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RESEARCH ARTICLE

The Role of Artificial Intelligence in Forming Favorable Customer Attitudes on E-Commerce Websites

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Abstract: The research aims to explore the influence of artificial intelligence in increasing technological engagement and attitude toward the firm, which has implications for repurchase intention. In addition, the moderating effect of perceived effectiveness of e-commerce institutional mechanisms (PEEIM) was also explored. A quantitative method approach is used to investigate consumer behaviour from experiences using artificial intelligence technology in e-commerce. Data was collected from 242 e-commerce users using a structured questionnaire and personal interviews. Confirmatory factor analysis and structural equation modelling with the SEM tool AMOS 24 are used to test hypotheses. This research confirms that there is a significant influence between artificial intelligence and technology engagement and customer firm attitudes, contributing to repurchase intentions. The results also support the positive influence of high customer involvement on increasing repurchase intention. However, other results from the attitude toward the firm have an insignificant impact on repurchase intention. PEEIM also shows exciting results regarding its moderation effect. The company continues using AI-based data analysis to understand customer preferences and behavior to provide more relevant and personalized product recommendations. This study is the only one that explores the influence of AI by looking at each of its constituent dimensions, which can increase technology engagement and consumer attitudes towards websites. PEEIM moderation role will also strengthen the latest research results in the field of e-commerce.

Keywords: artificial intelligence; digital marketing; digital technology; e-commerce

I. INTRODUCTION

The development of information and communication technology, which is strengthened by the emergence of artificial intelligence (AI), is being used by many companies to provide services to make things easier for their customers [1,2]. One industry extensively uses this technology in providing services and products to its customers is the e-commerce industry. AI can interpret external data and learn to develop adaptive strategies [3]. Examples of implementing AI in e-commerce are product search (using images, keywords, or voice), automatic recommendations, personalized dynamic pricing, and chatbots that speed up responses to customer questions [4]. However, the rapid development of information technology that competitors quickly adopt requires companies to be able to adapt their business models to customer needs [5]. Therefore, it is essential to determine a strategy for using AI to increase positive customer attitudes that benefit the company.

AI technology is creating a revolutionary transformational impact on service companies, changing how companies interact with their customers [6]. The success of interactions through technology can be measured by how involved customers are in using the technology [7]. Therefore, many studies on technology behaviour examine variables related to factors that influence technology engagement [8,9], and there is still minimal research measuring technology engagement in e-commerce. Understanding customer involvement in technology adoption is essential to direct relevant product development and increase market acceptance of these innovations, especially in the e-commerce retail market.

Although previous research confirms that AI can increase technology engagement and attitudes toward firms using technology, it has implications for increasing purchase intentions [7,10]. However, they ignore the vital role of perceived effectiveness of e-commerce institutional mechanisms (PEEIM), which has been proven to be able to increase purchase intentions by protecting consumers from the risks of e-commerce transactions [11,12]. PEEIM will manage customer perceptions of the uncertainty of the online trading environment that underlies repeated online transactions by ensuring consumers are free from any adverse risks [13]. When PEEIM is high, it will reduce uncertainty in online transactions because customers feel protected [14]. Therefore, this research will look at the role of PEEIM in moderating the variables of technology engagement and attitude toward the firm as an impact generated by AI by increasing repurchase intention.

This study is the only one that explores the influence of AI by looking at each of its constituent dimensions that can increase technology engagement and consumer attitudes toward websites. PEEIM moderation role will also strengthen the latest research results in e-commerce. Therefore, this research was completed in several stages. First, we formulate the problem by looking at conceptual and practical gaps based on previous literature to obtain research updates. Second, we determine the method for solving

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problems using a quantitative approach. Third, the data should be analyzed by interpreting it into research results. Fourth, the research results will be discussed, focusing on theoretical and practical implications.

This study is designed with a systematic flow that begins with identifying the problem and the novelty of the research as a strong research basis. The second section reviews related literature, builds a conceptual foundation through theory, and develops hypotheses that support the research. Furthermore, the third section explains the research methodology, including the research design, data collection techniques, and analysis methods used to ensure the validity and reliability of the results. The fourth section presents the findings and their discussion, with interpretations linked to theory and previous research. Finally, the conclusion summarizes the main findings, presents the research implications, and provides recommendations for further research.

II. LITERATURE REVIEW

AI is a technology that can provide services to consumers as humans do. AI can understand, think, respond, act, and make decisions just like humans simulated on machines based on the data obtained [15]. Some systems that can be used to optimize the use of AI are prediction and recommendation. The prediction system uses Graph Convolutional Networks (GCN), which aims to understand how the relationship between users and their interactions affects shopping preferences, and the user representation fusion mechanism that integrates various aspects of behavior, such as purchase history and interaction with reviews, to form a more accurate user profile [16]. The recommendation system uses the Temporal Interest Attention Network (TIAN), which groups items viewed in close time into the same interest bucket, allowing for more accurate item representation modelling. In addition, the Time-Enhanced Session Graph (TES-Graph) was developed to capture changes in user interests with adaptive weights on each side of the graph [17]. This method overcomes the interference caused by accidental clicks, improving the accuracy of e-commerce recommendations.

The advantages of this prediction and recommendation system not only increase the accuracy in understanding user preferences but also have a significant impact on the marketing and sales areas [18]. With the ability to offer more customized services and project consumer behaviour patterns more precisely, this technology is further strengthening the role of AI in modern marketing strategies [19,20]. Some of these marketing activities can be evaluated based on customer perceptions of the usefulness of AI.

