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CONCEPTUALIZING AI-CHATBOT APPLICATION AS AN E-SERVICE AGENT TO DEVELOP A CUSTOMER-BRAND RELATIONSHIP

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Research Paper

Abstract: *In the current modern age, Artificial intelligence (AI) chatbots becomes an important part for online shopping through providing a prompt response to the customers. Along with this increasing expansion, there are still limited studies available especially with respect to customer brand relationship. Therefore, this research aimed to explore the AI chatbots application as an e-service agents (interaction, perceived enjoyment, customization, and problem-solving capabilities) and their impact on customer brand relationship through increasing positive attitude of customers. For this purpose, this study also employs the Technology Acceptance Model (TAM) two indicators perceive ease of use and perceived usefulness to clarify how the distinct characteristics of chatbots influence customer-brand relationships. For this purpose, studies data were collected from the extant published papers from both of theoretical and empirical perspectives. Using the A-B-C model, which includes cognitive (thinking), affective (feeling), and behavioral (doing) components, the conceptual model examines various external factors namely interaction, perceived enjoyment, customization, and problem-solving capabilities have positive and significant relationship with perceived ease of use, perceived usefulness, attitude and customer brand relationship. Perceived usefulness and perceived ease of use also have significant relationship with attitude and customer brand relationship. The study also identifies the affective component of attitude as a key predictor of customer-brand relationship outcomes. Study with this relationship, contributes significantly to theoretical frameworks and offers valuable managerial insights. It emphasizes the importance of incorporating personalization into e-service agent marketing strategies and the critical role of affective attitudes in establishing emotional connections with customers through chatbot interactions. The paper provides significant managerial implications for businesses to improve customer brand relationship through improving strategic planning by incorporating affective attitudes*

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in AI chatbots.

Keywords: *E-service agent, TAM model, Affective attitude, Customer-brand relationship, AI chatbot*

1. Introduction

In the current competitive environment, chatbots becomes an important part for online shopping through providing a prompt response to the customers, and guiding to the users by purchasing process (Luo et al., 2022). This can increase the experience of the customers that can increase the sales of the companies focusing more on brands (Lee, 2023). Furthermore, chatbots could gather valuable data on customer preferences and behaviour, enabling companies to optimize their marketing strategies and product offerings for better performance in the competitive online marketplace (King, 2023). With this significance, artificial intelligence (AI) chatbot has completely changed how companies communicate with their customers online (Lee et al., 2023). During their initial versions, first-generation chatbots provided simple, preprogramed responses, which frequently annoyed users due to their restricted functionality. AI chatbots has fundamentally changed customers interactions with brands (King, 2023). Modern chatbots use machine learning algorithms to comprehend natural language, pick up on interactional cues, and respond with responses that are more appropriate for the given context (Kietzmann & Pitt, 2020). They can respond to intricate questions, provide product recommendations, and even act out dialogues that resemble those of a human. Customers increasingly turn to internet tools like AI chatbots for information, shopping decisions, and brand selection (Dearing, 2021). Figure 1 shows how the AI chatbot has been worked into the customer service area.

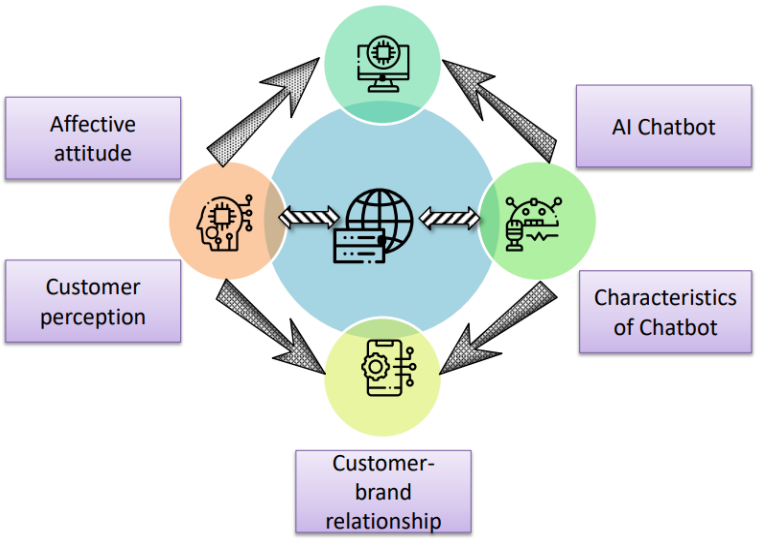

Figure 1: The AI chatbot working mode

Xia et al. (2023) studied bibliometric analysis in context of service marketing with chatbots and only found 571 pieces of work from 2005 to 2022. Despite chatbots are

a reasonably new concept, customers expect AI chatbot to provide quick and accurate response to their queries. Customers appreciate when AI chatbots can personalize their interactions based on past interactions or customer data. They want AI chatbots to be easy to use and navigate and remember their preferences and provide tailored entertainments, recommendations or solutions which increases the customer brand relationship (Lee et al., 2023). Literature found that customers positive attitude towards the brands can increase the customer brand relationship (Hwang et al., 2021). When the brands presented in genuine way, and responsiveness for the customers it could increase the customers feeling of trust, and satisfaction. This positive attitude through the lens of the Technology Acceptance Model (TAM), two key indicators, perceived ease of use and perceived usefulness, are vital in enhancing the positive attitude (Al-Gasawneh et al., 2022). Various studies found that TAM indicators can increase the positive attitude of the customers which could increase positive attitude that could increase customers brand relationship (Al-Gasawneh et al., 2022; Saparudin et al., 2020).

