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AWARENESS, ADOPTION AND PERCEPTION OF WHATSAPP CUSTOMER SERVICE CHATBOTS IN THE BANKING SECTOR: PERSPECTIVES FROM UNDERGRADUATE STUDENTS IN LAGOS, NIGERIA

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Abstract

In an attempt to accentuate the role of chatbots in customer service, this study investigates awareness, use, and perceived usefulness of WhatsApp chatbots in banking operations and their performance outcome. The study participants consisted of 362 undergraduate students purposively selected from three tertiary institutions in Lagos state, Nigeria. Results of the cross-sectional survey suggested inadequate awareness and little usage of WhatsApp chatbot services among the study population. Specifically, there is a widespread negative perception of WhatsApp chatbot as a viable alternative to traditional customer service delivery. This was reflected in the low level of perceived usefulness of the chatbots (<50%) in reducing stress and time of visiting customer care desks in the banking halls. However, perceived satisfaction with the chatbots' performance in solving customer inquiries was above average (>50%). These results raise concerns over human resources, time, and cost reduction in banking operations through digital customer service. Based on these findings, we recommend a substantial public awareness campaign to educate existing and potential customers about the existence and the benefits of using chatbot/virtual customer assistants and incentives as motivation for the customers to use the virtual customer support option.

Keywords: Artificial Intelligence, Banking Chatbots, Customer Satisfaction, Customer Service, Digital Customer Relations

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

1. INTRODUCTION

Customer relationship management has undergone a paradigm shift resulting from internet-enhanced digital communication technologies, such as social media. Digital customer relations allow all stakeholders (businesses and customers) to engage and communicate with one another and receive quick

feedback (Luić & Lepoglavec, 2019; Okiyi et al., 2020; Zhou & Xu, 2021), through internet-enhanced communication platforms, such as the social media. Instant Messaging (IM) technology is a contemporary trend in customer service. Instant messaging apps such as WhatsApp have become one of the technological and communication advances in the business environment,

with over 2.2 billion active users (Ceci, 2022; Dixon, 2022), and a favourite social platform among internet users from 16 to 64 years (Newberry, 2022). This internet-mediated communication platform enables users to send text, documents, voice and video conversations, and location-based maps (Anyanwu, Nwaozor & Ejem, 2017; Odiboh et al., 2017; Ben-Enukora et al., 2019a; Ben-Enukora, 2019b), and most recently, conduct digital banking.

WhatsApp enhances simple, quick, safe, practical, convenient, and easy information exchange (Susilo, 2021). Businesses that include WhatsApp chatbot in their communication model have countless options to provide better customer support (Gupshub, 2022) and to build trusting relationships with their clients through a platform they already know, use, and trust (Anyanwu et al., 2017). The WhatsApp application offers the opportunity for artificial intelligence technology applications in customer service that enable businesses to initiate cost-effective interactions with various customers conveniently.

Customer service chatbot is an artificial intelligence-powered communication using a chat or speech interface that facilitates real-time customer interactions with shorter response time, provides numerous answers automatically, promotes individualized interactions, 24-hour customer engagement, as well as better customer service and satisfaction (Gupshub, 2022; XENIOO; 2019). They are also characterised by their marked propensity to break the barrier of time zones, opening times, and delays in traditional service centres. The AI-powered customer service application has brought revolutionary changes in the banking sector. It assists users in cash transfer, payment of bills, checking account balance, and uploading documents, as well as offers personalised financial advice regarding savings and loans to customers, onboard potential customers, and follows up with prospects ((Kaur et al., 2020; Maruti Techlab, 2020).

Commercial banks in Nigeria are using chatbots to enhance customer engagement and financial inclusion (Abdulquadri et al., 2021), most frequently via the WhatsApp platform which has over 4.03 million users in Nigeria as of 2021, and is projected to reach 8.13 million users by 2025 (Degenhard, 2021). The chatbots specifically take the position of customer care representative in the banking halls. Therefore, it is suspected that awareness and its performance outcome can encourage customers to jettison the traditional customer support services in banking institutions in favour of AI-powered customer support services.

