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Attitude and intention to use chatbots in e-commerce: the moderating role of personal innovativeness

Indah Oktaviani Hardi, Ahmad Maki, Evi Rinawati Simanjuntak
Department of Management, BINUS Business School Master Program, Bina Nusantara University, Jakarta, Indonesia

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ABSTRACT

Internet-based retailers employ artificial intelligence (AI) chatbots to facilitate customer communication. This research endeavored to evaluate consumers' intentions regarding the utilization of chatbots for customer service interactions, building upon the technology acceptance model (TAM). TAM-based chatbot adoption is the subject of an abundance of research. Conversely, the extent to which users' perception of the chatbot's response quality influences their intention to adopt remains uncertain. In addition to investigating the potential influence of chatbot response accuracy and completeness on users' intention to adopt the system, this study explored the relationship between users' personal innovativeness and adoption intention. A total of 312 usable responses were analyzed with PLS-SEM from survey data collected via convenience sampling from e-commerce customers. Perceived usefulness, convenience of use, accuracy, and completeness all influenced attitudes toward chatbots, as shown by hypothesis testing result. Attitude formation toward chatbots is most strongly influenced by perceived completeness. Personal innovativeness has a negative influence, which contradicts the hypothesis despite the fact that its moderating effect is statistically significant. Further comprehension of the key determinants of attitude towards chatbots is enhanced by these findings. It is advisable for organizations to empower the chatbot with the capability to conduct thorough and precise responses to inquiries.

Corresponding Author:

Evi Rinawati Simanjuntak
Department of Management, BINUS Business School Master Program, Bina Nusantara University
Jakarta, Indonesia
Email: esimanjuntak@binus.edu

1. INTRODUCTION

Through the utilization of information technology, artificial intelligence (AI) technology and associated products and services are gaining prevalence in society [1]. Integrating AI into media facilitates remote human communication by pushing various human activities forward. The development of AI is unquestionably accelerating. Numerous emerging technological trends, including chatbots, have enhanced recognition and admiration for cutting-edge technologies like artificial intelligence [2]. Conventional agents that replicate human communication in writing or orally are most accurately represented by chatbots [3].

Chatbots have been demonstrated to enhance the online consumer experience by providing timely service and increasing the perception of staff presence [4]. Customer service efficacy can be improved by streamlining multiple conversations involving customers through chatbots [5]. In addition to benefiting customers, enhanced relevance and a streamlined customer experience enable online businesses to communicate with consumers profitably [6]. Undoubtedly, numerous businesses' proliferation of digital

services is inextricably linked to the increasing time consumers spend online [7]. The growth and development of the internet have significantly transformed individuals' technological interactions and purchasing behaviors compared to traditional methods employed by consumers [8]. E-commerce, or electronic commerce, has been substantially broadened, profoundly affecting contemporary business practices. According to research, technology is replacing human interaction with service agents as the customer service experience evolves [9]. Online shopping is favored by consumers for purchasing products and services due to its practicality, flexibility, and extensive selection [10].

In addition to the efficiency of online platforms, particular challenges, such as ensuring quality and service, require significant time to resolve. Another crucial issue is the heightened awareness of contemporary customers regarding their rights. They seek value offerings that exceed their expectations and desire access to a wide range of goods and services [11]. Service failures in e-commerce, such as delays in delivery or receiving goods that do not match the description or are damaged, can result in consumer complaints. When customers need to voice out their concerns, they have a high expectation for prompt responses. However, call centers can only cater to some of these needs and may provide delayed responses.

Chatbots offer a viable way for organizations to enhance their ability to manage client complaints more efficiently by utilizing AI technology to deliver prompt and precise answers to consumer inquiries. They can provide automatic responses without depending on an office or store's operating hours. This enhances the value perception among consumers and strengthens a favorable image of the firm. Chatbots can rapidly and efficiently analyze information, enabling organizations to manage several client inquiries or complaints concurrently without needing extra staff.

