

A Strategic Performance Analysis of AI-Based Chatbot Services in Digital Customer Support at Bharti Airtel Limited

Ms. Shloka Kumbalwar¹, Prof. Prashant Sawarkar²

¹Student, Department of Business Management, SBJITMR, Nagpur

²Assistant Professor, Department of Business Management, SBJITMR, Nagpur

ABSTRACT:

This study examines the strategic performance of AI-based chatbot services within the digital customer support framework of Bharti Airtel Limited. As telecommunication companies increasingly rely on automation to manage high volumes of customer interactions, evaluating the real-world effectiveness and user perception of these AI tools is essential. To assess this, primary data was gathered from active Airtel users through a structured questionnaire analysing usage patterns, satisfaction metrics, and areas for improvement. The empirical findings indicate a generally positive baseline of customer satisfaction, with the majority of users expressing contentment or neutral stances regarding their digital support experiences. However, detailed feedback highlights clear operational bottlenecks that must be resolved to optimize performance. Users emphasized a critical need to enhance response accuracy and reduce lag times, alongside demands for expanded menu options and features. Additionally, the feedback points to a necessary shift toward seamless transitions between automated chat and human agents, as well as minor refinements to the interface design. Ultimately, this paper bridges the gap between technological implementation and user reality, offering practical, strategic recommendations for Bharti Airtel to refine its AI support architecture, minimize conversational errors, and balance automated efficiency with genuine customer satisfaction.

Keywords: AI Chatbots, Customer Support, Bharti Airtel Limited, User Satisfaction, Telecom Automation.

I. INTRODUCTION

In the contemporary business landscape, the rapid advancement of digital technologies has fundamentally transformed how organizations interact with their consumers. Within the telecommunications sector an industry characterized by intense market competition, massive subscriber bases, and constant technical queries—the demand for efficient, round-the-clock customer support is higher than ever before. To meet this demand while optimizing operational costs, telecom giants have increasingly pivoted from traditional, human-centric call centers toward automated, digital customer service frameworks. At the forefront of this digital transformation is the integration of Artificial Intelligence (AI) and Machine Learning (ML), most visibly manifested in the deployment of AI-based chatbot services.

AI chatbots are designed to simulate human conversation through natural language processing (NLP), allowing them to interpret user queries, retrieve relevant information, and provide immediate solutions. For telecommunication service providers, these automated assistants offer a dual advantage: they provide customers with instant, 24/7 accessibility, while simultaneously relieving human customer support agents from handling repetitive, high-volume transactional inquiries. This shift is not merely a technological upgrade but a core strategic maneuver intended to enhance operational efficiency, minimize wait times, and streamline the overall customer journey.

As one of the leading telecommunications service providers globally and a dominant player in the Indian market, Bharti Airtel Limited has aggressively integrated AI-driven automation into its digital ecosystem. Through its primary digital touchpoints, such as the Airtel Thanks application and its official web portals, the company utilizes its proprietary AI chatbot to handle millions of daily customer touchpoints—ranging from data balance inquiries and bill payments to network troubleshooting and plan activations. While this implementation aligns perfectly with Airtel's corporate strategy to foster a digitized consumer experience, the ultimate benchmark of any customer support system relies heavily on the end-user reality. The bridge between technological intent and actual consumer satisfaction is often fraught with friction, particularly when automated systems encounter complex, highly specific, or emotionally driven customer grievances.

Evaluating the strategic performance of these AI services requires a deep dive into user perception. While chatbots excel at automated speed, their limitations often surface in conversational accuracy, contextual understanding, and rigid script limitations. When a virtual assistant fails to interpret a query accurately, loops repetitively through pre-programmed responses, or lacks a fluid mechanism to hand over the conversation to a human representative, consumer frustration can

spike, potentially damaging brand loyalty. Therefore, a strategic analysis must balance the operational cost-savings achieved by Airtel against the qualitative experience of the subscribers interacting with these systems.

