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BANKING ON THE BOTS: A STUDY ON WHATSAPP CHATBOTS ADOPTION BY INDIAN PRIVATE BANKS

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Abstract

In the last few years, the adoption and usage of chatbots have grown significantly and as a result, chatbots have found their utility across the industries (eCommerce, Education, Hospitality, Medical, Community Services and many others). In the industry spectrum, the process of customer service management (CSM) has been deeply impacted using chatbots both in terms of quality of service and quantity of user requests. Due to its higher efficiency and 24x7 availability, chatbots, in many cases have replaced human based chat process. Websites, Social media and mobile apps hosts interactive chatbots. WhatsApp, the most popular communication tool, also allows the integration of chatbots and enables API based response. In this study, the authors have explored the adoption of WhatsApp based chatbots by the 05 largest private banks in India using the S-A-T model proposed by Abdulquadri et al. (2021). The study has analysed the WhatsApp chatbot based banking offered by each of the banks both in terms of breadth and depth of the services. Results demonstrate WhatsApp banking subscription process employed by the banks along with the variety of the services. The outcomes of the study provide unique insights to bank marketers and practitioners about the optimum use of WhatsApp chatbots for effective customer service management.

Keywords: Chatbots, WhatsApp, Banks, India, Customer Service Management

INTRODUCTION

Launched in November 2009, the Instant messaging app WhatsApp has revolutionized the way people interact. Today, it has transformed into a "tech-commodity" of day-to-day use. Each day around 100 billion messages are sent worldwide through the app by its whopping 2 billion active users (Dean, 2022). Initially launched as a chat app on the iOS platform (Pathak, 2019), WhatsApp has found its usability in multiple scenarios and use cases. Individuals use WhatsApp to connect with family and friends while businesses leverage the app to interact and engage with their customers. According to a WhatsApp blog post, the survey result of Morning Consult has revealed that around 84% of small and medium businesses (SMBs) think that WhatsApp helps them in communicating with their customers effectively while 80% of SMBs have admitted that WhatsApp supports them in business growth. Considering the significance of WhatsApp in business-related communication, in January 2018, Facebook (the parent company) launched a dedicated free android app called "WhatsApp for Business" with business-specific features & tools like Business Profile, and Greeting Messages, Quick Replies, Statistics etc. (Perez, 2018). Later the same year, WhatsApp Business API (WABA), a paid solution for medium and large enterprises, was launched. WABA enables businesses to programmatically send messages to their customers (Constine, 2018) and acts as a foundation for WhatsApp based chatbots that interact with the users by the virtue of artificial intelligence (AI) and defined backend rules (Botscrew, 2021). Sectors like Education (Pérez and Daradoumis, 2020),

Healthcare (Walwema, 2021), E-commerce (Asadi and Hemadi, 2018), Retail (Jain, 2020), Government services (Chaturvedi, 2020) have been significantly utilizing WhatsApp chatbots to communicate with the users.

In this study, the authors have examined the WhatsApp chatbots of the five largest private banks in India using the Search-Access-Test (S-A-T) model proposed by Abdulquadri et al. (2021)

The paper has been organized as follows: The next section reviews the literature on Chatbots and their utilization by different business sectors. Further, the study describes the research methodology and the results. Lastly, the paper talks about its limitations and scope for future research.

LITERATURE REVIEW

Chatbots are computer-based programs that interact/communicate with users using natural language programming or NLP (Adamopoulou and Moussiades, 2020). According to Nuruzzaman and Hussain (2018), conversational software agents triggered by natural language processing are known as a chatbot. Chatbots are emerging as a prominent medium to interact with users and hence their popularity and adoption are significantly rising (Smutny and Schreiberova, 2020). Chatbots have found use-cases in multiple fields such as education, medicine, product, and service industry (Winkler and Söllner, 2018).

In the service industry where customer satisfaction builds brand loyalty, chatbots are a great source of customer relationship management (Weißensteiner, 2018). For example, in the hotel industry, chatbots as Virtual Assistants are getting more prominent due to positive responses from the customers (Buhalis and Cheng, 2019) while in Retail and eCommerce, Chatbots are adding a competitive advantage for the brands (Moriuchi et al., 2021). Nawaz and Gomes (2020) in their study have highlighted that chatbots are productive tools in the recruitment process and help organizations in preparing recruitment strategies. According to Hasan et al. (2021), during the COVID19 pandemic lockdown, in the travel and tourism industry, chatbots helped to maintain social distancing by remotely answering customer queries. Kumar (2022) in his article has quoted chatbots as “Digital Aladin for Information”. It has further quoted the results of a survey study conducted in the year 2020 that has highlighted that 1.4 billion people use chatbots. The USA, India, Germany, UK and Brazil are the Top 5 users of chatbots.

