IMPACT OF SERVICE QUALITY IN IMPROVING THE EFFECTIVENESS OF CRM PRACTICES THROUGH CUSTOMER LOYALTY – A STUDY ON INDIAN MOBILE SECTOR

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ABSTRACT

The Indian telecom industry has come a long way in achieving its dream of providing affordable and effective communication services to its customers. Faced with a growing market and increasing competition, companies in the telecom business are adopting to new technological imperatives in order to outperform their competitors. These companies adapt continuously to the dynamic environment so as to survive competition. The emphasis here lies in identifying critical value adding processes and redesigning them to become customer centric. One such approach in the adoption of an IT towards customer orientation is the Customer Relationship Management (CRM). Even though the Indian Mobile Service Providers are already using CRM extensively to identify the needs of the customers and stretching out ways and means to satisfy them, it is noticed that a study on the impact of customer loyalty in strengthening CRM is lacking. This study therefore specifically analyses the impact of service quality in strengthening the effectiveness of CRM practices. The extended SERVQUAL construct is used to identify the dimensions that influence Customer Loyalty, mainly in terms of the extent to which the customers are advocates of the company ;the extent to which the customers opt for repurchase in
the context of cross selling and up selling and the extent to which customer defect to competition. Data collected from 490 mobile users in Chennai were analyzed for this purpose. These findings brought out the factors that determine Advocacy Loyalty, Purchase Loyalty and Defection Loyalty leading towards new directions to be taken by the mobile service operators in this context.

**Key words:** CRM, Advocacy Loyalty, Purchase Loyalty, Defection Loyalty, Service Quality, Telecom

1. INTRODUCTION

The Indian telecom industry has come a long way in achieving its dream of providing affordable and effective communication services to its customers. In the last decade, India has become a major base for the telecom industry worldwide enabling Indian telecom companies to become truly global players. The Indian telecom market has been characterized by fierce competition in which a number of major players together with an even larger number of smaller players have been battling to increase subscriber numbers, and most importantly, market share.

India, supported by its strong economic growth, represents one of the fastest growing consumer markets in the world. The fundamental forces of long term economic growth such as demographics, urbanization, and rising education levels are affecting growth in Indian incomes resulting in increasing spending power, which translates into growing household consumption. The Indian telecom sector has gone through many phases of growth and diversification. Starting from telegraphic and telephonic systems in the 19\textsuperscript{th} century, the field of telephonic communication has now expanded to make use of advanced technologies like GSM, CDMA, and WLL to the great 3G Technology in mobile phones.

The Indian consumer market is set to scale new heights. According to a study by McKinsey Global Institute on the rise of India’s Consumer Market in May 2007, India will climb from its position as the twelfth-largest consumer market today to become the world's fifth-largest consumer market by 2025. Aligning with the growing potential of consumer market in India, the Indian telecom sector has experienced a tremendous growth in the last few years.

Today, consumers are more educated, better informed, more technology savvy, and hence, more demanding in the products and services they buy. Couple this with increased competitive offerings in the marketplace, with little or no differentiation, and what many marketers face is a new reality where consumers have more purchasing power than ever before. The questions below pose various challenges to marketers. A lot of research has already been done and are still being focused on among the academics and in the industry.

- How do you attract profitable customers?
- How do you hold on to your customers who are buying from you today but are showing signs of defecting to the competition?
- How do you figure out which products and services you should bundle together to increase customer profitability?

These are the challenges that business managers face today. For example, a telecom services provider identifies a segment of high profitable, technology savvy, upper income customers and prospects. It then studies their behaviour, and better understands the types of services they want. The company next bundles a convenience package of products and services under a
single name, a single marketing campaign, and what's more, a single bill. They would very effectively meet that segment's complete communications needs and foster customer loyalty.

The beneficiaries of the competition being consumers, the telecom players in today's environment are required to design and deploy customer-centric strategies not only to grab a share in the market but also to sustain in the market in the long-run. The players have realized the importance of constant service-quality delivery to the customers for long-run sustainability. Customer relationship signifies identifying the needs of the customers and stretching out ways and means to satisfy them. To be precise, it means achieving high customer profitability—customer revenues over and above customer costs, which demands matching customer expectations with customer satisfaction. The high cost of customer acquisition is making today's businesses understand the importance of retaining the customers for long-run sustainability.