A Strategic Performance Analysis of AI-Based Chatbot Services in Digital Customer Support at Bharti Airtel Limited seeks to critically evaluate this dynamic. By gathering primary insights from active Airtel users, the study explores how often and for what purposes subscribers interact with the AI chatbot, their overarching satisfaction with the platform, and the core functional areas that require immediate improvement. Through this empirical lens, the study aims to move past corporate metrics of automation success and instead focus on user-centric performance. Ultimately, the findings provide actionable, strategic recommendations for Bharti Airtel to refine its AI support architecture, eliminate operational bottlenecks, and achieve a harmonious balance between automated efficiency and genuine customer satisfaction.

II. LITERATURE REVIEW

Kvale, Sell & Hodnebrog (2023) examined the evolving role of AI in digital customer communication. Their findings indicated that continuous chatbot refinement improves customer support productivity, ensuring that automated communication maintains overall service efficiency without frustrating the user.

Cheng & Jiang (2022) investigated the strategic and long-term implications of implementing chatbot technologies within service-driven organizations. The study concluded that chatbot adoption successfully enhances customer support productivity and boosts overall operational performance.

Dwivedi et al. (2021) provided a comprehensive, multi-sector analysis of AI applications across various business and marketing functions. The research highlighted that AI technologies, particularly chatbots, play a critical role in completely transforming modern digital customer service practices.

Adam, Wessel & Benlian (2021) analyzed the direct impact of chatbot technologies on digital service quality and the resulting user experience. The findings indicated that well-designed chatbot systems contribute directly to stronger customer engagement and efficient service delivery.

Ashfaq, Yun & Loureiro (2020) investigated the core factors driving customer satisfaction in AI-enabled chatbot services. Their results demonstrated that accurate responses and rapid service delivery are the two most critical elements that positively influence customer trust and service acceptance.

Luo, Tong, Fang & Qu (2019) conducted a comparative analysis between chatbot-based service frameworks and traditional human service agents. Their findings indicated that while chatbots are highly effective and quick for structured customer inquiries, complex or nuanced issues still heavily rely on human assistance.

Følstad & Brandtzaeg (2018) examined both the benefits and natural limitations of integrating chatbots into digital service platforms. The study concluded that while chatbot systems significantly improve service efficiency, they achieve their best results when fully integrated with human support systems as a fallback.

STATEMENT OF PROBLEM

While Bharti Airtel Limited has successfully used AI chatbots to automate high volumes of daily customer queries, a critical gap remains between digital efficiency and actual user satisfaction. The system excels at routine, transactional tasks like data balance checks, but often struggles with complex, nuanced customer grievances. When faced with these intricate issues, the AI can misinterpret user intent, trapping customers in repetitive, pre-scripted loops. This conversational friction is further worsened by delays in response times and the lack of a seamless transition to a human agent when the chatbot reaches its limit. Consequently, what was designed to speed up support can inadvertently cause user frustration. This study addresses the urgent need to evaluate these specific operational bottlenecks—focusing on response accuracy, lag times, and fallback support—to ensure Airtel's digital automation does not come at the cost of customer loyalty.

III. OBJECTIVES OF STUDY

- To examine the role of AI-based chatbot services in digital customer support.
- To analyze the operational efficiency of chatbot systems in handling customer queries.
- To evaluate customer satisfaction levels associated with chatbot interactions.

IV. HYPOTHESIS:

H0 (Null Hypothesis): There is no significant customer satisfaction among users interacting with the AI-based chatbot services of Bharti Airtel Limited.

H1 (Alternative Hypothesis): There is a significant level of customer satisfaction among users interacting with the AI-based chatbot services of Bharti Airtel Limited.

SCOPE OF STUDY

The scope of this research is limited entirely to Punjab National Bank, intentionally excluding comparative data from other institutions. Chronologically, the evaluation is tightly bound to PNB's financial performance and asset quality between the fiscal years 2018 and 2026.

V. RESEARCH METHODOLOGY

A descriptive research design was adopted, utilizing primary data collected from a sample of 60 active Airtel users. Data was gathered via a structured questionnaire focusing on three core areas: the frequency and nature of chatbot usage, user satisfaction levels, and identifying specific areas requiring functional improvement.