TAM factors namely perceived ease of use and perceived usefulness could manifest in various forms, such as proactive problem-solving, personalized interaction, tailored customization, and providing enjoyable experiences (Huang, 2020). These actions not only address customer needs but also demonstrate a commitment to their well-being and satisfaction, strengthening the emotional connection between the customer and the brand (Huang, 2020). Proactive problem-solving initiatives by the brand can enhance perceived ease of use by streamlining processes, reducing complexities, and ensuring seamless interactions for the customers (Dahri et al., 2024). Similarly, personalized interaction and customization efforts contribute to perceived usefulness, as customers perceive the brand's offerings as tailored to their specific needs and preferences, thereby adding tangible value to their experiences (Algahtany, 2023). Furthermore, the integration of elements that evoke perceived enjoyment, such as gamification or interactive features, not only enhances user experience but also positively influences the overall perception of the brand, reinforcing the customer-brand relationship (Dahri et al., 2024). Through increasing the attention on these aspects, brands could increase the favourable environment where not customer feel easy to find in brand but also feel enjoy which could lead to increase the attention of customer toward customer brand relationship (Dahri et al., 2024; You et al., 2021) which increase the company's market shares in customers.

Therefore, this study focused on the adopted model of Technology Acceptance Model (TAM) Davis (1989) in exploring how the Chabot's four characteristics namely interactions, problem solving, customization and perceived enjoyment influence customer-brand relationship. In addition, individual attitude for with respect to particular object towards the customer brand relationship is also important (Ajzen & Kruglanski, 2019). Thus, this study also incorporates customer attitude to explain why the chatbot can lead to a successful customer-brand relationship. According to the a-b-c model Breckler et al. (1985), attitude is represented by three components: cognitive (think), affect (feel), and behaviours (do). Thus, this study proposes that the characteristics of the chatbots (as a focal object of interaction) shape customers' perception towards the chatbots, represented by perceived ease of use and perceived usefulness from TAM. They also influence how customers feel about the chatbots, represented by affective attitude, which leads to the customer-brand relationship as a

behavioural intention towards the brand. Keeping in previous discussion, this paper explores the application of AI chatbots as e-service agents and their critical role in developing customer-brand relationships. To achieve the overarching goal of this article—examining how a brand can develop a chatbot to enhance its customer-brand relationship—researchers have framed the research questions as below:

1) How can a chatbot facilitate the development of customer-brand relationships?
2) How do specific dimensions of the chatbot affect customers' perception towards the use of the chatbot?
3) How do customers' perceptions towards the chatbot induce their affective responses?
4) What is the role of customer attitude towards the chatbot in customer-brand relationship development?

The study contributed with the research objectives in different ways. At first, in the current study, researchers integrating the A-B-C model, which includes cognitive, affective, and behavioural components, providing a nuanced understanding of how various external factors influence customer perceptions to build customer-brand relationship. Specifically, factors such as interaction, perceived enjoyment, problem-solving and customization play crucial roles in shaping affective attitudes, which in turn drive customer brand relationship. At second, extending TAM to the context of AI chatbots, researchers offer a robust framework for understanding how these technologies can be leveraged to enhance customer-brand relationships. Besides, this research also expands the body of knowledge on customer-brand relationship by assessing itself (commitment, brand trust, and satisfaction), antecedents (i.e., e-service agent market effort, TAM model, and attitude) in the AI chatbot. However, the existing literature still lacks the whole picture of the factors which may affect the current situation of the customer-brand relationship in the AI chatbot. At third, integrating TAM indicators such as perceived ease of use and perceived usefulness, alongside factors like problem-solving, interaction, customization, and perceived enjoyment, this model provides a good mechanisms through which brands could increase deeper connections with their customers, laying the foundation for future research and practical applications in brand management and consumer engagement strategies.

The study was further divided into further four chapter, literature review where both of theoretical and empirical literature review were covered. Research methodology where covered the methods of data collection. Results and discussion were discussed in next section and supported results with relevant findings. Implications were discussed at the study end where both of theoretical and practice implications were discussed.

2. Literature review

2.1 Conceptual Model of AI chatbot

A brand is essential for marketing and business strategies, and establishing a strong brand is also the key to success for a business. According to Khamitov et al. (2019), employees are instrumental in increasing the development of the customer-

brand relationship. However, the internet and social media rise has transformed customers' expectations for communication with each other and brands (Ghaniabadi, 2024). AI applications have provided businesses with various marketing capabilities, including automating brand communication (Kumar et al., 2024). Customers perceive their interactions with AI chatbots as similar to those with service providers (Li & Shin, 2023), improving brand communication efforts and outcomes (Ghaniabadi, 2024). Hence, like human service agents, AI chatbots or e-service agents can facilitate the development of the customer-brand relationship.

As customer relationship through chatbot is an important perspective, it is generally accepted that customer-brand relationship is a multi-dimensional construct. For instance, Cheng and Jiang (2022) view customer-brand relationship as a construct represented by commitment, self-connection, intimacy, and satisfaction. This conceptualization of customer-brand relationship has then been adopted by several recent studies (Kim et al., 2016). Thus, this research studies CBR as some sub-dimensional constructs, represented by three dimensions: 1) satisfaction, 2) trust and 3) commitment. Ever since other studies have looked at what defines satisfaction, but it has consistently gone back to the initial definition, suggesting that how well performance and expectations are met is measured by satisfaction (Hole et al., 2018) view brand trust as being reliable and honest. The concept of trust in AI is, indeed, not limited to the intention towards technology adoption, but also on brand trust (Siau & Wang, 2018). Since AI chatbot is a new technology, customers may experience uncertainties. In general, satisfaction, brand trust, and commitment are worth studying in CBR as the constructs can explain the relationship between the brand and customers. Therefore, the researchers propose that the satisfaction, brand trust and commitment that customers have towards the AI chatbot are key constructs explaining customers' relationship with the AI chatbot.