Although many e-commerce companies already invested in chatbots, some customers are reluctant to utilize them. They may find chatbots valuable and exciting. However, they expect the response to be accurate and cover all their inquiries. Previous studies about technology adoption focus more on the benefits and ease of using the technology, but fewer studies cover the performance aspect of the technology. In addition, plenty of technology adoption studies explore the perception of what the technology can do; however, they need to consider what the user can do. This personal characteristic, however, may support or hinder the adoption, especially during service failure in which customers focus on their dissatisfaction to be handled rather than putting the eagerness to learn about the new technology as the primary focus. This study aims to analyze factors that influence customers' adoption of chatbots by looking into the role of consumers' innovativeness in modulating the relationship between attitude and intention to use chatbots in e-commerce.

One theory about technology adoption is the technology acceptance model (TAM) [12]. The model was developed further by introducing several new adoption factors and forming a Unified Theory of Acceptance and Use of Technology (UTAUT) [13]. The latest model incorporates four critical factors: performance expectancy, effort expectancy, facilitating conditions, and social influence. It also considers the moderating effect of users' characteristics such as age, gender, volunteerism in use, and experience. There are several benefits to using TAM theory in studying technology acceptance. First, it has consistent measuring instruments, empirical validity, and conciseness. Second, it explains most of the variation in intent of use. Third, its application in numerous prior studies provides a range of questions associated with each factor, thereby enhancing the reliability of the questionnaire relevance. Therefore, the TAM model has grown to be the most widely used framework for predicting the acceptance of new technologies [14].

The TAM theory states that an individual's attitude to accepting technology depends on its value. Belief in the value of this object is also cognitively related to the use of an object. Thus, an object's perceived usefulness (PU) will stimulate the intention to use it. Previous studies have empirically proven that in the technology sector, PU is a critical determinant influencing the adoption of specific technologies [15]. In other words, someone who finds chatbots useful and helps them in many ways will use this technology. Many studies show the perception of benefits as a factor that largely determines consumer attitudes toward technology and the intention of continuous use [16]. Empirical studies have confirmed that TAM constantly describes a proportion of variation in usage intent and behavior (e.g., [17], [18]). Therefore, we hypothesize:

H1: Perceived usefulness positively affects attitude toward chatbots.

The perceived ease of use (PEU) is the degree to which users believe that a particular technology or system requires less effort from users [12] and hence will be hassle-free; in other words, PEU means freedom from difficulty and complexity, simplicity, or less effort when using technological devices [19]. This concept is one of the central variables in technology adoption. PEU means people's impression of how much effort it takes to learn a new usable technology or product [20].

The positive relationship between PEU and PU has been well established; consumers will accept technology they can easily understand and use [21]. In addition, existing literature reports that PEU positively influences user attitudes and behavioral intentions to use new technologies [22]. Research confirms

the significant impact of PEU on consumer attitudes towards adopting m-commerce [23]. When customers see that m-commerce improves their shopping experience, it will create positive feelings towards them [24]. Therefore, we hypothesize:
H2: Perceived ease of use positively affects attitude toward chatbots.

When consumers think they can utilize chatbots to get precise advice on consultation, perceived accuracy is developed [25]. Therefore, applying a chatbot to obtain the desired results will increase the accuracy of the response. The empirical findings show that effective feedback will make people more likely to form positive attitudes toward chatbots. Intention to use a chatbot increases along with the accuracy of its responses, which depends on the feedback characteristics, frequency, specificity, and liking (positive feedback) [26]. The perspective of chatbots' accuracy must also be coupled with the cognitive value possessed by consumers. This means that only some things provided by chatbots will be accepted by consumers because there are cognitive values in consumers [27]. In this study, researchers argue that the principles of quality and relationships are the main symbols that need to be adopted in chatbot recommendations [28].

The relationship principle in this context is the relevance of the suitability of the products recommended by chatbots to consumer needs [29]. By providing recommendations, chatbots can help the consumer solve their problem with an order [30]. The information value of chatbot feedback increases with higher specifications as it provides more detailed information for taking corrective action [31] that can reduce response uncertainty and, therefore, provide positive attitudes toward chatbots. We hypothesize:
H3: Perceived accuracy positively affects attitude toward chatbots.

