



CUSTOMER AWARENESS INITIATIVES FOR EVA AI CHATBOT IN INDIAN BANKING: A CASE STUDY OF HDFC BANK

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Abstract

Customer awareness has become the determinant of successful implementation of artificial intelligence in the banking industry that can transform technological advancement into customer-oriented strategic changes. This study examines the customer awareness process in the context of the EVA AI chatbot used in HDFC Bank, one of the biggest Indian banks operating within the Indian private sector. Despite the fact that HDFC Bank has already heavily invested in digital transformation and AI-based services, little academic literature has been dedicated to customer awareness and its influence on adoption of chatbots in Indian banking setting.

The purpose of the research is to get to know the impact of customer awareness on the adoption of AI chatbots like EVA and explore the role of the awareness on the real usage of the chatbot. The rationale behind this research was a mixed-method design as the primary data was obtained with the help of structured surveys to evaluate the level of customer awareness and the behavior of using the product and secondary data were obtained with the help of the official site of the bank and annual reports. The results show that even with the already developed AI-based solutions, customer awareness is a significant challenge to understand what engagement and the relevant use of the solution is by the bank. The paper gives an insight into how better awareness strategies would enhance digital adoption and customer experience in the changing Indian banking environment.

Key Words: *Customer awareness, EVA, AI Chatbot, HDFC Bank, Digital Transformation.*

Introduction

The banking industry in India has been experiencing a massive digital change over the past ten years, and Artificial Intelligence has been instrumental in the service provision to customers. In March 2017, HDFC bank, which is among the largest banks operating in the private sector in India, introduced EVA (Electronic Virtual Assistant) in partnership with Senseforth AI Research. EVA is India's oldest AI-based banking chatbot that serves 247 days around-the-clock on account, loans, and products and solves more than 5 million queries each year, with an 85 percent query solution rate (HDFC Bank Annual Report, 2021).

In spite of the awareness campaign on multi-channel including efforts on social media, email, branch posters, mobile push notifications, WhatsApp, Amazon Alexa and Google Assistant, the adoption among the customers has not been even. Urban and digitally literate customers accepted EVA very well but semi-urban and older customers were still reluctant because of privacy issues and desire to be dealt with by a human being. It has been established that technology adoption does not only rely on technical ability, but also on awareness, trust and perceived usability.

Nonetheless, there is a scarcity of scholarly studies on the direct effects of awareness interventions on the adoption of AI chatbot in Indian banking. That gap is filled in the current study that examines the



importance of customer awareness campaigns in developing EVA adoption and usage behaviour among the customers of HDFC Bank.

Objectives

1. To understand how customer awareness helps in adopting AI chatbots like EVA.
2. To examine the impact of customer awareness on the usage of the EVA AI chatbot.

Review of Literature

1. Nagda, S., & Mehta, A. (2026). HDFC EVA Chatbot: The case study of how it can substitute human customer support. *International Journal of Management, Economics and Commerce*, 3(1), 101111. EVA responded to standard questions in a competent way and only 9 of 20 questions were answered with the most appropriate responses, which proves that it is more specific to responding to FAQs. Research Gap: The accuracy of technical response is researched without the awareness of customers or the promotion campaigns.
2. Sangeetha, V., & Saraswathi, C. (2025). An AI chatbot influence on customer satisfaction in HDFC Bank in Chennai City. *Lex Localis Journal of Local Self-Government*, 23(10), 671, 676. The information delivery of EVA and customer satisfaction had a strong positive association ($r = 0.7$, $p = 0.001$). Research Gap: Geographically restricted to Chennai and no analysis of the adoption behaviour awareness campaigns was made.
3. Sharma, B. (2026). Awareness to adoption: Customer adoption of AI banking services in India. *Interdisciplinary Journal of AI, Machine Learning and Data Science*, 1(1). <https://doi.org/10.66261/0qkfrs72>. The relationship between perceived usefulness and intention to use was mediated by customer awareness as well as the adoption intention was influenced by customer awareness. Research Gap: Studies AI adoption in general without mentioning a particular chatbot or institution e.g. HDFC Bank.

Research Gap

The previously conducted studies have paid attention to customer satisfaction, technical potency of banking chatbots, and overall aspects of AI implementation in India. Nevertheless, there is no research that has explicitly investigated the relationship between the promotional efforts by HDFC Bank on EVA and the real customer awareness and usage behaviour. This paper fills that gap by relating the awareness strategies of HDFC bank to the adoption patterns of customers.

