecom industry. Also this research paper defines a yardstick called ACEI score to quantify customer experience in telecom industry

Keywords— Customer Experience, ACEI Score, Customer Behavior

I. INTRODUCTION

The telecom industry has caught everyone's attention and India has continued to be the second largest telecommunication industry after China. According to Telecom Regulatory authority of India (TRAI) Press release March, 2014 the total wireless subscriber base is 904.51Mn registering a monthly growth rate of 0.13%. As the subscriber base is increasing so is the churn rate. TRAI's March press release shows the Mobile Number Portability (MNP) request to increase from 114.41Mn to 117.01Mn.

The operators are focusing on subscriber quality, companies are increasingly betting their money on cherishing and nurturing existing customer so as to win customer loyalty and build sustainable competitive differentiation. As a result, there is a rising need to have a yardstick to measure Customer Experience at all stages of Customer Life Cycle. Taking this forward, in this research paper we discuss the customer experience framework, major determinants for Cellular Service Providers (CSP) their scope and background, the

difference in customer behavior across customer segments and how customer experience plays an influential role while customer behavior is in question.

II. LITERATURE REVIEW

A. Customer Experience

Based on various studies conducted in the field of Customer experience there are different definitions or versions of the same given by different people. Direct contact occurs while purchasing, usage, and service and is initiated by the customer most of the times. Indirect contact involves unplanned encounters with representatives from the companies offering products, service or brands and translates into word-of-mouth recommendations or criticisms, advertising, news reports, reviews etc." [1].The customer experience arises from interactions between a consumer and a product, a company, or part of its organization, which abets reaction. This experience is personal and denote the customer's involvement at multiple levels (rational, emotional, sensorial, physical, and spiritual)" [2] Customer experience is how customers engage with company and brand throughout the entire arc of being a customer. [3]

The customer experience is a combination of a company's actual physical performance and the feelings evoked, supposedly measured against customer prospection across all events of contact", [4]. It is an intriguing act of co-creation between a seller and a consumer wherein the consumer recognizes value in the transaction and in the consequent memory of that transaction [5].

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Customer experiences thus mean “engage customers, connecting with them in a personal, memorable way [8]. Customer experience is a journey and it includes many touch point and life stages which are important to both customer and company [9]. It is not only about an interaction with service provider but also thinking and feelings towards the brand and the strength of relationship with the brand [10]; [11]. Customer experience is therefore defined as the outcome of customers’ interactions with the firm, including the interaction with the staff, self-service technologies, and the service environment [12]

Thus, we conclude that the customer experience involves the total participation during the customer lifecycle, including the search, consumption, purchase and after-sale phases of the experience, measured against the customer expectations which will eventually augment the customer retention and loyalty conclusively affecting the business value.

B. Customer Experience Frameworks in the Telecom Industry

i) CE Frameworks by different Authors

The table below illustrates the various frameworks for Customer experience carried out by various authors based on different dimensions:

Table 1: CE Dimensions in various studies:

Author	Dimensions
Rahul Malviya & VyasVerma (2012) [36]	Brand, Billing, Customer support, Service quality
Sebastian Barros & Jon Beguiristain (2012) [21]	Billing, Service and support
Bob Hensle (2014) [37]	Commerce (delivery of products and services), marketing, support & service (web support, customer care support etc)
Inés Guzmán (2013) [38]	Service delivery, Web-Internet, Instore/retail experience
Pramod Khambete [39]	Customer care, Store and Gallery Experience
Nandan Amresh, Hines Tony (2012) [40]	Customer care, Billing, Service usage, Interaction, Procurement, Product usage
Sheryl Kingstone (2013) [29]	Network operations, Customer care.
Adam Richardson 2010 [3] Kimpakorn and Tocquer, 2010), [41] (XU and Chan, 2010; [42] Berry and Carbne, 2007; [10] Brakus et al., 2009). [11]	Brand equity
Saba Fatma(2014) [44]	Brand performance, multichannel interaction, service interface, physical environment, social environment and price and promotions.

We can see the major focus for all CSPs is to look at the various customer touch points in their buying cycle and post sales services. However, no in-depth or detailed study has been made discussing Network Analytics like call quality, Data services etc which have a stronger impact on customer experience leading to a higher loyalty. Also not all the parameters together are collectively considered in any one framework that will encompass all the touch points of the customer journey right from Brand, Service Delivery, Network, Customer Care, Store/ web self care to Billing. Hence we would like to propose a conceptual framework which will help the CSP’s to enhance the end to end customer experience.

ii) CE Frameworks in the Telecom Industry

There are many frameworks in the telecom industry that are used for measuring/ defining customer experience.