The positive attitude of the customer towards the brands could increase the customer brand relationship. When there is displaying a proper care and responsiveness to their customers, it increase the trust level and satisfaction (Choung et al., 2023). This positive attitude can evident in various forms, such as proactive problem-solving, personalized interaction, tailored customization, and providing enjoyable experiences (Chocarro et al., 2023). These actions not only address customer needs but also demonstrate a commitment to their well-being and satisfaction, strengthening the emotional connection between the customer and the brand (Chocarro et al., 2023). Therefore, this study demonstrates that when customers have a positive belief about the AI chatbot, they are more likely to positively evaluate the brand. This, in turn, leads to their intention to develop and/or maintain a relationship with the brand.

Moreover, through the lens of the Technology Acceptance Model (TAM), two key indicators, perceived ease of use and perceived usefulness, are vital in enhancing the customer-brand relationship. The TAM model is most frequently utilized in various research investigations (Venkatesh et al., 2003). TAM's primary goal is to predict how consumers will embrace new technologies and to raise attention to problems in information system before widespread adoption. The TAM is cantered on two key constructs: perceived usefulness and perceived ease of use. For AI chatbots, perceived usefulness (how beneficial users perceive the chatbot to be) and perceived ease of use (how easy it is for users to interact with the chatbot) are crucial factors influencing

user acceptance. The original TAM focuses on these factors, which align with the central concerns of AI chatbot adoption. Therefore, the researchers adopted the original TAM model of perceived ease of use and perceived usefulness to form as the foundation. Researchers have created several models (Davis, 1989; Venkatesh et al., 2003) over the last few decades to comprehend the characteristics of the technology. The efficacy of these models for numerous information technology-based applications has been repeatedly tested (Mun et al., 2006). The TAM model indicators are shown in Figure.2 below,

Based on the previous study and conceptual theories, the researchers expect to extend TAM models in the AI chatbot context by including service agent marketing effort as an external factor explaining how customers perceive the AI chatbot. The study also hypothesizes, based on TAM frameworks, that users' perception of the AI chatbot in relation to its ease of use and usefulness facilitates the development of a customer-brand relationship through their attitude. Figure 3 depicts the constructs and the relationships under investigation in this study.

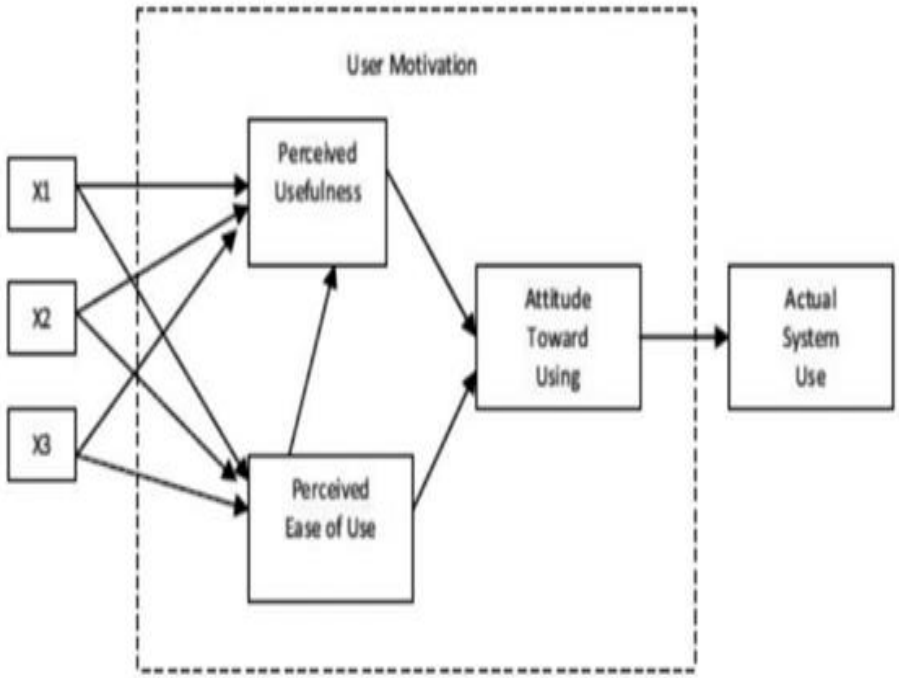

Figure 2: Original Technology Acceptance Model (Davis, 1989)

