

AI Chatbots in Banking: Exploring Key Factors Influencing Customer Satisfaction through the extended E-SQUAL Model

Susan D
PSG Institute of Management
PSG College of Technology
Coimbatore, India
e mail: susana@psgim.ac.in

Vijaykumar N
PSG Institute of Management
PSG College of Technology
Coimbatore, India
e mail: vijaykumar@psgim.ac.in

Shradha Menon
Zafin Software Centre of
Excellence
Coimbatore, India

Abstract— Chatbots, an Artificial Intelligence conversational agent that interacts with human users, have become integral to modern banking, offering real-time customer support and automating routine inquiries. This study seeks to identify the primary factors affecting customer satisfaction with chatbots through the use of an online survey. A structured questionnaire with variables from the extended E-SQUAL model was employed in the study to assess customer satisfaction with chatbot services. The findings indicate that key elements influencing customer satisfaction with banking-sector chatbots are performance expectancy, responsiveness, and reliability. The research offers valuable insights for technology providers and banking institutions to refine chatbot interactions, ultimately enhancing customer satisfaction. Future work can explore the integration of advanced technologies like AI and natural language processing, and personalization of chatbot interactions to cater to diverse customer needs.

Keywords—Customer Satisfaction, Chatbot, E-service quality service, E-SQUAL, SEM.

I. INTRODUCTION

The banking sector is essential in a country's economy, serving as a core component of wealth management, economic stability, and financial dealings. In the past decade, the banking sector has experienced tremendous technological developments, which have led to more efficient and customer-focused operations. Chatbots, known as conversational artificial intelligence (AI) or AI chatbots, are computer programs that can simulate human conversation [1]. Chatbots evolved in the banking sector in the early 2000s to ease interactions with customers, provide real-time support [2], and transform banking services to customers.

Chatbots are employed in the banking sector to offer entire customer experience [2]. They have become an essential element of customer service in numerous banking institutions worldwide. Leading Banks across the world namely, Wells Fargo, JP Morgan Chase, and Bank of America, have integrated chatbots into their digital user interface, providing customers with instant support and access to information without needing assistance from humans [2].

Chatbots are intelligent virtual assistants, which are driven by AI and machine learning that allow interactions in real-time and reply to customers' questions in a prompt and effective

manner [3]. The purpose of chatbots in the banking field has numerous applications and serves a variety of purposes. The customer queries that are resolved by these virtual customer service assistants include transaction history checks, fund transfers, and balance inquiries. Furthermore, the benefits that can be derived from the effective implementation of chatbots in the banking sector encompass 24/7 Customer Service availability, an increase in efficiency of bank employees, and effective organization of finances and scheduled payments [4].

Despite the widespread adoption and integration of AI-driven chatbots in the banking sector, a notable knowledge gap remains regarding the factors that shape customer satisfaction during their interactions.. This study aims to provide valuable insights into the elements that impact customer satisfaction during chatbot interactions. The findings from this research will offer insights for banking institutions and Fintech companies to enhance customer interactions through the effective use of chatbots.

II. LITERATURE REVIEW

Technological advancements have brought about substantial transformations in the banking sector. Understanding customer satisfaction with digital services is crucial for technology providers aiming to create more customer-focused solutions. Studies on customer satisfaction emphasize the importance of trust, efficiency, responsiveness, system reliability, and fulfillment as key factors of e-service quality, with privacy and trust playing particularly vital roles in determining the quality of electronic banking services [5];[6].

Customer satisfaction refers to the overall experience customers have throughout their interactions and touchpoints with a business or organization. It is becoming more crucial in fostering customer loyalty and retention, as customers tend to remain with companies that provide a positive experience [7]; [8]. In the banking industry, where competition is intense and financial transactions are highly sensitive, enhancing customer satisfaction has become a key strategic goal [9]. To achieve this, banking institutions are increasingly adopting chatbots to enhance customer satisfaction.