Customer Relationship Management (CRM) aims at narrowing the gap between the company and its customers. In Telecom Sector, CRM plays a vital role in not only bringing the customers close to the company, but also in identifying the changing behavioral pattern of the customers. In technology-dynamic markets like telecom, an efficient CRM system is essential, since the customer attrition is high due to the presence of close substitutes and near-zero switching costs.

In this context, this paper attempts to study the extent of CRM implementation in the Indian Telecom Industry and determine the impact of service quality in improving the effectiveness of CRM practices through Customer Loyalty. With the increase in the cost of acquisition of new customers, mobile service providers continuously seek new ways to increase their subscriber base. Thus the ability to retain existing customer is increasingly crucial in this industry which is now made possible to a major extent by the implementation of CRM. But this can be realized only by providing quality of services to the customers. The effectiveness of CRM implementation is measured to the degree of customers being loyal to the service providers. This study would therefore determine the impact of service quality on customer loyalty which is measured in indices, i.e., Advocacy Loyalty Index, Purchase Loyalty Index and Defection Loyalty Index. Using the Structural Equation Modeling, this paper attempts to provide a confirmatory path model to emphasize the impact of service quality in strengthening the customer loyalty as a result of CRM implementation. Even though some of these aspects have been explored by previous researchers to a great extent, it is felt that not much attention has been drawn into measuring the effectiveness of loyalty, particularly for their sustained presence. Hence it is felt that a closer study on this aspect would be worthwhile.

2. LITERATURE REVIEW

The Indian Telecom Industry with an overall tele-density of 72.09 in April 2011 and the mobile segment tele-density of 69.19 finds it difficult to build sustainable and successful relationships with a large customer base. In India, rapid diffusion of telecom, at least in the urban areas, has been progressing, thanks to the hyper-competitive telecom markets with the post-liberalization entry of several Indian and global players. In such a competitive milieu, survival and success of the Indian players will depend on competitiveness. For service providers, the pursuit of service quality is essential for competitiveness and is gaining momentum. As a result, service quality has become an important means of differentiation and is critical for achieving corporate success. The proven positive relationship of service quality
with customer satisfaction (Danaher and Mattsson, 1994; Leisen and Vance, 2001), customer loyalty and retention (Ranaweera and Neely, 2003), profitability (Thompson, DeSouza and Gale, 1985; Bloemer, Ruyter and Wetzel, 1999) and competitive advantage (Hampton, 1993) provides a base to explore the subject in the mobile context.

Previous studies in this area primarily focused on functional quality aspects (i.e., pertaining to service delivery process or how the services are delivered) and inadequately addressed technical quality aspects (i.e., issues concerning what is actually delivered). However, researchers in mobile communication (Wang and Lo, 2002; Johnson and Sirikit, 2002) have emphasized that technical quality attributes play an important role in forming service quality perceptions of customers. In light of this, an extended SERVQUAL (Seth et al, 2008) instrument determines service quality structure by combining both functional as well as technical quality (i.e., network quality in cellular mobile context) attributes.

Service business success has been associated with the ability to deliver superior service (Gale, 1990; Rudie & Wansley, 1984). Delivering superior service by maintaining high quality is a prerequisite for success (Parasuraman et al., 1988). Leading service organizations strive to maintain a superior quality of service in an effort to gain customer loyalty (Zeithaml & Bittner, 1996); thus, a service organization’s long-term success in a market is essentially determined by its ability to expand and maintain a large and loyal customer base. Moreover, the yardstick by which an exceptional service organization may be measured is its retaining customer ratio: the loyal customer base. Evaluating the impact of service quality through customer retention will help companies to gauge financial impact of service quality (Zeithaml et al., 1996).