AI marketing activities involve four dimensions, namely interaction, information, accessibility, and customisation [21]. Interaction refers to the communication process carried out between AI and customers. For example, interactions occur via chat platforms, voice calls, or visual interactions. AI can also be used to provide product information to its customers. For example, recommending products based on purchasing history or customer preferences and making it easier for customers to search for products based on uploaded images. Accessibility refers to the response to information obtained from customers. AI acts as a customer service that can provide services in real-time quickly and accurately. Customisation relates to services that can be personalized. The buyer's advantage is that he gets personalized service in the form of an offer that has beneficial value with the potential to reduce search costs, while the seller's advantage is that he can sell at a high price to a party with a high assessment [22].

When AI can provide good service to its customers, it will have implications for increasing customer engagement using this technology [23]. We chose the technology engagement variable to be specified in this study because it consists of items that can capture consumers' perceptions regarding technology use, and respondents may have different views on their level of involvement. Technology engagement is defined as the cognitive and affective commitment of a relationship when using technology [24]. Consumers who have become familiar with AI can form positive or negative attitudes, which will determine how involved they are with the technology [7]. In this paper, we attempt to validate the following hypotheses:

H1: AI Marketing has a positive and significant effect on increasing technology engagement

One of the critical issues discussed in looking at the results of technology creation is measuring attitudes toward using technology. Attitude is defined as a person's feelings that can give positive or adverse reactions to other objects [25]. In the technological context, it is defined as the behavior of assessing likes or dislikes of the use of technology [26]. When using technology, Companies can predict interactions through their optimism and insecurity [27]. This attitude can be influenced by the use of artificial intelligence [7,28]. However, they ignore information about the factors shaping marketing AI that could improve attitudes towards technology. Therefore, we investigate the importance of existing service features in AI for improving customer attitudes. In this paper, we attempt to validate the following hypotheses:

H2: AI Marketing has a positive and significant effect on increasing attitudes towards firms that use technology

Online consumer behavior can be understood in two stages. The first is to encourage new people to buy online, and the second is to enable customers to buy again [29]. The fact is that getting new customers will take more time and energy than retaining existing customers [30]. Companies will spend many resources if they allocate a lot to finding new customers. Therefore, we use the repurchase intention variable to see indicators of the success of using AI on e-commerce websites.

Repurchase intention is defined as the probability that a customer will continue to buy products from the same seller [31]. We measure the extent to which online shoppers via e-commerce are willing to choose the platform as their first choice in the future to show loyalty and willingness to recommend it to others. Several factors that can form high repurchase intention are increasing customer engagement using technology [32,33] and attitude towards firms that use technology [34,35]. Therefore, marketers must know whether engagement and attitude can increase repurchase intention. In this paper, we attempt to validate the following hypotheses:

H3: Technology engagement has a positive and significant effect on increasing repurchase intentions

H4: Attitude toward firm has a positive and significant effect on increasing repurchase intentions

Online shopping has several risks that customers may experience. Such as financial risk, information risk, and privacy risk, which can influence purchasing decisions [36]. This high risk influences companies to develop services that can guarantee consumer safety in all dangers through third parties. This method can facilitate increased trust when shopping online [37]. For example, they guarantee that ordered goods will arrive at the customer without damage or errors and that transactions will be managed financially [13]. PEEIM is consumers' perception that third parties can protect and mitigate risks during online transactions. Obtaining positive customer perceptions using e-commerce websites is important to increasing repeat purchases.

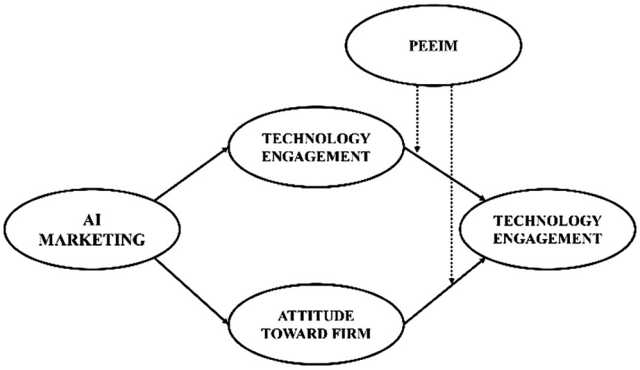

Fig. 1. Research model.

Previous research investigated the critical role of PEEIM in moderating by increasing buyers' interpersonal trust through online vendors to increase repurchase intention to purchase products in e-commerce [37,38]. However, more is needed to assume that the moderating role will be the same under different conditions and contexts. [37] There is no unique guarantee that vendors will always gain customers' trust when using e-commerce websites. [39] also found that the influence of perceived benefits becomes insignificant with online trust because, at the post-purchase stage, users have had experience using the product. In contrast to customer attitudes and involvement, they will be able to improve their performance when they influence PEEIM because it can trigger internal cognitive and emotional behavioural responses [12]. Therefore, this gap will be answered by testing the moderating effect on the relationship between technology engagement, attitude toward the firm, and repurchase intention. In this paper, we attempt to validate the following hypotheses:

H5: PEEIM positively moderates the relationship between technology engagement and repurchase intention so that when PEEIM is higher, the relationship between these two variables is also more robust.

H6: PEEIM positively moderates the relationship between attitude toward the firm and repurchase intention so that when PEEIM is higher, the relationship between these two variables is more robust. Considering the importance of issues related to the use of artificial intelligence in e-commerce, we created a research model (Figure 1) that focuses on optimizing the use of artificial intelligence in the marketing context to increase technology engagement.

III. RESEARCH METHODOLOGY

A. SAMPLING AND DATA COLLECTION PROCEDURES

The sample population consists of e-commerce users in Indonesia who have experience using AI technology. A purposive sampling technique is used to select a sample representative of the population. A total of 242 samples were collected to minimize measurement error. This amount is to the requirements determined by [40]. Data is collected through an online survey using Google Forms because it has the advantage of summarising survey results and automatic response times. Filling out the questionnaire begins with a brief description of the researcher's identity and research objectives, followed by filling in the respondent's demographics to match the specified characteristics. Explanations and direct assistance are also provided to help respondents better understand the intent and purpose of the questions asked. Multiple choice and Likert scales gave values between strongly agree (5) and strongly disagree (1) to make it easier for respondents to answer all questions. The measurement scale for each variable was adopted from relevant previous research question items. AI marketing [21] has four dimensions, namely interaction, information, accessibility, and customisation. Technology engagement, attitude towards firms that use technology [7], PEEIM [37,38], and repurchase intention [41].

