



## AN EXPLORATORY STUDY ON THE COMPONENTS OF AI IMPACTING CUSTOMER RETENTION IN TELECOM INDUSTRY

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**Abstract:** *Consumer behavior in the mobile industry, particularly consumer behaviors, has become a prominent marketing research topic. Every consumer has distinct life experiences that influence their shopping decisions. Age, employment, lifestyle, personality, and self-concept are social and personal elements that can affect a buyer's final selection. Based on tests performed on data collected, several outcomes were discovered. In this research, the participants were chosen using the technique described, and their data were analyzed using descriptive and inferential statistics. The Chi-Square test was used to investigate the relationship between companies and their usage of optimal service techniques. According to the study's findings, AI-powered solutions may aid organizations in encouraging customers to take action at each stage of the user life cycle.*

**Keywords:** *Customer Retention, Artificial Intelligence, AI Components, Customer Experience, Customer Recognition*

### INTRODUCTION

Mobile technology is influencing the next generation (**Erickson, 2012**). The rise of the Internet since the mid-1990s has impacted education, knowledge, communication, and commerce, among other things. Success in business is dependent on clear thinking on the fundamental conceptual issues. Over the last few years, academics and industry professionals have become increasingly interested in mobile marketing. Despite the fact that several studies have provided critical insights into mobile marketing, our understanding of the subject remains limited, despite its growing importance and degree of interest.

India has the highest number of publicly traded enterprises in the world. Because of the Indian government's "Make in India" digital technology push, the country offers considerable growth opportunities to domestic and foreign businesses in terms of investment prospects and growth opportunities. Rural and urban areas now have more significant potential to enhance per capita household income due to this, which is good news. Lower prices, unlimited phone and Internet, and more value-added services are sought by the bulk of clients, who are likely to be from rural or metropolitan areas with poor basic infrastructure or no access at all. Telecommunications networks serve as the backbone that connects all of these digital technologies. As a result, telecommunications is playing an increasingly important role in advancing the country's economic development. Customers in metropolitan areas, cities and metro areas want high-speed internet access for a variety of reasons, including "audio-video streaming, navigation, music downloads, gaming, e-commerce, postal solutions, video chat boxes, and social networking." Therefore, demand for 4G/5G technology to power these applications continues to grow incessantly. People who live in rural areas, as opposed to those who live in urban areas, require low-cost technology to use these applications.

Digital advertising and artificial intelligence (AI) have had a significant impact on the whole economic landscape in recent decades. AI is already a part of our lives, whether we realize it or not. AI is also expected to play a significant role in marketing and advertising. It can be used to forecast user behavior and recommend new goods accordingly. It can also easily evaluate massive amounts of data;



something that was previously impossible to do manually. It can also assess how customers view a brand and their overall feelings toward a new brand or product. This research tries to provide a complete framework to steer mobile media research efforts in order to assist practitioners in their quest for successful mobile marketing.

## LITERATURE REVIEW

Relationship marketing has emerged as a critical strategic tool for businesses in the face of rapidly changing customer needs and preferences. The importance of relationships and the need to build networks of relationships is highlighted by the rapid changes in almost every business type. Mobile commerce is now essential in all aspects of life, including education, health, business, and entertainment. Mobile phones are described as “those telephones that are fully portable and not attached to a base unit operating on dedicated mobile phone networks, where revenue is generated by all voice and data transmissions originating from such mobile phones” (*Mintel Report, 1998, cited in Turnbull and Leek, 2000:148*).

The wireless communication sector is not excluded from this phenomenon, being one of the fastest-growing service segments in telecommunications (*Kim and Yoon, 2004*), and has both “high customer turnover and high customer acquisition cost” (*Bolton, 1998:52*). The recent increase in competition in the wireless telecommunications sector emphasises the significance of retaining current customers (*Seo et al., 2008*).

Despite using various relationship marketing strategies to retain existing customers (*Grönroos, 1995; Ravald and Grönroos, 1997; Ranaweera and Prabhu, 2003*), many mobile phone companies are losing existing customers at rates exceeding 30%. Also, according to *Andic (2006)*, the UK's major mobile network operators, Orange, T-Mobile, O2 and Vodafone, lose over a third of their youth subscribers to competitors. Despite their efforts to understand the causes of the loss, many managers are unable to address this fact directly (*Reichheld, 1996*). Loss of current and prospective customers means a loss of sales and profits, and ultimately, business failure (*Reichheld and Sasser, 1990; Reichheld and Kenny, 1990*). A lost customer means a potential loss of cash flow (*Alshurideh, 2014b*). Many wireless telecommunications and relationship marketing studies show that most businesses, particularly mobile service providers, continue to lose customers at an alarming rate. Many aspects of this paper have emphasised the significance of studying CR. Some of the factors cited include changes in consumer purchasing patterns, more demanding and sophisticated customers, shifting business themes, and the rapid pace of innovation (*Alshurideh, 2009; Alshurideh, 2014a; Alshurideh et al., 2014; Altamony et al., 2012*). Accordingly, this study of CR has focused on the mobile-phone sector, as about 50% of mobile-phone contracts are renewed (*Dalen et al., 2006*).

Customers want to get the most out of a relationship. Customers form and maintain business relationships when they believe the relationship will be profitable. (*Bhattacharya & Bolton, 2000*). Exemplifying exceptional customer service raises the perceived value of the relationship. Companies that prioritise customer service, for example, can earn 60% more profit than their competitors. Positive customer experience increases customer retention and revenue by up to 25% more than sales or marketing initiatives (*Murphy & Murphy, 2002*).

AI-created machines and people can collaborate to solve business problems in their respective capacities by providing distinct contributions to tasks. While AI is a promising technology that will open up new opportunities in the future, it has the potential to erode consumers' feeling of autonomy, the absence of which can be detrimental to consumer health (*Elish & Boyd, 2018; Brynjolfsson et al., 2017*). Businesses can collect more accurate consumer data by using AI as a mobile marketing tool. This allows for a more personal connection with customers. Consumers today prefer to interact with brands both offline and online, rather than just one. AI can recognise key customer characteristics to help personalise shopping experiences. Iterative improvement is used by many AI algorithms. As a result, AI-powered software becomes more efficient and reliable over time. AI learns more about user preferences over time, personalising the user experience. According to a 2016



Adlucent study, 71% of customers want more personalised advertisements. Personalised mobile content is less likely to be blocked or ignored by customers (*Llanas, 2019*).

*Berry et al. (2006)* discovered that AI-powered services are classified as functional experiences in their study of service experience typology. *Nanji (2019)* states that the vast majority of users are unhappy or disappointed with the AI-powered services they use and would prefer to interact with human support. This study provides a fresh look at how customers' interactions with AI and employee-provided services affect their relationship with the service organisation. Given the importance of staff service in customer reactions and the pervasiveness of AI-powered services within enterprises, this study provides a fresh look at how customers interact with AI and employee-provided services. Customer's participation in the organisation as well as their loyalty behaviours demonstrate customer relationships (*Lemon and Verhoef, 2010*). This investigation would supplement the previous research on customer engagement by providing additional strategies to encourage customer interaction with the organisation.