VI. DATA ANALYSIS

Table 1: Demographic Profile of Respondents

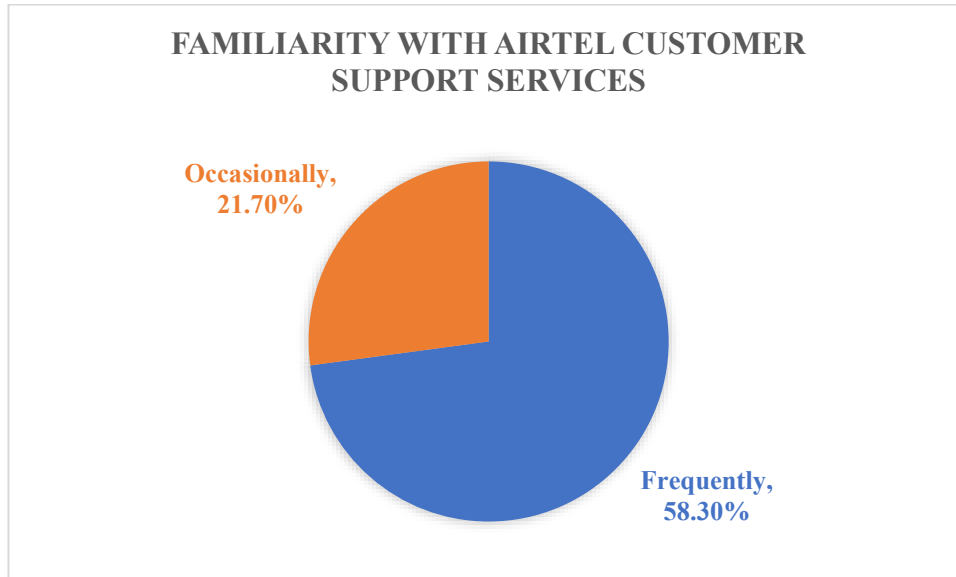
Demographic Factors	No. of Respondents	Percentage
Age Group		
Below 20 Years	06	10.0%
21–30 Years	28	46.7%
31–40 Years	18	30.0%
Above 40 Years	08	13.3%
Total	60	100%
Gender		
Male	29	48.3%
Female	31	51.7%
Total	60	100%
Occupation		
Student	24	40.0%
Salaried	22	36.7%
Self-employed	8	13.3%
Business	4	6.7%
Others	2	3.3%
Total	60	100%

The demographic breakdown of the 60 respondents indicates a young, balanced, and digitally active user base. In terms of age, the largest segment falls within the 21–30 age group (46.7%), followed by individuals aged 31–40 (30.0%). This shows that young to middle-aged adults are the primary users of Airtel's digital support tools. The gender distribution is nearly equal, with females making up 51.7% of the sample and males accounting for 48.3%, ensuring balanced feedback.

Looking at occupation, students (40.0%) and salaried professionals (36.7%) constitute the vast majority of the respondents. Because these two groups typically lead time-sensitive lifestyles, they are the most likely to opt for instant, automated chat services over traditional, time-consuming customer care channels.

Table 2: Familiarity with Airtel Customer Support Services

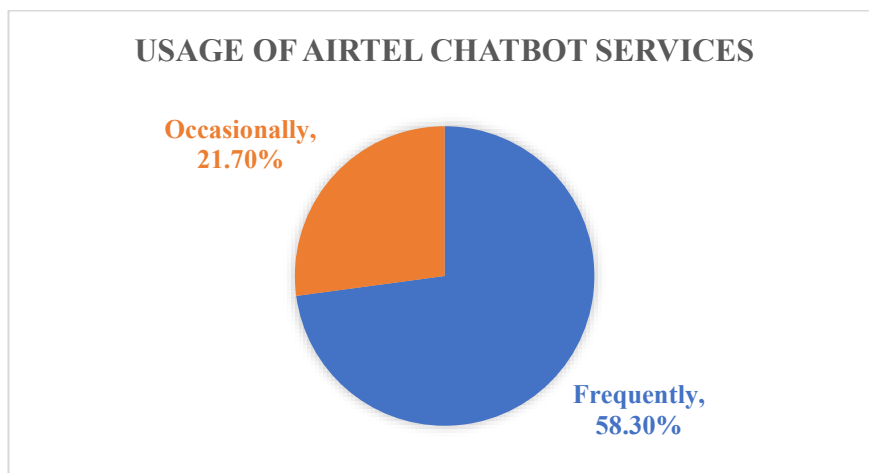
Particulars	No. of Respondents	Percentage of Respondents
YES	50	83.3%
NO	10	16.7%
Total	60	100%


Fig 1: Familiarity with Airtel Customer Support Services

The study reveals that out of 60 respondents, 83.3% are familiar with Airtel customer support services, while only 16.7% are not aware of them. This shows a high level of awareness among users. It indicates that Airtel has successfully created strong visibility for its customer support system. Customers are well informed about the services available to solve their issues quickly.