Customer Relationship Management
Customer Relationship Management (CRM) is rapidly becoming an integral part of many organizations. The concept itself is relatively simple. Rather than market to a mass of people or firms, market to each customer individually. In this one-to-one approach, information about a customer (e.g., previous purchases, needs, and wants) is used to frame offers that are more likely to be accepted. This approach is made possible by advances in information technology.

CRM involves identifying and rethinking all strategic processes that take place between an enterprise and its customers (Payne & Frow, 2005). Being an outgrowth of sales force automation and with a focus on data-mining (Chen & Popvich, 2003) CRM finds a continuous challenge in making CRM relevant to service and to non-marketing employees. Lacking attention to and understanding of critical factors like corporate cultures, subcultures and motivation is important (Finnegan & Willcocks, 2007).

Robert Gee (2008), highlights that organisations must understand what drives both value and delight for their customers. Adopting a customer centric vision enables an organisation understand their customers, deliver customer delight and drive for loyalty. Different customers have different requirements and will be delighted in different ways. Database segmentation and data analysis are critical if an organisation is to generate loyalty from different customer segments. A win-back strategy is recommended as previous customers are less costly to win-back compared to the costs of acquiring of new customers.

Role of CRM in the Telecom Industry
Telecommunication is one of two sectors (the other is banking) which apply CRM very early. The main reason is that telecom may be one of the most competitive markets where customers
may have many options to choose a service provider (Kumar and Reinartz, 2006). When deciding to choose a telecommunication service provider, customers often take into account the service quality, service price and customer service. While the first two factors can be controlled by the telecom company, the last factor seems to be the most influential and the hardest to get right as well.

Deregulation and increasing competition is forcing telecom service providers to move from traditional product-centric operations to customer-centric operations (Normile, 2008). Telecom companies now also have to increase their efficiency to respond to market demand and reduce cost. They also change competition strategy from short-term strategy to long-term strategy (Wu, 2007) and CRM is required for the survival, not just a competitive advantage (Turban, 2010). Slightly differ from the other industry; the competition of market compels telecommunication service providers to pay attention on direct link with the customer (Fallat and Ancarali, 2008). Telecom company’s leaders understand that the cost to acquire a new customer typically five times higher than the cost to retain a current customer. Thus, aligned with the increase of the market saturation and the decrease of ‘available customer pool’, telecommunication market tends to shift from acquisition strategy to retention strategy.

Customer Loyalty

Mosad Zineldin, (2006) identified key ways to build a strong competitive position are through customer relationship management (CRM) and product/service quality. A company has to create customer relationships that deliver value beyond the provided by the core products. This involves added tangible and intangible elements to the core products thus creating and enhancing the “product surrounding”. One necessary expecting result of the creation of value added is customer loyalty. This is an important function to ensure the fulfillment of given customer requirements and companies profits, survival and competitive positioning.

Customer loyalty is essential if a company is to retain its current customers. However, many debates are centered round what customer loyalty actually is, as Majumdar (2005) states, “Customer loyalty is a complex, multidimensional concept”. The complexity of customer loyalty is reflected in the wide range of definitions within academic fields. The lack of a uniformly accepted definition of customer loyalty is also reflected in the academic work that attempts to understand the key factors than generate customer loyalty. Indeed, Dick and Basu (1994) note the need for a more in-depth assessment of the variables that coerce customer loyalty and retention. Furthermore, to leverage the greatest benefits available from customer loyalty it is imperative to understand the antecedent drivers of loyalty (Terblanche and Boshoff, 2006). To do this, Crosby and Johnson (2004) recommend that a causal model of customer loyalty is produced, linking together the chain of events from touch points with customers through to inducing examples of loyal behaviour.