Customer engagement is a sort of co-creation between service providers and their consumers that has been identified as a marketing approach to increase customer purchase and loyalty (*Brodie et al., 2011; Hoyer et al., 2010; Nambisan and Nambisan, 2008*). Because the amount of involvement with a service organisation and its linked enterprises has financial ramifications for the organisation as well as for clients, this notion has gained widespread acceptance in marketing literature (*Doorn et al., 2010*). Customer engagement has been conceptualised in a variety of ways due to the fact that it is a relatively new idea. As a result, there is variability in both the drivers and the results of the literature. In accordance with the relevant literature, customer engagement is defined as the sum of a customer's behavioural, cognitive, and emotional involvement with a company (*Hollebeek, 2011b; Prentice et al., 2018, 2019b*). They also examined consumer engagement from the viewpoints of emotive, cognitive, and psychological factors. Customer identification, which indicates their perceived oneness with or belongingness to the brand or organisation; attention, which indicates their attention, focus, and connection with the brand or organisation; enthusiasm, which indicates customers' exuberance and interest; absorption, which indicates customers' pleasant state of mind; and interaction, which indicates customers' participation with the brand or organisation were included in this assessment. Each dimension has its own set of antecedents and consequences (*Hollebeek, 2011a*).

From the literature, the major gap found that their lacking behaviour in handling consumer experiences, what in turn affect the management of the company. Through a literature, it was found that the customer retention is affected by customer satisfaction if product purchased by customers and perform well as per their desires then their satisfaction will improve and hence, their perspectives will change. Hence, it was also, found that the consumer perspectives were not matching with the support given the company management. Customer services are always found special for the companies to improve their business perspectives and earlier management can't reach to the customer in that way. Now through Artificial Intelligence, they can reach out to the customer's perception what in turn improved the organizational efficiency but the major gap was found in, was majority of users gets frustrated with it. Although with AI some experiences are pleasant and unforgettable as used by hotels and airlines but AI allows only limited amount of customized communication hence its results into service dissatisfaction, hence their performance may have negative influences on them. Hence, the present study aims to explore the components of AI which leads to customer service

## METHODOLOGY

The methodology employed in this study is exploratory research. The study aims to know what consumer think AI technology what are the problems they're facing while using artificial intelligence systems and what are benefits they are getting by using the system it gives us a brief about how artificial intelligence it's affecting the customer's review and their retention in the telecom industry. Variables for this research are as follows:



1. Importance of artificial intelligence.
2. Customer experience with artificial intelligence.
3. Customer engagement with artificial intelligence features.
4. Artificial intelligence uses for digital marketing enhancement.
5. Artificial intelligence uses for strategy and planning.

The study is based on primary data collected from 300 telecom users in Delhi-NCR region, using a well-structured questionnaire. Simple random sampling technique is adopted for the study.

### HYPOTHESES OF THE STUDY

Based on the literature review, the following hypotheses were framed for the study.

H<sub>01</sub>: There is significant difference in the utilization of predictive maintenance by telecom companies.

H<sub>02</sub>: There is significant difference in the utilization of network optimization by telecom companies.

H<sub>03</sub>: There is significant difference in the utilization of virtual assistants and chatbots by telecom companies.

H<sub>04</sub>: There is significant difference in the utilization of fraud detection and prevention system by telecom companies.

H<sub>05</sub>: There is significant difference in the utilization of robotic process automation system by telecom companies.

### RESULTS AND ANALYSIS

The data was collected from 300 mobile phone users across Delhi and national capital region to assess the impact of AI on their service retention with the telecom company. The participants were selected as per the methodology described in the last chapter and then their data was analyzed using descriptive and inferential statistics. The Chi-Square test was used to check the relationship between the individual domain of AI & the age of the customer who understands it as an important one and between the companies and their utilization of optimal service methods.

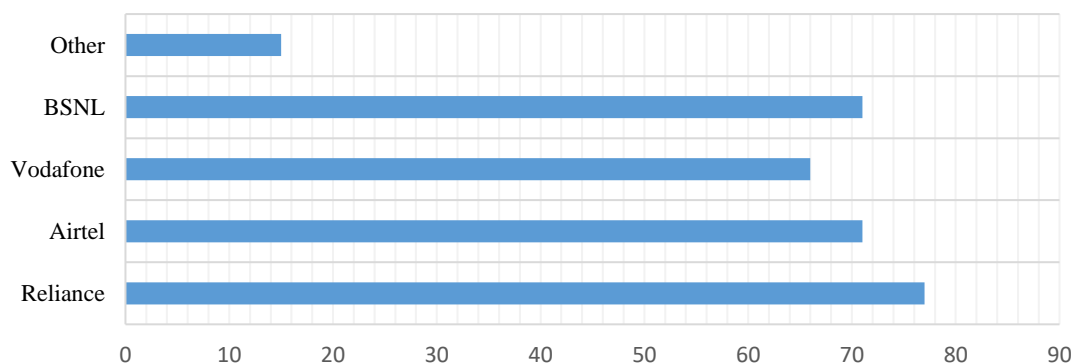
### COMPONENTS OF AI, THEIR IMPORTANCE AND UTILIZATION BY TELECOM COMPANIES

There were 52% female and 48% male participants out of the 300 interviewed having their mean age of 36 years (approx.). The big three companies were Reliance, Airtel, and BSNL having 25.67%, 23.67%, and 23.67% customers in the sample followed by Vodafone (22%). More than half of the customers were using their current network for less than 2 years, of which 30.67% were using it from last 1 year (Table 1).

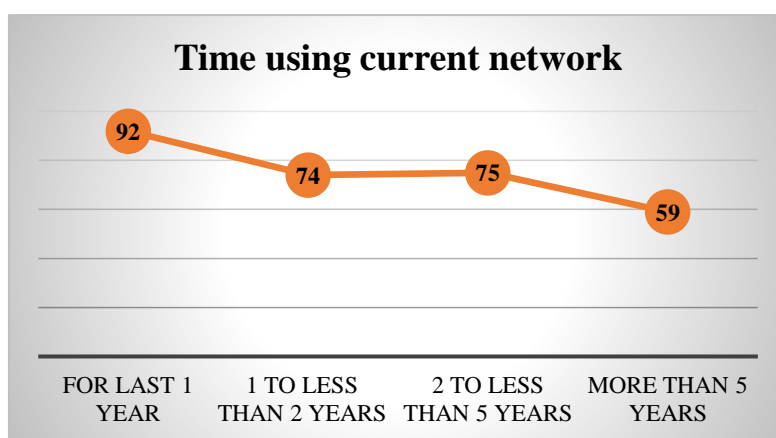
|                            | Category               | N   | n   | %     | Confidence Interval |       |
|----------------------------|------------------------|-----|-----|-------|---------------------|-------|
|                            |                        |     |     |       | Lower               | Upper |
| Primary network Partner    | Reliance               | 300 | 77  | 25.67 | 20.7                | 30.64 |
|                            | Airtel                 | 300 | 71  | 23.67 | 18.83               | 28.5  |
|                            | Vodafone               | 300 | 66  | 22    | 17.29               | 26.71 |
|                            | BSNL                   | 300 | 71  | 23.67 | 18.83               | 28.5  |
|                            | Other                  | 300 | 15  | 5     | 2.52                | 7.48  |
| Time using current network | For last 1 year        | 300 | 92  | 30.67 | 25.42               | 35.91 |
|                            | 1 to less than 2 years | 300 | 74  | 24.67 | 19.76               | 29.57 |
|                            | 2 to less than 5 years | 300 | 75  | 25    | 20.07               | 29.93 |
|                            | More than 5 years      | 300 | 59  | 19.67 | 15.14               | 24.19 |
| Gender                     | Male                   | 300 | 144 | 48    | 42.31               | 53.69 |
|                            | Female                 | 300 | 156 | 52    | 46.31               | 57.69 |