Chatbots can boost customer satisfaction in a variety of ways, particularly in the banking sector [10]; [11]. First, chatbots can respond quickly and efficiently to customer

inquiries, reducing response times and minimizing wait times. This can result in improved customer satisfaction and increased loyalty. Second, chatbots can tailor their responses using insights from users' past interactions and preferences. This personalized approach creates a more engaging experience, strengthens the bank's reputation, and helps build lasting customer relationships. Additionally, chatbots offer 24/7 availability, allowing customers to access financial services anytime and from anywhere, creating a seamless and convenient experience that can further boost satisfaction and loyalty. Moreover, by handling routine queries, chatbots can reduce operational costs, enabling human customer service staff to focus on more complex issues [12]. Chatbots can assist with fundamental banking tasks such as checking balances, transferring funds, and paying bills, which helps decrease wait times and improves overall efficiency [13].

Furthermore, chatbots enable banks to collect valuable customer feedback and insights, which can inform service enhancements and the creation of new products. However, for their successful implementation, it is essential to address challenges such as ensuring response accuracy, protecting data privacy, and mitigating concerns over reduced human interaction [14]; [15].

Chatbots, powered by artificial intelligence, have emerged as essential tools in this transition, offering considerable benefits to banks and customers. These bots enhance customer-brand relationships by effectively addressing customer needs [16]. Research on the factors influencing chatbot adoption showed that social influence, performance expectancy, hedonic motivation, perceived compatibility, and facilitating conditions significantly impact customers' willingness to use banking chatbots, leading to increased customer engagement and personalized solutions [17].

Several studies have examined how chatbots impact trust, customer satisfaction, and brand loyalty in the banking sector. The findings from the studies demonstrated that when chatbots are effectively developed and implemented, they can create significant value for customers, increase satisfaction, and build trust [18];[19];[20];[21];[22]. Even though, technology acceptance, quality, and risk are key predictors of chatbot trust [10], the chatbot service quality serves as a pertinent factor for the trust the customers have in the services offered by the chatbots. The service quality includes customized service, trustworthy service, and responsive service [23].

The E-SQUAL model provides a valuable framework for assessing factors that influence customer satisfaction and loyalty in digital service environments. Several notable studies have utilized this model and identified the key variables in the model. An exploratory case study was conducted in Indonesia, using the E-RecSQUAL and E-SQUAL scales to assess e-service quality and identified areas for improvement and suggested integration of the scales with IPA to enhance customer satisfaction [24]. Evaluation of the suitability of the E-SQUAL model in the Indian e-commerce market was carried out and the study confirmed the validity of its dimensions (system availability, efficiency, privacy, and fulfilment) and their impact on perceived value, quality, and loyalty [25]. The E-SQUAL scale was also applied in e-commerce, linking it with Importance-Performance Analysis (IPA) and the findings highlighted the need to improve

privacy, system availability, and fulfilment to enhance service quality [26]. The study by [27] examined the mediating roles of perceived value and trust within the E-SQUAL model, highlighting their impact on customer satisfaction and commercial bank operations. Meanwhile, [28] analyzed the connection between service quality and customer loyalty behavior in the DANA e-wallet, extending the E-SQUAL model to include satisfaction, loyalty intentions, and perceived value.

A qualitative study was carried out in Norway to understand the psychometric properties of two scales, e-TailQ and E-SQUAL, and was used to evaluate website quality and its effect on loyalty, customer satisfaction, and retention [29]. The study confirmed that the scales were reliable indicators of perceived quality in the electronic retail sector. The studies demonstrated that the E-SQUAL model is widely used to evaluate electronic service quality, customer loyalty, and satisfaction in banking and e-commerce. The model's dimensions system availability, privacy, and fulfilment significantly influenced perceived value and overall quality. Combining the E-SQUAL model with Importance-Performance Analysis provides valuable insights into areas needing improvement to boost customer satisfaction. The model also mediates trust and perceived value, essential for determining customer satisfaction and bank performance.