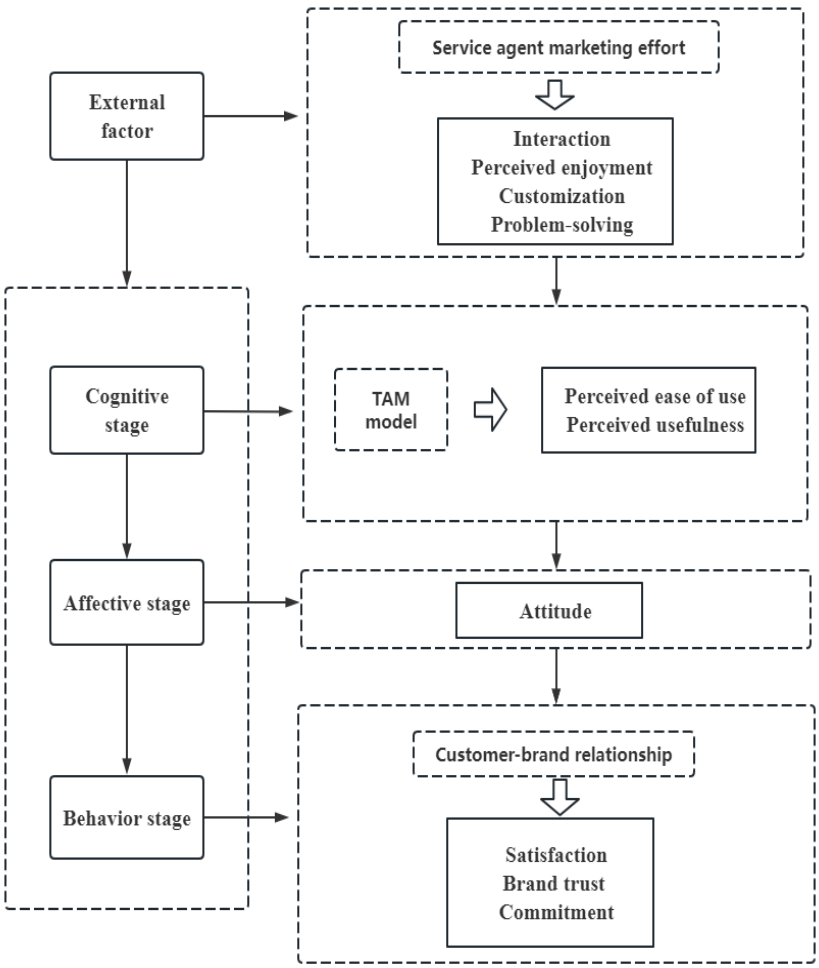

Figure 3: Conceptual Model of AI chatbot

2.2 Characteristics of AI chatbot influence on technology adoption

In the past, service agents relied on employees to help build relationships with customers. In many companies, service agents are to address customers' issues and solve the problems for their customers. Many causes have contributed to unprecedented challenges in the service sector, including intense worldwide rivalry, rapid technology change, and more mature client expectations (Reig et al., 2020). With the evolution of AI, many service organizations have integrated AI chatbots as part of their communication strategy to increase competitiveness, differentiation, and performance in the digital landscape. With AI chatbots, service organizations can provide essential marketing efforts, such as customization and influencing customer decisions (Gautam & Sharma, 2017). There are various AI chatbot dimensions has been discussed in the extant literature. Among those interaction, problem solving, perceived enjoyment, and customizations are important characteristics for the AI chatbots which are discussed in next section.

2.1.1 Interaction with TAM model

Interaction is the first dimension, and it represents online contact between customers and AI chatbots via the internet. Currently, a chatbot has used up to one-third of online conversations; the amount of use is predicted to rise (Shumanov & Johnson, 2021). Compared with human service, Chung et al. (2018) has mentioned that chatbot can change the business industry through two-way communications. Reig et al. (2020) argued that AI chatbots using machine learning gain more competence throughout their customer interaction. Furthermore, past studies (Alassafi et al., 2022; Taufik & Hanafiah, 2019) have identified interaction as a key external factor that influences user perceptions of new technology. For example, Alassafi et al. (2022) discovered that when users perceive interactions as human-like, their perceptions of the ease of use and usefulness of e-learning systems can encourage continued usage. Indeed, they reasoned that the good interaction between the students and e-learning system can encourage continued usage. Similarly, customers seek interactions during their service consultation. When customers encounter a new technology, such as a self-check robot service, human-like interaction enhances their perception of its ease of use and usefulness (Taufik & Hanafiah, 2019), thus facilitating adoption of the new technology. In addition, the interactive and two-way communication between customers and computer-mediated communication, such as a chatbot, leads customers to positively evaluate the technology's ease of use and usefulness (Lee et al., 2013). Furthermore, researchers have found that past studies Ladhari et al. (2020) indicated that when customers perceive their interactions with e-service agents such as AI chatbots to be courtesy, responsive, knowledgeable, and close to those with a human agent, they enjoy the interactions and find their interactions useful for their purchasing decision process.

2.1.2 Perceived enjoyment with TAM model

Perceived enjoyment is another key facet of the AI chatbot. The perceived enjoyment is developing for many years. Perceived enjoyment, adapted from Davis et al. (1992) in the context of a website, refers to the extent to which using a computer is considered enjoyable, irrespective of any potential performance outcomes. In the AI chatbot context, customers engage with a chatbot for hedonic values, such as pleasure and enjoyment. Cheng and Jiang (2022) found enjoyment to be crucial in determining customer's participation with a chatbot service. When entertained, customers are engaged with their interactions with the AI chatbot to carry out the tasks they are looking for. Thus, if the companies can provided with appropriate opportunities to assist with their customers, the customers will increase enjoyment (Hsu et al., 2023). Pillai et al. (2020) have identified that the interaction between the chatbot and customers should be entertaining. In particular, since AI chatbots learn to simulate a human conversation due to their adjustability to the collected data, customers are likely to perceive their interaction with the chatbot, including the information obtained, as entertaining (Ramzan et al., 2023). Furthermore, perceived enjoyment has also been considered a key factor in explaining customers' technology acceptance on the internet in various settings (Abzari et al., 2014) Empirically, Abzari also suggested that perceived enjoyment also played an important role to influence the learning process easily that can increase their interest in learning. Furthermore, the positive impact of perceived enjoyment on perceived ease of use has been observed in

other contexts, such as mobile banking and social robots (Limakrisna & Moeins, 2024). Limakrisna and Moeins (2024), for example, found that a mobile banking interface can capture users' attention when using an online banking system that increase relationship towards companies through improving attitude. Thus perceived enjoyment is crucial in a digital landscape.