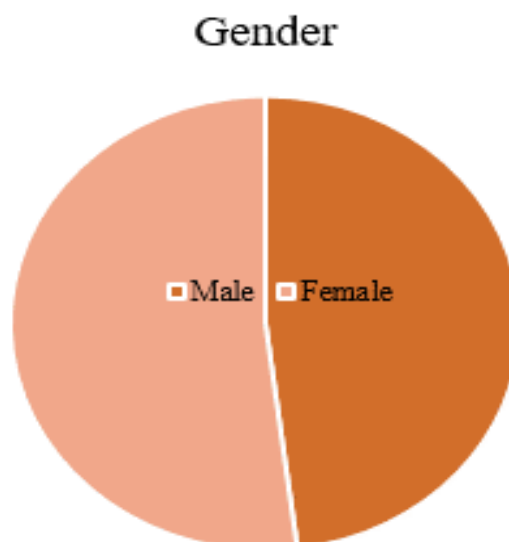
**Table 1: Gender of customers and their telecom partner (Source: Primary Data)**



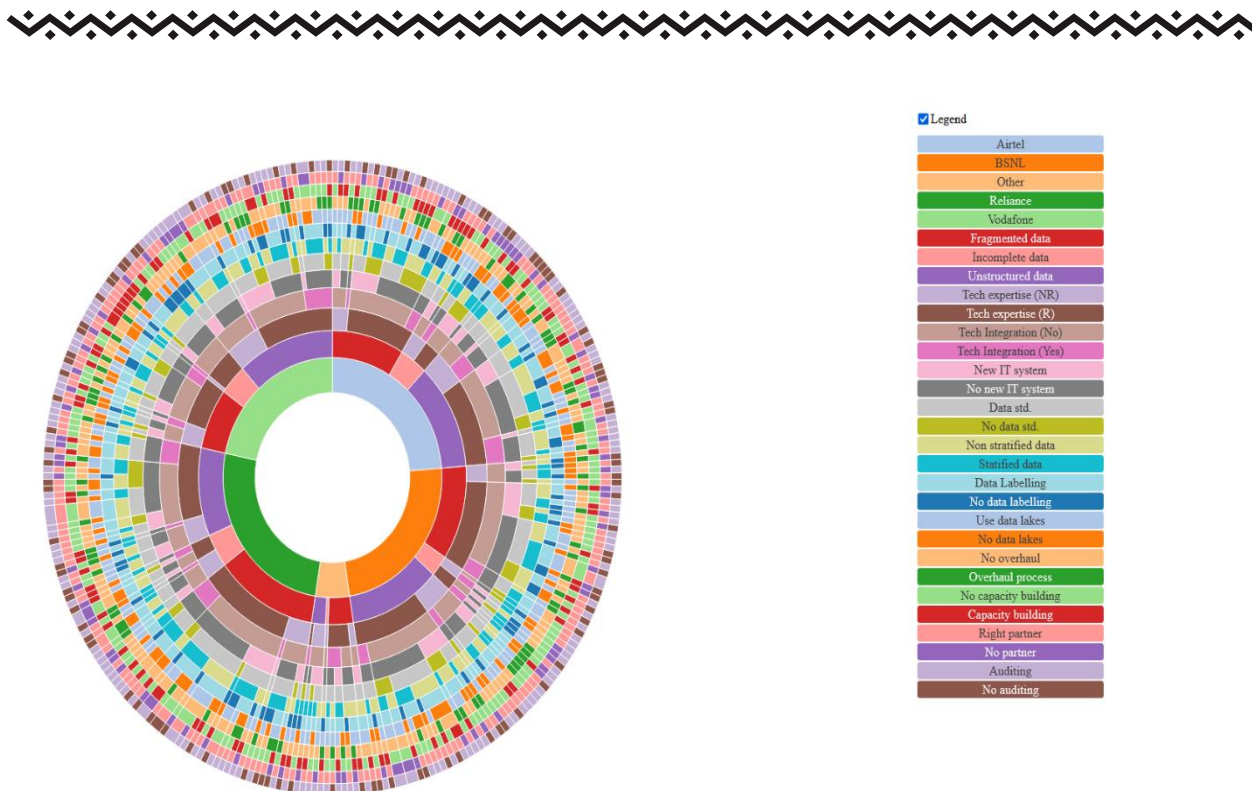
**Graph 1 Primary Network Partner (Source: Primary Data)**



**Graph 2: Time using current Network (Source: Primary Data)**



**Graph 3: Gender of Respondents (Source: Primary Data)**



**Graph 4: Network being used by the Respondents (Source: Primary Data)**

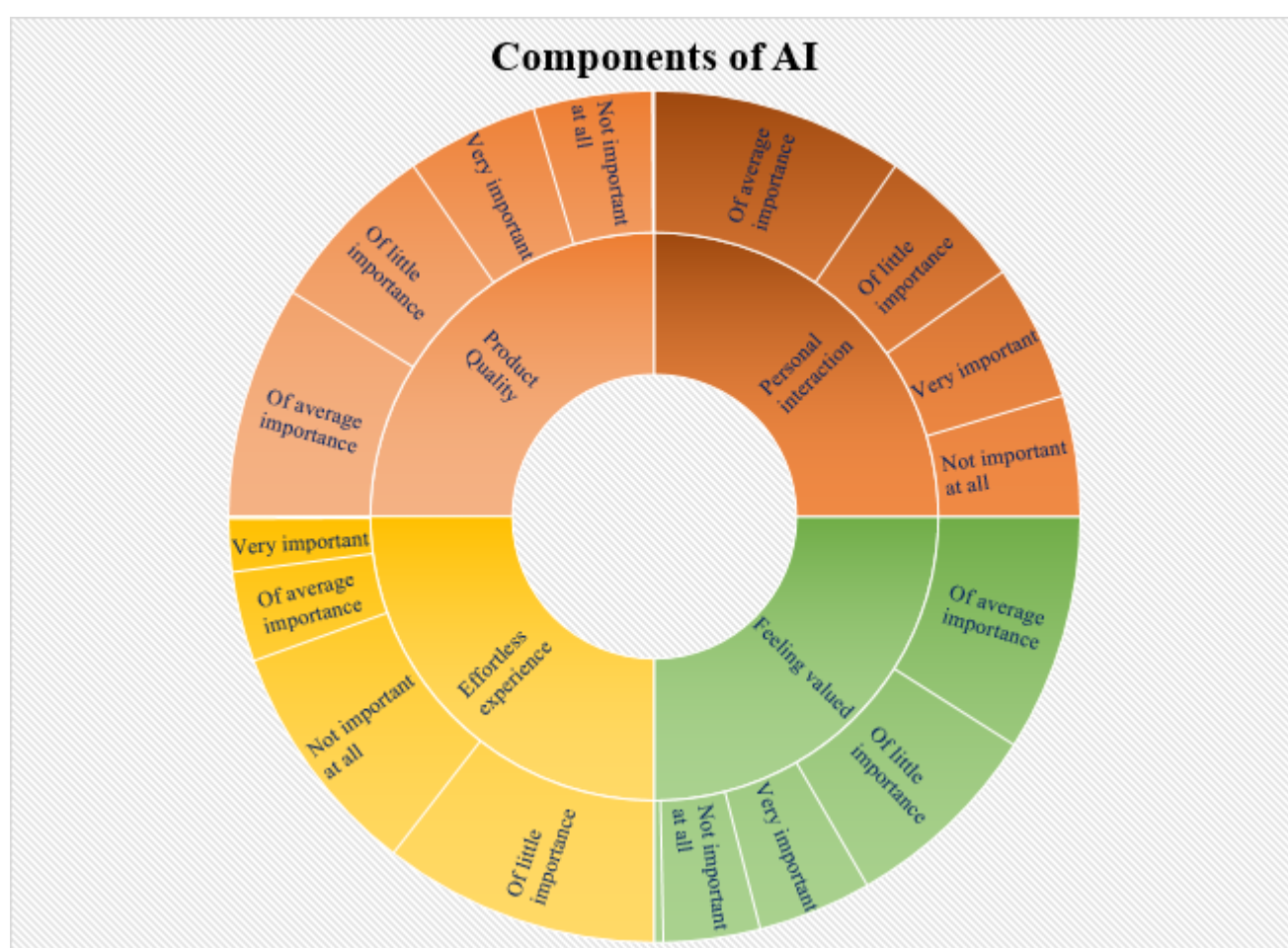
Table 2 and 3 doles out the importance of AI components as understood by the customers in improving retention by the telecom companies namely product quality, effortless experience, value feeling and personal interaction. More than half (55.66%) of the customers considered product quality as an important part for retention and in that 2/3<sup>rd</sup> of the total chose product availability, 72% chose replenishment, 54.66% chose quality maintenance and ~78% chose the speed of the product for delivery as important parameters. Whereas 78% of the total (300) participants considered effortless experience as not so important or of little importance. There were 54.66% of customers said that feeling valued is an important component while building an AI driven customer retention scheme and 59% of customers chose personal interaction as having average importance or more. Although 54.33% of the customers asked for a partial static system and 51% of customers want human interaction for all queries.