Gustafsson et al. (2005) note three drivers of customer loyalty; calculative commitment, affective commitment and overall customer satisfaction. Calculative commitment is the rational and economic decision making, reviewing costs and benefits. Commitment to the current brand or service is due to a lack of choice for similar products or services or high-switching costs (Anderson and Weitz, 1992). Affective commitment is a warmer and emotional factor, based on trust and commitment. Commitment dimensions are described by Gustafsson et al. (2005) as “forward looking” and capture the strength of the relationship and the resulting commitment for the future. Empirical data from Gustafsson et al. (2005) suggest that calculative commitment has a consistent reduction in customer churn rates.
Customer Relationship Management and Customer Loyalty

(Bob E. Hayes, 2007) feels while many objective measures of customer loyalty exist (e.g., defection rate, number of referrals), customer surveys remain a frequently used way to assess customer loyalty. There are a few reasons for the popularity of customer survey use in customer experience management. First, customer surveys allow companies to quickly and easily gauge levels of customer loyalty. Companies may not have easy access to objective customer loyalty data or may simply not even gather such data. Second, results from customer surveys can be more easily used to change organizational business processes. Customer surveys commonly include questions about customer loyalty as well as the customer experience (e.g., product, service, support). Used jointly, both business attribute items and loyalty indices can be used (e.g., driver analysis, segmentation analysis) to identify reasons why customers are loyal or disloyal. Finally, objective measures of customer loyalty provide a backwards look into customer loyalty levels (e.g., defection rates, repurchase rates). Customer surveys, however, allow companies to examine customer loyalty in real-time. Surveys ask about expected levels of loyalty-related behavior and let companies “look into the future” regarding customer loyalty.

Customers' ratings of a set of loyalty questions suggest that there are three, very general, loyalty constructs, Advocacy, Purchasing and Defection:

- **Advocacy Loyalty**: reflects the degree to which customers will advocate of the company
- **Purchasing Loyalty**: reflects the degree to which customers will increase their purchasing behavior
- **Defection Loyalty**: reflects the degree to which customers will show symptoms of defecting to competitors.

The evidence from previous studies (Bob E. Hayes, 2007) show that the Advocacy Loyalty Index (ALI), the Purchasing Loyalty Index (PLI) and Defective Loyalty Index (DLI) measure three different types of loyalty. Even though the three types of loyalty are correlated (advocates tend to be purchasers, purchasers tend to be defectors), the relationship between the ALI, PLI and DLI is not perfect, suggesting that these loyalty indices measure unique constructs. Customer loyalty is not a unidimensional construct, but rather a multidimensional construct that can help reliability measured. When we say a customer group has high vs. low loyalty, we need to clarify to which loyalty we are referring. It is possible that a given customer group can have different levels of loyalty (e.g., high advocacy, low purchasing, low defection). It is clear that a blanket statement about levels of "customer loyalty" can be ambiguous.

In this background, while there are individual studies on CRM implementations (Payne & Frow, Finnegan & Willecocks, Robert Gee), Service Quality (Danaher and Mattsson, Wang and Lo, Johnson and Sirikit, Gale, Rudie and Wansley, Zeithaml & Bitner), Relationship between CRM and Customer Loyalty (Mosad Zineldin, Majumdar, Terblanche and Boshoff, Gustafsson et al) and Loyalty Indices (Bob E. Hayes), it is noticed that a study on the linkage especially with the changing demographic patterns of the customers, if any, arising out of these concepts seems to be missing. Hence it is felt that such an existing gap can be further explored and studied and the present attempt is towards such a linkage. It is also a fact that the CRM practices in Indian Telecom is in the matured stage. Hence such a linkage study particularly in the telecom industry would be timely to provide managerial insights in order to further strengthen the CRM practice in this highly competitive industry.
3. RESEARCH METHODOLOGY

The questionnaires including covering letter, were personally distributed to customers of mobile services, during Apr-Jun, 2011. Convenience sampling method was used to collect the data from customers. Further, the data was specifically collected from residential mobile customers, who had been using the services for at least six months. Finally, of the 550 surveys individually administered, 523 questionnaires were received at a response rate of 95 per cent. On further filtering, 490 responses were found to be completely filled which results in the response rate of 89%. The high rate of responsiveness is the result of the constant follow ups and reminders sent to the respondents considering the higher level of subscribers in the mobile segment. The demographic characteristics of the customers are summarized in Table 1. Most of the respondents (about 60%) were pre-paid, while rest (40%) of the respondents accounted for post-paid services. Respondents in the age group 21-30 yrs (32%), 31-40 yrs (26%) and 41-50 yrs (21%) were the major contributors.