Table I. Respondent's characteristics

Characteristics	Frequency
Gender	
Male	102
Female	140
Age	
17 – 26	215
27 – 42	24
43 – 58	3
Education	
High school	190
Bachelor	31
Postgraduate	21
E-commerce brand	
Shopee	120
Tokopedia	56
Lazada	66
Product	
Fashion (Clothes, pants, shoes, bags, watches)	154
Care & beauty (makeup, perfume)	72
Electronic	16

1. RESPONDENT'S CHARACTERISTICS. The characteristics of the respondents are presented in Table I. The distribution of these characteristics is based on gender: 102 men and 140 women; the age of the respondents is dominated by young people who are used to using technology, namely 17–26, 215 respondents, 27–42, 24 respondents, and 43–58 as many as three respondents. The education level of respondents was high school, with as many as 190; bachelor's, as many as 31; and postgraduate, as many as 21. The e-commerce brands that respondents most accessed were Shopee with 120, Tokopedia with 56, and Lazada with 66, so Shopee was the most e-commerce accessed by customers according to the data. [42]. The most frequently purchased products were Fashion (Clothes, pants, shoes, bags, watches), as many as 154.

IV. RESULTS AND DISCUSSION

A. ASSESSMENT OF NORMALITY

A structural equation modelling (SEM) approach using the AMOS tool was used to estimate path weights and overall model fit. Before proceeding to confirmatory analysis, we ensure that the data obtained does not contain outliers. The normality test was carried out using the SPSS tool by looking at the z-score value of ±2.58 according to the required value [43]. The results showed 26 outlier data, so 216 samples met the requirements for the next testing stage. Therefore, confirmatory factor analysis (CFA) can be carried out on each variable.

B. CONFIRMATORY FACTOR ANALYSIS

Confirmatory factor analysis (CFA) testing uses the latent factor structure assessment. The measurement model formed was confirmed to have model suitability using the standard fit index, namely Chi-Square = 794.192, CMIN/df = 1.956, GFI = 0.816, TLE = 0.880, NFI = 0.809, and RMSEA = 0.067. It was concluded that the measurement model met the criteria. The standard measurement model is then tested for validity and reliability.

Validity seen from the average variance extracted (AVE) value for all constructs must be greater than 0.5, but 0.4 can still be considered [44,45]. Reliability is seen from the composite reliability (CR) value, which must be greater than 0.7. Table II displays the

Table II. Summary of the measurement model

Construct	Item	Loading	AVE	CR
AI Marketing Activities [21]				
Interaction	AI is sensitive to current customer needs	0.698	0.44	0.70
	AI has the knowledge to answer customer questions	0.714		
	AI provides individual attention to customers	0.558		
Information	AI helps understand events that occur in banks	0.652	0.46	0.71
	AI provides recommendations regarding bank products/services	0.623		
	AI provides information that helps my purchasing decisions	0.746		
Accessibility	AI provides more timely responses	0.812	0.57	0.84
	AI is convenient and efficient	0.83		
	AI can provide efficient digital assistance or information	0.812		
	AI can provide immediate answers anytime and anywhere	0.711		
Customisation	I feel the use of AI meets my personal needs	0.717	0.56	0.83
	When I had a problem, the AI showed genuine interest in solving it	0.849		
	AI can handle customer complaints directly and immediately	0.728		
	I believe that AI can get the job done	0.684		
Technology engagement [7]	I feel comfortable engaging with AI	0.769	0.56	0.84
	I feel that my involvement with AI technology on e-commerce websites is still very natural	0.705		
	My involvement with AI technology in e-commerce websites is significant	0.76		
	I had much fun leveraging AI on e-commerce websites	0.755		
attitude towards the firm that uses technology [7]	The AI technology provided by "e-commerce brands" is not boring.	0.775	0.94	0.97
	The AI technology provided by "e-commerce brands" is outstanding	0.77		
	The AI technology provided by "e-commerce brands" is very positive	0.716		
	The AI technology provided by "e-commerce brands" is exciting	0.764		
	The AI technology provided by "e-commerce brands" is fun	0.725		
perceived effectiveness of e-commerce institutional mechanisms [37,38]	When purchasing online, I believe that there are mechanisms in place to protect me from any potential risks (e.g., personal information leakage, credit card fraud, items not received, etc.) from online shopping if something goes wrong with my online purchase.	0.827	0.63	0.87
	I trust third parties to protect me from any potential risks (e.g., personal information leakage, credit card fraud, items not received, etc.) from online shopping if something goes wrong with my online purchase.	0.887		
	I am confident that I cannot be exploited (e.g., personal information leakage, credit card fraud, goods not received, etc.) due to online purchases at "e-commerce brands."	0.742		
	I believe that other parties must protect me from any potential risks (leakage of personal information, credit card fraud, goods not received, etc.) from online shopping at an "e-commerce brand" if something goes wrong with my online purchase	0.7		
Repurchase intention [41]	I intend to continue buying things online from "e-commerce brands" that I use regularly	0.7	0.50	0.80
	If I were to buy something, I would consider buying it from an "e-commerce brand."	0.583		
	I intend to use the "e-commerce brand" shopping site I regularly use as a priority online store for future purchases	0.887		
	Barring any unforeseen reasons, I intend to continue using the "e-commerce brand" sites I use regularly	0.744		
	I intend to recommend "e-commerce brand" shopping sites to others that I use frequently	0.578		

results for all constructs and shows the minimum acceptable values for AVE and CR to establish convergent validity.