|                       | Category              | N   | N   | %     | Confidence Interval |       |
|-----------------------|-----------------------|-----|-----|-------|---------------------|-------|
|                       |                       |     |     |       | Lower               | Upper |
| Product Quality       | Not important at all  | 300 | 54  | 18    | 13.63               | 22.37 |
|                       | Of little importance  | 300 | 79  | 26.33 | 21.32               | 31.35 |
|                       | Of average importance | 300 | 106 | 35.33 | 29.89               | 40.77 |
|                       | Very important        | 300 | 60  | 20    | 15.45               | 24.55 |
|                       | Absolutely Essential  | 300 | 1   | 0.33  | 0                   | 0.99  |
| Effortless experience | Not important at all  | 300 | 108 | 36    | 30.54               | 41.46 |
|                       | Of little importance  | 300 | 126 | 42    | 36.38               | 47.62 |
|                       | Of average importance | 300 | 41  | 13.67 | 9.76                | 17.58 |
|                       | Very important        | 300 | 24  | 8     | 4.91                | 11.09 |
|                       | Absolutely Essential  | 300 | 1   | 0.33  | 0                   | 0.99  |



|                      |                       |     |     |       |       |       |
|----------------------|-----------------------|-----|-----|-------|-------|-------|
| Feeling valued       | Not important at all  | 300 | 44  | 14.67 | 10.64 | 18.69 |
|                      | Of little importance  | 300 | 92  | 30.67 | 25.42 | 35.91 |
|                      | Of average importance | 300 | 108 | 36    | 30.54 | 41.46 |
|                      | Very important        | 300 | 52  | 17.33 | 13.03 | 21.64 |
|                      | Absolutely Essential  | 300 | 4   | 1.33  | 0.03  | 2.64  |
| Personal interaction | Not important at all  | 300 | 55  | 18.33 | 13.93 | 22.74 |
|                      | Of little importance  | 300 | 68  | 22.67 | 17.9  | 27.43 |
|                      | Of average importance | 300 | 115 | 38.33 | 32.8  | 43.87 |
|                      | Very important        | 300 | 62  | 20.67 | 16.06 | 25.27 |
|                      | Absolutely Essential  | 300 | 0   | 0     | 0     | 0     |

Table 2: Components of customer retention (Source: Primary Data)



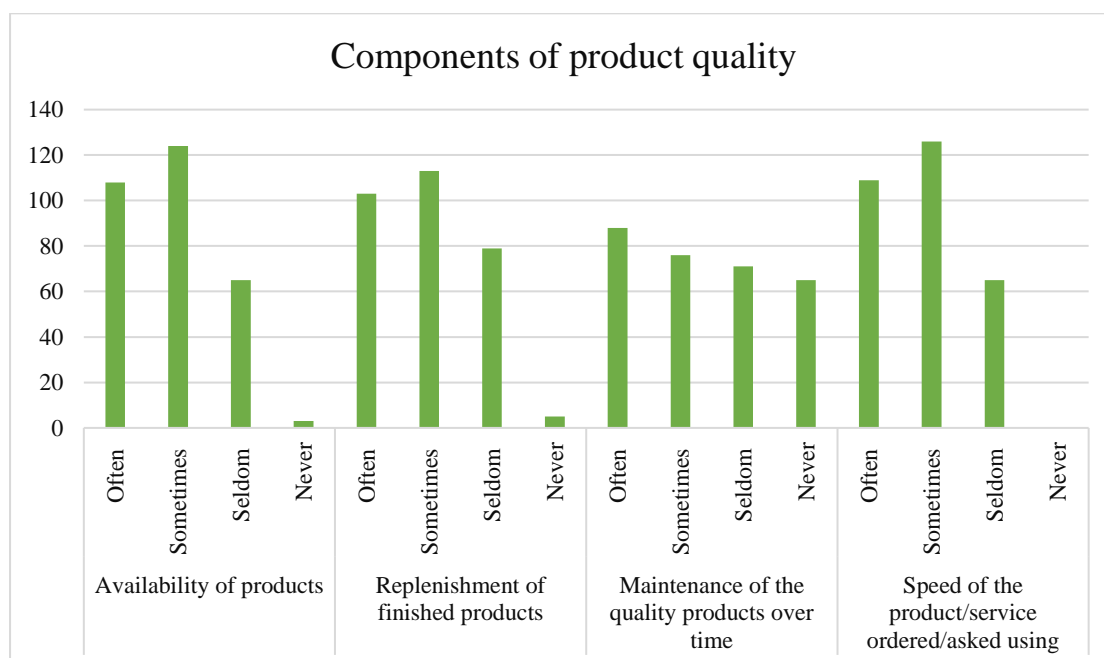
Graph 5: Components of AI (Source: Primary Data)

|                          | Category  | N   | N   | %     | Confidence Interval |       |
|--------------------------|-----------|-----|-----|-------|---------------------|-------|
|                          |           |     |     |       | Lower               | Upper |
| Availability of products | Often     | 300 | 108 | 36    | 30.54               | 41.46 |
|                          | Sometimes | 300 | 124 | 41.33 | 35.73               | 46.94 |



