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Customer Churn Prediction in the Telecom Industry Using Predictive Analytics : A Survey-Based Study

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Abstract: *Customer retention has emerged as a critical challenge for telecommunications companies owing to increasing market competition and the availability of multiple service providers. Customer churn, which refers to the discontinuation of services by subscribers, significantly impacts an organization's profitability and long-term growth. This study examines the factors influencing customer churn in the Indian telecommunications sector and evaluates the role of predictive analytics in customer retention (CR). Primary data were collected from 90 telecom subscribers using structured questionnaires. The findings indicate that factors such as pricing, network quality, customer service, loyalty benefits, and competitor offers play significant roles in influencing customer switching behavior. The study further highlights how predictive analytics can assist telecom companies in identifying customers at risk of churn and in implementing proactive retention strategies. The results suggest that data-driven decision-making can improve customer satisfaction, strengthen customer loyalty, and contribute to sustainable business performance in the telecommunications sector.*

Keywords: Customer Churn, Predictive Analytics, Telecommunications, Customer Retention, Business Analytics, Customer Satisfaction

I. INTRODUCTION

The telecommunications industry has undergone rapid transformation over the past decade owing to technological innovation, increasing Internet penetration, and expanding digital services. The availability of multiple service providers has intensified competition and provided customers with several alternatives. As a result, retaining existing customers has become as important as acquiring new customers.

Customer churn represents the loss of subscribers who discontinue their relationship with a service provider and migrate to competing companies. High churn rates negatively affect profitability because acquiring new customers typically requires a greater investment than retaining existing subscribers. Consequently, telecom organizations increasingly rely on analytical techniques to understand customer behavior and reduce their attrition.

Predictive analytics has emerged as an effective solution for addressing churn-related challenges in recent years. By analyzing historical customer information and behavioral patterns, predictive models can estimate the probability of future customer churn. These insights allow organizations to intervene proactively and design personalized retention programs. This study examines the major factors contributing to churn and evaluates the relevance of predictive analytics in improving customer retention in the telecom industry.

II. REVIEW OF LITERATURE

Recent research has demonstrated significant progress in the application of predictive analytics and machine learning techniques for customer churn prediction.

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Chang et al. (2024) reported that customer tenure and service usage patterns are strong indicators of churn behavior. Alotaibi and Haq (2024) found that ensemble learning techniques outperformed traditional prediction models in terms of classification accuracy. Ahmad et al. (2019) highlighted the effectiveness of machine learning models in identifying high-risk customers and supporting retention initiatives.

A systematic review by Gattermann et al. (2024) identified service quality, customer satisfaction, pricing structures, and switching costs as key determinants of churn. Similarly, Barsotti et al. (2024) concluded that machine learning is the dominant methodology in telecom churn prediction research.

The literature indicates that customer churn is influenced by multiple demographic, behavioral, and service-related factors. While substantial progress has been made in prediction accuracy, there remains a need to translate analytical insights into actionable retention strategies. This study attempts to bridge this gap by combining customer perception analysis with managerial recommendations.

III. RESEARCH GAP

Previous studies have extensively applied machine learning and predictive analytics techniques to forecast customer churn in the telecommunications sector. Although these studies achieved high prediction accuracy, many primarily focused on algorithmic performance and historical customer datasets. Limited research has examined customer perceptions, satisfaction levels, switching intentions, and retention factors using survey-based approaches in the Indian telecom market. Furthermore, there is a need to connect predictive analytics insights with practical customer-retention strategies. This study addresses this gap by analyzing customer opinions and behavioral intentions, while highlighting the managerial implications of predictive analytics for reducing churn.

IV. RESEARCH OBJECTIVES

Primary Objective :

To analyze customer churn in the telecommunications industry using predictive analytics concepts.

Secondary Objectives :

1. To identify the major factors influencing customer churn.
2. To assess customer satisfaction regarding telecom services,
3. To examine customer switching behavior,
4. To evaluate the importance of predictive analytics in customer retention.
5. To recommend strategies for reducing churn and improving loyalty.

V. RESEARCH METHODOLOGY

This study adopts a descriptive research design to analyze customer churn behavior and identify factors influencing customer retention in the telecommunications industry. This study focuses on understanding customer perceptions of telecom services, satisfaction levels, switching behavior, and loyalty intentions.

Research Design

Descriptive Research

Data Sources

• Primary Data: Collected using a structured questionnaire distributed to telecom subscribers.

• Secondary Data: Collected from journals, research papers, books, websites, and published studies related to customer churn and predictive analytics.

Sample Size

A total of 90 respondents participated in this survey.

Sampling Technique

Convenience Sampling

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Data Collection Method

Google Forms questionnaire and direct feedback from respondents.

Area of Study

telecom service users in India.

Data Analysis Tools

- Percentage Analysis
- Tabular Analysis
- Graphical Representation
- Microsoft Excel

Research Period

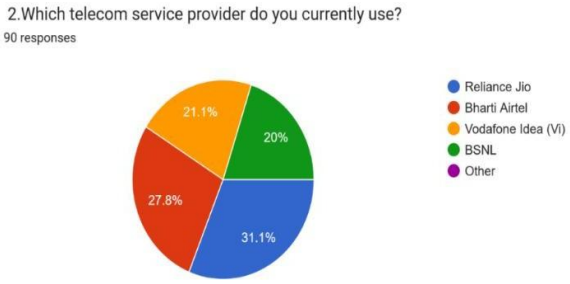
This study was conducted during the academic year 2025–26 as part of an MBA (Business Analytics) research project.