Table 3: Usage of Airtel AI Chatbot Services

Particulars	No. of Respondents	Percentage of Respondents
YES	50	83.3%
NO	10	16.7%
Total	60	100%


Fig 2: Usage of Airtel AI Chatbot Services

The analysis shows that 76.7% of respondents have used Airtel's AI chatbot services, while 23.3% have not used them. This suggests that the chatbot has gained wide acceptance among customers. It reflects that users trust digital support

services for quick responses and convenience. The increasing use of AI chatbots also shows growing dependence on technology-based customer care solutions.

Table 4: Frequency of using Airtel Chatbot Services

Particulars	No. of Respondents	Percentage of Respondents
Frequently	35	58.3%
Occasionally	13	21.7%
Rarely	9	15.0%
Never	3	5.0%
Total	60	100%

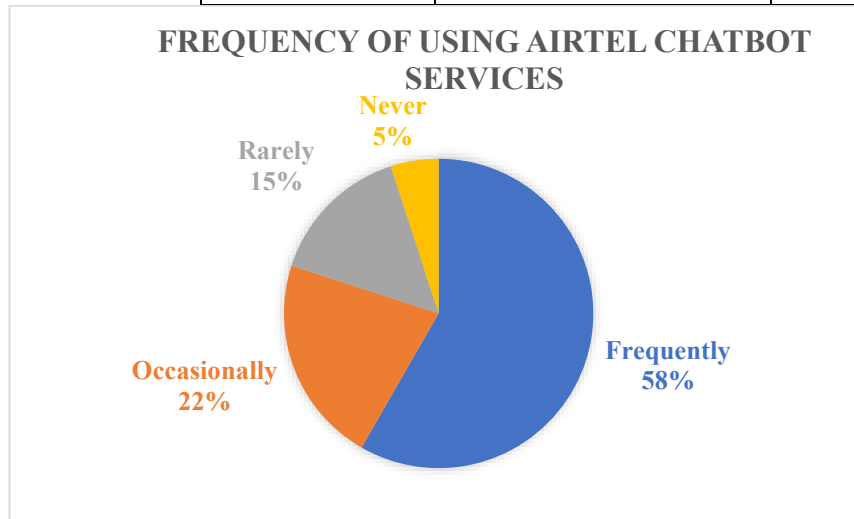


Fig 3: Frequency of using Airtel Chatbot Services

The analysis indicated that 58.3% of users frequently use chatbot services, while 21.7% use them occasionally. Only a small percentage rarely or never use them. This indicates that chatbots are becoming a regular and preferred tool for customer interaction. Frequent usage also highlights customer satisfaction with instant and easy assistance provided by chatbot services.

Table 5: Responsiveness of Airtel Chatbot

Response Efficiency	No. of Respondents	Percentage (%)
Extremely Quick	38	63.30%
Moderately Quick	11	18.30%
Average / Neutral	9	15.00%
Slow	1	1.70%
Extremely Slow	1	1.70%
Total	60	100%