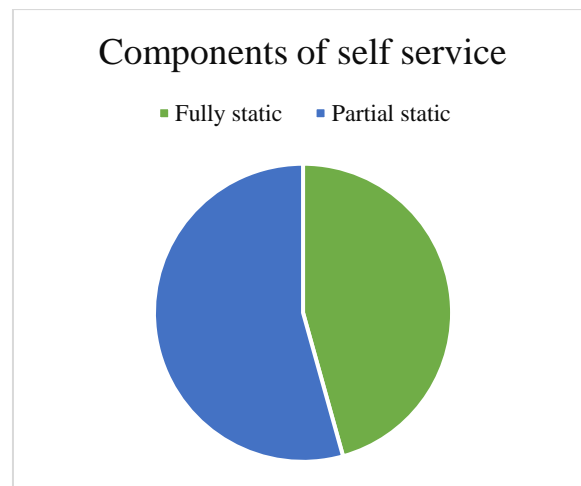
|  |  |     |     |       |       |       |
|--|--|-----|-----|-------|-------|-------|
|  | Seldom                                 | 300 | 65  | 21.67 | 16.98 | 26.36 |
|  | Never                                  | 300 | 3   | 1     | 0     | 2.13  |
| Replenishment of finished products               | Often                                  | 300 | 103 | 34.33 | 28.93 | 39.74 |
|  | Sometimes                              | 300 | 113 | 37.67 | 32.15 | 43.18 |
|  | Seldom                                 | 300 | 79  | 26.33 | 21.32 | 31.35 |
|  | Never                                  | 300 | 5   | 1.67  | 0.21  | 3.12  |
| Maintenance of the quality products over time    | Often                                  | 300 | 88  | 29.33 | 24.15 | 34.51 |
|  | Sometimes                              | 300 | 76  | 25.33 | 20.38 | 30.28 |
|  | Seldom                                 | 300 | 71  | 23.67 | 18.83 | 28.5  |
|  | Never                                  | 300 | 65  | 21.67 | 16.98 | 26.36 |
| Speed of the product/service ordered/asked using | Often                                  | 300 | 109 | 36.33 | 30.86 | 41.81 |
|  | Sometimes                              | 300 | 126 | 42    | 36.38 | 47.62 |
|  | Seldom                                 | 300 | 65  | 21.67 | 16.98 | 26.36 |
|  | Never                                  | 300 | 0   | 0     | 0     | 0     |
| Components of self-service                       | Fully static                           | 300 | 137 | 45.67 | 40    | 51.34 |
|  | Partial static                         | 300 | 163 | 54.33 | 48.66 | 60    |
| Valued feeling                                   | Human interaction for selected queries | 300 | 147 | 49    | 43.31 | 54.69 |
|  | Human interaction for all queries      | 300 | 153 | 51    | 45.31 | 56.69 |

Table 3: Underlying components of customer retention (Source: Primary Data)

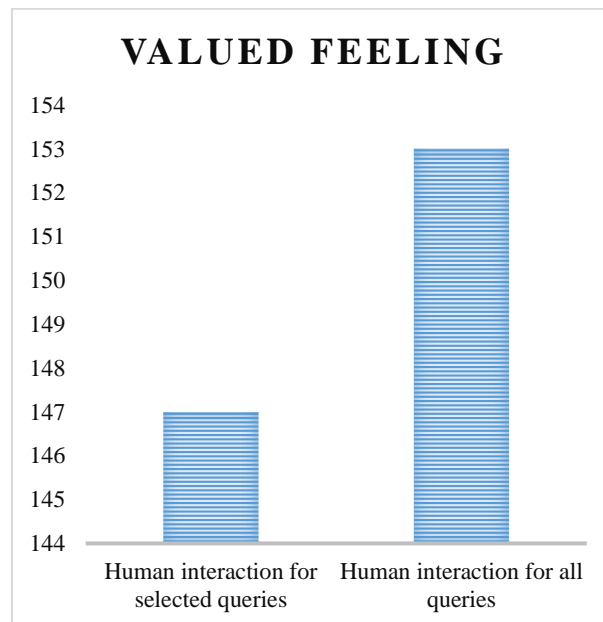


Graph 6: Components of Product Quality (Source: Primary Data)





**Graph 7: Components of Self-Service (Source: Primary Data)**



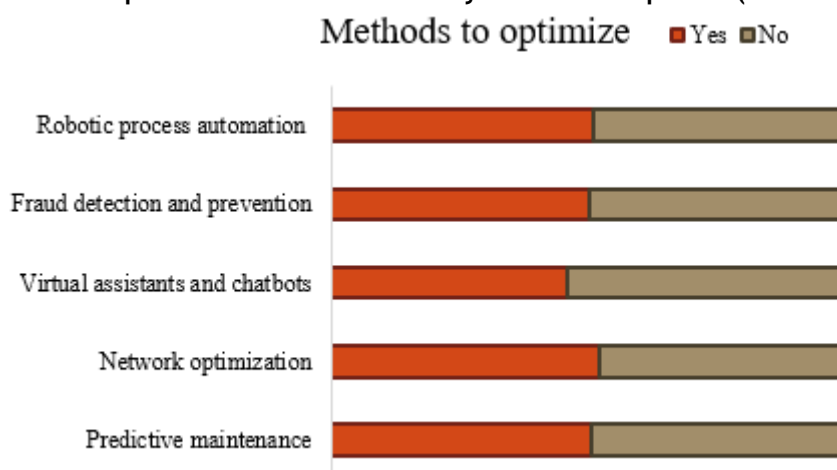
**Graph 8: Components of Valued Feeling (Source: Primary Data)**

Application of AI can make a big difference with predictive maintenance, network optimization, chatbots, fraud detection, and process automation. More than half of the customers said that their telecom company is using predictive maintenance to accurately anticipate and warn about possible hardware failures and out of them ~30% said that its very good and 8% (approx.) put it in poor or very poor category. Network optimization to detect and accurately predict network anomalies, optimize and reconfigure network to ensure stable performance was the second parameter assessed if used by the companies and 52.33% customers said that their company is using it as well and ~59% found it to be good or very good at their end. Fraud detection and protection was agreed by only half of the customers and out of them 43.71% said that it was in good condition. Robotic process automation for data entry, order processing, billing and other back-office processes that require lots of manual work, were agreed by more than half of the customers as being utilized by their telecom partners but only 40% (approx) of them considered it good. The utilization and optimization of virtual assistants and chatbots to avoid long waiting periods for good customer service look under process as 54% of customers said that their company is not using it (Table 4 & 5).



|                                 | Category | N   | N   | %     | Confidence Interval |       |
|---------------------------------|----------|-----|-----|-------|---------------------|-------|
|                                 |          |     |     |       | Lower               | Upper |
| Predictive maintenance          | Yes      | 300 | 153 | 51    | 45.31               | 56.69 |
|                                 | No       | 300 | 147 | 49    | 43.31               | 54.69 |
| Network optimization            | Yes      | 300 | 157 | 52.33 | 46.65               | 58.02 |
|                                 | No       | 300 | 143 | 47.67 | 41.98               | 53.35 |
| Virtual assistants and chatbots | Yes      | 300 | 138 | 46    | 40.33               | 51.67 |
|                                 | No       | 300 | 162 | 54    | 48.33               | 59.67 |
| Fraud detection and prevention  | Yes      | 300 | 151 | 50.33 | 44.64               | 56.02 |
|                                 | No       | 300 | 149 | 49.67 | 43.98               | 55.36 |
| Robotic process automation      | Yes      | 300 | 154 | 51.33 | 45.64               | 57.02 |
|                                 | No       | 300 | 146 | 48.67 | 42.98               | 54.36 |

Table 4: Methods to optimize customer service by telecom companies (Source: Primary Data)