C. STRUCTURAL MODEL

The structural model is tested after ensuring that the measurement model has good validity and reliability values, which are then tested for the influence between the hypothesized constructs. All fit indices have recommended values , and the model is good CMIN/DF = 1.185, GFI = 0.938, NFI=0.937, TLI= 0.986, and RMSEA = 0.29. Table III shows the results of hypothesis 1 testing, namely that AI significantly positively influences technology engagement (H1: $\beta = 1.016, p < 0.005$). AI significantly influenced attitude toward the firm (H2: $\beta = 0.761$, $p < 0.005$). Technology engagement is found to have a significant influence on repurchase intention (H3: $\beta = 0.31$, $p < 0.005$). Attitude toward the firm was found to have no significant influence on repurchase intention (H4: $\beta = 0.193$, $p > 0.005$). PEEIM was found to moderate and strengthen the influence of the relationship between technology engagement and repurchase intention (H5: $\beta = 0.191$, $p < 0.005$). PEEIM was found to moderate by strengthening the influence of the relationship between attitude toward the firm and repurchase intention (H6: $\beta = 0.469$, $p < 0.005$). Therefore, H1, H2, H3, H5 and H6 are supported while H4 is not supported.

1. MODERATION TEST. Moderation effect testing was also done by examining the interaction relationship between moderating, exogenous, and endogenous constructs. We use the moderation table [46] in Fig. 2 to make it easier to explain the moderation results. The first result shows that PEEIM moderates the relationship between technology engagement and repurchase intention (H5: $\beta = 0.191$, $p = 0.003$). Based on the analysis without considering PEEIM, technology involvement has a coefficient $\beta 1 = 0.034$ in influencing repurchase intentions. However, when PEEIM is low or high, this relationship strengthens with a coefficient $\beta 1 + \beta 3$ (high Z) = 0.003. This shows that PEEIM enhances the influence of technology involvement on repurchase intentions.

The second result showed that PEEIM moderates the relationship between attitude and repurchased intention (H6: $\beta = 0.469$ $p = -0.03$). Based on analysis without considering PEEIM, the attitude has a coefficient of $\beta 1 = 0.193$ in influencing repurchase intentions. However, when PEEIM is low or high, this relationship strengthens with a coefficient $\beta 1 + \beta 3$ (high Z) = 0.003 (Table IV).

Table III. Structural model

Hypotheses	Standard estimate	S.E	C.R	*P*-value	Hypothesis decision
AI to Technology Engagement	1.016	0.089	11.377	0.000	Supported
AI's attitude toward firm	0.761	0.078	9.694	0.000	Supported
Technology engagement to repurchase intention	0.31	0.081	3.811	0.000	Supported
Attitude toward firm to repurchase intention	0.193	0.087	2.212	0.027	Not supported
PEEIM moderates by strengthening the relationship between technology engagement and purchase intention	0.191	0.052	3.643	0.000	Supported
PEEIM moderates by strengthening the relationship between attitude toward the firm and purchase intention	0.469	0.074	6.332	0.000	Supported

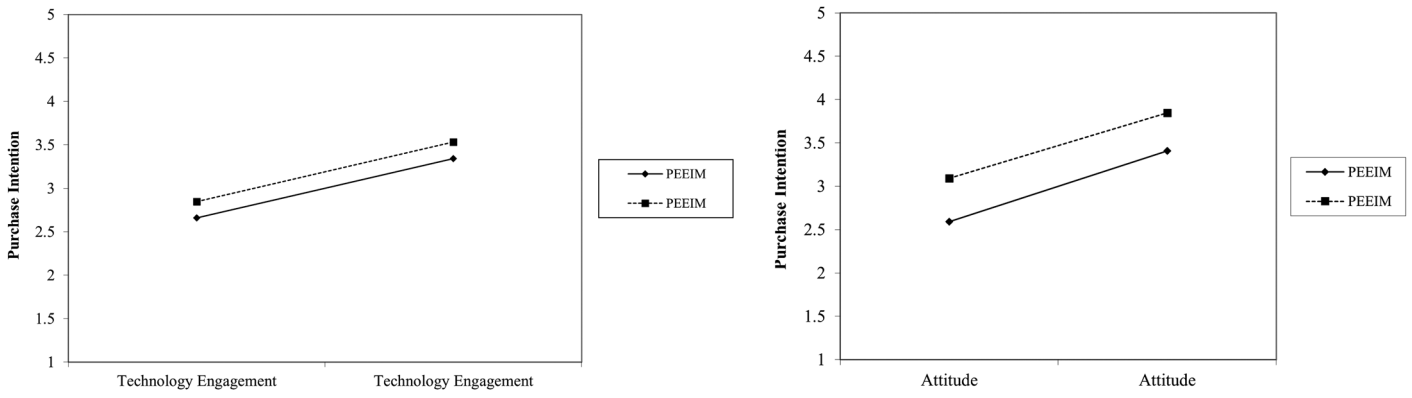

Fig. 2. Moderation effect.