2.1.3 Customization with TAM model

Another important dimension of AI chatbots is customization. Customization is defined as the process of adapting a product or service to meet the specific tastes or requirements of an individual or organization (Cheng & Jiang, 2022) which has been studied in different fields. For AI chatbots cater to each chat smoothly without requiring human supervision (Choung et al., 2023). Indeed, the best and most efficient customization the AI chatbots provides is the ability to recommend products that fit user preferences. Since customization positively affects customer satisfaction Ding and Keh (2016), AI chatbots with the ability to customize to individual customer interaction can improve customer satisfaction with the brand. In other words, customization is also discussed as another external factor to explain technology adoption in various contexts such as mobile banking (Albashrawi, 2021). For example, customization has been found to substantially impact perceived usefulness and ease of use in online retailers (Bhatti & Bauirzhanovna, 2023). Joshi et al. (2021) studied that the advanced technology in the retail customized the young customers' perceived ease of use and perceived usefulness in electronic retailing. Albashrawi (2021) also found in mobile banking that when customers perceive that the digital transaction system can be customized to fit their mobile banking behaviour, they become familiar with the system. As a result, customers perceive the system to be easy to use Wijaya et al. (2021) and they find their experience in using the mobile banking system becomes useful (Lee et al., 2023). Therefore, customization is necessary to keep in AI chatbots.

2.1.4 Problem-solving with TAM model

Problem-solving is another critical dimension of AI chatbots. Problem-solving defines a problem and determines its primary cause, choosing potential solutions, and putting those solutions into action to help customers (van Aken & Berends, 2018). Likewise, AI chatbots can relieve the pressure of any organization with their ability to handle the basic questions and issues customers have independently. They can be created using AI to filter customers' enquiries and difficulties, allowing them to quickly offer a set of diagnostic questions to characterize the problem type. The problem solving in technology adoption across various sectors can influence customers' perceived ease of use and perceived usefulness. Empirically, Lin (2019) further found that problem solving positively influence to the perceived usefulness and perceived ease of use within in the innovative online learning application. In the same vein, other authors also found that AI chatbot becomes an important indicators through providing too much solutions in influencing the customer behaviour to adopt (Sheth et al., 2019). This is because AI chatbots support a new layer function to solve customers' problems and influence their perception of the new technology. As a result, this adoption of the technology the customer brand relationship can be increase. Therefore, it could be argued that these indicators are important to increase the customer brand relationship.

2.1.5 Perceived ease of use on customer attitude towards AI chatbot

Due to the increasing popularity of online shopping, firms are constantly seeking new technologies to enhance customers' online brand experiences. Some authors have found that a system will be adopted if its use is seen to offer direct benefits to the user (Rahmi et al., 2018). In other study, Rose and Fogarty (2006) also found that perceived ease of use directly affect the attitude toward intention to use self-service systems. They found that when customers perceive ease of use with a self-service system in mobile banking, they develop a more positive affective attitude, particularly because of the faster response times compared to human workers. This, in turn, significantly influences perceived ease of use and citizens' affective attitudes toward their behavioural intention to use the service. Gunawan et al. (2019) stated that in e-commerce, when customers perceive ease of use with a chatbot, they are more likely to have a positive attitude toward using the service. Therefore, it could be argued that perceived ease of use becomes an important indicator to increase the customer attitude to increase the customer brand relationship.

2.1.6 Perceived usefulness on customer attitude towards AI chatbot

Many studies have examined the relationships between perceived usefulness and attitude in e-commerce. For instance, Gunawan et al. (2019) noted that customers are willing to use their mobile to purchase products in e-commerce applications when the application is more beneficial to operate. This is because the perceived usefulness of e-commerce can positively influence an individual's affective attitude toward the new technology. Customers adopt the useful mobile banking system, which can significantly influence their affective attitude to continue using it (Li & Shin, 2023), Further have also demonstrated that customer-perceived usefulness can reinforce good performance and benefits such as positive attitude. Not only will customers be positively be impacted by perceived usefulness but also workers. This positive attitude towards the technology is influenced by the perception of its usefulness (Ghaniabadi, 2024). Furthermore, several studies have assessed the impact of perceived usefulness on customers' attitudes toward chatbots. For example, Soares et al. (2022) found significant positive effects of perceived usefulness on attitudes toward using chatbots as digital assistants in e-commerce sites. They argued that customers are more likely to develop an affective attitude toward the chatbot service if they perceive it as more valuable. Therefore, it could be argued that perceived usefulness becomes an important indicator to increase the customer attitude to increase the customer brand relationship.

2.1.7 Attitude and CBR toward AI chatbot

Attitude has been considered an essential variable in bridging the technology adoption and customer-brand relationship in this research, especially for the second stage of affective attitude. Based on the literature review, attitude has three stages which are cognition attitude, affective attitude, and behaviour attitude. According to the ABC model, affective attitude can boost brand reactions from consumers. As a result, past studies have been studying customers' affective attitudes influence customer-brand relationships in many contexts such as advertisement, social media (Abzari et al., 2014), and hotel industry (Nguyen et al., 2022). For instance, with the rise of social media, recent studies have also identified the effect of communication on

customer attitude toward a brand. Besides, (Lin & Wu, 2023) studied self-service and found that customers' attitude towards mobile banking system impacts on the customer-brand relationship. They reasoned that customers have a preference to use the self-service, because it can satisfy their needs. Furthermore, Nguyen et al. (2022) said that customers' attitude towards the AI chatbot easily influences customer-brand relationship in the hotel industry. They reasoned that many hotels tried to use AI technology to increase efficiency to satisfy their customers' attitude.