Scope of the Study

The paper analyses the customer awareness of HDFC Bank EVA and how the same affects the adoption and utilisation behaviour in a cohort of 100 active HDFC bank customers who use at least one digital channel. It is restricted to HDFC Bank and EVA in particular, with awareness activities between 2017 and the current state based on publicly available documents. No assessment of technical performance and AI architecture is done. Mixed-method design (structured survey and secondary information analysis by content analysis) was utilized and employed with the help of descriptive statistics and non-parametric testing.

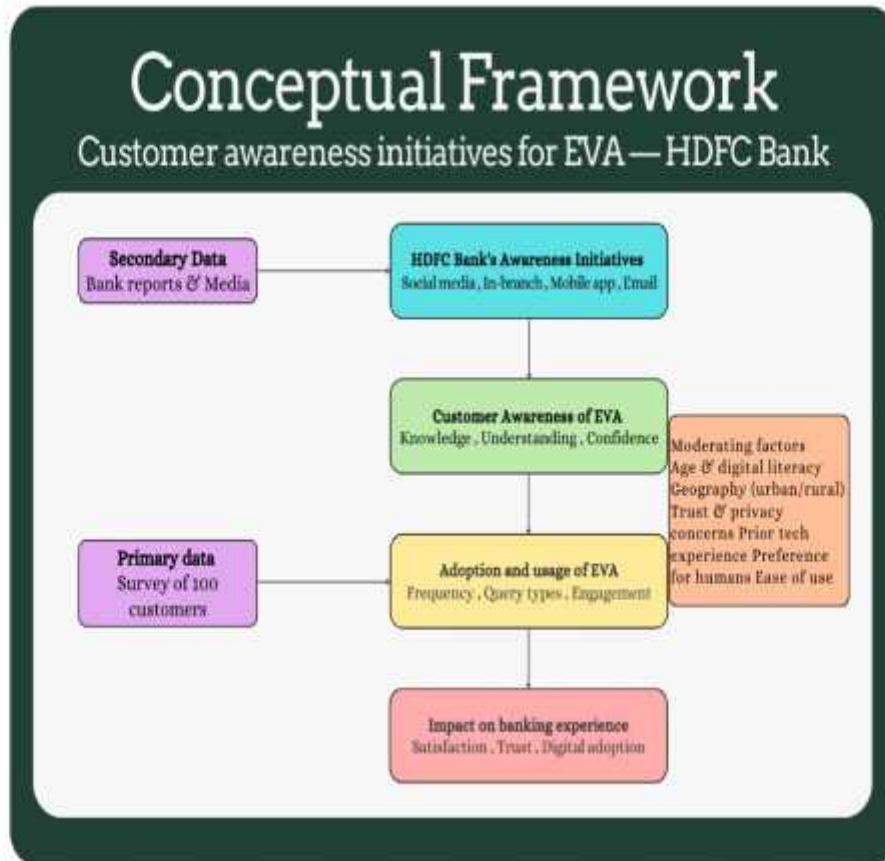
Research Methodology

The proposed study will have a mixed-method research design that includes both primary and secondary data. A structured survey of 100 active customers of HDFC Bank was conducted on primary data, which measured the level of awareness of EVA, their frequency of use, and their perception of the banking experience, and the respondents were selected using the convenience sampling technique. The secondary data was collected through the official site of HDFC Bank, annual



reports, press releases, and social media. Primary data was examined with the help of the descriptive statistics, Mann-Whitney U Test, and Factor Analysis, whereas secondary data was discussed with the help of the content analysis in order to classify the awareness campaigns by the channel and by the type of message.

Conceptual Framework



Data Analysis and Findings

Objective 1- To understand how customer awareness helps in adopting AI chatbots like EVA

Section 1: What is EVA — As Defined by HDFC Bank

Definition and Purpose

"HDFC Bank's EVA (Electronic Virtual Assistant) is India's first and largest Artificial Intelligence powered banking chatbot. Eva was built with the aim to leverage the latest technologies to help serve our customers better and faster. Eva uses the latest in AI and Natural Language Processing to understand the user query and fetch the relevant information from thousands of possible sources, all in a matter of milliseconds."

HDFC Bank further states on its official page:

"Customers can get the information they are seeking instantaneously by conversing with Eva in human language instead of searching, browsing, clicking buttons or waiting on a call."