ROLE OF CHATBOTS IN BANKING INDUSTRY

Like any other service-based industry, customer delight and service experience are core focus areas in the banking sector (Taneja, 2015). As a result, banks deploy every possible mechanism to address customer queries in the best possible way (Shakeel et al., 2020). The adoption of artificial intelligence-powered chatbots in the banking industry has changed the way banks and customers used to communicate earlier (Quah and Chua, 2019). With the increase in the user’s interaction with chatbots, banking and financial companies are adopting them to create more responsive customer services (Doherty and Curran, 2019). According to Engati (2021), chatbots provide reliable information to bank customers hence enhancing their overall banking experience. Integration of chatbots by the banks as part of their engagement strategy can greatly improve customer satisfaction, reduce costs and deliver insightful feedback on customer sentiments (Franco, 2021). Besides

websites, chatbots are often employed through social media platforms such as Facebook, Twitter and messaging apps such as WhatsApp (Sprout Social, 2021).

The popularity of WhatsApp as a communication tool has forced brands (Thomas, 2020), Institutions (WHO, 2021) and even Governments (Rekhi, 2022) to launch WhatsApp based chatbots to offer different services. India, being the largest user base for WhatsApp (Ceci, 2021) is an ideal scenario for businesses to deploy chatbots on the app for different use cases. Many Indian banks leverage WhatsApp chatbots to service the customers through a dedicated service called "WhatsApp Banking" (Yellow AI, 2022). This service allows customers to perform multiple banking operations through chatbot conversation.

RESEARCH GAPS

In the service industry, customer experience plays a vital role in an organization's overall growth (Teixeira et al., 2012). To enhance the customer experience companies, deploy advanced techniques to serve their customers (Rawson et al., 2013) as a result chatbots have emerged as an essential part of the customer-facing processes (Kushwaha et al., 2021). In the past, several studies have been conducted to explore the adoption and utility of chatbots in multiple scenarios & use cases. Some of the prominent studies are - Chatbot for customer service on social media (Xu et al., 2017), Chatbot for university (Ranoliya et al., 2017), Chatbot services in Healthcare (Nadarzynski et al., 2019), Use of chatbots during COVID19 pandemic (Martin et al., 2020), Chatbots in e-commerce (Cui et al., 2017), Bank customer experience of using chatbots (Trivedi, 2019).

WhatsApp, one of the most popular instant messaging apps also offers chatbots through its dedicated "WhatsApp for Business" app. According to Thomas (2020), WhatsApp chatbots are a significant medium to build customer relationships and ultimately drive sales. Globally, India contributes to the largest base of WhatsApp users and is a focus market for the platform (Rollason, 2021).

Pal and Singh (2019), Trivedi (2019), Singh (2020), and Hari et al. (2020) have emphasised the role of website based chatbots on the customer experience and brand engagement in the banking sector. In this context, the authors have attempted to explore the adoption of WhatsApp chatbots by Indian private banks as the objective of the study.

THEORITICAL FRAMEWORK USED

Search-Access-Test (S-A-T) model

The S-A-T framework, proposed by Abdulquadri et al. (2021), is an inductive approach that starts with searching the chatbots, accessing them and finally testing them on multiple parameters for a deeper understanding. In the above-mentioned study, the S-A-T framework was tested to understand the role of chatbots deployed by Nigerian banks (across the platforms) from the digital transformation and financial inclusion perspective.

In this paper, the authors have adopted the model to test WhatsApp chatbots deployed by the five largest private Indian banks where the objective is to understand the breadth (number of services offered) and depth (extent of each of the services) of the banking services offered by the chatbots. The three steps of the S-A-T model are as:

1) *Search* – First step is to search for the official chatbots through multiple methods

2*) Access* – In this step, chatbots needs to be accessed to understand their orientation features

3*) Test* – Lastly, all the accessed chatbots needs to be tested in detail to determine services offered by them

METHODOLOGY

Understanding the WhatsApp chatbots adoption by the banks using S-A-T model

(A) Search

The study covers the five largest private banks in India. The banks have been selected basis their market capitalization (as of 22.01.2022) on the Bombay Stock Exchange (BSE), India's largest stock market. These banks are HDFC Bank, ICICI Bank, Axis Bank, Kotak Mahindra Bank & IndusInd Bank.