Table 2: CE Frameworks in Telecom Industry

INDUSTRY	CE MEASUREMENT
Client View [11]	Customer Experience is divided into three categories for measurement: financial experience, service experience and usage experience
Wipro Technologies [12]	Takes 6 dimensions for CE measurement: Marketing and Sales, Brand, Billing , Service quality, Customer support and Product and service portfolio.
Ericsson [13]	Measures CE on the basis of the 5 stages in customer lifecycle: Initial experience, Billing & payment process, Account management, Service and support and Loyalty building
TCS: [14]	TCS Customer Experience Management framework talks about the various customer lifecycle stages in telecom which impact customer experience and intends to improve these processes and business operations according to eTOM and TAM models.
Analysis Mason [15]	Talks about the gap between the customers and suppliers’ perceptions about service delivery. It tells that NPS and internal benchmarking indices can improve how CSP employees interact with customers. It also tells that Customers form perceptions when they interact with employees, IT systems and services at different lifecycle phases, including: Commitment phase, Order to fulfillment phase, Service Delivery, Accuracy of bills, Quality of service and Availability of service.

However comparing the above mentioned frameworks with ACEF the following are the advantages of the Amdocs Customer Experience Framework (ACEF):

1. ACEF is more in depth because Customer perception is taken into consideration through Market Research Survey of 5000 customers.
2. ACEF tries to highlight the outside in views for various KPI's to build a more robust and customer centric framework.
3. It takes into account both the importance and performance of all the parameters thereby helping in identification of gaps.
4. The framework measures customer experience index for all the possible interactions that customers have with CSPs and then collate these measures to form a composite Customer Experience Management index.

C. Determinants of Customer Experience for CSP and Introduction to ACEI Score

Amdocs Customer Experience Index (ACEI) is a measure of the overall experience customers have from their Cellular Service Providers calculated on a scale of 1 to 10. ACEI is designed to be deployed across various lines of business, geographies and demographics. It is a theory developed through strong academic backing and proven by statistical rigor to introduce an industry benchmark to measure customer experience at all possible touch points of customer interaction with the operator.

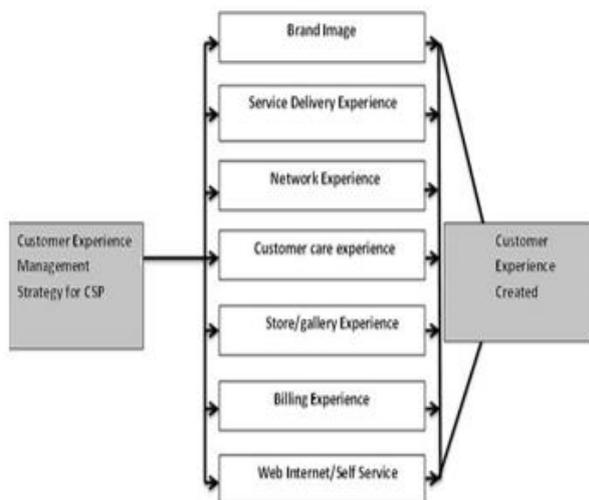


Fig 1: Framework for determinants of customer experience Creation for Service providers

As shown in **Fig 1** below, the determinants of customer experience include Brand Image, Service

delivery experience, Network experience, Customer care experience, Store and gallery experience, Billing and self-service experience. Aim of this research is to define the competency of these factors to holistically define customer experience in telecom industry and effectiveness of ACEI score with respect to impact on customer behavior.

i) Brand Image

The importance of brand as a driver for customer experience was reinforced when a framework for customer experience had been designed that contained three higher-level constructs for customer experience, brand image being one them Brand Image is the embodiment of the CE and he mentioned that brand is the most important driver for CE as it sets a scene before any sort of interaction with the Customer [19]. Brand Experience is a driver for CE is also proved through statistical analysis by [20]. A lot of study shows that Brand Image influences Customer behavior .For example [14] laid emphasis on the significance of brand and how it can influence customer behavior positively and negatively. According to [21] Telecom senior executives are making customer experience management a central priority as they have started understanding the importance of delivering brand promise to retain subscriber base. Improved brand perception can lead to reduced churn and new subscriber acquisition.