Completeness is the ability to respond to users with sufficient information on the total categories of data in an information system [25]. If consumers receive the wrong message from chatbots, this will significantly affect the credibility of the information provided to consumers. In addition, the competence of chatbots is evaluated by consumers based on a certain level and the extent to which chatbots have the skills and knowledge required by consumers. Consumers' expectations of chatbots are specific to the messages delivered so that they can provide and listen to their concerns and diagnose consumer problems [19]. Customer impressions of skills and competencies in the context of chatbot services and the effectiveness of chatbots reflect the availability of substitutes for human assistance. However, human service assistance is essential when clients have unusual or complex questions [32]. Successful customer service demands individualized recommendations. Chatbots can capture customer preferences in real-time and produce thorough personalized suggestions by collecting and analyzing customer online behavior data [33]:
H4: Perceived completeness positively affects attitude towards chatbots.

Attitude refers to a person's intention to behave in certain situations [34]. When a chatbot meets a client's basic needs, this circumstance causes customers to have a higher valuation toward the chatbot and, therefore, intent to use the chatbot. However, users' intention to use chatbots can be drastically reduced if they are unsatisfied with the dialogue or the technology [32]. In the research, attitudes are related to consumer preference towards technology adoption implemented in the perception of usability and ease of use [35]. A person's attitude forms behavioral intentions [36]. Through TAM, every individual's actions or behaviors have consequences that impact their attitude towards something. The model suggests that attitudes significantly influence individual intentions toward behavior. Therefore, we hypothesize:
H5: Attitude towards Chatbots positively affects intention to use.

Personal innovativeness is the degree to which individuals are relatively early in adopting a new idea compared to other members of their social system [37]. Personal innovativeness can include consumer profiles or preferences for new channels and experiences [38]. Diffusion of technology theory states that for technology to arrive and be accepted by individuals, it requires diffusion that stimulates individuals to adopt it over time through specific channels among social system members [39]. In addition, the characteristics of technology acceptance consist of relative advantages, complexity, compatibility, and ability to share capabilities. In short, this model attempts to explain that the way users create beliefs about the characteristics of innovation based on innovation is adopted or rejected by users [40].

Furthermore, researchers agreed that personal innovativeness drives technology acceptance [41], [42]. Innovative consumer technology will exhibit specific behavioral characteristics, such as increased achievement of information retrieval and a more objective evaluation of the technology used. Highly innovative individuals can cope with increased uncertainty, are more crisis-prone, and take more risks [43]. Therefore, personal innovativeness will impact attitudes and intentions to use new technologies like chatbots. Therefore, we hypothesize:
H6: Personal Innovativeness moderates the effect of attitude towards chatbots on the intention of use.
We draw the research conceptual model from the derived hypotheses in Figure 1.

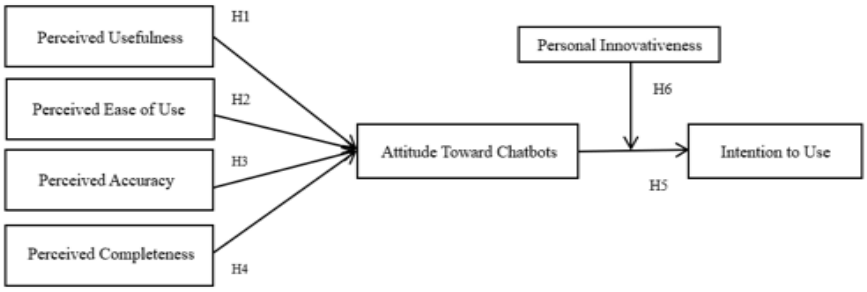

Figure 1. Conceptual model

2. METHOD

The unit of analysis in this study is e-commerce users in Indonesia who have experienced problems, such as service failures, dissatisfaction, and difficulties. The research approach uses quantitative methods, such as the survey method. Data was collected using an online survey via Google Forms and distributed via social media (Instagram, WhatsApp, Line, and LinkedIn). Respondents were filtered before filling out the questionnaire to ensure the responses came from a suitable target respondent. We used non-probability sampling (i.e., purposive sampling) to collect 312 usable responses. The questionnaire measured consumers' responses using the Likert scale. The scale ranges from 1=strongly disagree to 5=strongly agree. PU and PEU were measured with five items adopted from [12], perceived accuracy and perceived completeness were measured by five items adopted from [25], personal innovativeness was measured with five items adopted from [44], attitude is measured by five items adopted from [45], and intention to use is measured by five items adopted from [46].

