Bima Journal – Bussiness Management and Accounting
Available online at : http://journal.pdmbengkulu.org/index.php/bima
DOI: https://doi.org/10.37638/bima.6.1.245-262

ROLE OF ARTIFICIAL INTELLIGENCE ADOPTION, SELF CONFIDENCE, AND INFORMATION QUALITY IN INCREASING E-COMMERCE ADOPTION AND MARKETING PERFORMANCE OF MSMEs IN PALOPO CITY

Ratu Dhita Praginata[1]*, Rahmad Solling Hamid[2], Edi Maszudi[3]

[1,2,3)]Department of Management, Faculty of Economics and Business, Universitas Muhammadiyah Palopo

***Corespondent Author:** ratudhitapraginata@student.umpalopo.ac.id*

How to cite:

Praginata, R. D.; Hamid, R. S.; Maszudi, E. (2025). *Role Of Artificial Intelligence Adoption, Self Confidence, And Information Quality In Increasing E-Commerce Adoption And Marketing Performance Of Msmes In Palopo City. Jurnal Bima : Jurnal Bisnis, Manajemen dan Akuntansi, 6* (1). DOI: https://doi.org/10.37638/bima.6.1.245-262

ARTICLE HISTORY

Received [22 March 2025]
Revised [27 March 2025]
Accepted [27 May 2025]

Keywords

AI adoption, confidence, and information quality in increasing e-commerce adoption and marketing performance.

ABSTRACT

Purpose: *This study aims to analyze how the adoption of Artificial Intelligence (AI), self-confidence, and information quality influence the adoption of e-commerce and the marketing performance of Micro, Small, and Medium Enterprises (MSMEs).* ***Methodology:*** *The research employed a survey method involving 222 MSME respondents in Palopo City. Data were analyzed using Structural Equation Modeling (SEM) with the Partial Least Squares (PLS) approach, which is appropriate for evaluating complex inter-variable relationships and hypothesis testing.* ***Results:*** *The findings demonstrate that AI adoption, self-confidence, and information quality each have significant effects on e-commerce adoption and, subsequently, on marketing performance. AI enables automation and personalization; self-confidence drives willingness to adopt innovation; and high-quality information supports better decision-making.* ***Findings:*** *The study reveals that these three variables act as enablers of digital transformation for MSMEs, particularly in strengthening their marketing competitiveness through e-commerce.* ***Novelty:*** *This research integrates psychological (self-confidence), technological (AI adoption), and informational dimensions into a single predictive model for MSME digital adoption.* ***Originality:*** *The study offers a comprehensive approach to understanding MSMEs' readiness for e-commerce in a developing region, a topic still underexplored in empirical literature.* ***Conclusion:*** *Adopting AI, fostering self-confidence, and ensuring quality information are key to enhancing e-commerce use and marketing outcomes in MSMEs.* ***Type of Paper:*** *Empirical research paper.*

INTRODUCTION

The use of technology has become one of the main drivers in digital transformation in various sectors, including micro, small and medium enterprises (MSMEs) (Fonseka et al., 2022). Technologies such as artificial intelligence (AI) and e-commerce offer great opportunities for MSMEs to improve their competitiveness in an increasingly competitive market. AI enables business process automation, complex data analysis, and data-driven decision-making more quickly and accurately (Jelahut et al., 2021).Meanwhile, e-commerce allows MSMEs to expand their market reach, reduce geographical

barriers, and increase accessibility to global consumers. The combination of these two technologies provides a significant strategic advantage for MSMEs in facing the challenges of the modern market (Arroyabe et al., 2024).

Business owners' self-confidence is also an important factor in influencing the decision to adopt new technology. Individuals with high self-confidence tend to be more risk-taking and more optimistic about the success of technology adoption (Blanchard et al., 2020). In addition, the quality of information obtained through various technological sources is a key element in business decision making (Rahmad Solling Hamid, 2017). Relevant, accurate, and reliable information increases businesses' confidence in new technologies and supports more effective strategy implementation (Adju et al., 2022).

While the potential benefits of AI and e-commerce adoption have been widely discussed in various studies, there is a gap in understanding how a combination of factors such as confidence, information quality, and technology adoption can holistically affect MSME marketing performance (Yuen, 2023). Previous studies have focused more on the direct effects of each factor without highlighting the indirect relationships or interactions between these factors in the context of MSMEs. In addition, empirical studies on the mediating role of e-commerce adoption in the relationship between these variables and marketing performance are limited (Aljarboa, 2024).

This research offers novelty by integrating the three main factors of AI adoption, confidence, and information quality into one comprehensive research framework. The purpose of this study is to analyze the direct and indirect relationships between these variables on the marketing performance of MSMEs, with e-commerce adoption as a mediating variable (Fonseka et al., 2022). The results of this study are expected to provide theoretical and practical contributions in the development of technology adoption strategies by MSMEs and become a reference for policy makers in supporting the digital transformation of MSMEs (Latan et al., 2021).