ii) Service Delivery Experience

Service delivery in telecommunications encompasses the service and support system and the ability to resolve any performance and technical issues. Reference [22] mentions about quality service delivery and emphasizes that management of service delivery in telecom can be done by handling the service quality gap between expectations and perceptions of the customers. Reference [23] mentioned quality service delivery has been considered as the key driver for loyalty .Further research also showed a high correlation between customer experience and service delivered, [24]. Also [25] says that in wireless communication service delivery should be instantaneous and uninterrupted for experience to be created. Thus services help in creating a social bond with the customer which in turn helps in enhancing the customer experience [26].

iii) Network experience

Network forms the backbone of all the services offered to the users. Telco's are continuously interacting and reaching their customers through the networks. Most experiences are created here. Reference [27] focused their study on network as mobile network is the one of the most frequent and important touch point between the

customer and the operators and it is seen as an important driver for creating overall satisfaction with the cellular service provider. In his study, [28] indicated that the reason for 8.17% of customer churn is happening due to network issues. Almost a decade later, a study by Nokia Siemens Networks found that 45% of smart phone users churned cited network quality as a factor. Lack of coverage and poor signal strength in critical areas can lead to increase in customer discontent. Reference [29] talks about the network centric approach of operators and recommends them to focus on key parameters such as accessibility, integrity and retainability to create optimum customer experience. Network Experience forms an integral part of customer experience transformation hence operators need to focus on quality of service and should monitor quality regularly. Reference [30] talks about how Quality of service offered can be a differentiator in the business market.

iv) *Customer Care*

A customer mostly considers post sales services as the most important parameter to be loyal thus, customer care and how their complaints are handled become a significant parameter to enhance the customer experience. To take the point further various studies have been carried out outlining this very fact. Reference [14] in their paper on study on CE for CSPs concluded that better customer care leads to higher customer satisfaction and loyalty. Reference [21] in their study on Enhancing CE in telecom concluded that customer care can lead to higher customer acquisition and retention. Similar studies were carried out by [31] and [25] which state that an enhanced customer care experience is the key higher customer retention leading to higher customer loyalty and lower churn rate.

v) *Billing*

Reference [14] in their paper on study on CE for CSPs concluded that better and more efficient billing experience makes the customer feel secure and leads to a higher customer loyalty. Reference [21] in their study on Enhancing CE in telecom also concluded that a full proof and secure billing experience leads to a higher customer retention.

vi) *Store and Gallery Experience:*

Retailers need to understand how consumer behavior evolves and the consequences of these changes on consumer expectations in and outside the retail location. Reference [31] in his paper on study on papers the new consumer evaluation model for csp's concluded that stores with a more soothing and relaxed ambience are preferred by the customers and leads to an enhanced customer experience. Similar study by [25]

in his paper the Customer experience management in telecom operator business respectively that an store and gallery experience is one of the most important parameters leading to an enhanced customer experience leading to a higher customer acquisition and retention.

vii) *Web Internet/ Self Service Experience:*

The web self-services provide access to the Telco users to critical information like their account details, billing and usage information. Reference [32] has laid emphasis on the increasing use of technology based services by the customers. Reference [33] talks the web self-services as new channels that were used by the communication industry to neutralize the customer management costs and create a "self-service only" operation but it is not self-sustaining and has to co-exist with other channels for better customer experience. Reference [29] also talks about the CSP's need to guide the customers through self-service channels and Customer support Representatives with relevant products and services and manage their experience.

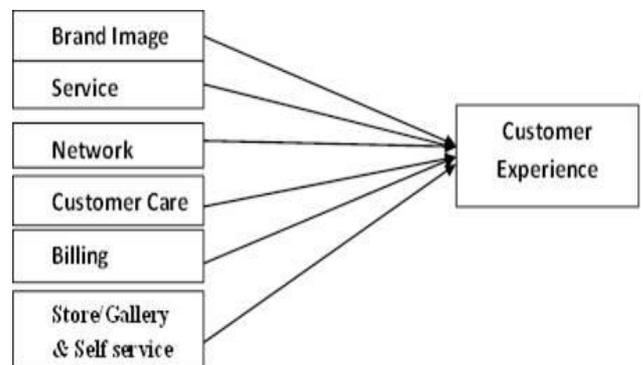


Fig 2: Proposed Model

H1: There is a significant impact of Brand image on Customer Experience in Indian Telecom industry