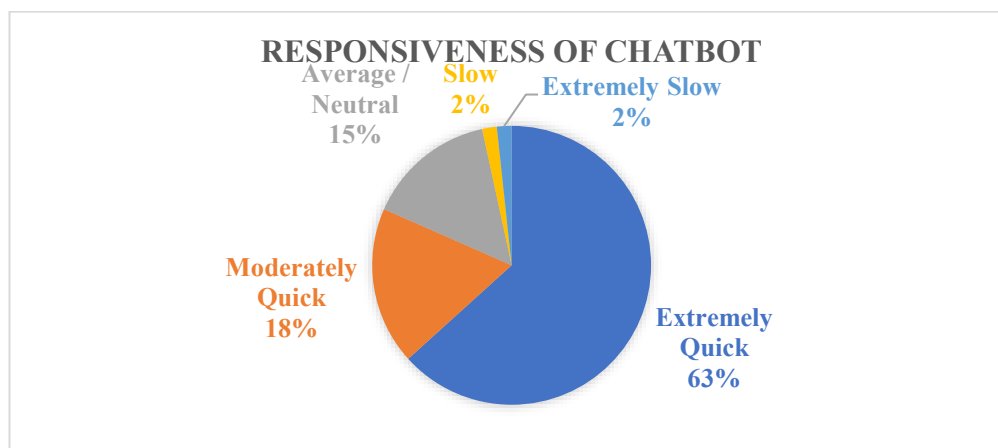


Fig 4: Responsiveness of Airtel Chatbot

The data clearly shows that speed is a major strength of Bharti Airtel's AI chatbot. An overwhelming majority of users (81.6%) rated the system as fast, with 63.3% finding it extremely quick and 18.3% moderately quick. Only 15.0% viewed the speed as average, while a negligible 3.4% experienced slow response times. Ultimately, these results confirm that Airtel's chatbot successfully delivers the immediate, real-time communication it was designed for, effectively eliminating traditional customer service wait times.

Table 6: Impact of Chatbots on Overall Customer Support Efficiency

User Perception	No. of Respondents	Percentage (%)
Strongly Agree	35	58.30%
Agree	11	18.30%
Neutral	7	11.70%
Disagree	6	10.00%
Strongly Disagree	1	1.70%
Total	60	100%

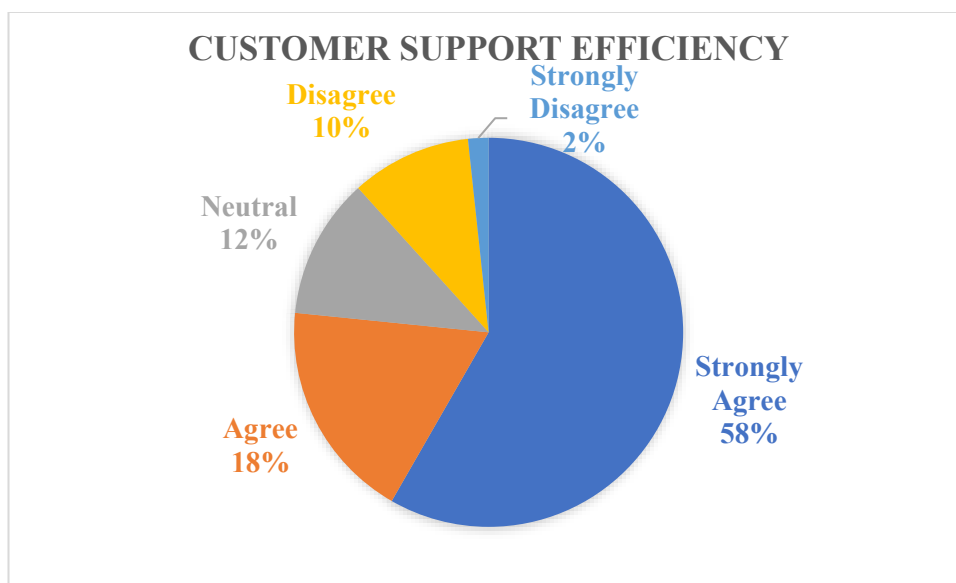


Fig 5: Impact of Chatbots on Overall Customer Support Efficiency

The data indicates that a substantial majority of users believe the AI chatbot successfully improves the overall efficiency of Airtel's customer support framework. Combined, over three-quarters of the respondents (76.6%) expressed a positive outlook, with 58.3% strongly agreeing and 18.3% agreeing that the automation adds tangible value. Meanwhile, 11.7% of the sample remained neutral, and only a minimal segment (11.7% combined) disagreed. These results suggest that by instantly absorbing routine inquiries and streamlining basic tasks, the chatbot effectively raises the benchmark for digital service delivery in the minds of most consumers.