The use of banking chatbots has become a trend in Nigeria. Thirteen as 13 out of the current 24 commercial banks operating in the country (as of 2022) use chatbot solutions (Mogaji, 2021). Even though the Nigerian banks' chatbots operate on other social media apps, those on the WhatsApp platform, such as the Tamara (Access bank) Ivy (Fidelity bank), Leo (UBA), and ZIVA (Zenith bank), have customized identity and verified. However, the level of awareness, use, perceived usefulness, and customer satisfaction resulting from their performances are unknown. To fill this gap, the study examines the level of awareness about customer service WhatsApp chatbots as provided by the four commercial banks in Nigeria, ascertain the extent to which customers use the WhatsApp chatbot solutions, examine customers' perceived usefulness of the WhatsApp customer service chatbot and determine the level of customers' perceived satisfaction with the performance of the WhatsApp customer service chatbots. The finding of this study is imperative for strengthening the customer service chatbot solutions by business organisations. It is expected that the artificial intelligence-powered digital customer service bots would reduce the burden on the customer care staff who handle numerous consumer inquiries daily, as well as time spent on complaints and inquiries by customers.

2. LITERATURE REVIEW

Customer Service Chatbot

Customer service chatbots are typically text-based or voice-based humanlike conversational agents that deal with routine queries in customer requests. They interpret user input, search directories for keywords content related to specific inquiries and retrieve the corresponding responses (Chhibber & Bhadauria, 2022). Historically, these chatbots or virtual assistants were first developed by Weizenbaum in the 1960s, using natural language methods for automated audio and textual conversations (Zumstein & Hundertmark, 2017; Nordheim, Følstad, & Bjørkli, 2019; Han, 2019). Subsequent attempts to develop natural language processing tools resulted in superior conversational abilities than the predecessors.

At present, chatbots have become a growing trend in the realm of customer service in the business sector. Various authors maintain that the incorporation of chatbots in Customer service is mutually beneficial to business organizations and their customers. Empirical evidence suggests that businesses can generate high revenues, reduce costs, and preserve stronger relationships with clients and customers receive personalized interaction, straight-

forward as well as instant resolution to routine queries that typically make up most service requests with artificial-intelligence-powered customer service (Brandtzaeg & Følstad, 2017; Zumstein & Hundertmark, 2017; Newberry, 2022).

Irrespective of the growing capacities of chatbot in customer support interactions, previous studies found that awareness and user uptake of customer service chatbot have been low (Nordheim, Følstad & Bjørkli, 2019; Lupa-Wójcik, 2019). Reluctance to use chatbot is motivated by skepticism regarding the ability of chatbot to provide the right information or solutions (Norheim et al., 2019; Bagana, Irsad & Santoso, 2021), whereas entertainment, social and relational factors, as well as curiosity, facilitate the adoption of chatbot services (Bae Brandtzaeg & Følstad, 2017). More so, innovativeness, perceived usefulness, perceived ease of use, and attitude, influence behavioural intentions toward interaction with chatbots (Richad et al., 2019), and concerns regarding expertise, responsiveness, and security are among the factors militating against the use of chatbots services (Mogaji et al., 2021).

Use of Chatbot Customer Support Services in Banking

The application of AI chatbot solutions in financial institutions is aimed at enhancing business operations and better customer experience. Previous studies indicate divergent opinions on awareness, adoption, and perception of chatbot customer support services in banking. According to Singh and Singh (2019), awareness of banking chatbots is very low among customers and even among bank employees in India. On the contrary, Shanthi and Pavithra (2020) found that the level of awareness and usage of chatbot services in India is high. The variation could be explained by the demography of the study participants.

Customers' intention to use banking Chatbot is predicted by their perceived usefulness and compatibility of the AI technology whereas perceived privacy risk has no discernible influence on intention (Richad et al., 2019; Alt, Vizeli, and Säplăcan, 2021). Also, Richad et al. (2019) show that innovativeness and attitude toward chatbot technology have a positive influence on behavioral intention. According to Sarbabidya and Saha (2020), perceived benefits derived from banking chatbots include feedback and recommendations obtained through the straightforward question-and-answer exchange, speedy access to the needed information or product resulting from easy user navigation on the app, a

distinctive feeling of human-like dialogue and personalized customer service experience and many more.