***Figure* 1: Screenshot of the stock prices and market capitalization of the five largest private banks**

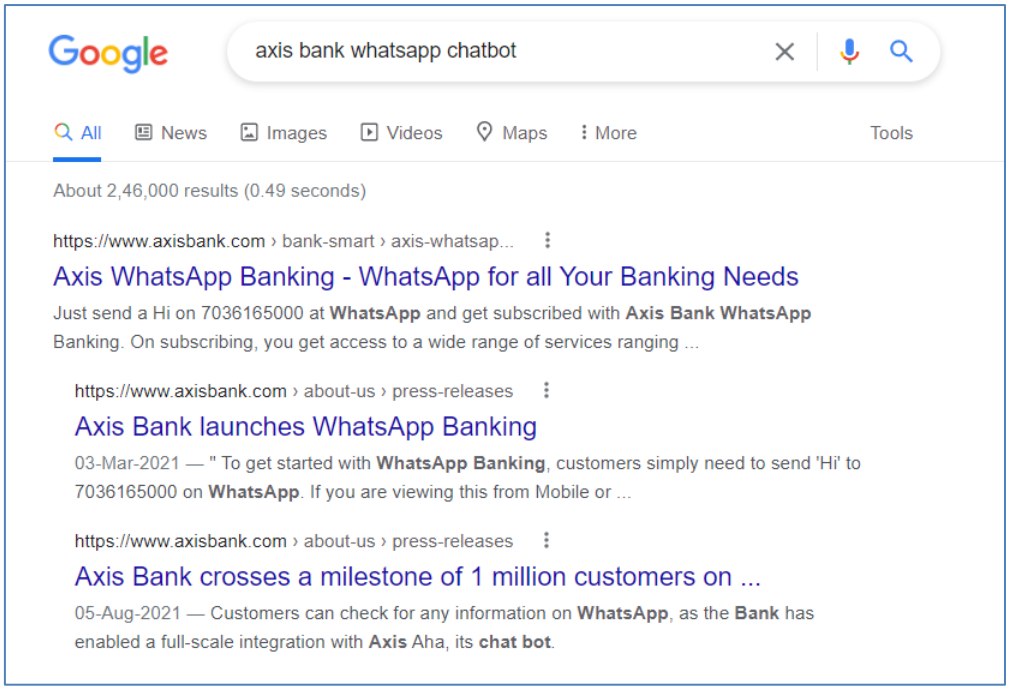
Bank - Private

Company Name	Last Price	% Chg	52 wk High	52 wk Low	Market Cap (Rs. cr)
HDFC Bank	1,520.70	0.73	1,724.30	1,342.00	842,876.13
ICICI Bank	804.60	-0.66	859.70	512.10	558,725.23
Kotak Mahindra	1,892.85	0.06	2,252.45	1,627.25	375,522.51
Axis Bank	712.60	-2.22	866.60	617.00	218,607.22
IndusInd Bank	853.95	-2.77	1,241.85	788.60	66,144.12
IDBI Bank	48.70	-3.66	65.25	26.35	52,364.20

Source: www.moneycontrol.com

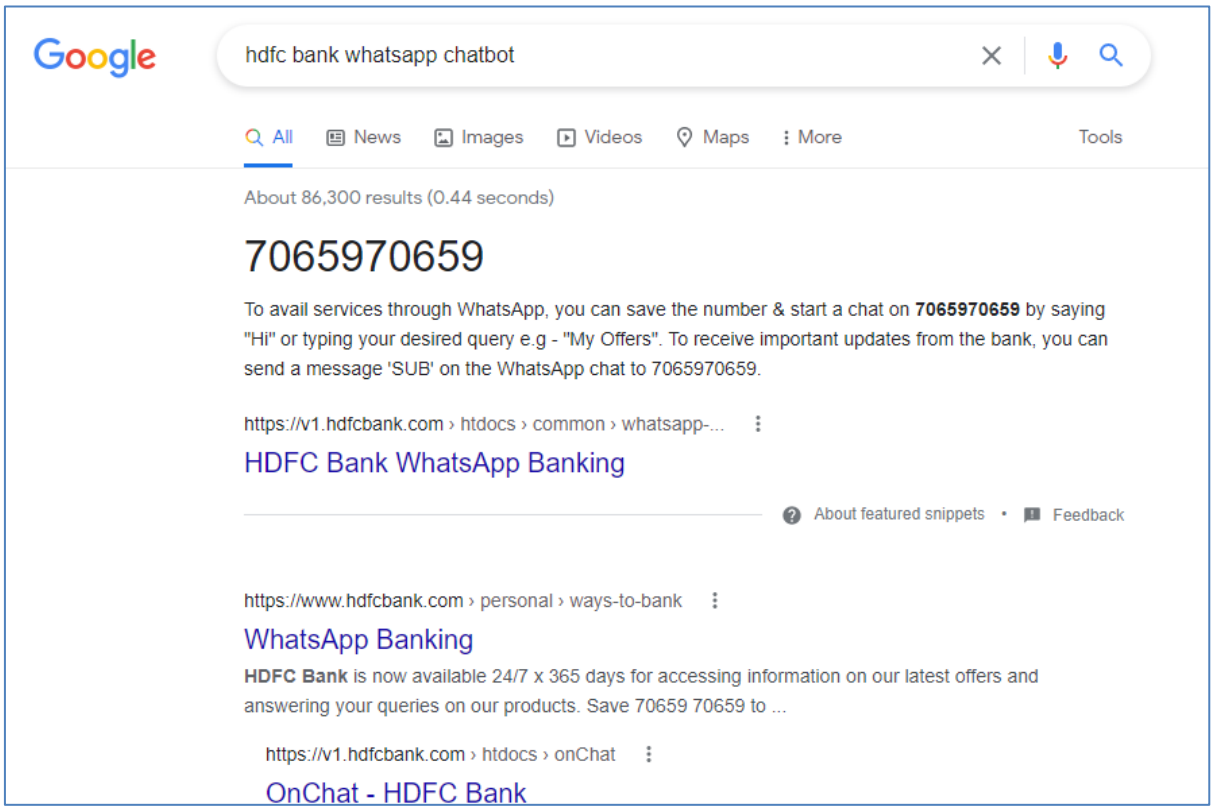
The primary step of WhatsApp chatbots search started on the Google search engine. The authors found official web pages related to "WhatsApp banking" for all the selected banks (refer to Figures 2-6). Further, a search revealed that this service is a WhatsApp chatbot based service