Despite the growing popularity of chatbots in the banking sector, there remains a lack of comprehensive studies on their impact on customer satisfaction. The specific role of chatbots in influencing customer satisfaction is not yet fully examined. There is little to no research on examination of the customer satisfaction with the chatbot service using the E-SQUAL model. Additionally, there is a gap in understanding how e-service quality elements directly or indirectly affect customer satisfaction in the banking sector. This understanding is crucial for both practical and theoretical advancements.

III. METHODOLOGY

The research utilizes a descriptive methodology to investigate the key determinants influencing the customer satisfaction of banking customers using chatbots. An online survey was employed using a structured questionnaire. Data was collected using the snowball sampling technique and 300 respondents from Coimbatore city were used for analysis. The instrument constituted the demographic variables, Chatbot Usage Patterns, and variables from extended Electronic Service Quality (E-SQUAL), to evaluate the electronic service quality during chatbot. The variables included Efficiency, Reliability, Ease of Use, Privacy, and Responsiveness of the E-SQUAL model and the Trust and Performance expectancy of the Unified Theory of Acceptance and Use of Technology (UTAUT) model [30] (Fig 1). Five-point Likert scale (strongly agree to strongly disagree) was used for items of each construct for the participants to rate their level of agreement with each statement. The instrument of the constructs was tested for reliability and validity by employing Cronbach alpha, Composite reliability, Average Variance Explained, and Factor loading. Structural-Equation-Modelling (SEM), a multivariate analysis was used to examine causal relationships between the constructs and identify the significant variable influencing the customer satisfaction of users using chatbots. The model fit was verified using R square and Goodness of Fit statistics.

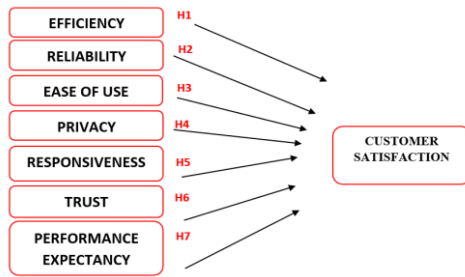


Fig 1. Conceptual Framework

IV. ANALYSIS

A. Demographics

The findings from the survey (Table 1) reveal a nearly equal gender distribution among respondents, with 52% female and 48% male. The majority of participants were between the ages of 25 and 40 (45%), while 30% were younger than 25, indicating a significant adoption of chatbots among both younger and middle-aged individuals in banking contexts. Most respondents held advanced degrees (68% postgraduate and 26% college), suggesting a higher level of education and comfort with technology, which likely influences their use of chatbots. The survey also showed that 57.6% of respondents were students, 23.3% were professionals, 8% were self-employed, and 5% were retired, highlighting that chatbots are utilized by a broad spectrum of users. Income data revealed that 40% earned less than Rs. 25,000, and 39% earned between ₹.25,000 and ₹.49,999, indicating that chatbots serve users across various income brackets. Regarding spending, 43% of respondents allocated between ₹. 10,000 and ₹.19,999, and 32% spent below ₹. 10,000. Savings patterns show that 61.4% saved between ₹. 5,000 and ₹.10,000 monthly. In terms of chatbot usage for banking, 60% of respondents used chatbots at least monthly, with the remainder using them weekly. The primary functions include customer support (48.6%) and account inquiries (26%). Users valued chatbots for their round-the-clock availability (42%) and accuracy (28.6%). However, 53.8% of respondents felt that chatbots were insufficient for handling complex issues, and 24.3% struggled with understanding chatbot interactions. These insights suggest that improvements in chatbot capabilities, particularly in addressing complex queries and enhancing communication clarity, are necessary for increasing user satisfaction.