Bhatti (2019) who examined the customers' satisfaction with banking chatbots in Kenya found that majority of the study participants who used the AI technology had a positive experience. In another context, Singh and Singh (2019) claim that banking chatbots provided by Indian banks have few features and primarily respond to regular inquiries which the bank already have on their websites. Documented evidence from Nigeria is sparse. The available data indicate a low awareness and use of WhatsApp and chatbot banking transactions in Nigeria (Udeze, Onwuliri & Ugoala, 2017; Ogunfuwa, 2020). Therefore, this study is one of the leading research projects to examine the perceived usefulness and satisfaction derived from banking chatbots in Nigeria.

Customer Satisfaction with the performance of customer service Chatbot

Customer satisfaction refers to how well a product or service meets the wants and expectations of the customers (Alaina, 2021). Every business is an economic and social system, and customers are at the heart of that system (Ejem & Ejem, 2014). This level of significance enjoyed by the concept exemplifies the idea that the "Customer is the King". As a result, businesses exist to meet the demands and preferences of their customers as well as the performance of a company's product or service determines the level of customer satisfaction with the organization, as well as customer loyalty and referrals (Abdul-Qadir et al., 2021). Positive customer satisfaction enhances brand reputation. Therefore, business organizations monitor customer satisfaction signals regarding products, services, and relationships to achieve long-term success in the market. Survey and rating data on customer satisfaction enables businesses to comprehend, enhance, and create better services.

Studies on customer satisfaction with chatbot performance are closely associated with the extent to which the problems motivating users to interact with Chatbot services are resolved. Chatbot service significantly influences customer satisfaction, service costs, intention for service reuse, word-of-mouth testimony, and customer loyalty (Rossmann, Zimmermann & Hertweck, 2020). Customers usually not only appreciate easy access and flexible self-service channels, but value personalized attention (Adam, Wessel & Benlian, 2021).

Kvale et al., (2021) observed a substantial variation in the performance of different chatbot

solutions in customer satisfaction and problem resolution. However, Følstad and Skjuve (2019) noted that an occasional lack of adequate answers does not necessarily translate to a bad experience as long as the bots offer an easy path for follow-up with human customer service representatives.

Perceived performance, perceived trust, and corporate reputation significantly influence customer satisfaction with chatbot use (Eren, 2021). More so, Mulyono and Sfenrianto (2022) found that system quality, service quality, and information systems have positive impacts on customer satisfaction with banking chatbot solutions. Also, satisfaction with chatbot services depends on the perceived benefits that users derive from its performance, while perceived privacy risk leads to lesser satisfaction (Cheng & Jiang, 2020).

Theoretical Framework

This study is anchored on the Technology Acceptance Model (TAM). Innovation adoption is dependent on technology acceptance. As a result, the theoretical assumption of TAM is often used to explore the level of technology use, perceived usefulness and satisfaction derived from technological innovations. The theory describes why people accept, adopt, and utilize information technology (Davis, 1986; Momani, Jamous & Hilles, 2017; Zaineldeen et al., 2020). Therefore, the theory could explain customers' experience with banking chatbot. The original TAM theoretical constructs include behavioural intention, attitude towards behaviour, perceived usefulness, and perceived ease of use before the modified versions (TAM 2 and TAM 3) that included other variables such as perceived enjoyment (Gümüş & Çark, 2021). Two cognitive variables from TAM relating to this study are perceived usefulness and perceived enjoyment.

Perceived usefulness reflects the perception that customer service chatbots can enhance their banking tractions by reducing stress and time spent visiting customer care officers in banking halls. Various studies demonstrate that perceived usefulness influences attitude and behavioural intention to use chatbots (Richad et al., 2019; Gümüş & Çark, 2021; Pavon et al., 2021). More so, past challenges encountered in the course of using chatbots exert a negative influence on perceived usefulness (Hjerpbakk et al., 2021). Perceived enjoyment refers to perceived satisfaction derived from the chatbot's performance. Reliability and accuracy influence customer satisfaction with chatbot services (Aziz, Zaman & Muzammil, 2021). Thus, solving customers' problems is relevant for evaluating chatbot service performance

and determining customer preference for a chatbot or human assistants (Misischiaa, Poeczzeb & Strauss, 2022).