Graph 9: Methods to Optimize (Source: Primary Data)

|                        | Category   | N   | n  | %     | Confidence Interval |       |
|------------------------|------------|-----|----|-------|---------------------|-------|
|                        |            |     |    |       | Lower               | Upper |
| Predictive maintenance | Very good  | 153 | 46 | 30.07 | 22.72               | 37.41 |
|                        | Good       | 153 | 59 | 38.56 | 30.76               | 46.36 |
|                        | Acceptable | 153 | 36 | 23.53 | 16.73               | 30.33 |
|                        | Poor       | 153 | 6  | 3.92  | 0.81                | 7.03  |
|                        | Very poor  | 153 | 6  | 3.92  | 0.81                | 7.03  |
| Network optimization   | Very good  | 157 | 50 | 31.85 | 24.48               | 39.22 |
|                        | Good       | 157 | 41 | 26.11 | 19.17               | 33.06 |
|                        | Acceptable | 157 | 47 | 29.94 | 22.69               | 37.18 |
|                        | Poor       | 157 | 8  | 5.1   | 1.62                | 8.57  |
|                        | Very poor  | 157 | 11 | 7.01  | 2.97                | 11.04 |
|                        | Very good  | 138 | 39 | 28.26 | 20.65               | 35.87 |



|                                 |            |     |    |       |       |       |
|---------------------------------|------------|-----|----|-------|-------|-------|
| Virtual assistants and chatbots | Good       | 138 | 40 | 28.99 | 21.32 | 36.65 |
|                                 | Acceptable | 138 | 40 | 28.99 | 21.32 | 36.65 |
|                                 | Poor       | 138 | 10 | 7.25  | 2.87  | 11.63 |
|                                 | Very poor  | 138 | 9  | 6.52  | 2.35  | 10.69 |
| Fraud detection and prevention  | Very good  | 151 | 32 | 21.19 | 14.6  | 27.79 |
|                                 | Good       | 151 | 34 | 22.52 | 15.78 | 29.26 |
|                                 | Acceptable | 151 | 32 | 21.19 | 14.6  | 27.79 |
|                                 | Poor       | 151 | 21 | 13.91 | 8.32  | 19.49 |
|                                 | Very poor  | 151 | 32 | 21.19 | 14.6  | 27.79 |
| Robotic process automation      | Very good  | 154 | 31 | 20.13 | 13.73 | 26.53 |
|                                 | Good       | 154 | 30 | 19.48 | 13.15 | 25.81 |
|                                 | Acceptable | 154 | 28 | 18.18 | 12.02 | 24.34 |
|                                 | Poor       | 154 | 32 | 20.78 | 14.3  | 27.26 |
|                                 | Very poor  | 154 | 33 | 21.43 | 14.88 | 27.98 |

Table 5: Quality of methods for optimizing customer service by telecom companies (Source: Primary Data)



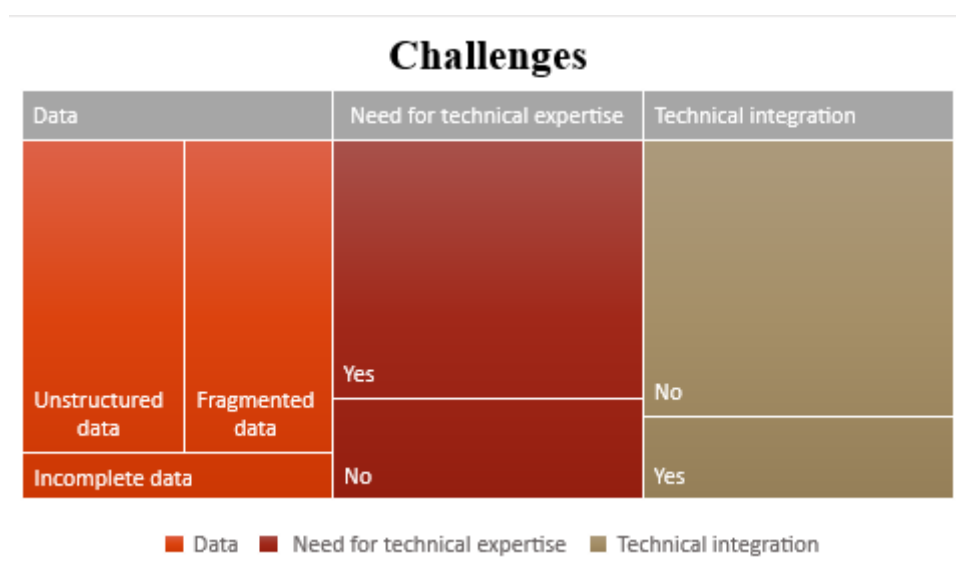
Graph 10: Quality of Methods (Source: Primary Data)



The results above show that the companies are applying AI to make their customer service experience better but they are facing problems for now. These problems are compiled in the table given below. The problem related to data quality seem to be a big one as 41.33% of the customers said that the data is fragmented, which means that the its not centralized but stored in different systems and 45.67% said that its unstructured which is not very useful to any AI algorithm. There were 72% and 77% of the customers agreed that the companies are lacking technical expertise to this kind of job and IT infrastructure for integration too. There can be multiple solutions to these problems out of which few are given as 67.33% disagree for making a new IT system from scratch but 75.33% agreed for maintaining a standard for data collection. Stratification, data labelling and data lakes were three more solutions provided by 47%, ~71% and 57% of the customers as well, respectively. Apart from these, identification of right partner and audit of the system by technology partner to validate ideas were also suggested by 67.67% and 65.33% of the customers (Table 6 & 7).

|                              | Category          | N   | n   | %     | Confidence Interval |       |
|------------------------------|-------------------|-----|-----|-------|---------------------|-------|
|                              |                   |     |     |       | Lower               | Upper |
| Data Quality                 | Fragmented data   | 300 | 124 | 41.33 | 35.73               | 46.94 |
|                              | Unstructured data | 300 | 137 | 45.67 | 40                  | 51.34 |
|                              | Incomplete data   | 300 | 39  | 13    | 9.17                | 16.83 |
| Need for technical expertise | Yes               | 300 | 216 | 72    | 66.89               | 77.11 |
|                              | No                | 300 | 84  | 28    | 22.89               | 33.11 |
| Technical integration        | Yes               | 300 | 69  | 23    | 18.21               | 27.79 |
|                              | No                | 300 | 231 | 77    | 72.21               | 81.79 |

Table 6: Problems faced by telecom companies in applying AI (Source: Primary Data)