TABLE I. DEMOGRAPHICS

Demographics	Details	Number of respondents	Percentage of respondents
Gender	Female	154	52%
	Male	146	48%
Age (in years)	Below 25	90	30%
	25 – 40	135	45%
	41 – 55	60	20%
	Above 55	15	5%
Education	High school or less	15	5%
	College Graduate	78	26%
	Postgraduate Degree	203	67.7%

	Others	4	1.3%
Occupation	Student	173	57.6%
	Professional	70	23.3%
	Self Employed	24	8%
	Unemployed	4	1.3%
	Retired	15	5%
	Others	14	4.6%
Monthly Income (₹.)	Below 25,000	120	40%
	25,000 – 49,999	117	39%
	50,000 – 74,999	30	10%
	Above 75,000	33	11%
Monthly Expenses (₹.)	Below 10,000	96	32%
	10,000 – 19,999	129	43%
	20,000 – 29,999	42	14%
	Above 30,000	33	11%
Monthly Savings (₹.)	Below 5,000	58	19.3%
	5,000 – 10,000	184	61.4%
	11,000 – 15,000	24	8%
	Above 16,000	34	11.3%
Usage Frequency	Daily	31	10%
	Weekly	73	24%
	Monthly	180	60%
	Rarely	16	5%
Functions used in chatbots	Customer support	147	48.60%
	Account inquiries	78	26%
	Transactions processing	43	14.30%
	Product recommendations	28	9.30%
	Others	5	1.60%
Advantages of chatbots	24 x 7 availability	127	42%
	Accuracy	86	28.60%
	Speed of response	68	22.60%
	Efficiency of complaint resolution	20	6.60%
Challenges	Complicated queries not answered by chatbots	161	53.80%
	Difficulty in understanding chatbot interactions	73	24.30%
	Longer response time	66	21.9%

B. Validity and Reliability of Constructs

Table II provides the results of reliability that show all variables are reliable due to the Cronbach alpha values meeting the requirement of 0.7. For all constructs of the multi-item scale, Cronbach's alpha values ranged from around 0.692 to 0.865, which is a good measure of internal consistency. Moreover, the Composite Reliability scores for each construct (items measuring the construct's reliability) were over 0.7,

with a range of 0.799 to 0.918 leading to the overall reliability of the constructs. The Convergent Validity was established for all constructs making use of the average variance extracted (AVE) metric, with all of them were found to be above the recommended threshold of 0.5. For all the constructs, AVIs ranged from 0.570 to 0.788 indicating a moderate-to-good convergent validity. The factor loadings of the items for each construct were all above 0.7, which indicates the good interrelationship between items and the constructs. This reaffirms the convergent reliability of the underlying model.

TABLE II. RELIABILITY AND VALIDITY SCORES FOR THE CONSTRUCTS

Variables	Items	Factor Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Efficiency (E)	E1	0.780	0.731	0.848	0.651
	E2	0.838			
	E3	0.801			
Reliability (R)	R1	0.730	0.692	0.799	0.570
	R2	0.776			
	R3	0.758			
Ease of Use (EU)	EU1	0.868	0.843	0.905	0.761
	EU2	0.886			
	EU3	0.863			
Privacy (P)	P1	0.863	0.865	0.918	0.788
	P2	0.908			
	P3	0.892			
Responsiveness (RE)	RE1	0.816	0.758	0.861	0.674
	RE2	0.853			
	RE3	0.794			
Trust (T)	T1	0.866	0.824	0.895	0.740
	T2	0.885			
	T3	0.829			
Performance expectancy (PE)	PE1	0.869	0.835	0.901	0.751
	PE2	0.856			
	PE3	0.875			
Customer Satisfaction (CS)	CS1	0.870	0.822	0.894	0.738
	CS2	0.865			
	CS3	0.842			

The discriminant validity (Table III) was examined by defining the square roots of the average variance extracted (AVE) for each construct and using it to check correlated factors of other latent variables. Table 4.9 reveals the above-mentioned results in which each construct's square root of the AVE is higher than the correlations, indicating the discriminant validity. On the diagonal, the square roots of the value of AVE for each construct are presented. The correlations of the square root AVE values of the seven

constructs include efficiency (0.807), reliability (0.755), ease of use (0.872), privacy (0.888), responsiveness (0.821), trust (0.860), performance expectancy (0.867), and Customer Satisfaction (0.859).