3. METHODOLOGY

This study adopted a cross-sectional survey method, using a self-designed structured questionnaire in gathering data from undergraduate students in Lagos state, Nigeria. The choice of students as the population of this study is premised on high tech-savviness, positive attitude, and high level of WhatsApp usage among university students in Nigeria (Enaohwo & Awotua-Efebo, 2018; Ahmad, 2020; Ogunbodede & George, 2021; Adeyeye et al., 2022). Simple random sampling was employed in selecting three tertiary institutions (Lagos State University, Lagos State Polytechnic, and Adeniran Ogunsanya College of Education) for the study.

Since the population of students who own bank accounts in the selected institutions could not be ascertained, the sample size was determined using the Cochran formula $[(1.96)^2(0.5)(0.5)/(0.05)^2]$ for determining sample size for the infinite population in cross-sectional studies/surveys (Abdulah, 2021). The calculation yielded a sample of 385, but only three hundred and sixty-two (362) copies of the questionnaire were certified valid for the analysis. A pretest of the survey instrument was conducted on 20 undergraduate students, and the Cronbach's Alpha reliability test yielded a value of .707, indicating strong reliability. The questionnaire was distributed equally among the institutions through the multi-stage sampling procedure. At first, simple random sampling was used to select three tertiary institutions from a list of all the tertiary institutions in Lagos state. A faculty was randomly selected from a list of all the faculties in each institution in the second stage. Lastly, respondents who have accounts in Access, Fidelity, UBA and Zenith banks and who use WhatsApp were purposively selected to participate in the study.

Ethical Consideration

The study participants voluntarily responded to the questionnaire after the research objectives and their rights were explained to them. In addition, oral consent was obtained from all respondents before participation. All information obtained from the respondents was treated with utmost confidentiality and anonymity and used solely for this research.

4. RESULTS

Awareness of WhatsApp customer support Chatbot

for banking operations

Table 1: Distribution of respondents' awareness of WhatsApp customer support Chatbot for banking operations

Responses	Frequency	Percentage
Yes	136	37.5
No	157	43.3
Not sure	59	16.2
Total	362	100 n=362

The data in Table 1 suggest a low level of awareness of the WhatsApp customer support chatbot provided by commercial banks to facilitate personal banking operations in Nigeria.

Table 2: Distribution of respondents' mention of the WhatsApp Chatbot identity/name

Variable	Frequency	Percentage
Correct mention	41	30.1
Incorrect mention	33	24.3
Don't know	62	45.6
Total	136	100.0

Table 2 demonstrates that the recall rate of the WhatsApp chatbots' identity/name is very poor.

Perception of WhatsApp Customer Service Chatbot provided by commercial banks in Nigeria

Table 3: Distribution of respondents' perception of WhatsApp Customer Service Chatbot

Variable	Frequency	Percentage
How helpful are customer service chatbot on WhatsApp provided by Nigerian banks in maintaining a constant relationship with customers?		
Not helpful at all	34	25
Not very helpful	23	16.9
Neutral	32	23.5
Somewhat helpful	27	19.9
Extremely helpful	20	14.7
Total	136	100
How helpful are WhatsApp customer service chatbot in closing communication gaps between commercial banks and their customers during non-banking hours?		
Not helpful at all	29	21.3
Not very helpful	28	20.6
Neutral	31	22.8
Somewhat helpful	16	11.8
Extremely helpful	24	17.6
Total	136	100

How helpful are WhatsApp customer service in reducing the stress of visiting the banks complains physically?

Not helpful at all	27	19.9
Not very helpful	18	13.2
Neutral	46	33.8
Somewhat helpful	28	20.6
Extremely helpful	17	12.5
Total	136	100

To what extent would you prefer interacting virtual assistants on WhatsApp rather than visit customer care officers in the banking hall?

Not at all preferred	32	23.5
Somewhat not preferred	51	37.5
Neutral	13	9.6
Somewhat Preferred	22	16.2
Extremely preferred	18	13.2
Total	136	100

Table 3 suggests that the majority (>50%) of the respondents who are aware of the personal banking assistants on WhatsApp do not perceive them as viable means of maintaining constant support to bank customers. The data demonstrates that most (>60%) respondents do not think the WhatsApp customer service chatbots have closed the communication gaps between Nigerian banks and their customers during non-banking hours. More so, the table shows that the majority (33.8%) of the respondents cannot say whether the virtual assistants have helped to reduce the stress of visiting the banks to make inquiries or not, and the majority (>60%) of the respondents do not prefer interacting with the customer service chatbot on WhatsApp. The implication is that most respondents would visit the customer care desks in the banking halls.