Official Performance Statistics (from HDFC Bank’s Own Records)

#	Statistic (from HDFC Official Sources)	Source
1	EVA has answered more than 5 million queries from around 1 million customers with more than 85% accuracy.	HDFC Bank Official EVA Page
2	EVA holds more than 20,000 conversations every day with customers from all over the world.	HDFC Bank Official EVA Page
3	EVA has handled more than 16 million conversations with an accuracy rate of over 90%.	Confirmed by HDFC Bank to Lucep (published record, 2019)
4	Within the first few days of launch, EVA answered over 1 lakh (100,000) queries from customers across 17 countries.	HDFC Bank Press Release, March 2017
5	Within six months (by September 2017), EVA addressed over 2.7 million queries, interacted with 530,000 unique users, and held over 1.2 million conversations.	HDFC Bank data, reported in Analytics India Magazine, September 2017
6	EVA responds to queries in under 0.4 seconds. What a human agent takes 8–10 minutes to do, EVA does in seconds.	HDFC Bank Press Release (The Asian Banker, 2017)
7	EVA is configured to handle queries on more than 7,500 FAQs covering all bank products and services.	HDFC Bank, as confirmed to Lucep (2019)

Section 2 : Banking Services via EVA

Category	What EVA Can Do
Savings Account	Open account, check benefit, branch location, see debit card deal, voice search, Hindi support.
Credit Card	Information, applications, eligibility, statements, loan management, EMI summary.
Loans	Two Wheeler, Home, Car, Personal, Business and Education Loans eligibility and calculators and application.
Payments & Transactions	Balance inquiry, payment of bills, mobile top up, bus tickets, IFSC enquiry.

Section 3: HDFC Bank Awareness Initiatives towards EVA.

Launch and Primary Awareness Drive (March 2017): EVA is the first AI-based banking chatbot to be launched by HDFC Bank in March 2017. In a matter of days, EVA got more than 1 lakh enquiries of customers in 17 countries, so even the launch press release was the initial formal awareness campaign of the bank.

Purpose of EVA CDO Statement: According to the 2021 CSC press release, Chief Digital Officer Anjani Rathor said that EVA would answer questions in real time and guide customers through the banking services and frequently asked questions, which confirms that the communication of the capabilities of EVA was in the focus of the deployment strategy of the bank.



Multi-Channel Deployment:- In maximising its visibility to a wide range of customers, HDFC Bank implemented EVA in six touchpoints, including the websites, mobile application, WhatsApp, Amazon Alexa, Google Assistant and the CSC Digital Seva Portal.

Rural Awareness Initiative (May 2021):- Through the CSC Digital Seva Portal, HDFC bank reached rural India with 1,27,348 VLEs in 685 districts. Group Head Smita Bhagat reported that the project was meant to bridge the digital literacy gap between urban and rural areas by enabling VLEs to have banking information using EVA.

Section 4:-EVA in Context — Scale vs. Reach

EVA Achievement (Official HDFC Data)	What It Reveals
India’s first AI banking chatbot (March 2017)	HDFC Bank was a pioneer. EVA had no domestic banking competitor at launch.
5 million+ queries; 1 million+ customers	Significant but small relative to HDFC’s 93+ million customer base — confirms the adoption gap.
20,000+ daily conversations	Active daily usage exists — but represents a small fraction of total daily banking interactions.
Deployed in 17 countries	Global reach — yet domestic awareness among urban Indian customers remains the core challenge.
6 deployment channels	Maximum channel availability has been built. The bottleneck is customer awareness, not access.
80% AI interaction target by 2025	Strategic ambition is clear. But the gap between the target and current adoption makes awareness the decisive variable.

The Awareness-Adoption Link:- Statistics provided by HDFC bank itself affirm that EVA has since responded to more than 5 million queries, has 20,000 daily interactions and is realized in six channels that represent 685 districts. The Chief Digital Officer of the bank has indicated that the objective of EVA is to have the customer get access to any banking service instantly (HDFC Bank, 2021). This can only however be possible to customers who know about the existence of EVA, which proves that customer awareness is the most important precondition of adoption.

Objective 2:-To Examine the Impact of Customer Awareness on the Usage of the EVA AI Chatbot: This part of the research considers the question of whether customer knowledge of EVA affects real usage behaviour based on primary survey data of 100 HDFC Bank customers compared using the Mann-Whitney U Test and Factor Analysis.

Mann-Whitney U Test:- Test Design and Hypotheses

In this study, the Mann-Whitney U Test was used to compare EVA users (n=21) with non-users (n=5) on five evaluation dimensions and this is based on the use of ordinal Likert-scale data which is best suited by this type of test.



H₀: There is no significant difference between EVA users and non-users for any of the five rating dimensions.

H₁:The EVA users and non-users would significantly differ in terms of average scores obtained for each of the five EVA dimensions.

Table 1: Mann-Whitney U Test Table 1 showing the results for the Mann-Whitney U Test. Figure 1 Figure 1: Mean scores of different groups for the survey Figure 2: p-values compared to the threshold for the Mann-Whitney U Test in the survey.