<table>
<thead>
<tr>
<th>Age</th>
<th>No.</th>
<th>Name</th>
<th>Frequency</th>
<th>%</th>
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<td>1</td>
<td>27</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>21-30</td>
<td>2</td>
<td>87</td>
<td>17.8</td>
<td></td>
</tr>
<tr>
<td>31-40</td>
<td>3</td>
<td>87</td>
<td>17.8</td>
<td></td>
</tr>
<tr>
<td>41-50</td>
<td>4</td>
<td>158</td>
<td>32.2</td>
<td></td>
</tr>
<tr>
<td>&gt;50</td>
<td>5</td>
<td>131</td>
<td>26.7</td>
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<table>
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<th>Length of Use</th>
<th>No.</th>
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<th>%</th>
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<tr>
<td>&lt; 6 months</td>
<td>1</td>
<td>14</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>6 mon – 1 yr</td>
<td>2</td>
<td>32</td>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td>1 – 2 yrs</td>
<td>3</td>
<td>58</td>
<td>11.8</td>
<td></td>
</tr>
<tr>
<td>2 – 3 yrs</td>
<td>4</td>
<td>105</td>
<td>21.4</td>
<td></td>
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<tr>
<td>&gt; 3 yrs</td>
<td>5</td>
<td>281</td>
<td>57.3</td>
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<table>
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<th>Monthly Expenditure</th>
<th>No.</th>
<th>Name</th>
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<tr>
<td>upto 500</td>
<td>1</td>
<td>155</td>
<td>31.6</td>
<td></td>
</tr>
<tr>
<td>501-1000</td>
<td>2</td>
<td>117</td>
<td>23.9</td>
<td></td>
</tr>
<tr>
<td>1001-2000</td>
<td>3</td>
<td>80</td>
<td>16.3</td>
<td></td>
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<tr>
<td>&gt;2000</td>
<td>4</td>
<td>138</td>
<td>28.2</td>
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<table>
<thead>
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<th>No.</th>
<th>Name</th>
<th>Frequency</th>
<th>%</th>
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</thead>
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<tr>
<td>Grad</td>
<td>1</td>
<td>64</td>
<td>13.1</td>
<td></td>
</tr>
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<td>UG</td>
<td>2</td>
<td>92</td>
<td>18.8</td>
<td></td>
</tr>
<tr>
<td>PG</td>
<td>3</td>
<td>200</td>
<td>40.8</td>
<td></td>
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<tr>
<td>Others</td>
<td>4</td>
<td>134</td>
<td>27.3</td>
<td></td>
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<table>
<thead>
<tr>
<th>Occupation</th>
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<th>Name</th>
<th>Frequency</th>
<th>%</th>
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</thead>
<tbody>
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<td>Business</td>
<td>1</td>
<td>50</td>
<td>10.2</td>
<td></td>
</tr>
<tr>
<td>Professionals</td>
<td>2</td>
<td>94</td>
<td>19.2</td>
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</table>
4. ANALYSIS AND RESULTS

Data collected was analyzed through a series of validated tools and procedures. The reliability of items was assessed by computing the coefficient alpha (Cronbach, 1951), that measures the internal consistency of the items. For a measure to be acceptable, coefficient alpha should be above 0.7 (Nunnally, 1978). Owing to multidimensionality of service quality construct, coefficient alpha was computed separately for all the dimensions identified. In the present study, all alpha coefficients ranged from 0.75 to 0.9 indicating good consistency among the items within each dimension. The results are shown in Table 2.