The data analysis in this research uses the partial least structural equation model (PLS-SEM) method. PLS-SEM is widely regarded as the most advanced and comprehensive variance-based SEM. It employs a general approach. PLS-SEM is also recognized as a causal-predictive approach that prioritizes model prediction, which is consistent with the objective of this study, which is to determine the intention of chatbot usage. The data was analyzed in a two-stage approach using PLS-SEM. The measurement model, the initial stage, evaluates the validity and reliability of the measurement items, while the structural model, which is the second stage, tests the hypothesis. A list of the measurement items and their sources is presented in Table 1 in Appendix.

3. RESULTS AND DISCUSSION

Three hundred thirty-five responses were obtained from the survey, whereas 23 were omitted because they were not involved when filling out the survey. Finally, 312 responses were analyzed. These responses represent a diversity of e-commerce users in Indonesia. The demographic and psychographic characteristics of the respondents, such as gender, age, education level, period of using e-commerce, and use of chatbots when communicating problems, are summarized in Table 2.

Table 2. Respondent demographic data

Sample demographic (N=312)	Description	Frequency	Percentage
Gender	Male	125	40%
	Female	187	60%
Age	18-23 years	95	30%
	24-29 years	129	41%
	30-35 years	78	25%
	36-41 years	10	3%
	42-47 years	0	0%
Education level	High school	89	29%
	Junior degree	36	12%
	Degree (S1)	186	60%
	Post graduate (S2)	1	0%
	S3	0	0%
Period of using e-commerce	Less than 6 months	31	10%
	6 months – 1 year	120	38%
	1–2 years	56	18%
	More than 2 years	105	34%
Use of Chatbots when communicating problems	1 time	112	36%
	2-3 times	147	47%
	4-5 times	47	15%
	Above 5 times	6	2%

3.1. Outer model analysis: reliability and validity

The outer model is part of structural equation modeling (SEM) analysis, which focuses on the relationship between latent and observed variables. Evaluation of the outer model was done through confirmatory factor analysis. Construct validity is essential to ensure the constructed model can accurately describe latent variables according to the theory used [47]. The construct validity of the measurement items is assessed using factor loading, with an expected result of 0.708 indicating validity. Cronbach's Alpha (CA) and composite reliability (CR) scores were computed to assess the reliability of the measurement items. CA test shows good reliability if the value is >0.7, while a CR value of >0.7 is necessary for good reliability [48]. We assessed convergent validity by examining AVE values of 0.50 or higher, indicating that the construct explains 50 percent or more of the variability in the construct's items [49].

Table 3 indicates that each variable has a CA and CR values are >0.7, concluding that all variables used in this study are reliable and can be used in research. All items have factor loading >0.7, suggesting construct validity is confirmed. The AVE values for all constructs are >0.5, confirming the construct's convergent validity. The reliability and validity test results are presented in Table 3.

Table 3. Reliability and validity test result

Construct	Individual factor loading	Factor loadings	Cronbach's Alpha	CR (rho_a)	CR (rho_c)	AVE
ATC	ATC1	0.736	0.824	0.825	0.876	0.587
	ATC2	0.780				
	ATC3	0.790				
	ATC4	0.751				
	ATC5	0.771				
ITU	ITU1	0.749	0.830	0.838	0.880	0.595
	ITU2	0.755				
	ITU3	0.730				
	ITU4	0.830				
	ITU5	0.788				
PA	PA1	0.739	0.828	0.833	0.879	0.592
	PA2	0.796				
	PA3	0.805				
	PA4	0.770				
	PA5	0.734				
PC	PC1	0.726	0.807	0.810	0.866	0.565
	PC2	0.742				
	PC3	0.795				
	PC4	0.777				
	PC5	0.714				
PEU	PEOU1	0.746	0.788	0.791	0.854	0.540
	PEOU2	0.738				
	PEOU3	0.720				
	PEOU4	0.731				
	PEOU5	0.737				
PI	PI1	0.744	0.798	0.801	0.860	0.552
	PI2	0.726				
	PI3	0.789				
	PI4	0.721				
	PI5	0.735				
PU	PU1	0.733	0.811	0.811	0.868	0.569
	PU2	0.777				
	PU3	0.755				
	PU4	0.747				
	PU5	0.758				

3.2. Discriminant validity

We tested the discriminant validity using the Heterotrait-Monotrait (HTMT) method, which calculates the ratio between variables and other variables and the correlation between variables and themselves. If this ratio is less than 0.85, discriminant validity is satisfied [49]. Based on Table 4, the HTMT value of each variable <0.850, so each variable meets the discriminant validity requirement. The HTMT value of each variable is presented in Table 4.