Table 1 — Mann-Whitney U Test Results: EVA Users vs Non-Users

Question	Users Mean	Non-Users Mean	U Statistic	p-value	Result
Q11 — EVA is easy to use	4.10	3.20	82.00	0.0409	Significant *
Q12 — EVA provides quick and accurate responses	3.86	3.00	82.50	0.0390	Significant *
Q13 — Prefer EVA over branch visits	3.86	3.20	77.00	0.0912	Not Significant
Q14 — Awareness influenced decision to use EVA	3.76	3.20	71.50	0.1904	Not Significant
Q15 — Likely to continue using EVA in future	3.95	3.60	63.50	0.3466	Not Significant

* Significant at $p < 0.05$

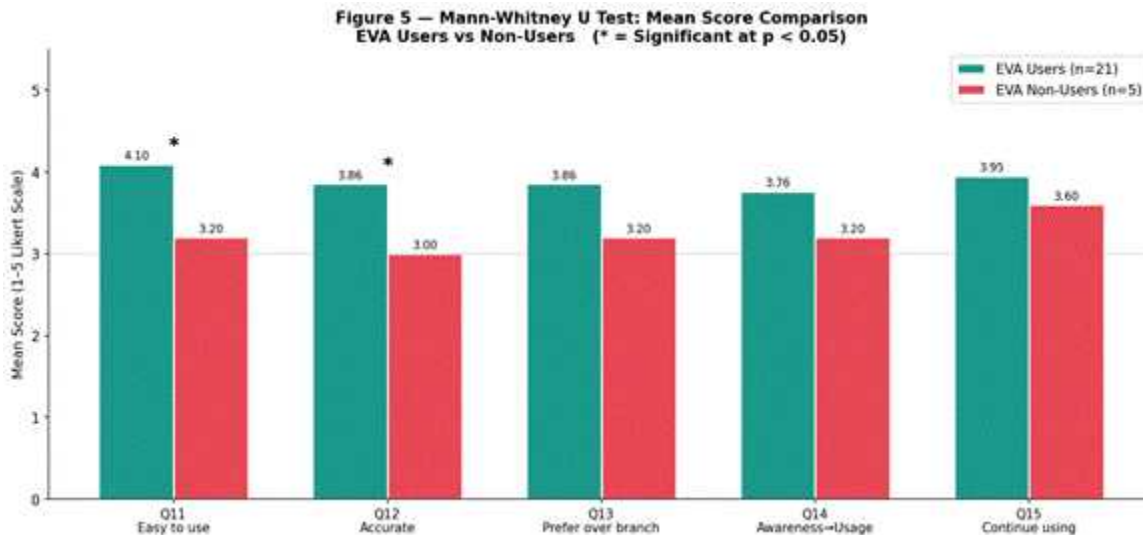


Figure 1 — Mean Score Comparison: EVA Users vs Non-Users (* = Significant at $p < 0.05$)

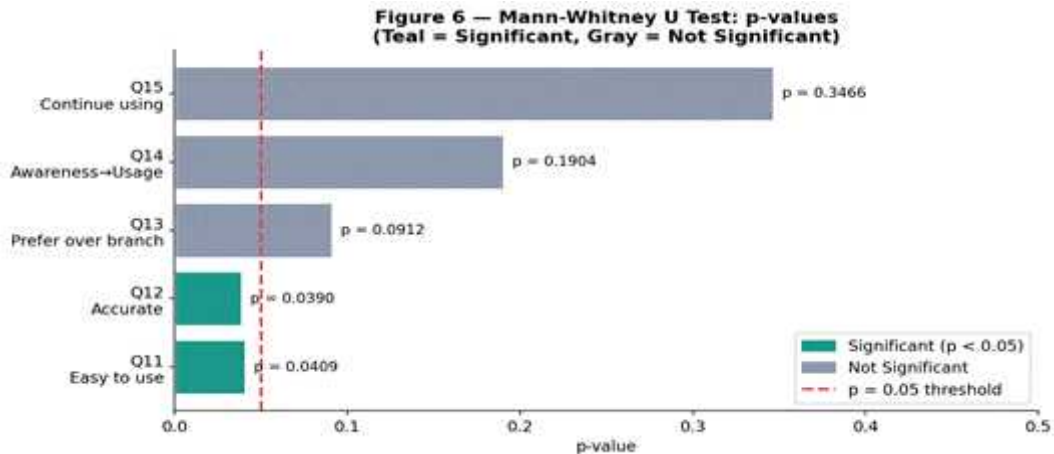


Figure 2 — Mann-Whitney U Test p-values (Teal = Significant, Gray = Not Significant)

Interpretation

Q11 ($U = 82.00$, $p = 0.0409$) — significant: H_0 rejected. The ease of use was perceived to be much higher (4.10 vs. 3.20), and it is clear that direct use positively supports the perceived ease of use, which was in line with the TAM framework used by Davis et al. (1989).