Particulars	Description
Research Design	Descriptive
Sample Size	90 Respondents
Sampling Technique	Convenience Sampling
Data Collection Tool	Structured Questionnaire
Data Sources	Primary and Secondary
Industry	Telecommunications
Analysis Tools	Percentage Analysis, Excel
Area of Study	Telecom Subscribers

VI. RESULTS

1. Which telecom service provider are you currently using?

- Reliance Jio
- Bharti Airtel
- Vodafone Idea (Vi)
- BSNL
- Other



Interpretation :

Telecom Service Provider	Percentage	Approx. Number of Respondents
Reliance Jio	31.1%	28
Bharti Airtel	27.8%	25
Vodafone Idea (Vi)	21.1%	19
BSNL	20.0%	18
Other	0.0%	0
Total	100%	90

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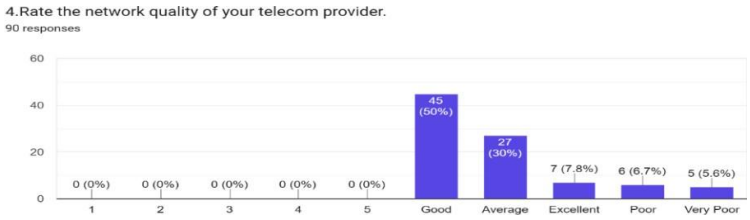
2. Rate the network quality of your telecom provider.

Very Poor

• 1
• 2
• 3
• 4
• 5

Excellent



Interpretation :

Network Quality Rating	Number of Respondents	Percentage
Excellent	7	7.8%
Good	45	50.0%
Average	27	30.0%
Poor	6	6.7%
Very Poor	5	5.6%
Total	90	100%

VII. DATA ANALYSIS AND FINDINGS

Telecom Service Providers

The survey revealed that Reliance Jio was the most widely used provider (31.1%), followed by Airtel (27.8%), Vodafone Idea (21.1%), and BSNL (20.0%).

Customer Satisfaction

More than half of the respondents expressed satisfaction with their telecommunications services. However, a significant proportion remained neutral, indicating opportunities for improving the service.

Network Performance

Most respondents rated the network quality as good or average. A smaller segment reported frequent service issues, which may have contributed to dissatisfaction and switching intentions.

Switching Behavior

Approximately one-third of the respondents reported changing their telecom provider within the last three years, indicating a competitive and dynamic market environment.

Reasons for Switching

The primary reasons influencing customer migration include:

• Better offers from competitors
• Poor customer service experiences
• High service charges
• Network coverage issues
• Billing-related concerns

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Factors Supporting Retention

Respondents indicated that additional data benefits, enhanced customer service, loyalty rewards, and competitive pricing would increase their likelihood of staying with their current provider.

VIII. DISCUSSION

The findings confirm that customer churn is influenced by multiple interconnected factors rather than a single determinant. Pricing concerns, customer support quality, and competitor offerings were major drivers of switching behavior. These results are consistent with previous research, highlighting the importance of customer experience and perceived value.

Predictive analytics can assist telecom companies in identifying customers who exhibit characteristics associated with churn risk. Such customers can then be targeted through personalized retention programs, promotional offers or service improvements. This approach enables organizations to shift from reactive customer management to proactive engagement.

IX. RECOMMENDATIONS

Based on these findings, the following recommendations are proposed:

1. Implement predictive analytics systems for continuous churn monitoring.
1. Develop personalized retention campaigns for high-risk customers.
2. Improving customer support responsiveness and complaint resolution.
3. Introduce loyalty and reward programs for long-term subscribers.
4. Offer competitive pricing and flexible service plans.
5. Advanced machine learning techniques were used to enhance the prediction accuracy.
6. Strengthen customer relationship management through data-driven decision making.

X. CONCLUSION

Customer churn remains one of the most significant challenges in the telecommunications industry. This study demonstrates that customer satisfaction, service quality, pricing policies, network performance, and competitive market dynamics play important roles in shaping retention outcomes.

This research further highlights the value of predictive analytics in identifying customers who may be at risk of leaving. By effectively leveraging customer data, telecom companies can implement proactive retention strategies that improve loyalty, reduce acquisition costs, and enhance profitability. Therefore, the adoption of predictive analytics is not only a technological advancement but also a strategic necessity for sustainable growth in the modern telecommunications sector.

REFERENCES

1. Alotaibi, A., & Haq, A. (2024). Telecom Customer Churn Prediction Using Machine and Ensemble Learning Techniques. Engineering, Technology and Applied Science Research.
2. Gattermann, T., Hoffmann, S., & Schumann, J. (2024). Determinants of Customer Churn in Telecommunications Services: A Systematic Literature Review. Journal of Revenue & Pricing Management.
3. Larose, D. T., & Larose, C. D. (2015). Data Mining and Predictive Analytics (2nd ed.). Wiley.
4. Sharda, R., Delen, D., & Turban, E. (2020). Business Intelligence, Analytics, and Data Science: A Managerial Perspective (5th ed.). Pearson.
5. Witten, I. H., Frank, E., Hall, M. A., & Pal, C. J. (2017). Data Mining: Practical Machine Learning Tools and Techniques (4th ed.). Morgan Kaufmann.
6. Kumar, V., & Reinartz, W. (2018). Customer Relationship Management: Concept, Strategy, and Tools. Springer.
7. Gupta, S., & Lehmann, D. R. (2005). Managing Customers as Investments. Wharton School Press