3.3. Inner model analysis

The inner model analyses the relationship between latent variables and tests the hypothesis. Figure 2 presents the results of the hypothesis testing related to the relationships between the constructs in the model.

We found that the data support all hypotheses. However, the four independent variables show differences in their impact on attitudes toward chatbots. Perceived completeness shows the most substantial effect in forming attitude, shown by the highest coefficient of 0.296, followed by perceived usefulness with 0.263. The weakest impact toward attitude is given by PEU, with a coefficient of 0.137. Perceived accuracy's impact is more vital than PEU, having a coefficient of 0.192. We found support for the moderating effect of personal innovativeness in the linkage of attitude toward intention to use. However, it is showing a negative impact (-0.111).

Table 4. Heterotrait-monotrait result

Construct	ATC	CITU	PA	PC	PEU	PI	PU	PI x ATC
ATC								
ITU	0.509							
PA	0.543	0.358						
PC	0.701	0.601	0.536					
PEU	0.631	0.405	0.459	0.696				
PI	0.636	0.610	0.488	0.649	0.543			
PU	0.638	0.470	0.356	0.541	0.632	0.507		
PI x ATC	0.313	0.339	0.165	0.332	0.132	0.352	0.289	

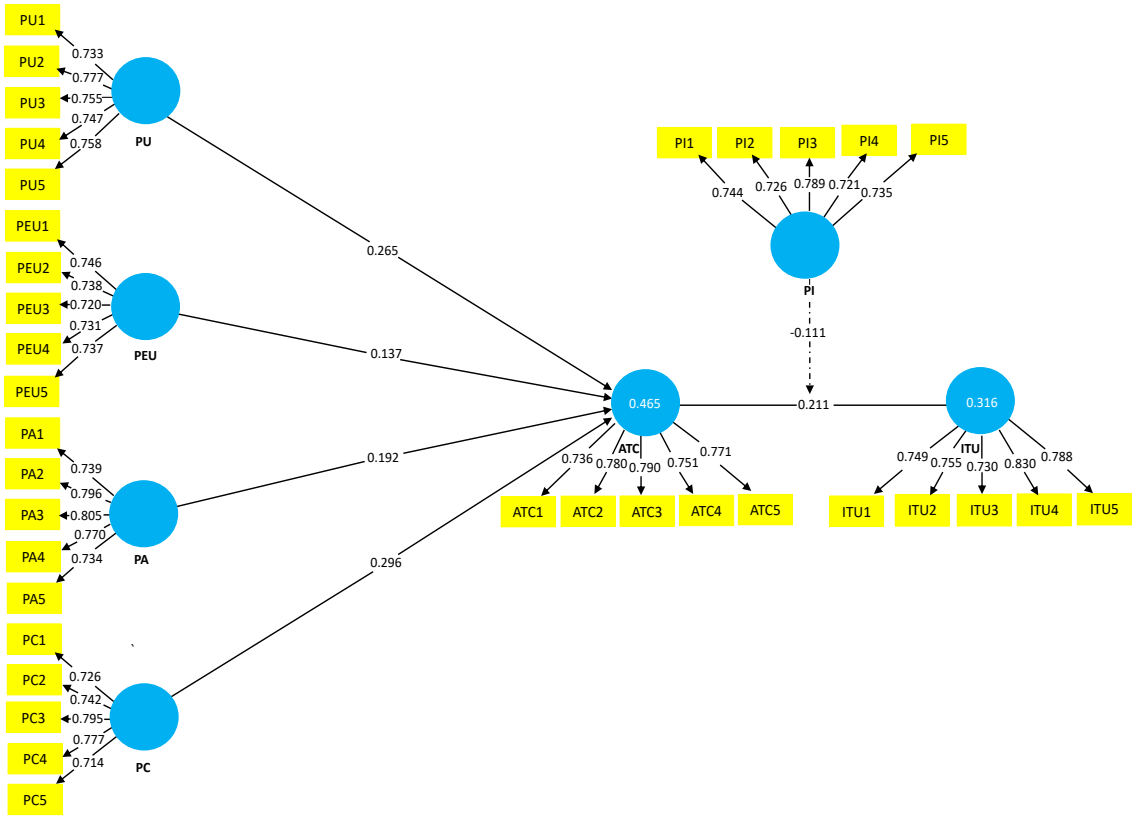

Figure 2. The structural model (coefficient)

3.4. Hypothesis testing

The statistical analysis to test the hypotheses was conducted in PLS-SEM by bootstrapping using 5000 sub-samples and a two-tailed test on SmartPLS 4.0. Path coefficients determine the independent variable's magnitude and direction of influence in the relationships. We checked the t-values and p-values to decide whether or not they supported the hypotheses.

As predicted, Table 5 supported all hypotheses and also revealed positive relationships. Perceived completeness has the highest impact on attitude, while PEU is the weakest predictor of attitude. Although it is confirmed that personal innovativeness moderates the relationship between attitude toward chatbots and intention to use, the negative impact contradicts the hypothesis.

3.5. R-square