Q12 ($U = 82.50$, $p = 0.0390$) — significant: H_0 rejected. Response accuracy was rated highly by the users (3.86 vs 3.00) which show that the functional usefulness of EVA is more effectively realized through use than awareness.

Q13 ($U = 77.00$, $p = 0.0912$) — Not Significant: H_0 accepted. There is no significant difference (3.86 vs 3.20), which presupposes the preference of EVA to branch visits as yet.

Q14 ($U = 71.50$, $p = 0.1904$) is Not Significant: H_0 accepted. There is no meaningful difference (3.76 vs 3.20) and this implies that the awareness itself is not sufficient in the adoption process and that there are other factors like convenience and digital experience, which equally play a significant role.

Q15 ($U = 63.50$, $p = 0.3466$) -Insignificant: H_0 accepted. The same future intention in the two groups (3.95 vs 3.60) which reflects a latent willingness to use EVA even in non-users.

4.2.2 Factor Analysis

KMO and Bartlett's Test : Before the factor analysis was performed, the data was evaluated for adequacy using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity, the results are shown in Table 2.

Table 2 — KMO and Bartlett's Test

Test	Value
KMO Measure of Sampling Adequacy	0.772
Bartlett's Chi-Square	110.901
Degrees of Freedom	28
p-value	0.0000 (Significant)



The KMO of 0.772 establishes the appropriateness of the data in the factor analysis. Bartlett Test (= 110.901, = 28, p = 0.001) proves that the variables have enough common variable to factor.

Correlation Matrix

Figure 3: Correlation matrix of the 8 Likert-scale variables that enter the factor analysis. The warm-coloured cells show the correlation coefficients ranging from 0.12 (Q3–Q4) to 0.83 (Q5–Q6).

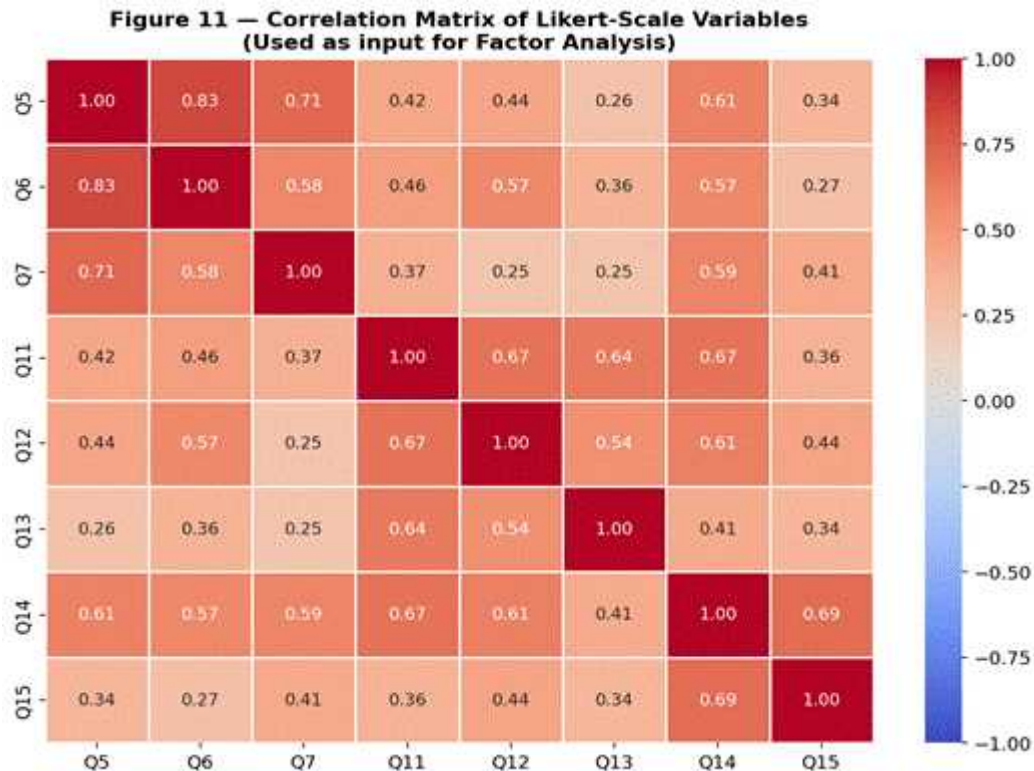


Figure 3 — Correlation Matrix of Likert-Scale Variables (Input to Factor Analysis)

Factor Extraction — Eigenvalues

Using Kaiser criterion, Table 3 and the Scree Plot of Figure 4 showed that two variables with eigenvalues greater than 1 were retained out of the eight Likert-scale variables.