Table IV. Moderation interaction PEEIM

Exogenous variable (X)	Endogenous variable (Y)	Moderating variable (Z)	X and Y relationship without Z	X-Y relationship with low Z	X-Y relationship with high Z
Technology Engagement	Repurchase Intention	PEEIM	$\beta 1 = 0.31$	$\beta 1+\beta 3$ (Z low) = 0.003	$\beta 1+\beta 3$ (Z high) = 0.003
Attitude	Repurchase Intention	PEEIM	$\beta 1 = 0.193$	$\beta 1+\beta 3$ (Z low) = –0.03	$\beta 1+\beta 3$ (Z high) = –0.03

This shows that PEEIM enhances the influence of attitude on repurchase intentions

V. DISCUSSION OF FINDINGS

The main objective of this research is to examine the influence of artificial intelligence on increased technology engagement and attitude toward the firm, which has implications for repurchase intention. This research also investigates the support for the contribution of the PEEIM moderating variable between these two variables and repurchase intention. This research has several significant research findings. First, the influence of artificial intelligence from interaction, information, accessibility, and customisation can have a considerable positive value on technology involvement and attitude toward the firm. These results support previous research, which explains that AI can increase customer engagement using technology through consumer perceptions of new experiences and help companies process consumer feedback to adjust the services provided [10,47]. Other results also confirm that AI can improve attitudes towards company websites. These results support previous research, which explains that the result of using AI is a positive attitude that feels the benefits when using technology [48]. The human-like intelligence possessed by AI is a unique characteristic for this technology to continue to be remembered by customers. Even in some cases, gender differences between women and men have different attitudes regarding accepting technology. Women have more negative attitudes than men toward receiving technology services [49]. However, this did not happen in Indonesia's representative sample of men and women.

This research also confirms that high customer involvement can increase repurchase intentions. These results align with the research [32]. Customer involvement with technology is crucial to ensure the usefulness and success of creating technology in business. In this context, it is also important to note that our study is the first to use a testing methodology that looks at customer engagement based on the influence of artificial intelligence on repurchase intention in the case of e-commerce. Previous research only analyzed AI variables that focused on the stimulus organism response (SOR) theory [23,50], which had weaknesses in capturing the complexity of behavior produced by AI. In contrast, AI may struggle to capture the proper nuance and complexity of emotions, leading to inaccurate interpretations of customer engagement. Therefore, this research looks at customer engagement resulting from the influence of AI by looking at each of its constituent dimensions to predict the likelihood of customers making repeat purchases.

Repurchase intention measurement refers to the Theory of Reasoned Action (TRA) and developed into the theory of planned behaviour, which predicts a person's behaviour based on tendencies or relative weights of attitudes, norms, and behavioural control based on the stimulus they receive [25,51]. This theory is widely cited by research related to consumer behaviour in digital media or e-commerce to predict user behaviour measured from intention to action [52,53]. Therefore, it is appropriate to use it to measure how likely someone is to make repeat purchases due to AI technology's influence on e-commerce.

Another different result is that attitudes towards e-commerce websites have little influence on increasing repurchase intention. The high customer attitude resulting from the impact of AI is unable to increase repurchase intention. These results are different from previous research, which states that this attitude will influence someone to repurchase products in e-commerce [54]. This difference can lie in the ease with which a person uses technology and the complexity resulting in risks during online shopping [55,56]. Other supporting factors must be present for this positive attitude to benefit the company. Therefore, our study provides a new conceptualization regarding positive customer attitudes always being associated with company profits. This research explains that this is only sometimes true in different contexts.

We expanded the concept of consumer behaviour theory and acceptance model theory, especially on customer attitudes on e-commerce websites. If we look at it from the perspective that repeat purchases in e-commerce are primarily driven by pleasure and excitement during shopping [57]. The question is whether or not the AI used by customers can provide that feeling. It is limited to making the purchasing process more accessible, which this research confirms and does not benefit the company. Another fact is that customer perceptions of AI devices tend to lead to negative attitudes towards these devices due to the perception of threats to personal identity, so they do not provide any benefits related to task performance and service quality expected from AI devices [48].

This research also considers the moderating role formed from PEEIM in the relationship between technology engagement and attitude toward the firm with repurchase intention. The results show that PEEIM positively moderates the relationship between these three variables. This means that a high PEEIM value will strengthen the influence of technology engagement and attitudes towards the website on increasing repurchase intention. Consumers who believe in the effectiveness of e-commerce institutional mechanisms tend to be more confident and comfortable in transactions, thereby increasing the influence of technology involvement on their purchasing decisions. Previous research explains that the moderating role of PEEIM greatly influences someone to make repeat purchases [37,38]. This implies that PEEIM can be an essential source of customer attitudes and engagement on e-commerce websites, whether PEEIM is low or high. More specifically, when PEEIM is high, people tend to assume that e-commerce managers will comply with the regulations and rules provided by the government to protect consumers. If not, they will be punished and sanctioned by the government or regulator, so they don't need to remember past experiences when shopping on e-commerce websites. On the other hand, when PEEIM is low, consumers will judge that existing mechanisms in e-commerce are not fully effective or do not guarantee security, comfort, and fairness in online transactions. However, they still rely on their first-hand knowledge to re-evaluate the platform's feasibility. This shows that PEEIM has a strong influence on repurchase intention.

This research enriches the literature on digital consumer behaviour by investigating the factors and reasons why consumers make repeat purchases on e-commerce websites. This research provides a theoretical contribution by emphasizing the need to include relevant theories that have the potential for future research. We use a combination of the acceptance model and the Theory of Relationship Marketing theory related to commitment to show that a conceptual model can be proposed to further increase repurchase intention in e-commerce. This research is the starting point for further study because it is the first to show how the influence of AI technology can specifically increase repurchase intentions on e-commerce websites by paying attention to the moderating role of PEEIM.

A. PRACTICAL IMPLICATIONS

This research also has several practical implications that can benefit companies in the e-commerce industry through technology. First,

the research study helps managers in the e-commerce industry develop marketing strategies through AI. Our research found that four main elements make up AI that impact increasing customer engagement: interaction, information, accessibility, and customisation. AI in e-commerce should be able to meet consumer needs by providing recommendations that suit consumer habits and responding to customers quickly and precisely. For example, the interaction section allows AI to communicate effectively with customers, providing fast and relevant responses, thereby improving the user experience. Chatbots can learn from previous interactions by giving appropriate information such as product knowledge, process flow, and customer journey [58]. In the information section, AI ability to manage and convey precise and valuable data helps customers make better decisions. Accessibility ensures that AI services are accessible to all customers, anytime and anywhere, without barriers. Lastly, customisation allows AI to provide personalized experiences based on customers' preferences and needs, increasing customer satisfaction and loyalty. Combining these four elements makes AI highly effective in improving customer engagement.