***Figure* 2: Google search result for Axis Bank WhatsApp chatbot**



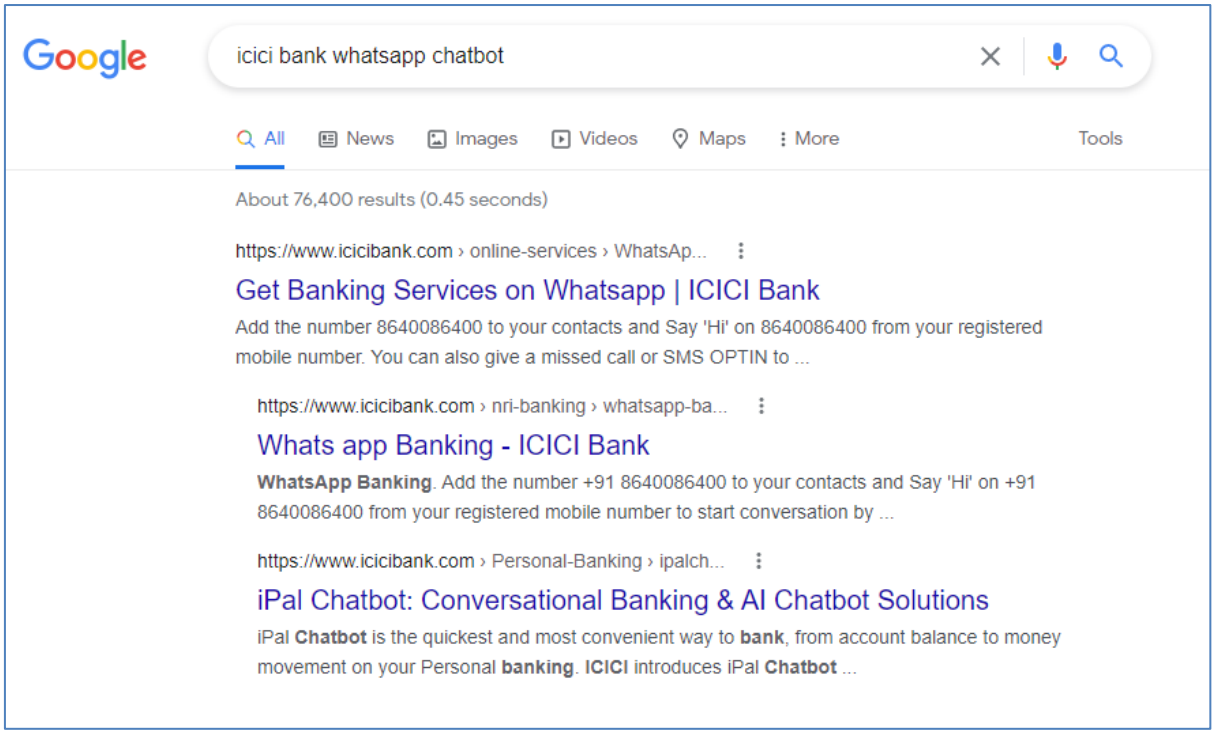
Source: www.google.com

***Figure* 3: Google search result for HDFC Bank WhatsApp chatbot**



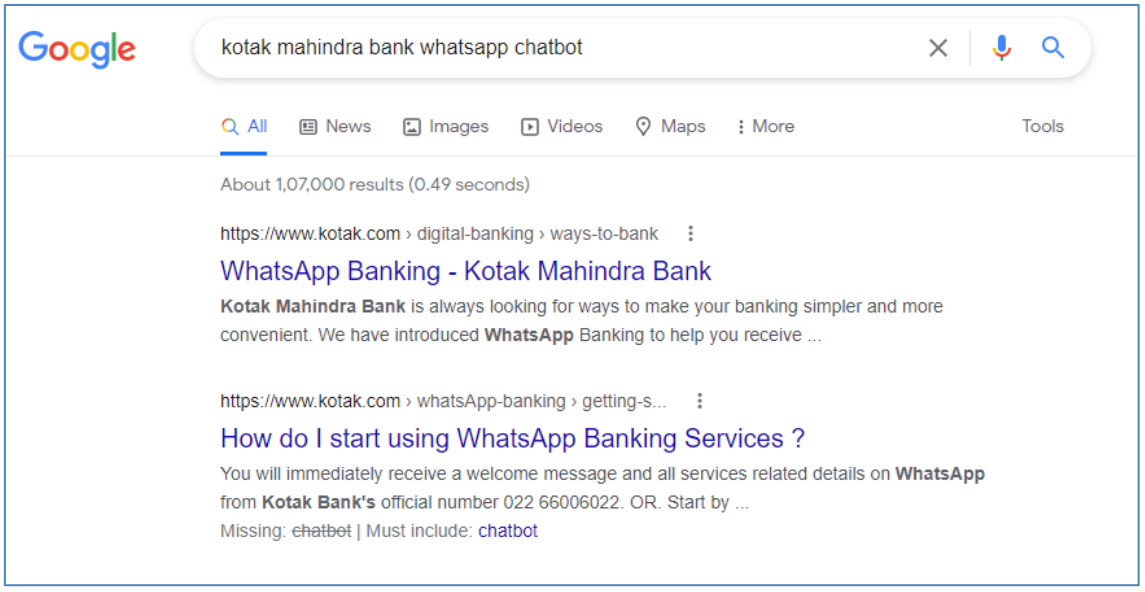
Source: www.google.com

***Figure* 4: Google search result for ICICI Bank WhatsApp chatbot**



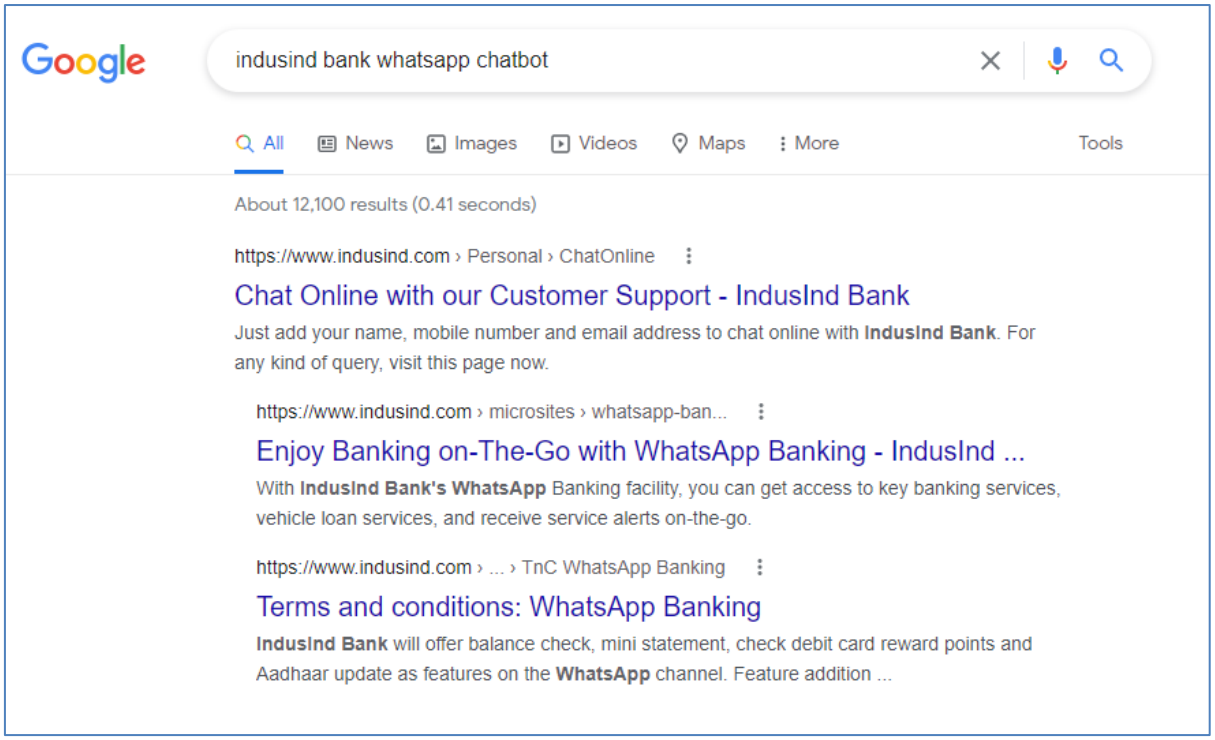
Source: www.google.com

***Figure* 5: Google search result for Kotak Mahindra Bank WhatsApp chatbot**



Source: www.google.com

***Figure* 6: Google search result for IndusInd Bank WhatsApp chatbot**



Source: www.google.com

(B) Analysis

In the analysis stage, each WhatsApp chatbot has been analysed to understand its subscription / opt-in process, orientation (Name, Appearance, Gender, Language), and verification status. Like other web-based chatbots where users can start interacting with them directly, WhatsApp based chatbots require an opt-in process and interaction initiation from the user's end. Each of the banks has a dedicated number for WhatsApp banking where users need to send a "Hi" message through WhatsApp chat. Alternatively, banks also allow users to give a missed call on the dedicated numbers to opt-in for the service. This process is in compliance with WhatsApp for a Business policy where brands cannot initiate communication with non-opt-in or non-subscribed users (WhatsApp, 2021). Further, the authors found that except for IndusInd bank rest of all four banks allow all users (i.e., even non-banking customers) to subscribe to their WhatsApp banking service while IndusInd bank only allows service subscription to post the bank registered mobile number verification through a one-time password (OTP). This represents that all the mentioned four banks use WhatsApp banking to acquire new customers aswell while IndusInd bank leverages the service only to serve its existing customers.

Upon subscription of the service for all the five banks, the authors found that all accounts carry the verified status badge/tick (this is essential because the banks offer API based service which is only possible through the official accounts). On browsing the bank's official websites, the authors have found that the chatbot on them possesses a certain identity in terms of name, gender and appearance while on WhatsApp such identity has not been attributed to the chatbots by any of the banks.