Table 3 — Eigenvalues and Variance Explained

Factor	Eigenvalue	% Variance	Cumulative %	Retained?
Factor 1	4.462	55.8%	55.8%	Yes (Eigenvalue > 1)
Factor 2	1.232	15.4%	71.2%	Yes (Eigenvalue > 1)
Factor 3	0.859	10.7%	81.9%	No
Factor 4	0.540	6.8%	88.7%	No
Factor 5	0.401	5.0%	93.7%	No

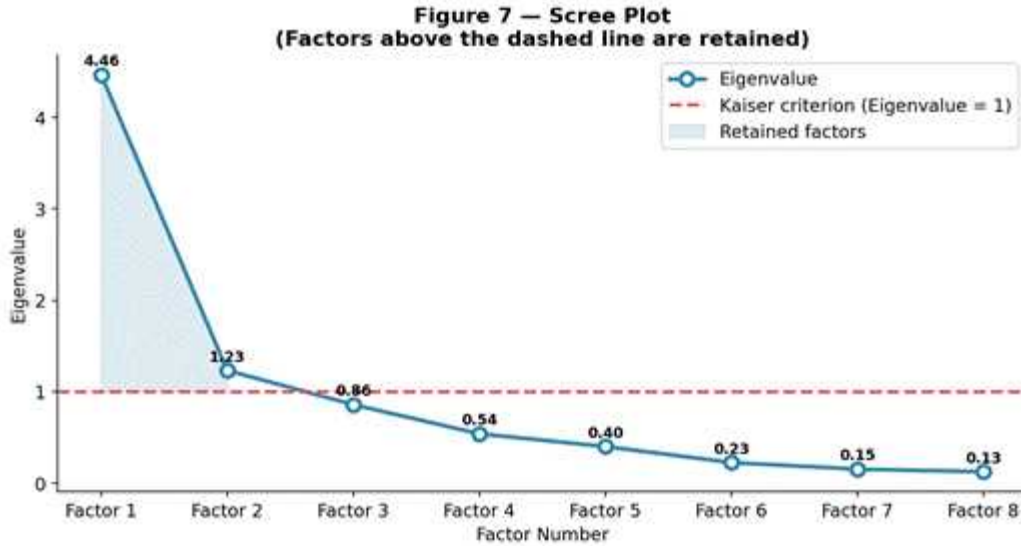


Figure 4 — Scree Plot (Factors above the dashed line are retained based on Kaiser criterion)

Factor 1 (eigenvalue = 4.462) describes the variance of 55.8 percent and Factor 2 (eigenvalue = 1.232) describes the variance of 15.4 percent, which in total explains 71.2 percent of the variance a very good and satisfactory level of variance explained in a social science study.

Rotated Factor Loadings

After Varimax rotation, all the eight variables loaded in a significant manner in one of two factors as shown by Table 4 and Figure 5.

Table 4 — Rotated Factor Loadings (Varimax Rotation)

Variable	Factor 1	Factor 2	Dominant Factor
Q5 — Awareness of services offered by EVA	0.914	-0.189	Factor 1
Q6 — Understanding of how EVA works	0.803	-0.312	Factor 1
Q7 — Importance of AI chatbots in banking	0.860	-0.119	Factor 1
Q11 — Ease of use	0.277	-0.824	Factor 2
Q12 — Accuracy of responses	0.289	-0.796	Factor 2
Q13 — Preference over branch visits	0.065	-0.819	Factor 2
Q14 — Awareness influenced usage	0.617	-0.615	Factor 1 / Factor 2
Q15 — Future intention to use	0.371	-0.530	Factor 2