The findings stated that a high attitude towards the company's website could not increase repurchase intentions but provided a lesson for e-commerce companies. They should focus on more than just website design and user experience. Individual attitudes will change depending on the situation and context when using AI [59,60]. These findings emphasize that other factors such as responsive customer service, personalization of offers, and trust in the company that keeps consumers at the transaction time also play a crucial role in encouraging repeat purchases. Companies must adopt a holistic approach covering all aspects of the customer experience, from ease of website navigation to post-purchase satisfaction to increase repurchase intent. By understanding that a positive attitude towards a website is only one component of the overall shopping experience, companies can be more effective in customer retention strategies.

PEEIM's moderation influence also represents a significant direct source of trust in e-commerce platforms. When PEEIM is high and low, consumers need a perception of effectiveness to develop their confidence in repeat purchases on the website. Our research deepens the understanding of institutional trust building by empirically verifying the model in the context of leveraging AI to influence repurchase intentions.

VI. CONCLUSIONS

E-commerce companies worldwide are currently using artificial intelligence to respond to technological advances. The aim of utilizing this technology is to provide the best service by making it easier for consumers to shop for products online. The usefulness of AI has attracted the attention of academics and practitioners in identifying essential impacts, such as what can increase consumer purchasing intentions in e-commerce from this technology. Finally, our results showed that leveraging AI should ensure that customers buy products in e-commerce that were easy, safe, and user-friendly. Therefore, it was recommended that management adjust AI service features by focusing on the factors that shape customer engagement using this technology. We recommend that companies implement responsive chatbots to help answer questions and resolve problems quickly. The company continues using AI-based data analysis to understand customer preferences and behavior to provide more relevant and personalized product recommendations. It further optimizes the user experience with an AI-powered search system, ensuring customers can find the products they seek more easily. Another way is to offer personalized promotions and discounts based on a customer's purchase history and interests. With these strategies, e-commerce companies can create a more exciting shopping experience, ultimately increasing consumers' desire to make repeat purchases.

A. LIMITATIONS AND FUTURE IMPLICATIONS

This research has several limitations that can be used as input for further research. First, this study only focuses on consumer experiences in e-commerce used to purchase products online. However, in practice, social media can also use AI to sell products online. So, future research should consider AI experiences in social media. Second, the sample was dominated by the younger generation, with the skills to quickly adapt to technology. The above generation sample group is not used as a balanced comparison. Although the older generation is no better at adapting to technology than the generations below, they have an advantage in buying products more often because they generally have better incomes. Third, this study looks at the moderating role of PEEIM as an external influence on purchase intentions. Future research can also consider other external moderating factors, such as security issues using technology.

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CONFLICT OF INTEREST STATEMENT

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REFERENCES

[1] Q. Chen, Y. Lu, Y. Gong, and J. Xiong, "Can AI chatbots help retain customers? Impact of AI service quality on customer loyalty," *Internet Res.*, vol. 33, no. 6, pp. 2205–2243, 2023.

[2] C. H. Baek, S.-Y. Kim, S. U. Lim, and J. Xiong, "Quality evaluation model of artificial intelligence service for startups," *Int. J. Entrep. Behav. Res.*, vol. 29, no. 4, pp. 913–940, 2023.

[3] H. S. Sætra, "The AI ESG protocol: evaluating and disclosing the environment, social, and governance implications of artificial intelligence capabilities, assets, and activities," *Sustain. Dev.*, vol. 31, no. 2, pp. 1027–1037, 2023.

[4] P. Kalia, "Artificial intelligence in e-commerce: a business process analysis electronic services view project artificial intelligence in e-commerce: a business process analysis," In *Artificial Intelligence: Fundamentals and Applications*. Boca Raton, FL: CRC Press, July 2021, pp. 9–19.

[5] T. Klaus and C. Changchit, "Toward an understanding of consumer attitudes on online review usage," *J. Comput. Inf. Syst.*, vol. 59, no. 3, pp. 277–286, 2019.

[6] L. D. Hollebeek, D. E. Sprott, and M. K. Brady, "Rise of the machines? Customer engagement in automated service interactions," *J. Serv. Res.*, vol. 24, no. 1, pp. 3–8, 2021.

[7] E. Moriuchi, V. M. Landers, D. Colton, and N. Hair, "Engagement with chatbots versus augmented reality interactive technology in e-commerce," *J. Strateg. Mark.*, vol. 29, no. 5, pp. 375–389, 2020.