Abdulquadri et al. (2021) in their study have included chatbots language in the testing stage (step-3) while in the current study language has been considered as an accessibility feature hence included in

step-2 itself. The investigation has found that only the ICICI bank offers this service in two languages i.e., English and Hindi. For Hindi, the bank offers a different number of service subscriptions. To record the observations, each insight has been coded

TESTING

In the last stage, each of the bank's WhatsApp chatbots has been tested to understand their responsiveness, information relevance, response to random terms/queries, number of banking services offered and extent of information. Refer Table below for the framework summary

***Table 1*: S-A-T Framework**

Search	Access	Testing
Google Search Engine	Subscription / Opt-in process	Responsiveness
Banks Official Website	Name	Information Relevance
	Appearance	Response to random terms / queries
	Gender	Numbers of Services offered
	Verification Status	Extent of information
	Language Options	

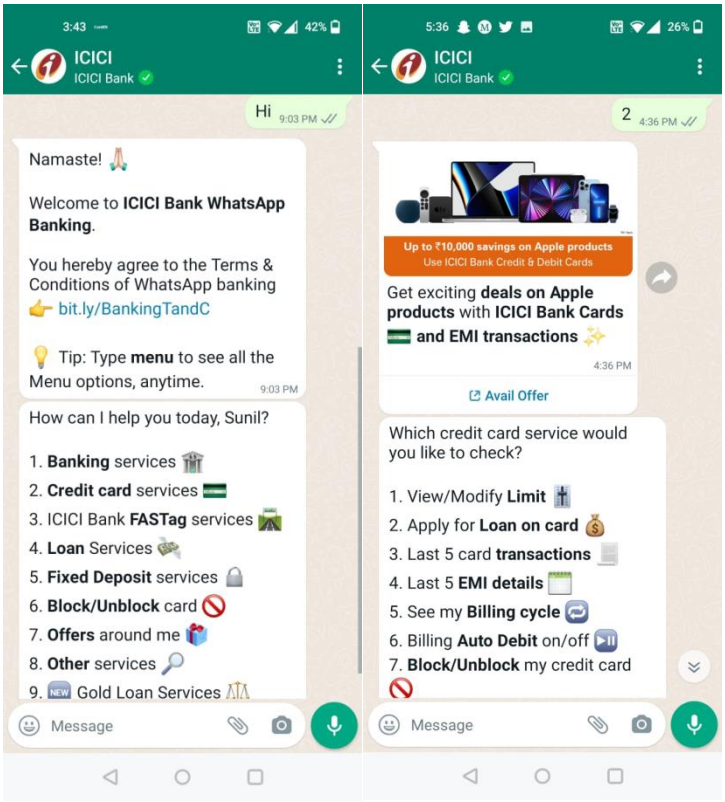
RESULT AND DISCUSSION

The study has found that all five banks use chatbots to provide banking services on the WhatsApp platform. Each bank has a dedicated web page with all the details related to the service. In a country like India with 22 official languages and several hundred regional languages, English-only as a primary language for the service can restrict a large population of customers to subscribe to it. Further, contrary to the identification features assigned to the bank's web-based chatbots, WhatsApp chatbots do not carry any name, gender or appearance. Except for IndusInd bank, which only allows its customers with saving accounts, vehicle loans or credit cards, all other four banks offer the service to non-customer users aswell. Hence, it can be concluded that the four banks (Axis Bank, HDFC Bank, ICICI Bank and Kotak Mahindra Bank) are using this service to acquire new customers aswell.

During the testing, all the five chatbots have been found responsive towards the user-led interaction initiation (with "Hi"), as the pre-populated responses are API based.

At the start of the conversation with ICICI Bank, the chatbot replied with "Namaste! 🙏 " ("Welcome" with the folded hand emoji) along with the web link mentioning the service terms and conditions. A second message was also pop-out with the menu of total 09 services offered by the bank, in ascending numerical serial numbers. Users require entering the desired service serial number to move further. Interestingly, the second message has been personalized with the user's name (for the bank's customer).

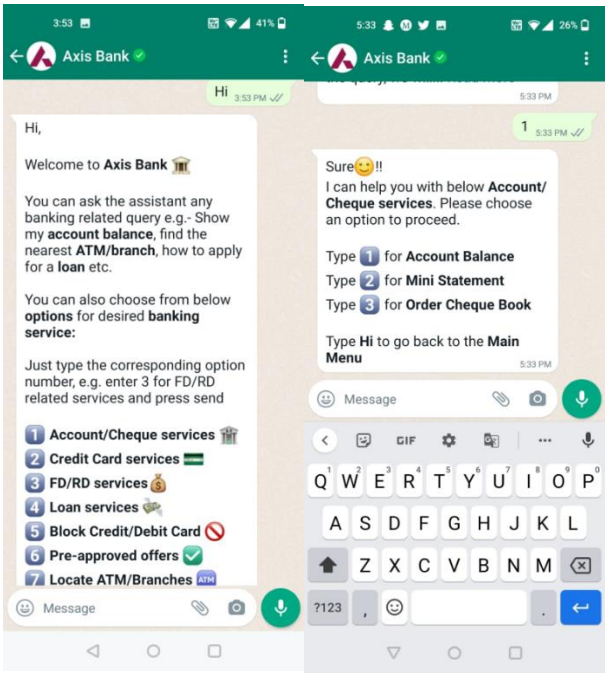
***Figure* 7: Screenshots of ICICI Bank WhatsApp Banking**



Source: ICICI Bank WhatsApp Banking

Axis Bank chatbot responded to the first interaction with a single message (starting with a "Hi") having options to choose from 10 services along with an example. Users need to either enter the numeric serial numbers associated with each of the listed services or can also write the relevant keywords to get a further response. Keyword examples – account balance, loan, ATM /Branch etc. This message also contains the link to download the bank's mobile app.