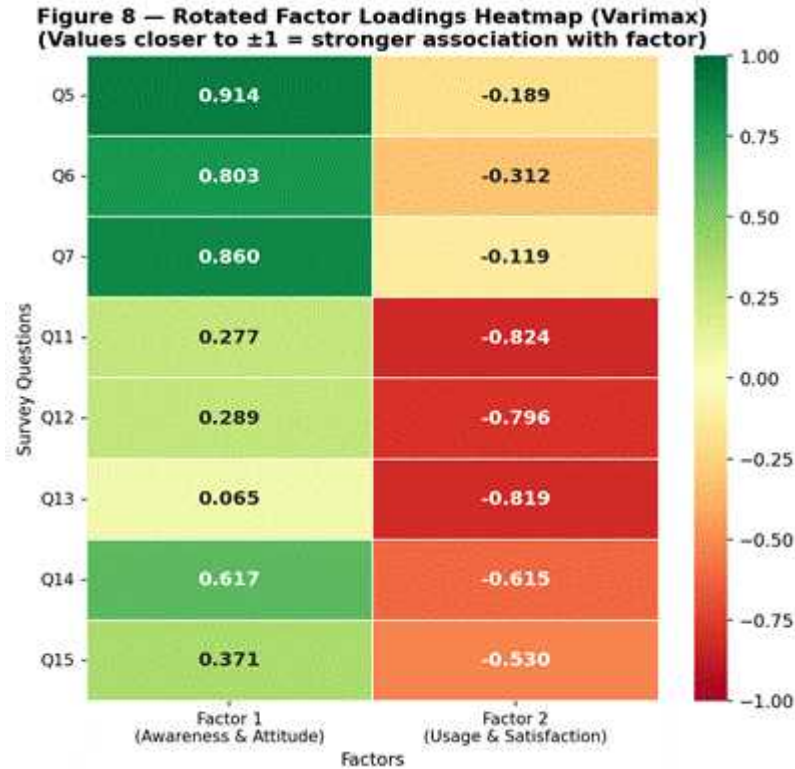


Figure 5 — Rotated Factor Loadings Heatmap (Green = Strong Positive, Red = Strong Negative Loading)

Communalities

The communalities of all the variables are given in Figure 6. All variables other than Q15 are above the 0.5 mark and this indicates that the two factors are sufficient to explain the variance in the data.

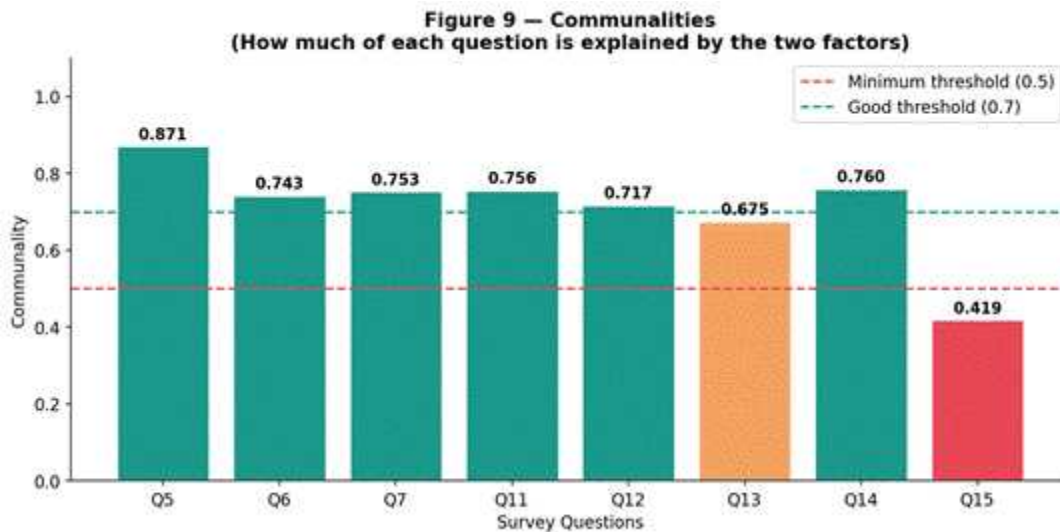


Figure 6 — Communalities (Teal = Above 0.7 threshold, Amber = 0.5–0.7, Red = Below 0.5)

Factor Interpretation

Factor 1 Customer Awareness and Attitude (36.3%): Q5 (0.914), Q7 (0.860), Q6 (0.803) and Q14 (0.617) loaded, customer knowledge and attitudes of EVA and AI chatbots in banking.



Factor 2 Usage experience and satisfaction (34.9%): Q11 (0.824), Q13 (0.819), Q12 (0.796) and Q15 (0.530) loaded the factor, including experience with the use of the computer including ease of use, accuracy and future intention.

Q14 was significantly cross-loaded on both factors (0.617 and 0.615), closing the gap between cognitive and behavioural aspects of the customer journey and EVA.

Variance Explained Summary
Table 5 — Summary of Factors and Variance Explained

Factor	Name	SS Loadings	% Variance
Factor 1	Customer Awareness and Attitude	2.903	36.3%
Factor 2	Usage Experience and Satisfaction	2.791	34.9%
Total		5.694	71.2%