TABLE III. DISCRIMINANT VALIDITY OF THE CONSTRUCTS

Variable	E	R	EU	P	RE	T	PE	CS
E	(0.807)							
R	0.605	(0.755)						
EU	0.571	0.567	(0.872)					
P	0.243	0.353	0.298	(0.888)				
RE	0.538	0.526	0.654	0.360	(0.821)			
T	0.390	0.430	0.438	0.568	0.492	(0.860)		
PE	0.454	0.417	0.483	0.352	0.558	0.462	(0.867)	
CS	0.470	0.499	0.419	0.349	0.532	0.436	0.589	(0.859)

C. SEM Results

Table IV presents the results of SEM analysis comprising of the path coefficients, significance value, and their t values wherein the direction and strength of the relationship between customer satisfaction and the constructs are ascertained. The analysis showed significant positive relationships between variables. Reliability (t = 2.909): A relevant positive relationship is found between customer satisfaction and reliability. The path coefficient (0.173) shows a strong relationship. The significance value (0.002) being less than 0.05 reveals high statistical significance. Moreover, the critical ratio (2.909) also exceeds the acceptable value of 1.960, designating strong support for the relationship.

TABLE IV. HYPOTHESIS TESTING RESULTS

Hypothesis	Relationship	Path Coefficients	Significance value	Critical Ratio (t>1.960)
H1	Efficiency -> Customer Satisfaction	0.103	0.045	1.705
H2	Reliability -> Customer Satisfaction	0.173	0.002	2.909
H3	Ease of Use -> Customer Satisfaction	0.046	0.224	0.758
H4	Privacy -> Customer Satisfaction	0.064	0.148	1.047
H5	Responsiveness -> Customer Satisfaction	0.170	0.002	2.850
H6	Trust -> Customer Satisfaction	0.096	0.057	1.589
H7	Performance Expectancy -> Customer Satisfaction	0.329	<0.001	5.664

Responsiveness ($t = 2.850$): A significant positive relation between responsiveness and customer satisfaction appears. The path coefficient (0.170) shows a good relationship. The significance value (0.002) being less than 0.05 reveals high statistical significance. Moreover, the critical ratio (2.850) also exceeds the acceptable value of 1.960, designating strong support for the relationship.

Performance Expectancy ($t = 5.664$): Customer satisfaction relationship with performance expectancy is the highest positive impact. The path coefficient (0.329) shows the strongest relationship. The significance value (0.001) being less than 0.05 reveals high statistical significance. Moreover, the critical ratio (5.664) also exceeds the acceptable value of 1.960, designating strong support for the relationship.

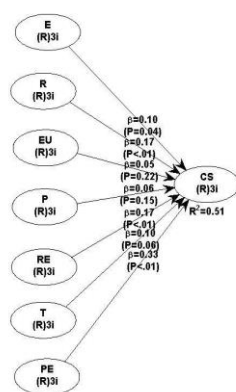


Figure 4.6. Estimated Research Model

D. Model Fit Statistics

TABLE V. MODEL FIT STATISTICS

Model Fit and Quality Index	Value	Interpretation
Average-Path- Coefficient (APC)	0.140	It indicates a positive relationship.
R-squared (ARS)	0.509	It explains 50.9% of the variance in model
Adjusted R-squared (AARS)	0.496	It explains 49.6% of the variance for model complexity
Average VIF (AVIF)	1.824	Acceptable, below the recommended threshold of 5
Average-Full-Collinearity - VIF (AFVIF)	1.927	Acceptable, below the recommended threshold of 5
Tenenhaus GoF	0.601	Acceptable level of model fit, the value being above 0.5
Simpson's- Paradox- Ratio (SPR)	1.0	Acceptable ($= 1$)
R-squared- Contribution- Ratio (RSCR)	1.0	Good explanatory power
Statistical-Suppression- Ratio (SSR)	1.0	Acceptable (≥ 0.7)