Keeping in attention previous literature review, it could conclude that customer brand relationship consisted of three different dimensions namely satisfaction, brand trust, and commitment. For example, Jin and Youn (2023) found that affective attitude influences brand satisfaction toward the AI chatbot. The affective attitude contributing to how people feel about a chatbot was examined by (Han et al., 2018).They found that a positive hedonic experience is crucial to forming an attitude, affecting brand satisfaction, trust, and commitment. According to Bergner et al. (2023), when applied to a branded chatbot, the attitude as an emotional response to the shopping experience predicts long-term brand commitment. They advocated that making consistent efforts towards developing a satisfying experience is the outcome of customer attitude. Similarly, many firms will aim to enhance customers' favourable attitude of their brands in order to increase customer satisfaction (Kim et al., 2016).

Furthermore, the attitude theory also mentioned in literature review and stated that an individual behaves in ways that are aligned with his/her attitude. According to Lin and Wu (2023), perceived ease of use and perceived usefulness representing individuals' beliefs regarding the technology, are considered a cognitive component of their attitude. The positive belief towards a technology then leads to their affective attitude, which results in an adoption of the technology. Also, Ahn and Back (2020) mentioned that affective attitude can lead customers to build a long-last relationship with this brand. This is because the affective attitude enhances the bonding with the brand.

Combining these hypotheses, a model is given to show how external factors affect how customers perceive the TAM and HRI models. This study emphasizes the impact of consumer attitudes on the customer-brand relationship. Fig. 4 presents this model.

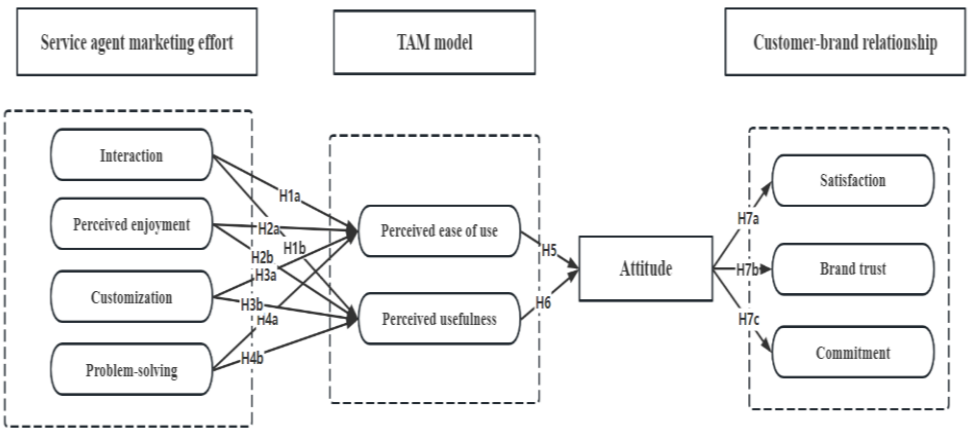

Figure 4: the proposal hypotheses of the AI chatbot

3. Research Methodology

The research employed research methods involves to conduct a literature review from both of theoretical and empirical perspective. This methods is considered to be identifying and interpreting the existing researches which are relevant to the research topic. This could help to provide e comprehensive understanding of the knowledge in the relevant field (Jayawardena et al., 2023). The theoretical literature review consists of established theories and concepts, while empirical literature review focuses on analysing data and findings from previous studies. This dual approach enables researchers to not only summarize existing literature but also to identify patterns, trends, and gaps in knowledge. Through critically evaluating a wide range of sources, researchers can build a strong theoretical foundation and formulate research questions grounded in existing evidence (Reyes et al., 2023). Furthermore, this research methodology could also increase the credibility and validity of the study findings which could contribute to in enhancing knowledge within the field. Therefore, study has formulated this research methodology. The conceptual model development literature review process has been formulated in Figure.4 below.