Interaction with WhatsApp Customer Service Chatbot in banking transactions

Table 4: Distribution of respondents' interaction with WhatsApp Customer Service Chatbot

Responses	Frequency	Percentage
Do you interact with the WhatsApp customer service chatbot provided by commercial banks in Nigeria?		
Yes	61	44.9
No	75	55.1
Total	136	100.0
Frequency of respondents' interaction with the WhatsApp customer service chatbot		
Never	75	55.1
Once in a week	4	2.9
More than once a week	5	3.7

Less than twice monthly	27	19.9
More than twice monthly	12	8.8
Most days	2	1.5
Not Sure	11	8.1
Total	136	100.0

The data in Table 4 suggest poor usage of WhatsApp customer service chatbots among those aware of the services. Furthermore, the result shows inconsistency in service usage.

Table 5: Distribution of respondents' intention to interact with the WhatsApp customer service chatbot in the next three months

Variables	Frequency	Percentage (%)
(0) Not applicable	61	44.9
Yes	28	20.6
No	20	14.7
Not sure	27	19.8
Total	136	100

The result in Table 5 depicts negative behavioural intention towards the adoption of WhatsApp customer support chatbots in the future. Thus, low usage of the customer service chatbot among the sampled population may persist.

Table 6: Distribution of respondents' visit to customer care desks in the banking hall

Variables	Frequency	Percentage (%)
Yes	107	78.7
No	29	21.3
Total	136	100
How often do you seek assistance from customer care officers in the banking halls?		
Never	29	21.3
Rarely	29	21.3
Neutral	0	0
Occasionally	42	30.9
Very frequently	36	26.5
Total	136	100

The data in Table 6 illustrate a high level of customer usage of the traditional customer service model even though they do so less frequently. Hence, awareness of the digital customer service on the WhatsApp platform did not dissuade the respondents from using the traditional model of seeking customer support.

Perceived usefulness of WhatsApp Customer Service Chatbot

Only sixty-one (61) respondents who have interacted with the WhatsApp customer service chatbot responded to the items relating to this research question. The result is presented in Table 7.

Table 7: Distribution of respondents' perceived usefulness of WhatsApp Customer Service Chatbot

How useful is WhatsApp customer service chatbot reducing the stress of visiting the bank to make inquiries regarding your bank account?		
Not Useful at all	27	44.3
Not very Useful	15	24.6
Neutral	3	4.9
Somewhat useful	6	9.8
Extremely useful	10	16.4
Total	61	100

Table 7 suggests the low level of perceived usefulness of WhatsApp customer service chatbot in reducing the stress of visiting the customer care agents in the banking halls. This implies that chatbots have not been useful reducing stress and time spent on customer inquiries in the banking halls.

Customer satisfaction derived from the performance of the WhatsApp Customer Service Chatbot

Only sixty-one (61) respondents who have interacted with the WhatsApp customer service Chatbot responded to the items relating to this research question. The result is presented in Table 8.

Table 8: Distribution of respondents' perceived level of satisfaction with the performance of the WhatsApp customer service Chatbot

Variables	Frequency	Percentage (%)
How much are you satisfied with the services provided by WhatsApp customer service chatbot?		
Very dissatisfied	11	18.0
Dissatisfied	10	16.4
Unsure	11	18.0
Satisfied	17	27.9
Very satisfied	12	19.7
Total	61	100
How appropriate is the information accessed from interaction with the WhatsApp customer service chatbot?		
Absolutely inappropriate	9	14.7
Inappropriate	11	18.0
Neutral	7	11.5
Appropriate	14	23
Absolutely appropriate	20	32.8
Total	61	100

What is the chance that you can refer someone to use the WhatsApp customer service chatbot instead of visiting the customer care officers in the banking halls?		
Extremely unlikely	11	18.0
Unlikely	5	8.2
Neutral	4	6.6
Likely	18	29.5
Extremely likely	23	37.7
Total	61	100

Data in Table 8 show that a little below half of the sampled respondents are satisfied with the performance of the customer service chatbot. However, >50% of the study participants indicated that information provided by the virtual banking assistants are appropriate, and the majority (>60%) of the respondents would likely refer someone to use chatbot rather than visiting the customer care desks in the banking halls. Hence, it could be inferred that the perceived satisfaction with chatbot performance is above average.