Figure 10 — Total Variance Explained by Two Factors

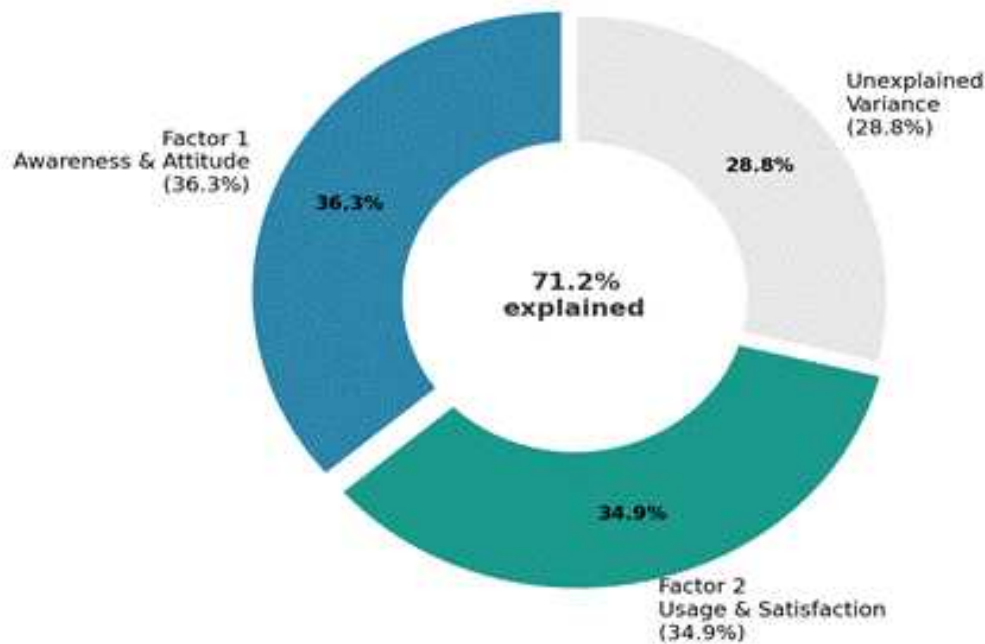


Figure 7 — Total Variance Explained: 71.2% captured by the two factors

Summary of Findings

The evaluation attests to two important conclusions. First, the real usage of EVA enhanced much stronger the perceptions of ease of use ($p = 0.0409$) and response accuracy ($p = 0.0390$) in comparison to awareness, which proves that direct interaction creates stronger positive attitude. Second, the combination of customer awareness and customer experience of usage perceptions accounts for 71.2% of the variance in customer perceptions. Although awareness is a pre-requisite of adoption, other interventions like guided onboarding, trial incentives, and first-transaction incentives are also important in converting the aware-but-inactive customers into regular EVA users.



Limitations

1. The non user group consisted of only 5 respondents thus the two important results were only indicative and not conclusive.
2. Only 25 complete responses were analyzed by factor which is less than the suggested 40 which decreases the statistical power.
3. The convenience sampling reduced the generalisability, and the sample was grossly biased towards people who were less than 25 years old.
4. Self-reported information is prone to the recall bias and the social desirability bias because awareness is not an easily measured variable.
5. The secondary data were confined to data that were publicly available and, therefore, internal promotional budgets and campaign data were unavailable.
6. Results would be probably representative of urban, digitally active clients and not necessarily semi-urban or rural customers.
7. The research is confined to a single institution and one chatbot and this might not be applicable in other Indian banks or AI assistance.

Suggestions

1. First-Use Onboarding HDFC Bank needs to provide a guided in-app EVA demonstration because the key drivers of adoption are ease of use ($p = 0.04$) and accuracy ($p = 0.039$).
2. Segment-Specific Awareness: Channel-specific approach is advisable- social media with the urban youth, relationship managers with the semi-urban and VLE-network with the rural customers.
3. Incentivised First Trial: A small incentive like a cashback on the initial EVA contact may turn the non-users latent intent (means = 3.60) into active adoption.
4. Real-Time Feedback: EVA must include a post-interaction rating option that will continually enhance the quality of the response (Q13, $p = 0.09$).
5. Re-engagement of Lapsed Users: The customers who had tried EVA once but did not visit it again should be invited using personalised push notifications that emphasize missing features of EVA (Q14, $p = 0.19$).

Conclusion

This paper validates that customer awareness is a necessary and not a sufficient condition to EVA adoption. Although EVA has been investing heavily in six-channel awareness campaigns since 2017, the number of active users is still small compared to 93 million customers of HDFC Bank, which is why the awareness-to-adoption gap continues to exist.

The Mann-Whitney U Test proved that awareness was not the distinguishing factor of the users and non-users but ease of use ($p = 0.0409$) and response accuracy ($p = 0.0390$). Factor analysis revealed that Customer Awareness and Attitude (36.3%) and Usage Experience and Satisfaction (34.9) are two dimensions equally important and these two dimensions explain 71.2 percent variance in customer perceptions.

Consciousness allows adoption, and experience identifies the continuity of the customer. To maximise on EVA adoption, HDFC Bank should put the same efforts in awareness campaigns and experience design.



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