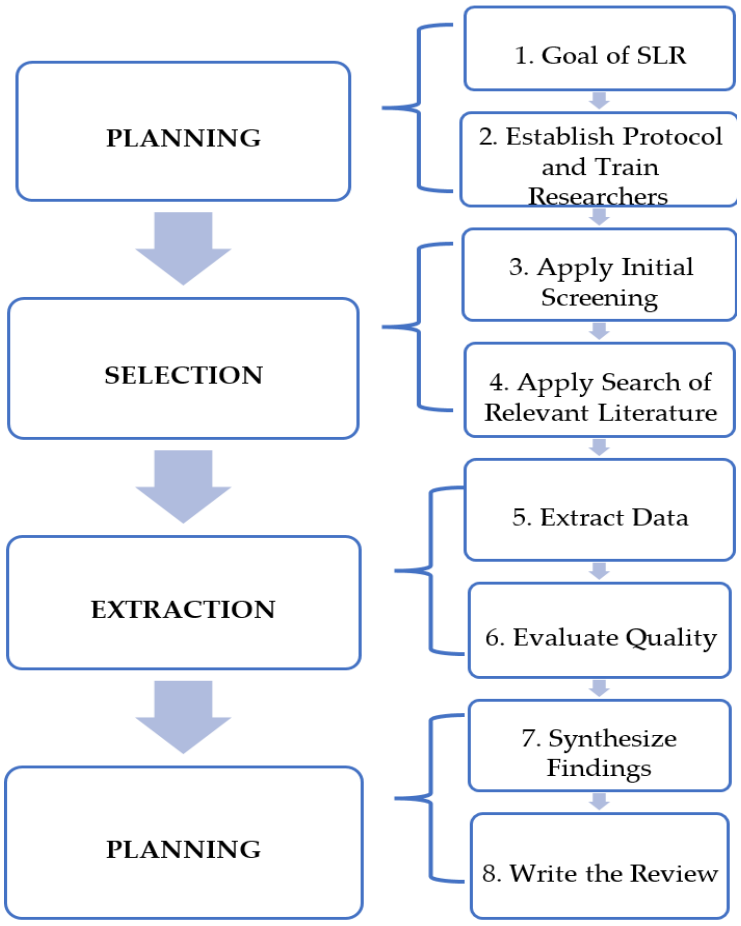

Figure.5: The phases and steps in conceptual framework Development

4. Results and Discussion

The behavioural expression represented by customer-brand relationship, reflecting the behavioural response to the experiences customers have with the AI chatbot employed by a particular brand. This shown that when the customers have positive attention in their attitude towards the AI chatbot that increase the customer brand relationship. Therefore, this research aimed to explore the AI chatbots application as an e-service agents (interaction, perceived enjoyment, customization, and problem-solving capabilities) and their impact on customer brand relationship through increasing positive attitude of customers. Through employing the TAM), researchers examined how specific characteristics of AI chatbots, such as interaction, perceived enjoyment, customization, and problem-solving abilities, influence customer perceptions and attitudes. These findings identified that e-service agent market effort are comprised of perceived enjoyment, customization, interaction, and problem-solving which influence the TAM indicators, which supported by (Lewis et al., 2019) research that AI tools is good platform who perform both functional dimensions and relationship dynamics in service. Consumers emotionally anticipated that marketers would make their online encounters enjoyable or entertaining (Fernandes & Moreira, 2019). These findings shown that chatbot characteristics are important indicators to improve the Perceived ease of use and perceived usefulness.

The results also shown that perceived ease of use and perceived usefulness are important indicators to increase the positive attitude of the customers towards AI chatbots. These results are consistent with prior TAM research (Davis, 1989). These findings TAM model extension for incorporating external factors emphasized the effect of chatbot features on use positive attitudes. In the same vein, Al-Adwan et al. (2023) further demonstrated that the TAM model, particularly in terms of perceived ease of use and perceived usefulness, positively influences students' attitudes toward using applications for online studying. These findings align with previous TAM studies, consistently emphasizing these constructs as pivotal in technology acceptance. In the context of AI chatbots, perceived ease of use ensures that customers find the technology approachable and user-friendly, while perceived usefulness reinforces the value that chatbots bring to customer interactions. Due to this research, the study uses AI chatbot as the new technology which is necessary to keep the perceived ease of use and perceived usefulness in this study. Also, customers' trust in robot is also critical when using the AI chatbot service. Therefore, these distinctive perspectives, such as offering clients practical features via mobile messaging apps, have expanded the body of evidence from clever responses (Hohenstein & Jung, 2020). Therefore, it could be argued that customers' perception (eg. perceived usefulness, perceived ease of use, and perceived trendiness) of using AI chatbot is also important.

Moreover, researchers reveals that the affective component of attitude is a significant predictor of customer-brand relationship outcomes. Comparing with Ajzen and Kruglanski (2019), they found that attitude has positive influence on the customer-brand development into the chatbot. This discovery emphasizes the importance of attitude in technology-mediated interactions. For this purpose, study enriches the theory of attitudes using A-B-C model which are comprised of three components: affective, behavioural, and cognitive components (Ajzen & Fishbein, 1975). Further results shown that attitude serves to bridge TAM model with customer-brand relationship. AI chatbot is a new technology to study and find users

attitudes which are founded on beliefs, and those beliefs, whether cognitive or affective, can influence behaviour. This model findings in previous literature shown that perceived ease of use and perceived usefulness have positive and significant impact on attitude. Therefore, these findings shown that customers' perception towards the ease of use and usefulness of the technology, as well as how they believe it is trustworthy, represents the cognitive component of attitude. This is because cognitive attitude means how customers process information about the attitude object, reflecting their beliefs and thoughts about their AI chatbot use (Eagly & Chaiken, 1993). Then, the affective component of customer attitude is represented by customer attitude in this study, representing their feelings or emotional reactions to an experience, which is then expressed through customers' actions towards the attitude object (MacKenzie & Lutz, 1989). Therefore, it could be argued that in chatbot perceived ease of use and perceived usefulness becomes an important indicators to increase the customer's relationship.

The findings literature shown that interaction has significant a positive relationship with customer brand relationship through customer trust. These findings shown that within TAM framework, interaction with chatbots playing an important role in shaping customer attitudes towards brands. In this regard, it could be explained that interactive features enhance user engagement and satisfaction, enhancing positive brand perceptions. Chatbots, through their conversational interfaces, provide opportunities for personalized interactions, addressing customer queries and needs in real-time. Studies by (Chi, 2018; Tran et al., 2023) highlight how interactive elements on digital platforms contribute to stronger brand relationships by enhancing user experiences and attitudes. Further literature results shown that perceived enjoyment also has significant and positive influence on customer brand relationship through customer trust. Findings are consistent with (Jami Pour et al., 2023; Won et al., 2023) demonstrated that how enjoyable experiences with technology lead to favourable attitudes and increased importance of perceived enjoyment in the TAM framework that could enhance customer brand relationship. Also, customization also has positive and significant influence on customer brand relationship within the TAM framework. These findings shown that Chatbots can offer personalized experiences by tailoring interactions based on user preferences and past behaviour. Studies by (Sharma, 2023; Tran et al., 2023) emphasize how customization strengthens brand connections by catering to individual needs and preferences, ultimately enhancing user satisfaction and attitudes towards the brand. Lastly, effective problem solving of chat bots is also a significant predictor for the customer brand relationship through improving attitude towards brand. These findings within the chatbot shown that in TAM model perceived usefulness and ease of use are key determinants of technology acceptance. Chatbots that efficiently resolve customer issues and queries enhance perceived usefulness, thereby improving attitudes towards the brand. Research by (Chon et al., 2022; Chon et al., 2023) emphasizes the importance of effective issue resolution in building trust and loyalty, aligning with the TAM's focus on factors influencing user perceptions and attitudes.