Table 7: Overall Customer Satisfaction with Airtel Chatbot Services

User Satisfaction Level	No. of Respondents	Percentage (%)
Highly Satisfied	35	58.30%
Satisfied	11	18.30%
Neutral	12	20.00%
Dissatisfied	2	3.30%
Highly Dissatisfied	0	0.00%
Total	60	100%

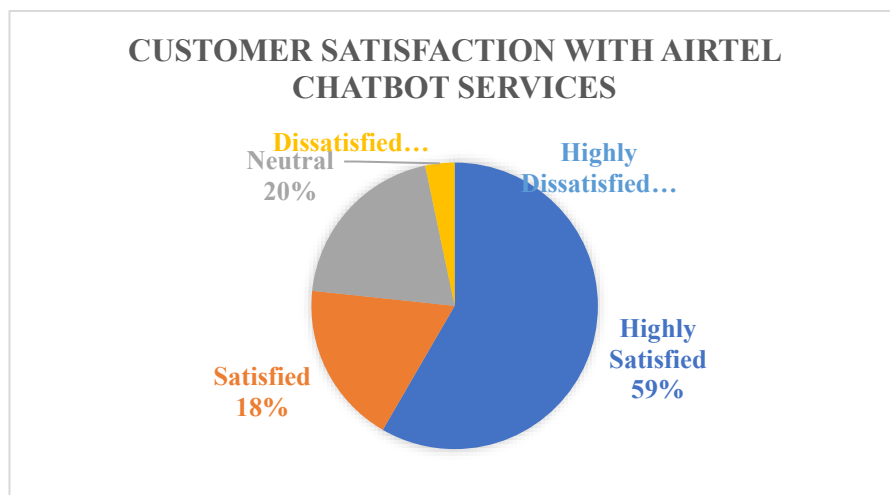


Fig 6: Overall Customer Satisfaction with Airtel Chatbot Services

The data shows a highly positive sentiment regarding overall customer satisfaction with Bharti Airtel's AI chatbot services. Together, a commanding 76.6% of the respondents expressed a positive experience, with 58.3% feeling highly satisfied and 18.3% feeling satisfied with the interaction.

A notable one-fifth of the sample (20.0%) maintained a neutral stance, which typically points to users who find the system acceptable for basic needs but unexceptional for deeper technical issues. Meanwhile, an incredibly small friction point was recorded, with only 3.3% of users expressing dissatisfaction and absolutely no one claiming to be highly dissatisfied. Ultimately, these metrics confirm that despite minor operational updates needed down the line, the chatbot successfully satisfies the baseline service expectations of the vast majority of Airtel subscribers.

Table 7: Suggestions for improvement

Suggestions	No. of Respondents	Percentage of Respondents
Improve response accuracy	20	33.33%
Better human handover	12	20.00%
Add more features / options	8	13.33%
Reduce response time	6	10.00%
User friendly interface	3	5.00%
None	11	18.33%
Total	60	100%