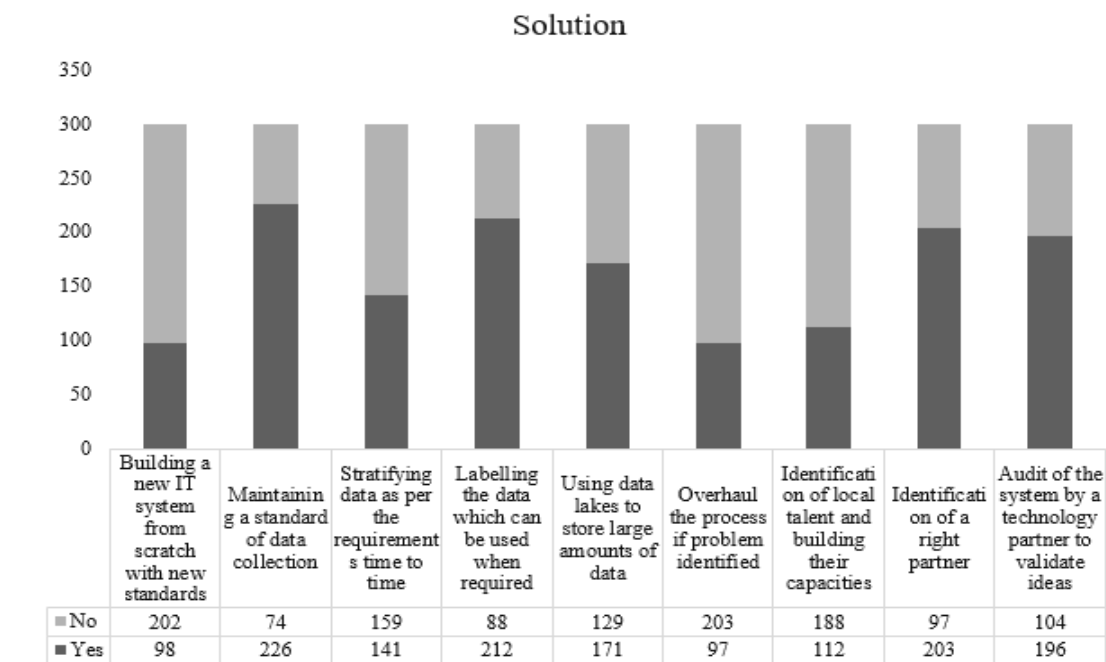
Graph 11: Challenges faced by Telecom Companies (Source: Primary Data)

|  | Category | N   | N  | %     | Confidence Interval |       |
|--|----------|-----|----|-------|---------------------|-------|
|  |          |     |    |       | Lower               | Upper |
|  | Yes      | 300 | 98 | 32.67 | 27.33               | 38    |



|   |     |     |     |       |       |       |
|---|-----|-----|-----|-------|-------|-------|
| Building a new IT system from scratch with new standards      | No  | 300 | 202 | 67.33 | 62    | 72.67 |
| Maintaining a standard of data collection                     | Yes | 300 | 226 | 75.33 | 70.43 | 80.24 |
|   | No  | 300 | 74  | 24.67 | 19.76 | 29.57 |
| Stratifying data as per the requirements time to time         | Yes | 300 | 141 | 47    | 41.32 | 52.68 |
|   | No  | 300 | 159 | 53    | 47.32 | 58.68 |
| Labelling the data which can be used when required            | Yes | 300 | 212 | 70.67 | 65.49 | 75.85 |
|   | No  | 300 | 88  | 29.33 | 24.15 | 34.51 |
| Using data lakes to store large amounts of data               | Yes | 300 | 171 | 57    | 51.37 | 62.63 |
|   | No  | 300 | 129 | 43    | 37.37 | 48.63 |
| Overhaul the process if problem identified                    | Yes | 300 | 97  | 32.33 | 27.01 | 37.66 |
|   | No  | 300 | 203 | 67.67 | 62.34 | 72.99 |
| Identification of local talent and building their capacities  | Yes | 300 | 112 | 37.33 | 31.83 | 42.84 |
|   | No  | 300 | 188 | 62.67 | 57.16 | 68.17 |
| Identification of a right partner                             | Yes | 300 | 203 | 67.67 | 62.34 | 72.99 |
|   | No  | 300 | 97  | 32.33 | 27.01 | 37.66 |
| Audit of the system by a technology partner to validate ideas | Yes | 300 | 196 | 65.33 | 59.92 | 70.75 |
|   | No  | 300 | 104 | 34.67 | 29.25 | 40.08 |

Table 7: Solution of problems faced by telecom companies in applying AI (Source: Primary Data)



Graph 12: Solution of the problem (Source: Primary Data)

### Relationship Between Optimization Methods of AI and Telecom Companies

The relationship between the optimization methods and the telecom partners were assessed and the relationship between fraud detection and prevention & companies was found to be statistically



significant resulting in the rejection of  $H_{04}$ . Other than this, none of the hypotheses was found significant resulting in the failure to the rejection of  $H_{01}$ ,  $H_{02}$ ,  $H_{03}$ ,  $H_{04}$  and  $H_{05}$ . (Table 8)

|                                 | Category | Primary network Partner |          |          |          |         | Total | Chi sq test |
|---------------------------------|----------|-------------------------|----------|----------|----------|---------|-------|-------------|
|                                 |          | Reliance                | Airtel   | Vodafone | BSNL     | Other   |       | P value     |
| Predictive maintenance          | Yes      | 46 (30%)                | 37 (24%) | 28 (18%) | 36 (24%) | 6 (4%)  | 153   | 0.2812      |
|                                 | No       | 31 (21%)                | 34 (23%) | 38 (26%) | 35 (24%) | 9 (6%)  | 147   |             |
| Network optimization            | Yes      | 39 (25%)                | 37 (24%) | 37 (24%) | 34 (22%) | 10 (6%) | 157   | 0.6891      |
|                                 | No       | 38 (27%)                | 34 (24%) | 29 (20%) | 37 (26%) | 5 (3%)  | 143   |             |
| Virtual assistants and chatbots | Yes      | 35 (25%)                | 30 (22%) | 26 (19%) | 36 (26%) | 11 (8%) | 138   | 0.1518      |
|                                 | No       | 42 (26%)                | 41 (25%) | 40 (25%) | 35 (22%) | 4 (2%)  | 162   |             |
| Fraud detection and prevention  | Yes      | 30 (20%)                | 45 (30%) | 28 (19%) | 39 (26%) | 9 (6%)  | 151   | 0.0203      |
|                                 | No       | 47 (32%)                | 26 (17%) | 38 (26%) | 32 (21%) | 6 (4%)  | 149   |             |
| Robotic process automation      | Yes      | 39 (25%)                | 30 (19%) | 38 (25%) | 39 (25%) | 8 (5%)  | 154   | 0.4368      |
|                                 | No       | 38 (26%)                | 41 (28%) | 28 (19%) | 32 (22%) | 7 (5%)  | 146   |             |
| Total                           |          | 77 (26%)                | 71 (24%) | 66 (22%) | 71 (24%) | 15 (5%) | 300   |             |

**Table 8: Relationship between Optimization Methods of AI and Telecom Companies (Source: Primary Data)**

Relationships between components of AI including quality of the products, effortless experience, valuable feeling, personal interaction, self-service, and respondent's age was tested using Chi-Square test and none of the results were found to be significant. Along with them, optimization methods were tested with current telecom companies. These methods included predictive maintenance, network optimization, virtual assistants & chatbots, fraud detection, and robotic process automation. No relationship here was statistically significant too. Considering these results, no further impact measurement was done using regression, concluding failure to the rejection of null hypotheses with the present evidence.

## DISCUSSION

This study's findings give several theoretical and practical contributions and indicate avenues for further investigation. Specific conclusions of the study affect consumer happiness, loyalty, and retention in the Indian market. Based on this study, managerial relevance and suggestions are provided. According to the study's findings, improved customer services contribute to customer happiness, loyalty, and retention in the Indian market. Therefore, it is recommended that managers focus on customer service to increase client retention, loyalty, and satisfaction in the Indian market. It may be accomplished by offering customer assistance by email and text messaging 24 hours a day, seven days a week.

The study's findings indicate that loyalty programmes and rewards contribute to consumer happiness, loyalty, and retention in the Indian market. Therefore, it is suggested that managers regularly update their loyalty programmes and rewards to increase client retention, loyalty, and happiness in the Indian market. The plan should be created so the client's needs are met more effectively than the competition.