H2: There is a significant impact of Service Delivery Experience on Customer Experience in Indian Telecom industry

H3: There is a significant impact of Network Experience on Customer Experience in Indian Telecom industry

H4: There is a significant impact of Customer Care Experience on Customer Experience in Indian Telecom industry

H5: There is a significant impact of Billing Experience on Customer Experience in Indian Telecom industry

H6: There is a significant impact of Store/Gallery and Web Self Service Experience on Customer Experience in Indian Telecom industry

III. RESEARCH METHODOLOGY

The survey for Amdocs Customer Experience Program was taken over 36 centers spreading measure customer experience at a pan-India level. Questionnaire was used as the primary research instrument. Primary research was conducted and more than 5000 responses were recorded. Market Research agency was hired to collect primary data from the 36 finalized centers. Pilot survey was carried on a sample size of 166 respondents to confirm the strength of the research instrument and to check the clarity of the measures used. Based on the responses given by the respondents, initial scale reliability and factor analysis tests were carried out for ensuring construct validity.

IV. DATA ANALYSIS

A. Scale Reliability

Cronbach’s Alpha (α) is considered as the basic and the most famous tool for measuring scale reliability of a construct.

TABLE 3 : RELIABILITY STATISTICS

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.901	.934	22

From table 3, it can be noted that the measures are highly reliable with high Cronbach’s Alpha coefficients and is well above the cutoff value of 0.7 proposed by [35]. Thus it can be concluded that the instrument measures are having high level of reliability and internal consistency with each other and finally it reflects that the questionnaire is clear and unambiguous.

B. Exploratory Factor Analysis

For the purpose of doing Exploratory Factor Analysis, we used Principal Component Analysis with Varimax rotation on the *Importance* values of 22 parameters. Six factors were estimated according to the factor analysis results and around 70% of the overall

variance in the variables could be explained by these 6 factors.

Table 4 below signifies the total variance explained by the six factors identified through Exploratory Factor Analysis. It can be inferred that these six factors cumulatively explain 73.254% of variance in research question in hand, Customer Experience in our case.

TABLE 4: TOTAL VARIANCE EXPLANATION STATISTICS [EXTRACTION METHOD: PRINCIPAL COMPONENT ANALYSIS]

Factor no.	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	4.161	18.912	18.912
2	3.262	14.827	33.739
3	2.807	12.761	46.500
4	2.568	11.674	58.175
5	1.699	7.724	65.899
6	1.618	7.355	73.254

Table 5: Exploratory Factor Analysis Result: Pattern Matrix

	Component					
	1	2	3	4	5	6
2.1A) Advertisements & Promotions				.764		
2.2A) variety of offers				.586		
2.3A) Valued Customer				.738		
2.4A) Operator is trustworthy				.726		
2.5A) Operator is transparent		.618				
2.6A) Operator delivers all services		.617				
2.7A) Pricing is competitive		.597				
2.8A) Tariff plan is clear		.605				
2.9A) Change in service experience		.714				
2.10A) Indoor Network Coverage	.753					
2.11A) Outdoor Network Coverage	.772					
2.12A) Call Connectivity	.759					
2.13A) Call Quality	.744					
2.14A) Data service	.756					
2.15A) Accessibility to Customer care			.756			
2.16A) Polite and courteous			.792			
2.17A) Efficiently & quickly			.806			
2.18A) Store/ Gallery easily accessible						.622
2.19A) Experience at Stores/Dealers						.819
2.20A) Bills are accurate					.882	
2.21A) Easy to recharge					.837	
2.22A) Online Self-service						.882