Artificial Intelligence (AI) Adoption

The adoption of artificial intelligence (AI) has become one of the main elements of digital transformation in various sectors, including MSMEs. AI technology enables automation of routine tasks, analysis of complex data, and personalization of marketing strategies. In the context of MSMEs, AI adoption provides strategic benefits such as operational efficiency, reduction of human errors, and improved customer experience through AI-based recommendation systems and chatbots (Hicham et al., 2023). Research by highlights that AI enables organizations to leverage data for better decision-making, thereby increasing competitiveness in the market. However, AI adoption also presents challenges, especially for MSMEs that often face resource constraints. Factors such as high investment costs, limited technical skills, and resistance to change are major barriers. In this context, the organization's technological readiness and external support, including from the government and educational institutions, are key factors for successful AI implementation (Kian, 2021).

Self-confidence

Self-confidence plays an important role in the technology adoption process, especially among MSME players. High self-confidence allows individuals to take risks and try new innovations, such as the adoption of AI and e-commerce. Bandura (1997), through his theory of self-confidence, explains that self-confidence serves as a catalyst that encourages businesses to face challenges and take advantage of technological opportunities. Business actors with high levels of self-confidence tend to be more optimistic about the results to be achieved, despite facing initial barriers such as technological complexity and market uncertainty (Markus et al., 2020). Research shows that simulation-based training programs can increase the self-confidence of MSME actors, which in turn accelerates the process of adopting new technologies. In addition, support from the business community or mentors can help increase confidence, so that businesses are better prepared to face the risks associated with technology (Hollenbeck & Hall, 2004).

Information Quality

Information quality is one of the crucial elements in effective business decision-making. Accurate, relevant, and reliable information provides a strong basis for businesses to understand market trends, customer needs, and innovation opportunities (Tragandi et al., 2024). In the context of e-commerce adoption, good information quality increases businesses' trust in technology, thus encouraging them to utilize digital platforms more optimally. According to Rogers' (2003) Diffusion of Innovation theory, high-quality information is one of the important attributes that influence technology adoption decisions. Studies by show that information quality has a direct impact on the level of user satisfaction with digital platforms, which in turn affects the level of sustainability of technology adoption (Salah & Ayyash, 2024). However, MSME players often face the challenge of information overload, which can hinder their ability to filter and utilize relevant information. Solutions such as big data analytics and machine learning can help simplify the process of analyzing information, resulting in actionable insights (Muawanah & Trisnaningsih, 2022).

E-commerce Adoption

The adoption of e-commerce has become one of the key strategies for MSMEs to overcome geographical limitations and expand their market reach. E-commerce technology allows businesses to reach new customers, reduce distribution costs, and increase product or service accessibility (Fonseka et al., 2022). The e-commerce adoption process involves stages such as technology introduction, trial, and full integration into business operations. Research shows that e-commerce provides benefits in the form of increased marketing efficiency and revenue growth. For example, through digital platforms, MSME players can collect customer data, monitor market trends, and offer a more personalized customer experience (Bidasari et al., 2023). However, e-commerce adoption requires readiness in terms of technological infrastructure, data management capabilities, and effective digital marketing strategies (Nurjaman, 2022). Other challenges are data security and platform maintenance costs, which often become obstacles for MSMEs in utilizing e- commerce to its full potential.

Marketing Performance

Marketing performance is defined as an organization's ability to achieve marketing objectives such as increased revenue, customer satisfaction, and market share growth (Sindania & Hartono, 2022). In the context of digital transformation, technologies such as AI and e-commerce play an important role in improving the efficiency and effectiveness of marketing strategies. (Mintz, 2023) According to research by, digital technology helps organizations improve online marketing capabilities, such as market segmentation, content personalization, and digital campaign management. The use of technology also enables real-time data analysis, allowing businesses to respond more quickly and appropriately to market changes. However, the success of a marketing strategy depends not only on technology, but also on human factors, such as confidence and the ability to manage relevant information (Rahmawati et al., 2019). Based on the above statements, this study develops the following hypotheses :

a. AI Adoption and E-Commerce Adoption

In the context of e-commerce, AI plays an important role in improving business efficiency and performance by analyzing customer data to generate insights that can be applied in strategic decision-making For example, AI can be used to provide recommendation systems, predict market trends, and manage customer service through chatbots, all of which contribute to a better customer experience (Salah & Ayyash, 2024). Research shows that the use of AI in e-commerce significantly improves operational efficiency, reduces human errors, and helps in accelerating business

processes. Research shows that the adoption of AI in e-commerce not only improves business performance but also accelerates the digital transformation of small and medium-sized enterprises (SMEs) (Ayob, 2021). The combination of AI and e-commerce creates a dynamic ecosystem, where the adoption of more advanced technologies results in greater benefits, such as increased customer satisfaction, loyalty, and market competitiveness. We thus propose the following hypothesis:
H1: AI adoption has a positive and significant influence on e-commerce adoption.