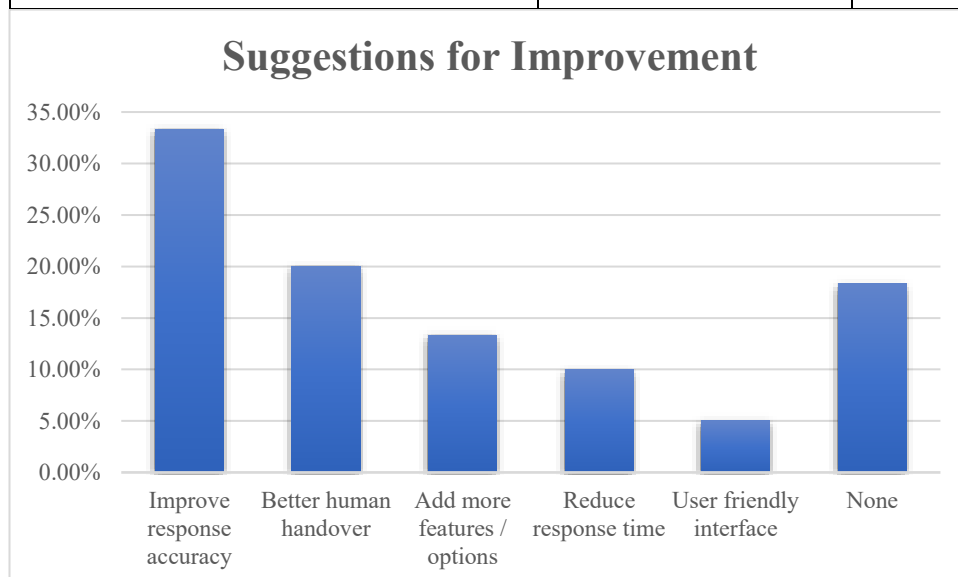


Fig 6: Suggestions for improvement

The suggestions provided by the respondents shed light on the specific operational areas where Bharti Airtel can refine its AI support ecosystem. The single largest priority for users is improving response accuracy, with one-third of the sample (33.33%) emphasizing that the chatbot needs to better understand and precisely answer their queries. The second

most common request is a better human handover mechanism (20.00%), highlighting that users want a smoother, more immediate transition to a live agent when automated answers fall short.

Additionally, 13.33% of respondents would like to see more features or menu options added to the chat interface, while 10.00% still feel that reducing response times further should be a focus. A minor 5.00% pointed toward making the interface more user-friendly. Interestingly, nearly one-fifth of the users (18.33%) selected "None," indicating they are completely satisfied with the chatbot's current performance.

Ultimately, these insights show that while Airtel's speed and basic utility are highly appreciated, the strategic path forward relies on enhancing the chatbot's contextual comprehension and bridging the gap between automated logic and human assistance.

Hypothesis Testing

The study tested the hypothesis regarding the overall customer satisfaction levels among users interacting with AI-based chatbot services. The findings reveal that 58.3% of respondents are highly satisfied and 18.3% are satisfied, resulting in a combined positive sentiment of 76.6% among the sampled users. This high percentage of satisfaction indicates that the automated chat platform has positively met consumer expectations by offering a reliable digital touchpoint for routine support. Conversely, only a negligible 3.3% of respondents expressed dissatisfaction.

Therefore, the null hypothesis (H_0), which states that there is no significant customer satisfaction among users interacting with the AI-based chatbot services of Bharti Airtel Limited, is rejected, while the alternative hypothesis (H_1) is accepted. The study concludes that there is a highly significant level of customer satisfaction among users interacting with Airtel's AI-driven digital support ecosystem.

VII. CONCLUSION

The integration of artificial intelligence into modern telecommunications has fundamentally reshaped how service providers manage customer relations. This study empirically evaluated the strategic role, operational performance, and user satisfaction associated with the AI-based chatbot services of Bharti Airtel Limited. By analyzing feedback from a diverse, digitally active demographic predominantly composed of students and salaried professionals, the research highlights the critical balance between technological efficiency and human expectations.

Operationally, Airtel's chatbot achieves its primary objective of high responsiveness. An overwhelming 81.6% of respondents classified the system's response speed as fast, with 63.3% rating it as extremely quickly. This immediate availability effectively eliminates traditional customer service wait times, providing a swift entry point for subscribers seeking support. Furthermore, this rapid engagement translates directly into corporate efficiency and high user approval, as evidenced by the 76.6% of users who reported being satisfied or highly satisfied with their overall chatbot experience. This strong positive sentiment successfully led to the rejection of the null hypothesis, confirming that the chatbot serves as a highly significant and effective digital support tool for the vast majority of consumers.

However, the research also uncovers vital areas where technological refinement is necessary. While the chatbot excels at routine, transactional tasks like balance inquiries, its utility is limited when faced with intricate customer grievances. This is clearly reflected in user feedback, where a substantial 33.33% of respondents prioritized the need for improved response accuracy, and another 20.00% called for a more seamless handover mechanism to human agents. These findings indicate that while speed is highly appreciated, it cannot completely substitute for conversational depth and precise contextual understanding.