Constituting Table 4 and Table 5 and 6 results, we can conclude,

- ✓ Factor 1 or Network Experience has the highest impact on Customer Experience as it explains 51.480% of the total variance in Customer Experience hence *Hypothesis 3 which states that Network Experience impacts Customer Experience in Telecom industry is thus proved*
- ✓ Factor 2 or Service Delivery Experience explains 6.453% of the total variance in Customer Experience hence *Hypothesis 2 which states that Service Delivery Experience impacts Customer Experience in Indian telecom industry is thus proved*
- ✓ Factor 3 or Customer Care Experience explains 4.974% of the total variance in Customer Experience hence *Hypothesis 4 which states that Customer Care Experience impacts Customer Experience in Indian telecom industry is thus proved*
- ✓ Factor 4 or Brand Image explains 4.478% of the total variance in Customer Experience hence *Hypothesis 1 which states that Brand Image impacts Customer Experience in Indian telecom industry is thus proved*
- ✓ Factor 5 or Billing Experience explains 3.233% of the total variance in Customer Experience hence *Hypothesis 5 which states that Billing Experience impacts Customer Experience in Indian telecom industry is thus proved*
- ✓ Factor 6 or Store/gallery and Web Self Service experience explains 2.635% of the total variance in Customer Experience hence *Hypothesis 6 which states that Store/gallery and Web Self Service experience impacts Customer Experience in Indian telecom industry is thus proved*

1st Order Confirmatory Factor Analysis

Fig 3 shows the first order Confirmatory Factor Analysis (CFA) model for Amdocs Customer Experience Index study to test the strength of the measurement model and the latent factors extracted according to the EFA results. Table 8 shows the Model fit summary with mentioned Fit indices. All the fit indices portray excellent model fit as Normed Fit Index (NFI), Relative Fit Index (RFI) and Comparative Fit Index (CFI) values exceed the cutoff value of 0.90. Apart from that standardized factor loadings were highly significant (p<0.001) which again reflect the strength of the measurement model.

Hypothesis 1 which stated that there are six main determinants to Customer Experience is thus proved

correct through Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) results

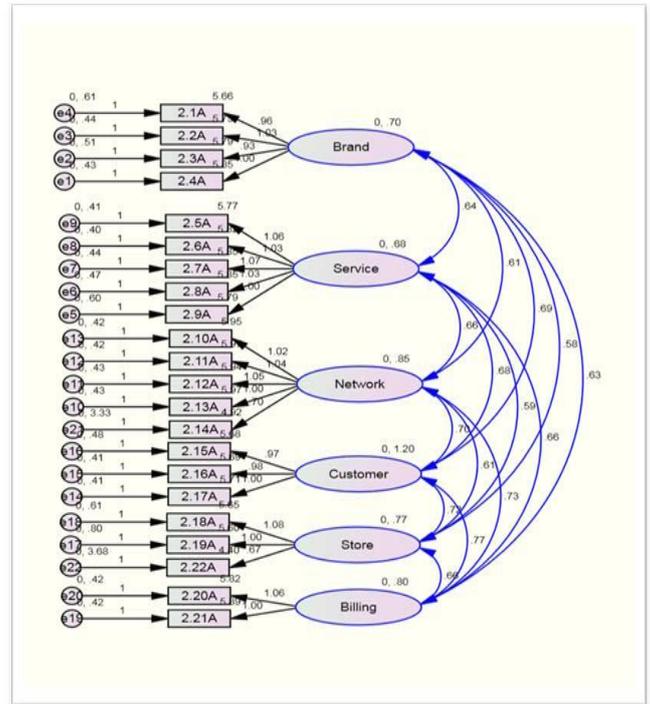


Fig 3: First Order Measurement Model for ACEI Customer Experience Management study

TABLE 6: MODEL FIT RESULTS FOR ACEI CUSTOMER EXPERIENCE MANAGEMENT STUDY

Model	NFI	RFI	CFI	RMSEA
Default Model	.958	.946	.961	.054
Benchmark	≥0.90	≥0.90	≥0.90	≤0.08

V. MANAGERIAL IMPLICATIONS AND SCOPE FOR FUTURE RESEARCH

As said earlier, Customer Experience is very difficult to quantify; however ACEI score attempts to provide a yardstick to quantify Customer Experience in Telecom Industry which can be implemented as an industry benchmark to measure Customer Experience delivered by service providers. This paper can be utilized by the telecom service providers in a matured market like India where the prime discriminator between operators can be the quality of service delivered to end customers.

It provides a holistic view of measuring quality of service across all the touch points of customer interactions narrowed down into six main dimensions. For a telecom operator to improve customer experience, these parameters need to be considered as the focus points. Thus far, we have identified the various determinants to customer experience. However in succeeding research papers, we can specifically drill down into each of the major factors like Network Experience and conduct an in-depth study of the network parameters, their impact on customer behavior. We can conduct a thorough analysis of how customer experience actually impacts customer behavioural intentions.

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