5. DISCUSSION

Findings from the study suggest a low level of awareness and usage of WhatsApp customer service chatbot among the sampled respondents. This finding contradicts Shanthi and Pavithra (2020) report of a high level of awareness and use of banking chatbot technology in India. However, the finding aligns with Singh and Singh (2019) claim that awareness of banking chatbot is low among bank customers and even among bank employees in India. The result also confirms earlier reports about low awareness and use of WhatsApp banking chatbot in Nigeria (Udeze et al., 2017; Ogunfuwa, 2020). Therefore, low awareness is a major limitation to chatbot usage in Nigeria.

Another remarkable finding of this study is the preference of customer care officers in the banking halls over customer service chatbots. This result refutes the previous submission by Cardona et al., (2019) that the majority of the participant would prefer to use a chatbot for insurance transactions in Germany. However, the finding substantiates the earlier claim that a human customer service agent scores a higher mean when compared with a bot when decision process stages are not taken into consideration (Brühöfner, 2021). Chatbots perform better in responding to simple inquiries but are unable to decipher unusual or complicated queries (Hjerpbakk et al., 2021). Thus, a chatbot cannot respond to all customer queries. More so, scepticism about data

privacy does not permit chatbot services in banking to thrive (Nordheim, Følstad & Bjørkli, 2019; Lappeman et al., 2022). Hence, the preference of humans for bots. The finding confirms that human service employees could complement bot services for optimal user satisfaction. Therefore, human customer service officers would never go extinct, at least not in the next decade.

The findings of this study also suggest a low level of perceived usefulness of chatbots in reducing stress and time of visiting customer care desks in banks. This could be associated with the negative behavioural intentions to use WhatsApp customer support banking chatbot in the nearest future as perceived usefulness has been identified as one of the factors that predict acceptance and intentions to use banking chatbot in diverse contexts (Richad et al., 2019; Alt, et al., 2021). More so, response time impacts bank customers' satisfaction with customer care services (Azumah, et al., 2021). Therefore, the low perceived usefulness of chatbots in reducing stress and time spent visiting customer care desks in banking halls may also negatively affect customer satisfaction with chatbot technology among the sampled population. Thus, poor usage of chatbots among the study population may persist in the future.

Remarkably, the perceived satisfaction with the chatbot's performance is above average. The finding is in tandem with Bhatti's (2019) report that the majority of customers that interacted with banking chatbots in Kenya had a positive experience. Even though the factors that contribute to customer satisfaction in this study, Eren (2021) report that perceived performance, perceived trust and corporate reputation positively influence customer satisfaction with chatbot whereas Zainol et al., (2023) found that response time, usability and adaptability, empathy and responsiveness to chatbots have insignificant influence on customer satisfaction.

The results of this study confirm the assumptions of the Technology Acceptance Model (TAM). True to the theory, attitude towards chatbots is predicated on the level of awareness and acceptance of the application. The results highlight the importance of banking chatbots awareness as the construct has an indirect effect on usage intention through perceived usefulness. The data suggested a low level of awareness about chatbot technology among the selected bank customers, therefore, it is only reasonable that there will be poor usage of chatbots among the study population. Hence, the need for more public enlightenment in this regard.

6. CONCLUSION

As more business entities adopt digital customer support services through chatbot technology, awareness and adoption of this technology have become issues of concern. This study concludes that students' awareness and use of customer support banking chatbot are low. WhatsApp customer service chatbot solution is yet to be perceived as a viable platform for customer support in banking operations and the perceived usefulness of chatbot in reducing stress and time of visiting customer care desks in the banking halls is still low. However, perceived satisfaction derived from its performance in solving customers' inquiries is above average.

Based on the conclusions drawn, the study recommends that;

- i. Commercial banks in Nigeria should embark on substantial public awareness campaigns to educate existing and potential customers about the existence of chatbots/virtual customer assistants as a customer service option.
- ii. The benefits of the customer support chatbot's services should be highlighted in public awareness campaigns so that existing and potential customers will understand what they stand to gain from such services.
- iii. Incentives such as internet data, cash tokens, gift cards, or bonuses should be offered to customers as motivation to use the customer support chatbots.

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