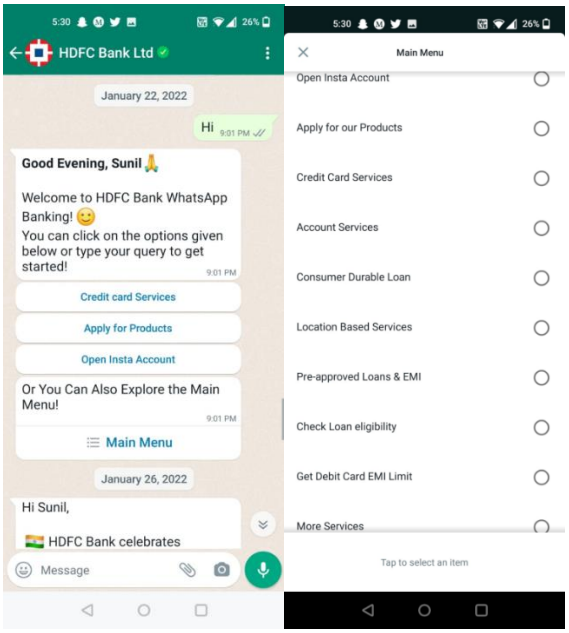
***Figure* 8: Screenshots of Axis Bank WhatsApp Banking**



Source: Axis Bank WhatsApp Banking

HDFC Bank, India's largest private bank, starts with a comparatively short message having 03 prominent listed services namely Credit card services, Apply for Products, Open Insta Accounts and then the main menu button having 10 more services as a drop-down list. HDFC Bank chatbot greets users according to the time of the day (Good Morning, Good Afternoon, Good Evening) along with the user's name (for bank customers)

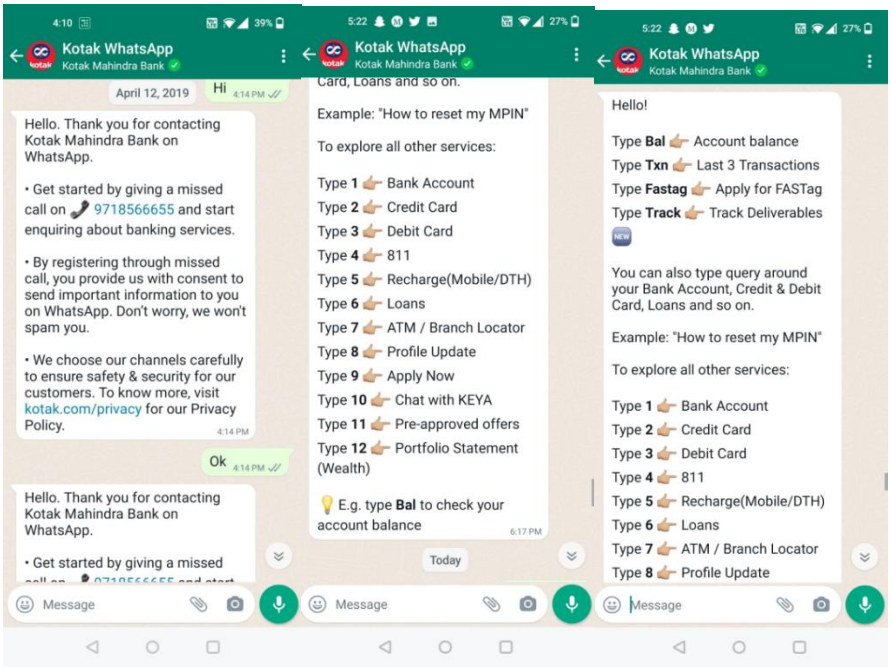
***Figure* 9: Screenshots of HDFC Bank WhatsApp Banking**



Source: HDFC Bank WhatsApp Banking

Kotak Mahindra Bank (KMB) responded with an opt-in message where users need to give a missed call on a mentioned phone number to register for the service. The same message also provides a weblink about the privacy policy associated with the service. Post-service subscription, the second message houses a long list of options. The first half of the message mentions about 04 services that are focussed on existing customers. The listed services are Account Balance, Last 3 Transactions, Apply for FASTag and Track Deliverables. These 04 services can be availed by entering the mentioned keywords associated with each of them. The second half of the message listed down 12 services with numeric serial numbers. Interestingly, Kotak Mahindra Bank has also integrated its customized web-based chatbot "Keya" on WhatsApp and is amongst the 12 listed services. Users can interact with Keya by entering the corresponding serial number.