5. Implications

5.1 Theoretical Implications

The researchers integrating the A-B-C model, which includes cognitive, affective, and behavioural components, providing a nuanced understanding of how various external factors influence customer perceptions to build customer-brand relationship. Specifically, factors such as interaction, perceived enjoyment, problem-solving and customization play crucial roles in shaping affective attitudes, which in turn drive customer brand relationship. The theoretical contributions of this research are substantial. By extending TAM to the context of AI chatbots, researchers offer a robust framework for understanding how these technologies can be leveraged to enhance customer-brand relationships. Besides, this research also expands the body of knowledge on customer-brand relationship by assessing itself (commitment, brand trust, and satisfaction), antecedents (i.e., e-service agent market effort, TAM model, and attitude) in the AI chatbot. However, the existing literature still lacks the whole picture of the factors which may affect the current situation of the customer-brand relationship in the AI chatbot. For example, in Cheng and Jiang (2022) study, the research focuses on customer response in brand preference, brand loyalty, and purchase intention. The researchers focus on choosing a specific brand from many competing brands. Thus, our work focuses on the knowledge of CBR in AI chatbots with brand commitment, brand trust, and brand satisfaction. The findings suggest that chatbots can be used to develop customer relationships. Many marketing efforts supplied to customers, such as perceived enjoyment, interaction, customization, and problem-solving, could reach a high degree, conceptualizing customer satisfaction, brand trust, and commitment, and eventually building a relationship with the brand. This study contributed how important chatbot marketing is for digital relationship development.

5.2 Practical Implications

Practically, study could help to brand managers to understand the effects of AI on customer attitudes and in developing e-service agent marketing strategies. Customization, interaction, perceived enjoyment, and problem-solving should be specifically integrated into the business strategic decision-making process. Besides, companies must be careful to ensure that the personalization of their marketing engagement plays a significant part in influencing customers' perceptions while using chatbots to offer help and interact with their customers. Therefore, study model could help to businesses in employing chatbots to gather data about customers' preferences and provide customized services. Furthermore, creating a suitable customer-brand relationship might significantly increase customers' likelihood of reusing the service. The important role of affective attitudes in the efficacy of AI chatbots for customer perception and relationship development cannot be overstated. When AI chatbots are deliberately crafted and programmed to embody an affective attitude, AI chatbot can proficiently establish emotional connections with customers. This emotional resonance not only attracts a larger customer base but also fosters enduring relationships between the customer and the AI chatbot because an affective attitude in an AI chatbot has the potential to elevate the customer behaviour, heighten satisfaction levels, and ultimately engender customer loyalty. Hence, the deliberate

implementation of an affective attitude in AI chatbots stands as a strategic imperative, offering the prospect of expanding customer bases and fortifying enduring relationships, to the ultimate benefit of businesses. Literature also cited that managers could implement strategies to strengthen customer bonds as the connection develops (Kaufmann et al., 2020). Therefore, the study model using TAM approach could help to increase the positive attitude that could increase the customer brand relationship with the companies.

5.3 Limitations and further study

As an intelligent system of natural language interaction with humans, chatbots are widely used in customer service, information query, educational assistance and other fields. The study focused on AI chatbots within e-service contexts, which may limit to other contexts, such as healthcare, education, or entertainment. The researchers will explore the role of AI chatbots across various industries to determine if the identified relationships hold in different settings in future. Moreover, service quality and interaction experience of chatbots are also another important factors to study the customer-brand relationship with AI chatbot. Thus, the researchers would like to study the level of service quality and customers' experience for the AI chatbot in the future. As chatbots become more prevalent, users' expectations for seamless and satisfactory interactions will continue to rise. Poor service quality from chatbots can lead to frustration, dissatisfaction, and ultimately abandonment of the technology. Chen et al. (2022) applied that the service quality includes efficiency, continuous improvement, and cultural adaption. By actively studying and investing in improving the service quality of AI chatbots, organizations can meet user expectations, enhance task completion and efficiency, deliver superior user experiences, build trust and credibility, gain a competitive advantage, enable scalability and consistency, and drive innovation in this rapidly evolving field. Moreover, as chatbot interactions shape customers' perceptions of a brand, a positive customer experience with a chatbot can enhance brand reputation and foster trust. Thus, customer experiences helps businesses understand how their chatbots are perceived and take appropriate measures to maintain a favourable brand reputation. By prioritizing and continuously improving the customer experience, businesses establish themselves as industry leaders in customer service and engagement. Therefore, in the future, the researchers may include the level of service quality and customer experience in the study.

6. Conclusion

The research aimed to explore the application of AI chatbots as e-service agents and their impact on developing customer-brand relationships employing Technology TAM and the A-B-C model to understand how specific chatbot characteristics shape customer perceptions and attitudes. The objectives findings shown that perceived enjoyment, interaction, problem solving and customization significantly effect to the attitude to increase the customer brand relationship. Findings align with previous TAM research and emphasize the importance of perceived ease of use and perceived usefulness in shaping attitudes toward chatbots. Additionally, the study emphasizes the role of affective attitudes as significant predictors of customer-brand relationship outcomes, bridging the TAM model with customer-brand relationship theory. This

research contributes to a deeper understanding of how AI chatbots influence customer perceptions and attitudes, highlighting the importance of these technologies in fostering positive brand relationships. The future could be addressed on quantitative approach using survey method to increase the results strengths.

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