R-square quantifies the extent to which variation in the dependent variable is accounted for by the independent variables within a research model [50]. In this study, the attitudes toward chatbots were predicted by perceived usefulness, ease of use, accuracy, and completeness, with an explained variance of 45.9%. This indicates that these factors are strong predictors of attitudes toward chatbots. Additionally, the intention to use chatbots had an explained variance of 30.9%. This suggests that PU, PEU, accuracy, and completeness significantly influence the intention to use chatbots. Table 6 presents the R-square test results for the study. The first row shows the R-square value for the construct of "Attitude Toward Chatbots," which is 0.465. The second row shows the R-square value for the " Intention to Use" construct, which is 0.316.

Table 5. Hypothesis test results

Hypothesis	Construct	Regression coefficient	T statistics	P value	Result
H1	PU -> ATC	0.265***	3.676	0.000	Supported
H2	PEU -> ATC	0.137*	2.162	0.031	Supported
H3	PA -> ATC	0.192***	3.514	0.000	Supported
H4	PC-> ATC	0.296***	4.300	0.000	Supported
H5	ATC -> ITU	0.211***	3.499	0.000	Supported
H6	ATC * PI -> ITU	-0.111*	2.303	0.021	Supported

***p < 0.001, **p <0.01, *p < 0.05

Table 6. R-square test results

Construct	R square	R square adjusted
Attitude Toward Chatbots	0.465	0.459
Intention to Use	0.316	0.309

The results confirm that attitudes towards chatbots can be influenced by all predictors of consumer attitudes. Moreover, this attitude predicts customers' intention to utilize chatbots for customer service communication. This is, nevertheless, moderated by individual innovativeness. Consumers who seek specific information from an e-commerce platform enjoy the convenience and utility of chatbots. In conjunction with the regular utilization of chatbots, this facilitates the perception of consumers' advantages, stimulating their cognitive faculties to employ and embrace technology consistently. Innovative personalities who develop intentions to utilize chatbots may be influenced in their attitudes toward moderation by the perceived utility [51], [35], [19]. Secondly, the attitude and intention of an individual to utilize chatbots may be impacted by the perception of simplicity of use. This is determined by consumers' perceptions regarding the ease and speed with which chatbots can be customized. The perception of simplicity of use conveys that consumers can utilize the product without encountering any challenges or obstacles. This is further corroborated by prior studies that indicate attitudes toward chatbots can be influenced by the PEU, with this influence being moderated by innovative individuals who intend to utilize chatbots [25], [31].