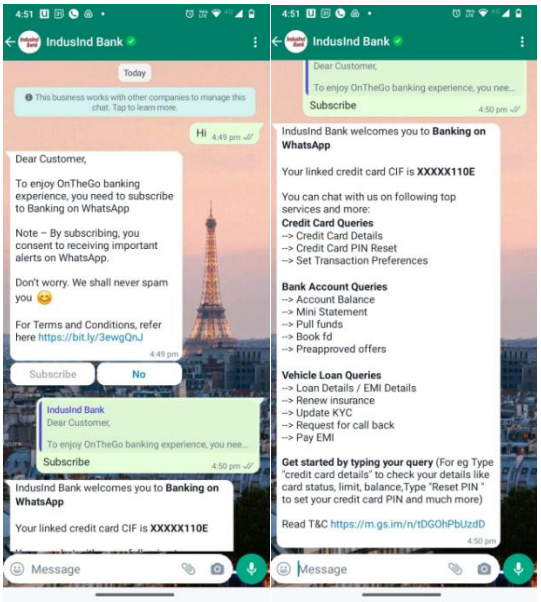
Figure 10: Screenshots of Kotak Mahindra Bank WhatsApp Banking



Source: Kotak Mahindra Bank WhatsApp Banking

The IndusInd Bank chatbot (as mentioned, is only available for the bank's existing customers) responded with the message to subscribe to the service. Upon subscription, the chatbot recognizes the customer's relationship with the bank along with the account number (for example Credit Cardholder and Credit Card number). The same message further listed done the services offered for 03 products namely, Credit cards, Bank accounts and Vehicle loans. IndusInd bank doesn't list services with serial numbers; users need to respond using relevant keywords to move further.

Figure 11: Screenshots of IndusInd Bank WhatsApp Banking



Source: IndusInd Bank WhatsApp Banking

Summary of the services offered by each of the bank through WhatsApp chatbots

Table 2: Services offered by each bank through WhatsApp Banking

Bank Name	Available Services
ICICI	Account Services (Account balance, Last 3 transactions). Credit Card Services (Card Limit, Block /Unblock a card), Apply for new products, Access offers, Track deliverables, ICICI Bank ATMs near me, Branches near me
AXIS	Account Services, Fixed Deposit Services, Credit card services, others (Ask us Anything Get Pre-Approved Personal Loans in WhatsApp, Apply for our Banking Products Locate Axis Bank Branches/ATM)
HDFC	Account Services, Credit Card Services (Summary, statement, card management, unbilled transactions, block/ unblock a card, view daily transaction limit), Apply for new products (Home Loan, Current Account, Insurance Policy). Location based services (Branch, ATM, Cash deposit machines, Gold Loan, Lockers, Home Loan branch). Offers (Pre-approved Loans and EMI), Loans, Loan eligibility check, Debit card EMI limit. Bot also provides outbound web urls for many other products like Two Wheeler Loan, FasTags etc.)
KMB	Account Services, Credit Card Services, Verifications, Apply for Products, Location based information
INDUSIND	Account Services, Credit Card services, Vehicle loan services, service alerts

MANAGERIAL IMPLICATIONS

The study provides significant insights to the bank marketers about WhatsApp banking offered by top private banks in India. The study finds that besides servicing existing customers most banks use the service to acquire new customers aswell for various products (such as Savings accounts, Loans, Credit Cards etc.). This is the crucial takeaway for marketers to learn how WhatsApp can also be used

as a cost-effective medium to generate qualified leads for prospective customers. Axis Bank (Business Line, 2021) and ICICI Bank (Singh, 2020) are reportedly serving millions of customers through WhatsApp banking. Considering the popularity and dominance of WhatsApp as a preferred medium for instant messaging in India, offering the service only / primarily in the English language might be restricting a wide user base to subscribe to the service, as also highlighted by Lin et al., (2020), Vanjani et al., (2019). The use of emoticons makes the messaging look engaging and playful. Hsieh and Tseng (2017) in their study have highlighted that the use of emoticons in messaging facilitates perceived playfulness which drives social connectedness, identity expressiveness and eWOM. Apart from enhancing the quality of customer service, WhatsApp chatbots also reduce support costs and add up to call centre productivity (XENICO, 2019).

Marketers in FinTech, Insurance Tech and other service-related industries can also refer to the outcomes and implications of this study to leverage WhatsApp chatbots to scale customer relationship management to the next level.

CONCLUSION

The study recognizes the growing significance of chatbots, especially for the service industry. The rise of WhatsApp based chatbots also indicates their adaptability and usefulness. The outcomes of the study provide a clear idea about the orientation and working of the WhatsApp chatbots deployed by each of the bank Top 05 Indian private banks. The S-A-T model enables the researchers to gain a deeper understanding of the chatbots.

LIMITATIONS AND FUTURE SCOPE OF WORK

There are a few limitations associated with the study. Firstly, the study has been conducted for WhatsApp based chatbots only where banks need to comply with the guidelines framed by WhatsApp. On the contrary, additional customizations (appearance etc.) can be done on chatbots deployed on websites. Secondly, the study covers the Top 5 Indian private banks and hence the results may not be standardized for other developing markets. Future research can address the above two limitations.

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