### SERVQUAL Dimensions

<table>
<thead>
<tr>
<th>No.</th>
<th>Parameter</th>
<th>No. of Items</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reliability</td>
<td>5</td>
<td>0.846</td>
</tr>
<tr>
<td>2</td>
<td>Responsiveness</td>
<td>4</td>
<td>0.863</td>
</tr>
<tr>
<td>3</td>
<td>Assurance</td>
<td>4</td>
<td>0.802</td>
</tr>
<tr>
<td>4</td>
<td>Empathy</td>
<td>5</td>
<td>0.816</td>
</tr>
<tr>
<td>5</td>
<td>Tangibles</td>
<td>3</td>
<td>0.775</td>
</tr>
<tr>
<td>6</td>
<td>Convenience</td>
<td>4</td>
<td>0.778</td>
</tr>
<tr>
<td>7</td>
<td>Customer Perceived Network Quality</td>
<td>5</td>
<td>0.781</td>
</tr>
</tbody>
</table>

### Loyalty Indices

<table>
<thead>
<tr>
<th>No.</th>
<th>Parameter</th>
<th>No. of Items</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Advocacy</td>
<td>4</td>
<td>0.908</td>
</tr>
<tr>
<td>2</td>
<td>Purchase</td>
<td>2</td>
<td>0.750</td>
</tr>
<tr>
<td>3</td>
<td>Defection</td>
<td>2</td>
<td>0.754</td>
</tr>
</tbody>
</table>

**TABLE 2: Reliability Scores (Cronbach’s Alpha)**

**Factor Analysis**

Before proceeding for the factor analysis, appropriateness of factor analysis needs to be assessed. This can be done by examining sampling adequacy through Kaiser-Meyer-Olkin (KMO) statistic. Table 3 provides the SPSS output of data for factor analysis. KMO value of greater than 0.6 can be considered as adequate. (Kaiser and Rice, 1974).
TABLE 3: KMO and Bartlett's Test

From the Table, it can be seen that KMO value is acceptable; Bartlett test results also show that the values are significant and thus acceptable. The items in the respective category were individually subjected to PCA with varimax rotation and Kaiser Normalization.

The items having factor loadings less than 0.5 were eliminated (Hair et al., 2005). Finally, seven factors comprising twenty-eight items, all having eigen values of unity and above were extracted and the results are shown in Table 4. Further, in order to assess the appropriateness of the data for factor analysis, the communalities derived from the factor analysis were reviewed. These were all relatively large (greater than 0.5), suggesting that the data set is appropriate (Stewart, 1981). The individual dimensions of the proposed instrument explained total variance exceeding 60 per cent, suggesting the appropriateness of the process.
Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 7 iterations.

TABLE 4: Factor Extraction Results of Service Quality Dimensions

According to Ahire, Golhar and Waller, (1996), confirmatory factor analysis (CFA) provides enhanced control for assessing unidimensionality (i.e., the extent to which items on a factor measure one single construct) than exploratory factor analysis (EFA) and is more in line with the overall process of construct validation. In this study, confirmatory factor analysis model is run through SPSS Amos 19 and the key model statistics are shown in Table 5.

<table>
<thead>
<tr>
<th>FACTORS</th>
<th>COMPARATIVE FIT INDEX (CFI)</th>
<th>GOODNESS OF FIT INDEX (GFI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability</td>
<td>.971</td>
<td>.972</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>.991</td>
<td>.99</td>
</tr>
<tr>
<td>Assurance</td>
<td>.973</td>
<td>.982</td>
</tr>
<tr>
<td>Empathy</td>
<td>.935</td>
<td>.951</td>
</tr>
<tr>
<td>Tangibles</td>
<td>.925</td>
<td>.931</td>
</tr>
<tr>
<td>Convenience</td>
<td>.966</td>
<td>.981</td>
</tr>
<tr>
<td>Customer Perceived N/w Quality</td>
<td>.956</td>
<td>.973</td>
</tr>
</tbody>
</table>

TABLE 5: Unidimensionality for the Seven Dimensions

The same process of Factor Analysis is repeated for the Loyalty Indices. The results are found from Table 6 through 8

KMO and Bartlett's Test

<table>
<thead>
<tr>
<th>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</th>
<th>.824</th>
</tr>
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<tbody>
<tr>
<td>Bartlett's Test of Sphericity</td>
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</tr>
<tr>
<td>Approx. Chi-Square</td>
<td>2068.275</td>
</tr>
<tr>
<td>df</td>
<td>28</td>
</tr>
<tr>
<td>Sig.</td>
<td>.000</td>
</tr>
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</table>

TABLE 6: Loyalty Indices -KMO and Bartlett's Test
Impact Of Service Quality On Customer Loyalty

To analyse the impact of Service Quality on customer loyalty, a series of linear regression analysis is done to determine the influence of service quality dimensions on the three loyalty indices, namely, advocacy loyalty index, purchase loyalty index and defection loyalty index.