Nonlinear- Bivariate - Causality- Direction -Ratio (NLBCDR)	1.0	Acceptable (≥ 0.7)
---------------------------------------------------------------	-----	---------------------------

The constructed model was assessed by applying the Partial Least Squares (PLS) SEM through the WARP - PLS software. Various fit indices were employed to evaluate the model's overall quality (Table V)

R-squared (ARS) is 0.509 (significant, $p < 0.001$) indicating the amount of the variance explained by the model is at 50.9%. Adjusted R-squared (AARS) is 0.496 (significant, $p < 0.001$) explains 49.6% of the in the model. Tenenhaus GoF is 0.601 (Medium), representing a good fit performance of the model. Considering other indices (AVIF, AFVIF, SPR, RSCR, SSR, NLBCDR), the values lie in the limits of acceptable range, indicating that there are, nonlinearities, or any other issues.

V. FINDINGS

The study highlights Performance Expectancy, Responsiveness, and Reliability as key factors influencing customer satisfaction with banking chatbots. It was found that Reliability plays a crucial role in enhancing satisfaction. When chatbots are prompt and responsive to customer inquiries, user satisfaction improves significantly. According to [31], key factors such as technological proficiency, age, perceived competence, security, and responsiveness play a critical role in shaping how consumers in developing markets interact with banking chatbots. Additionally, responsiveness contributes positively to customer satisfaction, suggesting that users prefer chatbots that provide accurate and consistent information. Performance Expectancy also affects satisfaction, implying that customers are more content when chatbots effectively meet their expectations and needs. Research by [8] supports this, indicating that Performance Expectancy influences users' willingness to adopt banking chatbots. The study also reveals that younger respondents, who form the largest group in the sample, often have higher expectations for technology and responsiveness. Chatbots are increasingly accepted among younger demographics, aligning with the emphasis on Performance Expectancy and Responsiveness as critical factors in enhancing satisfaction [8]. Most respondents (60%) use chatbots for banking on a monthly basis, with 24% using them weekly, reflecting widespread adoption and highlighting the importance of Responsiveness and Reliability in fulfilling customer needs. The primary uses of chatbots include customer service (48.6%) and account inquiries (26%), which relate to the factors affecting satisfaction. Additionally, 42% of users value the 24/7 availability of chatbots, and 28.6% appreciate their accuracy. These attributes are tied to Performance Expectancy and Responsiveness, underscoring their role in boosting satisfaction. Common issues include chatbots' inability to handle complex queries (58.3%) and difficulties in understanding chatbot responses (24.3%), pointing to the need for improvements in Reliability and Responsiveness to enhance customer interaction quality. Customer satisfaction with chatbot services and system quality depends on the need for continuous improvement in chatbot development and chatbot education [11].

VI. CONCLUSION

In summary, the research examines the factors impacting customer satisfaction with banking chatbots using the extended E-SQUAL model. Analysis of data from 300 respondents shows a positive correlation between customer satisfaction and Performance Expectancy, Responsiveness, and Reliability. Customers value the benefits of chatbots, including improved service delivery, rapid responses, and dependable performance. To boost satisfaction and adoption, banks should focus on enhancing these factors. Future research could explore advanced technologies, such as AI and natural language processing, to further improve chatbot efficiency. Additionally, studying chatbot usage in emerging markets and diverse cultural settings could provide insights into specific challenges and opportunities. Detailed research on personalizing chatbot interactions could lead to higher satisfaction and greater user engagement.