Furthermore, attitudes towards and intentions to utilize chatbots can be influenced by perceived accuracy, particularly when consumer feedback relates perceived accuracy to the quality of chatbots supplied by manufacturers. Consumers prefer prompt and suitable responses to their inquiries or grievances. As a result, manufacturers must provide superior-quality chatbots that provide consumers with timely and accurate responses to their preferences. Additionally, several studies have suggested that attitudes may be influenced by perceived accuracy, with personal innovative variables serving as moderators in forming the intention to use [25], [52]. Additionally, the perception of completeness may influence attitudes and intentions to utilize chatbots. Complete information, as conveyed by perceived completeness, is associated with perceived completeness. This perceived completeness will be contingent on credibility, dependability, and competence. Currently, chatbots continue to deliver consumer feedback that remains routine or general. Future consumer inquiries and complaints will likely be uncommon and complex; to mitigate the impact of subpar service, AI chatbots must ascertain whether customers require human assistance or can provide appropriate responses. Consequently, perceived completeness will subsequently center on the progression of chatbot development, commencing with the level of expertise and trustworthiness bestowed upon consumers. Multiple studies have demonstrated that attitude can be influenced by perceived completeness; this influence is subsequently moderated by personal innovative variables that contribute to the intention to utilize chatbots [53]-[55].

4. CONCLUSION

The emergence of chatbots has significantly changed customer interaction in emerging countries. Although chatting has become common in customers' daily lives, chatting with a machine is still unfamiliar to many of them. The absence of human interaction and the delivery of all responses through virtual agents generate unique customer experiences. Consequently, experiential factors influencing consumers' utilization of this technology have become indispensable.

In this study, we identified seven variables that explain how customers adopt chatbots in the context of customer service. Much research associated with technology adoption was usually focused on the technology's PU and PEU. Their evaluation is then limited to what they appreciate and dislike. This research explains TAM further by incorporating customers' perceptions of the chatbots' ability, as well as the personal innovativeness of the user. The TAM theory posits that the preferences of one's peers also emerge as significant determinants of the intention to use. We explain it better by providing an additional perspective on the system's capability and also showing the moderating effect of users' innovativeness. An investigation was undertaken to examine the application of chatbots in facilitating e-commerce transactions, including inquiries regarding desired products, problem resolution during online purchasing, and provision of other pertinent information about e-commerce. In light of this, a survey was undertaken to investigate the utilization of chatbots, the frequency of chatbot usage, and the efficacy of chatbot assistance. The study's findings show that chatbots have the potential to assist individuals in completing e-commerce transactions. It is evident that the four hypothesized drivers of attitude toward chatbots are supported by the data.

The results of this study are pertinent to organizations that aspire to use chatbots to serve their customers' inquiries. Companies can develop strategies by utilizing the four variables identified as having a substantial impact on the intention to use chatbots. Companies must prioritize the completeness of chatbot responses since this factor has the highest positive impact on attitude. Consequently, the development of applications can significantly influence the intention to use chatbots. The algorithm to answer the question should be efficient yet able to give comprehensive and accurate answers. As AI/machine learning (ML) is the brain of the chatbots, an ample database of cases is required to teach the machine. E-commerce firms should also anticipate consumers' ability to use and/or interact with digital platforms. The more innovative the customers are, the higher the impact of their attitude toward chatbots in forming the intention to use. Firms may need to consider educating consumers with lower personal innovativeness by providing video guidelines, in addition to the effort to make user-oriented UI/UX.

This study has several limitations. One limitation is the generalization of the research results; data collection was done on Indonesian consumers, so the generalization of the research findings should be done carefully. This research also should have considered whether e-commerce has other customer service touchpoints or only uses chatbots. However, the availability of other service touchpoints could bias the evaluation toward the accuracy and completeness of the information. Further research is required to see whether the findings are robust toward coerced and non-coerced communication channels.

APPENDIX

Table 1. List of measurements on each variable

Questions	Option					Source
	1	2	3	4	5	
Perceived usefulness						[12]
PU1: Chatbot is useful for me.						
PU2: Using Chatbot will solve the problem quickly.						
PU3: Using Chatbot saves me time.						
PU 4: Using Chatbot is effective.						
PU 5: Using Chatbot makes it easier to solve my problems						
Perceived ease of use						[12]
PEU 1: Using a Chatbot requires little effort.						
PEU 2: I think I can use a Chatbot without the help of an expert.						
PEU 3: Learning to operate a Chatbot is easy for me.						
PEU 4: Overall, using Chatbot is easy.						
PEU 5: Using a Chatbot is simple.						
Perceived accuracy						[25]
PA1: The information provided by the Chatbot is accurate.						
PA2: The information provided by the Chatbot is incorrect.						
PA3: I believe I can tell my problem accurately.						
PA4: I believe I can understand the cause of my problem.						
PA5: I believe I can learn how to solve problems accurately.						
Perceived completeness						[25]
PC1: The information provided by the Chatbot is complete						
PC2: The information provided by the Chatbot includes everything necessary						