The results of the regression analysis are presented below as a set of regression equations which depicts the significant predictive relationship on each loyalty indices by service quality dimensions.

\[
\text{Advocacy Loyalty Index} = 0.19 \text{ (Reliability)} + 0.146 \text{ (Responsiveness)} + 0.263 \text{ (Customer Perceived Network Quality)} + 0.160 \text{ (Assurance)} + 0.188 \text{ (Empathy)}
\]

\[
\text{Purchase Loyalty Index} = 0.233 \text{ (Reliability)} + 0.779 \text{ (Responsiveness)} + 0.107 \text{ (Assurance)} + 0.111 \text{ (Convenience)} + 0.2 \text{ (Empathy)}
\]

\[
\text{Defection Loyalty Index} = 0.14 \text{ (Reliability)} + 0.15 \text{ (Responsiveness)} + 0.129 \text{ (Customer Perceived Network Quality)} + 0.108 \text{ (Empathy)}
\]

\[
\text{Reliability} = 0.229 \text{ (Age)} + 0.101 \text{ (Occupation)} + 0.154 \text{ (Monthly Expenses)}
\]

\[
\text{Responsiveness} = 0.193 \text{ (Monthly Expenses)}
\]
Assurance $= 0.155$ (Monthly Expenses)

Empathy $= 0.202$ (Monthly Expenses)

Tangibles $= 0.11$ (Education)

Convenience $= 0.135$ (Monthly Expenses)

Customer Perceived Network Quality $= 0.163$ (Monthly Expenses)

From the above set of regression equations we identify those demographic factors which influence each of the service quality dimensions. Similarly from the regression analysis we identify the service quality dimensions which influence each of the customer loyalty indices.

The results of the linear regression analysis indicate that the overall degree of influence of the demographic variables on service quality dimensions and the overall degree of influence of service quality dimensions on the customer loyalty, measured in indices. The values are statistically significant at 5% level of significance.

From the results of the regression analysis, a confirmatory path model is developed and tested for its fit. The figure below gives the path model to test the impact of service quality on customer loyalty in order to assess the effectiveness of the CRM practices being followed by the mobile service providers. The path model was developed using AMOS 19.0. The results and fit indices for the structural equation modeling are given below:

Chi-square value for the overall model fit was 551.62 for 120 degrees of freedom ($p < 0.001$). Fit indices for the above model were NFI $= 0.907$; CFI $= 0.920$; IFI $= 0.922$; GFI $= 0.946$; AGFI $= 0.924$; RMSR $= 0.056$; RMSEA $= 0.056$. Thus, overall the model can be considered to have a high level of fit, as most of the fit indices show a good fit for the model by Hu and Bentler (1999) and ($1 < \chi^2/df < 5$) by Wheaton et al. (1977) Moreover, due to the dependency of the $\chi^2$ statistic on the sample size, a higher than cut-off value of comparative fit index (CFI) and a value of the $\chi^2/df$ ratio between 1 and 5 indicate a good fit.
5. FINDINGS AND DISCUSSION