[8] A. Febrian, "Increasing customer equity through social media content and engagement," *Entrep. Bus. Econ. Rev.*, vol. 11, no. 3, pp. 39–56, 2023.
[9] S. Parameswaran, R. Kishore, and P. Li, "Within-study measurement invariance of the UTAUT instrument: an assessment with user technology engagement variables," *Inf. Manag.*, vol. 52, no. 3, pp. 317–336, 2015.
[10] E. (Christine) Sung, S. Bae, D. I. D. Han, and O. Kwon, "Consumer engagement via interactive artificial intelligence and mixed reality," *Int. J. Inf. Manage.*, vol. 60, p. 102382, 2021.
[11] N. W. Masri, A. Ruangkanjanases, and S. C. Chen, "The effects of product monetary value, product evaluation cost, and customer enjoyment on customer intention to purchase and reuse vendors: Institutional trust-based mechanisms," *Sustain.*, vol. 13, no. 1, pp. 1–20, 2021.
[12] H.-M. Chuang and C.-C. Chuang, "The effects of experienced utility and PEEIM on the purchase intention of cross-border e-commerce," *Sustain.*, vol. 15, no. 21, p. 15666, 2023.
[13] Y. Fang, I. Qureshi, H. Sun, P. McCole, E. Ramsey, and K. H. Lim, "Trust, satisfaction, and online repurchase intention," *MIS Q.*, vol. 38, no. 2, pp. 407–A9, 2014.
[14] P. Pakarti, B. S. Dharmmesta, S. S. Nugroho, and B. Sutikno, "Review of customer experience, perceived effectiveness of e-commerce institutional mechanisms, and repurchase intention from the perspective of expectation-confirmation theory," *J. Apl. Manaj.*, vol. 20, no. 1, pp. 12–24, 2022.
[15] A. Haleem, M. Javaid, M. Asim Qadri, R. Pratap Singh, and R. Suman, "Artificial intelligence (AI) applications for marketing: a literature-based study," *Int. J. Intell. Netw.*, vol. 3, pp. 119–132, 2022.
[16] X. Liu, C. Miao, G. Fiumara, and P. De Meo, "Information propagation prediction based on spatial–temporal attention and heterogeneous graph convolutional networks," *IEEE Trans. Comput. Soc. Syst.*, vol. 11, no. 1, pp. 945–958, 2023.
[17] G. Tang, X. Zhu, J. Guo, and S. Dietze, "Time enhanced graph neural networks for session-based recommendation," *Knowledge-Based Syst.*, vol. 251, p. 109204, 2022.
[18] T. Arumugam, R. Arun, S. Natarajan, K. K. Thoti, P. Shanthi, and U. K. Kommuri, "Unlocking the power of artificial intelligence and machine learning in transforming marketing as we know it," In *Data-Driven Intelligent Business Sustainability*. Hershey, PA: IGI Global, 2023, pp. 60–74.
[19] V. Ratten, "Artificial intelligence: building a research agenda," *Entrep. Bus. Econ. Rev.*, vol. 12, no. 1, pp. 7–16, 2024.
[20] T. Davenport, A. Guha, D. Grewal, and T. Bressgott, "How artificial intelligence will change the future of marketing," *J. Acad. Mark. Sci.*, vol. 48, no. 1, pp. 24–42, 2019.
[21] S. P. S. Ho and M. Y. C. Chow, "The role of artificial intelligence in consumers' brand preference for retail banks in Hong Kong," *J. Financ. Serv. Mark.*, vol. 29, pp. 292–305, 2023.
[22] D. Grewal, A. Guha, C. B. Satornino, and E. B. Schweiger, "Artificial intelligence: the light and the darkness," *J. Bus. Res.*, vol. 136, pp. 229–236, 2021.
[23] S. Bag, G. Srivastava, M. M. Al Bashir, S. Kumari, M. Giannakis, and A. H. Chowdhury, "Journey of customers in this digital era: understanding the role of artificial intelligence technologies in user engagement and conversion," *Benchmarking*, vol. 29, no. 7, pp. 2074–2098, 2022.
[24] L. Fan, X. Liu, B. Wang, and L. Wang, "Interactivity, engagement, and technology dependence: understanding users' technology utilisation behaviour," *Behav. Inf. Technol.*, vol. 36, no. 2, pp. 113–124, 2016.
[25] I. Ajzen and M. Fishbein, "Theories of attitudes," *Psychology of Attitudes*. p. chapter 2, 1975.
[26] B. Hernández-Ortega, "The role of post-use trust in the acceptance of a technology: Drivers and consequences," *Technovation*, vol. 31, no. 10–11, pp. 523–538, 2011.
[27] A. Schepman and P. Rodway, "Initial validation of the general attitudes towards artificial intelligence scale," *Comput. Hum. Behav. Rep.*, vol. 1, p. 100014, 2020.
[28] T. Vasiljeva, I. Kreituss, and I. Lulle, "Artificial intelligence: the attitude of the public and representatives of various industries," *J. Risk Financ. Manag.*, vol. 14, p. 339, 2021.
[29] Y. Zhang, Y. Fang, K. K. Wei, E. Ramsey, P. McCole, and H. Chen, "Repurchase intention in B2C e-commerce - a relationship quality perspective," *Inf. Manag.*, vol. 48, no. 6, pp. 192–200, 2011.
[30] W. Chiu and H. Cho, "E-commerce brand: the effect of perceived brand leadership on consumers' satisfaction and repurchase intention on e-commerce websites," *Asia Pac. J. Mark. Logist.*, vol. 33, no. 6, pp. 1339–1362, 2019.
[31] J. Mou, J. Cohen, Y. Dou, and B. Zhang, "International buyers' repurchase intentions in a Chinese cross-border e-commerce platform: a valence framework perspective," *Internet Res.*, vol. 30, no. 2, pp. 403–437, 2019.
[32] S. D. Elgarhy, W. M. A. N. Abdel Rahieem, and M. Abdulmawla, "Influences of gamification on repurchase intention and intrinsic motivations in egyptian hotels and travel agencies: the mediating role of customer engagement," *J. Qual. Assur. Hosp. Tour.*, vol. 25, no. 2, pp. 397–419, 2024.
[33] M. Majeed, C. Asare, A. Fatawu, and A. Abubakari, "An analysis of the effects of customer satisfaction and engagement on social media on repurchase intention in the hospitality industry," *Cogent Bus. Manag.*, vol. 9, p. 2028331, 2022.
[34] H. Y. Ha, S. K. Muthaly, and R. K. Akamavi, "Alternative explanations of online repurchasing behavioral intentions: a comparison study of Korean and UK young customers," *European J. Mark.*, vol. 44, pp. 874–904, 2010.
[35] D. Amoroso and R. A. Lim, "Exploring the personal innovativeness construct: the roles of ease of use, satisfaction and attitudes," *Asia Pac. J. Inf. Syst.*, vol. 25, no. 4, pp. 662–685, 2015.
[36] M. Alrawad et al., "Assessing customers perception of online shopping risks: a structural equation modeling–based multigroup analysis," *J. Retail. Consum. Serv.*, vol. 71, p. 103188, 2023.
[37] U. Tandon, A. Mittal, and S. Manohar, "Examining the impact of intangible product features and e-commerce institutional mechanics on consumer trust and repurchase intention Urvashi," *Electron. Mark.*, vol. 31, pp. 1–20, 2020.
[38] H. Bao, B. Li, J. Shen, and F. Hou, "Industrial management & data systems article information: repurchase intention in chinese e-marketplace : roles of interactivity, trust and perceived effectiveness of e-commerce institutional mechanisms," *Ind. Manag. Data Syst.*, vol. 116, no. 8, pp. 1–31, 2016.
[39] Y. W. Sullivan and D. J. Kim, "Assessing the effects of consumers' product evaluations and trust on repurchase intention in e-commerce environments," *Int. J. Inf. Manage.*, vol. 39, pp. 199–219, 2018.
[40] J. Hair, W. Black, B. Babin, and R. Anderson, "Multivariate data analysis: a global perspective," In *Multivariate Data Analysis: A Global Perspective*. London: Pearson, 2010.
[41] A. Ali and J. Bhasin, "Understanding customer repurchase intention in e-commerce: role of perceived price, delivery quality, and perceived value," *Jindal J. Bus. Res.*, vol. 8, no. 2, pp. 142–157, 2019.
[42] We Are Social, "Special Report_Digital 2024," 2024. https://wearesocial.com/id/blog/2024/01/digital-2024/
[43] C. A. George, "Evaluating assumptions of multivariate normality.," *Pap. Present. Annu. Meet. Southwest Educ. Res. Assoc. (New Orleans, LA, Febr. 1–3, 2001).*, 2001.