Table 1. List of measurements on each variable (*continued*)

Questions	Option 1	2	3	4	5	Source
PC3: I am sure I can do a thorough question-and-answer session.						
PC4: I am sure I can ask all my online shopping problems.						
PC5: I am sure I can fully explain my online shopping problem.						
Personal innovativeness						[44]
PI1: I think I know more about Chatbots than my circle of friends.						
PI2: If I hear about a new application/technology like Chatbot, I will look for a way to try it.						
PI3: I am usually the first among my peers to try new applications/technologies like Chatbots.						
PI4: I am generally willing to try new applications/technology, such as Chatbots.						
PI5: I like experimenting with new applications/technology, such as Chatbots.						
Attitude towards chatbot						[45], [46]
A1: Using a Chatbot is a good idea.						
A2: I like using Chatbots.						
A3: Using Chatbots is fun.						
A4: Chatbots are becoming the best way to find solutions quickly.						
A5: Chatbots are becoming a great way to help online.						
Intention to use						[46]
ITU1: Now, I intend to continue using Chatbots for shopping consultations.						
ITU2: Assuming I have access to a Chatbot, I intend to continue using it.						
ITU3: I will continue to use Chatbots in the future.						
ITU4: I will continue to use Chatbots rather than using any alternative.						
ITU5: I will continue to use Chatbot services in my daily life.						

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AUTHOR CONTRIBUTIONS STATEMENT

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Indah Oktaviani Hardi	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Ahmad Maki	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Evi Rinawati Simanjuntak	✓	✓		✓	✓	✓				✓	✓	✓	✓	

C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest.

DATA AVAILABILITY

The data that support the findings of this study are openly available in Mendeley Data at https://data.mendeley.com/datasets/wfb94y569h/1.

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BIOGRAPHIES OF AUTHORS

Indah Oktaviani Hardi currently studying in the Masters of Management Program at BINUS Business School, Jakarta, Indonesia. She earned her Bachelor of engineering degree from the University of Trisakti, majoring in petroleum engineering. Have been working in gold sales family business for 8 years as seller. Her interests are in the areas of gold market and digital business. With her engineering background combined with a business management degree could position her well for a career in technical sales or business development within the gold industry, or perhaps even for management roles in a digital gold trading platform. With combining technical with business, positioning herself for exciting opportunities at the intersection of these fields. She can be contacted at email: indah.hardi@binus.ac.id.

Ahmad Maki currently pursuing a Masters of Management at BINUS Business School, Jakarta, holds a Bachelor's degree in Islamic economy from the Islamic University Antasari/UIN Antasari Banjarmasin. Have been working in coal shipping transportation company for 4 years as administration and logistic. His focus on management economics merges traditional economic principles with managerial decision-making processes. With keen interests in IT and games, he acknowledges technology's pivotal role in modern business. This diverse background equips Ahmad to contribute significantly to strategic management, Islamic finance, and leveraging IT solutions for business optimization, ensuring his proficiency in navigating the dynamic intersections of economics, management, and technology for organizational success. He can be contacted at email: ahmad.maki@binus.ac.id.

Evi Rinawati Simanjuntak is currently teaching as a full-time professor in the Masters of Management Program at BINUS Business School, Jakarta, Indonesia. Her 14 years of professional experience in the telecommunication industry were in the project management and technical sales fields. She earned her Ph.D. degree from the University of Indonesia, majoring in marketing management. Her research interests are in the areas of digital business, interactive marketing and luxury marketing. She took part in writing a chapter in the book "Strategic management–firm performance series" in 2020 and one in "The essence of luxury: an ASIAN perspective" in 2016. She can be reached at email: esimanjuntak@binus.edu.