According to this study, the stability of a network affects customer satisfaction, customer loyalty, and customer retention in the Indian market. To increase customer retention, commitment, and happiness in the Indian market, it is recommended that cellular data service providers enhance their network's stability. The stability of a network may be achieved by utilizing superior technology, upgrading it periodically, and investing more in the company's research and development efforts.

## CONCLUSION

Telecommunications is one of the fastest-growing businesses and uses artificial intelligence and machine learning in many facets of their business, including boosting the customer experience, predictive maintenance, and network reliability. The world's top telecommunications rely on artificial intelligence and machine learning in various ways. Artificial Intelligence (AI) continues to rise in popularity among marketers and sales professionals and has become an indispensable tool for organizations seeking to deliver a hyper-personalized, extraordinary client experience. AI continuously learns and improves from the data it examines and can predict consumer behaviour. The emergence of AI-enhanced customer relationship management (CRM) and customer data platform (CDP) software has introduced AI to the enterprise at a lower price than was previously possible.

AI marketing can be used to increase the effectiveness of marketing initiatives and improve the mobile consumer journey. AI in digital marketing applications is gaining traction by utilizing big data analytics, machine learning, and other techniques to acquire audience insights. Adopting AI technology enables marketers to launch dynamic campaigns based on real-time data at all customer lifecycle stages. By automating data-driven tasks that customize the customer journey and enhance revenue, AI marketing decreases expenses and increases marketing team efficiency.

The more advanced AI becomes, the more individualized marketing will become. Using machine learning and pattern recognition, marketers can build more effective advertisements and target user needs. With the ability to deliver precise solutions based on a huge array of data, virtual assistants will become the norm and transform customer service systems. Improving self-service is one of the most effective methods to promote consumer engagement and agent efficiency. It supports the self-service system. Self-service also allows your agents to spend more time with consumers requiring special attention instead of frequently answering simple questions. With AI and cognitive search, you can provide these individualized customer experiences while relieving the strain on your support employees. For instance, the content performance in your self-service community influences the content ranking agents to see in the CRM. The content agents use to settle situations is pushed to the top of search results within your customer community. This closes the loop between self-service and assistance, allowing you to give your consumers frictionless experiences. At each point of the user life cycle, AI-powered solutions may assist businesses in persuading customers to take action.

## REFERENCES

- [1] Alshurideh, M. (2014a), "The Factors Predicting Students' Satisfaction with Universities' Healthcare Clinics' Services: A Case-Study from the Jordanian Higher Education Sector". *Dirasat: Administrative Sciences*. 41(2), pp. 451-464.
- [2] Alshurideh, M. (2014b), "A Qualitative Analysis of Customer Repeat Purchase Behaviour in the UK Mobile Phone Market". *Journal of Management Research* 6(1), pp. 109-125.
- [3] Alshurideh, M., Shaltoni, A-M., &Hijawi, D. (2014), "Marketing Communications Role in Shaping Consumer Awareness of Cause-Related Marketing Campaigns". *International Journal of Marketing Studies*. 6(2), pp. 163-168.
- [4] Altamony, H., Masa'deh, R., Alshurideh, M., &Obeidat, B. (2012), "Information systems for competitive advantage: Implementation of an organisational strategic management process". *Proceedings of the 18th IBIMA conference on Innovation and Sustainable Economics*



- Competitive advantage: From Development to World Economies. *International Business Information Management Association*, pp. 124-137.
- [5] Andic, S. (2006), "Mobile operators must tune into youth market". *New Media Age*, pp. 7-7.
  - [6] Bolton, R. N. (1998). "A Dynamic Model of the Duration of the Customer's Relationship with a Continuous Service Provider: The Role of Satisfaction." *Marketing Science* 17(1), pp. 45-65.
  - [7] Brodie, R. J., Hollebeek, L. D., Jurić, B., & Ilić, A. (2011). Customer engagement: Conceptual domain, fundamental propositions, and implications for research. *Journal of Service Research*, 14(3), pp. 252-271.
  - [8] Brynjolfsson, E., Rock, D. & Syverson, C. (2017). Artificial intelligence and the modern productivity paradox: a clash of expectations and statistics. Working paper, National Bureau of Economic Research, Inc., pp. 23-57.
  - [9] Dalen, D. M., E. R. Moen, et al. (2006), "Contract renewal and incentives in public procurement." *International Journal of Industrial Organization* 24(2), pp. 269-285.
  - [10] Elish, M. C. & Boyd, D. (2018). Situating methods in the magic of big data and AI. *Communication Monographs*, 85 (1), pp. 57-80.
  - [11] Erickson, T. (2012). How mobile technologies are shaping a new generation. *Harvard Business Review*, 87(1), pp. 3265-3271.
  - [12] Grönroos, C. (1995), "Relationship Marketing: The Strategy Continuum." *Journal of the Academy of Marketing Science* 23(4), pp. 252-254.
  - [13] Hollebeek, L., 2011b. Exploring customer brand engagement: definition and themes. *J. Strat. Market.* 19 (7), pp. 555-573.
  - [14] Hollebeek, L.D., 2011a. Demystifying customer brand engagement: exploring the loyalty nexus. *J. Market. Manag.* 27 (7-8), pp. 785-807. <https://doi.org/10.1080/0267257X.2010.500132>.
  - [15] Kim, H.-S. & C.-H. Yoon (2004). "Determinants of subscriber churn and customer loyalty in the Korean mobile telephony market". *Telecommunications Policy* 28(9-10), pp. 751-765
  - [16] Murphy, E. C., & Murphy, M. A. (2002). *Leading on the edge of chaos: The 10 critical elements for success in volatile times*. Prentice Hall Press.
  - [17] Nanji, A., (2019). How consumers feel about brands' use of AI. Retrieved from. <https://www.marketingprofs.com/charts/2019/41489/how-consumers-feel-about-brands-use-of-ai?adref%4nlt073119>
  - [18] Prentice, C., (2013). Emotional labour and its consequences: the moderating effect of emotional intelligence. *Individual Sources, Dynamics, and Expressions of Emotion (Research on Emotion in Organisations)*, 9, pp. 187-201.
  - [19] Prentice, C., (2013b). Service quality perceptions and customer loyalty in casinos. *International Journal Contemporary Hospital Management*, 25 (1), 49-64. <https://doi.org/10.1108/0956111311290219>.
  - [20] Ranaweera, C. & J. Prabhu (2003), "The influence of satisfaction, trust and switching barriers on customer retention in a continuous purchasing setting." *International Journal of Service Industry Management* 14(4), pp. 374-395.
  - [21] Ravald, A. and C. Grönroos (1996). "The value concept and relationship marketing." *European Journal of Marketing*, 30(2), pp. 19-30.
  - [22] Reichheld, F. F. (1996), "Learning from Customer Defections." *Harvard Business Review*, 74 (2), pp. 56-67.
  - [23] Reichheld, F. F. and D. W. Kenny (1990). "The hidden advantages of customer retention." *Journal of Retail Banking*, XII(4), pp. 19-23.
  - [24] Seo, D., C. Ranganathan, et al. (2008), "Two-level model of customer retention in the US mobile telecommunications service market." *Telecommunications Policy* 32(3-4), pp. 182-196.
  - [25] Turnbull, P. W., S. Leek, et al. (2000), "Customer Confusion: The Mobile Phone Market." *Journal of Marketing Management* 16(1-3), pp. 143-163.