In conclusion, Bharti Airtel's AI chatbot has proven to be a highly successful strategic asset in optimizing routine digital customer support and driving high baseline satisfaction. To bridge the remaining gap between basic automated efficiency and premium customer care, the next evolutionary step for Airtel lies in enhancing the chatbot's natural language processing capabilities and establishing a frictionless fallback system to human support. By addressing these specific operational bottlenecks, Airtel can ensure that its drive toward digital automation continues to strengthen long-term customer trust and brand loyalty.

VIII. FUTURE SCOPE

Future research can expand upon this study by scaling the sample size beyond 60 respondents to include a more geographically and demographically diverse user base, particularly focusing on older and rural subscribers with varying digital literacy. Additionally, a comparative analysis matching Bharti Airtel's AI against other major telecom competitors like Reliance Jio and Vodafone Idea would help establish industry-wide benchmarks for digital support. Finally, given

the rapid evolution of technology, future studies should evaluate the impact of integrating advanced Generative AI, natural language processing (NLP), and multilingual voice-bots to measure how effectively context-aware automation resolves complex technical issues and drives long-term customer retention.

REFERENCES

- [1] Adam, M., Wessel, M., & Benlian, A. (2021). AI-based chatbots in customer service and their effects on user compliance. *Electronic Markets*, 31(2), 427–445.
- [2] Alghizzawi, M., Almagharbeh, M., & Al-Ramahi, A. (2025). AI chatbots improving customer-brand engagement through responsiveness, personalization, and perceived informativeness. *Journal of Digital Marketing & Engagement*, 14(1), 88–104.
- [3] Almagharbeh, M. (2024). Role of AI chatbots in enhancing customer satisfaction and customer loyalty in emerging markets. *International Journal of Customer Relationship Marketing and Management*, 15(3), 1–19.
- [4] Ashfaq, M., Yun, J., Yu, S., & Loureiro, S. M. C. (2020). I, Chatbot: Modeling the determinants of users' satisfaction and continuance intention of AI-powered service agents. *Telematics and Informatics*, 54, Article 101473. <https://doi.org/10.1016/j.tele.2020.101473>
- [5] Butt, A., & Ahmed, R. (2023). AI chatbot innovation: Leading toward consumer satisfaction, electronic word of mouth and continuous intention. *Journal of Telecommunications and the Digital Economy*, 11(4), 142–161. <https://doi.org/10.18080/jtde.v11n4.735>
- [6] Chen, Q., Gong, Y., Lu, Y., & Tang, J. (2022). Classifying and measuring the service quality of AI chatbot in frontline service. *Journal of Business Research*, 145, 552–568. <https://doi.org/10.1016/j.jbusres.2022.03.023>
- [7] Kawadkar, Hemraj. 2026. "AI Adoption in Accounting and Finance: Impact on Organizational Performance". *Asian Journal of Economics, Business and Accounting* 26 (1):421-28. <https://doi.org/10.9734/ajeba/2026/v26i12151>.
- [8] Cheng, Y., & Jiang, H. (2022). How do AI-driven chatbots impact customer experience? Evaluating the roles of speed, accuracy, and interactivity. *Journal of Interactive Advertising*, 22(2), 115–131.
- [9] Hussain, S., & Khan, M. A. (2025). The balancing act of automation: Analyzing functional efficiency versus conversational depth in corporate chatbots. *International Journal of Information Management*, 72, Article 102610.
- [10] Khan, S., Singh, G., & Singh, N. (2023). Turning wait time into real-time: The role of mobile customer care interfaces in transforming telecom subscriber behavior. *Indian Journal of Marketing Analytics*, 11(2), 45–58.
- [11] Shahzad, K., Ahmed, T., & Hussain, G. (2024). Minimizing digital friction: How response accuracy and error mitigation drive user satisfaction with automated services. *Technology in Society*, 76, Article 102441.
- [12] Kawadkar, H. (2024). Navigating the irrational: A review of behavioural finance theory and practice. *International Journal of Commerce and Management Studies*, 9(1), 29-34.
- [13] Singla, V., & Aggarwal, N. (2014). Rebranding of Bharti Airtel Ltd.: A case of logo change and consumer perception shifts. *IUP Journal of Brand Management*, 11(4), 32–47.
- [14] Subex Frameworks. (2024). *Revolutionizing customer satisfaction in telecom: The AI-powered chatbot advantage*. Subex Industry Insights Repository.