[44] J. F. Hair, M. Sarstedt, L. Hopkins, and V. G. Kupperwieser, "Partial least squares structural equation modeling (PLS-SEM) an emerging tool in business research," *Eur. Bus. Rev.*, vol. 26, no. 2, pp. 106–121, 2014.

[45] C. Fornell and D. F. Larcker, "Evaluating structural equation models with unobservable variables and measurement error," *J. Mark. Res.*, vol. 18, no. 1, p. 39, 1981.

[46] J. F. Dawson, "Interpreting interaction effects," 2023. http://www.jeremydawson.co.uk/slopes.htm

[47] R. Perez-Vega, V. Kaartemo, C. R. Lages, N. Borghei Razavi, and J. Männistö, "Reshaping the contexts of online customer engagement behavior via artificial intelligence: a conceptual framework," *J. Bus. Res.*, vol. 129, pp. 902–910, 2021.

[48] D. Gursoy, O. H. Chi, L. Lu, and R. Nunkoo, "Consumers acceptance of artificially intelligent (AI) device use in service delivery," *Int. J. Inf. Manage.*, vol. 49, pp. 157–169, 2019.

[49] N. H. Chen and S. C. T. Huang, "Domestic technology adoption: comparison of innovation adoption models and moderators," *Hum. Factors Ergon. Manuf.*, vol. 26, no. 2, pp. 177–190, 2016.

[50] S. Nazir, S. Khadim, M. Ali Asadullah, and N. Syed, "Exploring the influence of artificial intelligence technology on consumer repurchase intention: the mediation and moderation approach," *Technol. Soc.*, vol. 72, p. 102190, 2023.

[51] I. Ajzen and B. L. Driver, "Application of the theory of planned behavior to leisure choice," *J. Leis. Res.*, vol. 24, no. 3, pp. 207–224, 1992.

[52] L. German Ruiz-Herrera, A. Valencia-Arias, A. Gallegos, M. Benjumea-Arias, and E. Flores-Siapo, "Technology acceptance factors of e-commerce among young people: an integration of the technology acceptance model and theory of planned behavior," *Heliyon*, vol. 9, no. 6, p. e16418, 2023.

[53] S. Hamid and M. Azhar, "Behavioral intention to order food and beverage items using e-commerce during COVID-19: an integration of theory of planned behavior (TPB) with trust," *Br. Food J.*, vol. 125, no. 1, pp. 112–131, 2023.

[54] K. Anshu, L. Gaur, and G. Singh, "Impact of customer experience on attitude and repurchase intention in online grocery retailing: a moderation mechanism of value Co-creation," *J. Retail. Consum. Serv.*, vol. 64, p. 102798, 2022.

[55] M. Ashfaq, J. Yun, A. Waheed, M. S. Khan, and M. Farrukh, "Customers' expectation, satisfaction, and repurchase intention of used products online: empirical evidence From China," *SAGE Open*, vol. 9, no. 2, 2019.

[56] S. K. Trivedi and M. Yadav, "Predicting online repurchase intentions with e-satisfaction as mediator: a study on Gen Y," *VINE J. Inf. Knowl. Manag. Syst.*, vol. 48, no. 3, pp. 427–447, 2018.

[57] C. Kim, R. D. Galliers, N. Shin, J. H. Ryoo, and J. Kim, "Factors influencing Internet shopping value and customer repurchase intention," *Electron. Commer. Res. Appl.*, vol. 11, no. 4, pp. 374–387, 2012.

[58] V. den B. Evert, Z. Brahim, and P. Karolien, "Chatbot advertising effectiveness : when does the message get through?," *Comput. Hum. Behav.*, vol. 98, no. 4, pp. 150–157, 2019.

[59] U. Lichtenthaler, "Extremes of acceptance: employee attitudes toward artificial intelligence," *J. Bus. Strategy*, vol. 41, no. 5, pp. 39–45, 2020.

[60] T. S. Gesk and M. Leyer, "Artificial intelligence in public services: when and why citizens accept its usage," *Gov. Inf. Q.*, vol. 39, no. 3, p. 101704, 2022.