REFERENCES

- [1] G. Eason, B. Noble, and I. N. Sneddon, "On certain integrals of Lipschitz-Hankel type involving products of Bessel functions," *Phil. Trans. Roy. Soc. London*, vol. A247, pp. 529–551, April 1955. (references)
- [2] Eren, B. A. "Determinants of customer satisfaction in chatbot use: evidence from a banking application in Turkey", *International Journal of Bank Marketing*, 2021, vol.39, pp.294-311.
- [3] Savage, F., "Chatbots: market forecasts, sector analysis & future strategies 2023-2028", Jupiter publisher, 2023
- [4] S F Suhel, S. F., V K Shukla, V. K., S Vyas, S., and V P Mishra, V. P. "Conversation to automation in banking through chatbot using artificial machine intelligence language", In 2020 8th international conference on reliability, infocom technologies and optimization (trends and future directions), 2020, pp. 611-618
- [5] S B Baiy and R Rashmi, R. "A Review of Chatbots in the Banking Sector.. *International Journal of Engineering Research & Technology (IJERT)*, 2023 vol. 12, pp. 614-620.
- [6] C Bhattacharya and M Sinha, "The role of artificial intelligence in banking for leveraging customer experience". *Australasian Accounting, Business and Finance Journal*, 2022 vol. 16(5), pp. 89–105
- [7] J. Trivedi, "Examining the customer experience of using banking chatbots and its impact on brand love: the moderating role of perceived risk," *Journal of Internet Commerce*, vol. 18, no. 1, pp. 91–111, Jan. 2019, doi: 10.1080/15332861.2019.1567188.
- [8] B. E. Bakkouri, S. Raki, and T. Belgnaoui, "The Role of Chatbots in Enhancing Customer Experience: Literature review," *Procedia Computer Science*, vol. 203, pp. 432–437, Jan. 2022, doi: 10.1016/j.procs.2022.07.057.
- [9] J.-S. Chen, T.-T.-Y. Le, and D. Florence, "Usability and responsiveness of artificial intelligence chatbot on online customer experience in e-retailing," *International Journal of Retail & Distribution Management*, vol. 49, no. 11, pp. 1512–1531, May 2021, doi: 10.1108/ijrdm-08-2020-0312.
- [10] M. A. M. A. Daqar and A. K. A. Smoudy, "The role of Artificial Intelligence on enhancing customer experience," *International Review of Management and Marketing*, vol. 9, no. 4, pp. 22–31, Jul. 2019, doi: 10.32479/irmm.8166.
- [11] A. Abdulquadri, E. Mogaji, T. A. Kieu, and N. P. Nguyen, "Digital transformation in financial services provision: a Nigerian perspective to the adoption of chatbot," *Journal of Enterprising Communities People and Places in the Global Economy*, vol. 15, no. 2, pp. 258–281, May 2021, doi: 10.1108/jec-06-2020-0126.
- [12] R. Rani, J. Kanda, C. Chanchal, and T. S. Vij, "A study on chatbots in the Indian banking sector," in *Emerald Publishing Limited eBooks*, 2023, pp. 35–47. doi: 10.1108/978-1-80455-562-020231003.
- [13] E. W. T. Ngai, M. C. M. Lee, M. Luo, P. S. L. Chan, and T. Liang, "An intelligent knowledge-based chatbot for customer service," *Electronic Commerce Research and Applications*, vol. 50, p. 101098, Oct. 2021, doi: 10.1016/j.elerap.2021.101098.
- [14] M. K. Satheesh, N. Samala, and R. V. Rodriguez, "Role of AI-induced chatbot in enhancing customer relationship management in the banking industry," *ICTACT Journal on Management Studies*, vol. 6, no. 4, pp. 1320–1323, Nov. 2020, [Online]. Available: <http://ischolar.info/index.php/IJMGmtS/article/view/208004>
- [15] S Sardana and V N Bajpai, V. N, "E-banking service quality and customer satisfaction: An exploratory study on India". *International Journal of Services and Operations Management*, 2020 vol. 35, pp. 223-247.