The main purpose behind the implementation of CRM by the telecom companies is to identify and work towards the customers' needs and preferences. As an outcome of the CRM implementation, the telecom providers look for more loyal customers. In this study the customer loyalty was measured using the Loyalty indices and the latent factors towards loyalty were derived from the influence of service quality, extended SERVQUAL construct, which has seven dimensions. From the table 7, the items that load on the first factor appear to have a strong emotional component to them, reflecting the extent to which customers advocate the company. Consequently, this factor is labeled Advocacy Loyalty. The items that load on the second factor reflect indications or symptoms of customers defecting to competitors and the items that load on the third factor reflect specific purchasing behaviors. Consequently, the second factor is labeled Defection Loyalty and the third factor as Purchase Loyalty. Further from the regression analysis the service quality dimensions which influence the customer towards advocacy, purchase and defection loyalty were identified.
Customers would turn advocates (Advocacy Loyalty) of the company when the service providers have the ability to perform the service accurately and dependably, as promised (reliability); when the service providers show willingness to help customers and provide prompt services (responsiveness); when their network performance is proper in terms of voice quality, call drop rate, network coverage, and network congestion (customer perceived network quality); when knowledge and courtesy of employees and their abilities inspire trust and confidence (assurance) and when there is ability of the service provider to provide a caring and personalized attention to each customer (empathy) is as expected. From the perspective of Purchase Loyalty, predictors were reliability, responsiveness, assurance, convenience (implies flexible and comfortable facilities to suit the customers’ needs) and empathy. The predictors of defection to competitors (Defection Loyalty) are reliability, responsiveness, customer perceived network quality and empathy. The demographic variables which influence the service quality are monthly expenses, which act as an influencing factor for reliability, responsiveness, assurance, empathy, convenience and customer perceived network quality. This means that the customers who spend more on mobile services expect more reliable services, prompt response to their issues, customers feels assured of the services provided by the service providers, expect better personalized attention, expect better flexible and comfortable facilities to suit the customers needs and better network performance in terms of voice quality, call drop rate, network coverage, and network congestion. Similarly educational status determines expectation on appearance of physical facilities, equipment, personnel and communication materials and Occupational status determines the ability to perform the service accurately and dependably, as promised. Thus this study has attempted to identify the impact of service quality in improving the effectiveness of CRM practices through customer loyalty in terms of positive Word of Mouth, Cross Selling and Up Selling and Customer Churn.

6. MANAGERIAL IMPLICATIONS

In the highly dynamic and competitive Indian telecom industry, the dynamic capability of the service providers played the most important role. CRM is the contemporary management practice which is being extensively followed by the telecom players in the mobile space. A major outcome of the implementation of CRM can be measured by the extent to which customers are loyal. The customer loyalty, though can be measured in various ways, for CRM implementation it would be effective if it is measured in indices i.e., advocacy loyalty index, purchase loyalty index and defection loyalty index. This would clearly link to the CRM concepts of Word of Mouth, Up Selling and Cross Selling and Customer Churn. In order to sustain in the competitive environment, this study provides an insight to the practitioners on the impact of service quality to strengthen the CRM practices by the mobile service providers. Though CRM is being practiced by the mobile service providers and it has resulted in customer loyalty, it becomes essential to identify the service quality dimensions of the service providers that lead to loyalty. The extended SERVQUAL construct has seven dimensions towards loyalty. These have a major impact on the loyalty of the customers. From the regression analysis, we identify those dimensions that are determining advocacy loyalty, purchase loyalty and defection loyalty. The path model using AMOS tests the fit of the impact study. The insight from this study can be extended to other factors like the relationship between behavioral dimensions and other latent factors which in turn influences advocacy loyalty, purchase loyalty and defection loyalty.
7. CONCLUSION

This study examines current practices of CRM by the mobile service providers and determines the impact of service quality in improving the effectiveness of CRM practices so that the ultimate objective of Loyalty is attained. In doing so, the study extends previous loyalty research in several respects.

The study identifies the dimensions of extended SERVQUAL constructs and tests for its acceptability in the mobile sector. Then it identifies the loyalty indices in order to measure the effectiveness of CRM. Thereon it identifies those quality dimensions which need to be concentrated in order that the mobile service providers align their CRM practices to attain its maximum objective. The extended SERVQUAL construct has seven dimensions. These are the latent factors that influence the loyalty of the Customers. From the regression analysis, we identify those dimensions that are determining advocacy loyalty, purchase loyalty and defection loyalty. The insight from this study can be extended to other factors like the relationship between behavioral dimensions and the latent factors which in turn influences advocacy loyalty, purchase loyalty and defection loyalty.

8. REFERENCES