- [16] S Butt, "Impact of E-Banking Service Quality on Customers' Behavior Intentions Mediating Role of Trust". *GMJACS*, 2021, vol. 11, pp. 21-21.
- [17] V Trivedi, "Examining the Customer Experience of Using Banking Chatbots and Its Impact on Brand Love: The Moderating Role of Perceived Risk". *SAGE Open*, 2019, vol. 9.
- [18] T T Toh, Y C Tay, "Banking Chatbots: A Study on Technology Acceptance among Millennials in Malaysia", *International Journal of Emerging Technologies in Learning (IJET)*, 2022, vol. 17, pp. 117-133.
- [19] R G Daza, A Fabriccio, A., L J Robles, Jahaira, and A Jiménez, "The impact of chatbots on customer satisfaction: A systematic literature review", *Technology in Society*, 2023, vol. 55,
- [20] M Alagarsamy, and R Mehroli, "Exploring chatbot trust: Antecedents and behavioral outcomes". *Heliyon*, 2020, vol. 6
- [21] N A Zainol, A. Z Shamsudin, M S Hassan, and M. Z Mohd Noor, "Understanding customer satisfaction of chatbots service and system quality in banking services", *Journal of Marketing Management*, , 2022, vol. 38, pp. 1112-1130.
- [22] S K Sarbaidya and S. Saha, "Role of chatbot in customer service: A study from the perspectives of the banking industry of Bangladesh", *Asia Pacific Journal of Information Technology and Innovation*, 2020, vol 22, pp. 21-31
- [23] S Gunathilaka, "Exploring affordances of AI banking chatbots towards understanding how chatbots create value for customers", *International Journal of Information Systems in the Service Industry*, 2022, vol. 13, pp. 1-17.
- [24] M M Ulkhaq, M Rabbani, A T Wibowo, and B A Rachmania, "Assessing electronic service quality using ES-QUAL and E-RecS-QUAL scales", *ITMSOC Transactions on Innovation & Business Engineering*, 2017, vol. 2, pp. 20-26.
- [25] M Ghosh, M, "Measuring electronic service quality in India using E-S-QUAL". *International Journal of Business Excellence*, 2018, vol. 19, pp.1007-1020.
- [26] A K Widodo, O., Selvina, Widhiyaningrum and O E R Siregar, "Incorporating the E-S-QUAL Scale and Importance-Performance Analysis for Assessing Electronic Service Quality". *Journal of Management and Science*, 2019, vol.10, pp. 67-80.
- [27] R R Ahmed, R., Giedrius, R., Kauliene, J Streimikis, and R Dapkus, R, "Impact of e-service quality on customer adaptation towards mobile banking during the COVID-19 pandemic in Sri Lanka". *Journal of Theoretical and Applied Electronic Commerce Research*, 2020, vol. 15, pp 329-346.
- [28] N A Hidayah, N H., Kusumaningtyas, and A A Zalia; "Analysis of the effect of service quality on loyalty behavior of DANA e-wallet users using the E-SQUAL extended model". In 2021 9th International Conference on Cyber and IT Service Management (CITSM) , 2021 pp. 1-4. IEEE.
- [29] T Petersson, N S Pawar, and A Fagerström, "Investigating the factors of customer experiences using real-life text-based banking chatbot: a qualitative study in Norway", *Scandinavian Journal of Information Systems*, 2023, vol. 35.
- [30] S S Samarthar, D S Murthy and B Sheshadri, "A study on the acceptance of mobile-banking applications in India—UTAUT model". *International Journal of Business and Management*, 2022, vol. 17, pp.231-244.
- [31] E O Mogaji, M, Balakrishnan, G I Nwoba, and B Nguyen, "Emerging-market consumers' interactions with banking chatbots", *International Journal of Information Management*, 2021, vol. 57.