b. AI Adoption and Marketing Performance

The relationship between AI adoption and marketing performance can be explained through the Resource-Based View (RBV), which states that a firm's competitive advantage depends on resources that are valuable, rare, difficult to imitate, and irreplaceable. In the context of AI, these resources include technological infrastructure, data, workforce skills, and the organization's ability to leverage technology effectively (Fonseka et al., 2022). However, while AI has the potential to improve performance through operational efficiency, data-driven decision-making, and personalized marketing strategies, there are several limitations that explain why this relationship may not be significant (Gregory et al., 2019). AI adoption and marketing performance may be insignificant for several reasons related to both internal and external limitations of the firm (Chen et al., 2022). Internally, although Artificial Intelligence (AI) has great potential to improve operational efficiency, many companies face challenges in effectively utilizing AI capabilities. Research shows that AI adoption requires a combination of resources such as technology infrastructure, workforce skills, and a well-thought-out implementation strategy (Hicham et al., 2023). If any of these elements are missing, the potential for AI to have a direct impact on marketing performance will be hampered (Gregory et al., 2019). In addition, AI-based decisions require good data management and organizational creativity, which are often not optimally integrated in many companies. Externally, the impact of AI adoption on marketing performance may also be limited by external factors such as regulatory constraints, changing consumer preferences, and intensifying competition (Kian, 2021).

H2: AI adoption has a negative and insignificant effect on marketing performance.

c. E - Commerce adoption and Marketing Performance

E-commerce plays an important role in supporting market orientation by providing tools and platforms to collect customer data, monitor market trends, and interact directly with consumers. Stating that companies with a strong market orientation tend to be more innovative and responsive to consumer needs (Salah & Ayyash, 2024). With e-commerce, companies can offer a more personalized customer experience, easier access to products, and faster delivery, all of which contribute to improved marketing performance (Sukrin & Haryanto, 2023). The adoption of e-commerce has a positive and significant impact on marketing performance as it allows companies to expand market reach, increase operational efficiency, and improve customer experience (Octavia et al., 2020). In the context of small and medium enterprises (SMEs), e-commerce helps companies overcome resource and infrastructure constraints by providing a cost-effective platform to sell products and services online. By utilizing digital technology, SMEs can deliver product information widely, increase sales, and allow consumers to easily access products and prices (Almtiri et al., 2023). Research shows that e-commerce adoption is directly related to increased sales turnover, marketing efficiency, and business competitiveness in the global marketplace (Mustari & Hamzah, 2022).

H3: e-commerce adoption has a positive and significant impact on marketing performance.

d. Confidence and adoption of E-Commerce

Self-confidence plays an important role in increasing the perception of behavioral control, that is, a person's belief in his or her ability to successfully adopt technology (Adju et al., 2022). When

individuals or businesses are confident that they are able to learn and operate an e-commerce platform, then they tend to have a positive attitude towards the technology, which ultimately increases their intention to adopt it. Research shows that a positive attitude towards e-commerce backed by strong self-confidence significantly increases the likelihood of technology adoption (Maszudi et al., 2020). Self-confidence has a positive and significant relationship with e-commerce adoption because confident individuals tend to be more open to innovation and technological change (Fonseka et al., 2022). In a business context, self-confidence makes businesses feel capable of learning, implementing, and managing e-commerce systems that may require new skills or adjustments to business processes (Luo, 2022). With confidence, businesses are also more willing to take risks in technology investments, which is one of the important factors in the successful adoption of e-commerce (Lala et al., 2002). In addition, self-confidence helps overcome the fear of failure that often becomes an obstacle in making decisions related to technology (Meutia & Ismail, 2019). As a result, confident business actors tend to see e-commerce as an opportunity to improve the competitiveness and efficiency of their businesses, so that the adoption of technology has increased significantly.

H4: self-confidence has a positive and significant impact on e-commerce adoption

e. Marketing confidence and performance

Individuals with high self-confidence tend to attribute their success to internal factors, such as ability and effort, rather than to external factors such as luck. In marketing, this positive attribution encourages individuals to believe in their abilities in designing and executing effective marketing strategies (Hollenbeck & Hall, 2004). Self-confidence helps them to constantly learn from successes and failures, thereby improving their ability to make better decisions in the future. In other words, confident individuals tend to be bolder to take initiatives and take advantage of market opportunities more strategically, which contributes to better marketing performance (Sindania & Hartono, 2022). Self-confidence and marketing performance have a positive and significant relationship because self-confidence affects the ability of an individual or marketing team to act with confidence, innovation, and resilience in the face of market challenges (Markus et al., 2020).

H5: self-confidence has a positive and significant effect on marketing performance.

f. Information quality and e - Commerce adoption

The high quality of information including accuracy, relevance, consistency, and timeliness helps users make better decisions (Muawanah & Trisnaningsih, 2022). In the context of e-commerce, high-quality information allows consumers to evaluate products or services with more confidence, thereby encouraging them to adopt e-commerce platforms (Chen et al., 2022). Clear and reliable information, such as Customer Reviews, Product Specifications, and return policies, reduces the uncertainty that is often a barrier to online transactions. When users feel they have enough information to make informed decisions, they tend to trust e-commerce platforms more (Rahmawati et al., 2019). The relationship between information quality and e-commerce adoption is positive and significant because high-quality information helps reduce consumer perceived risk and increases trust in digital transactions (Rahayu & Day, 2017). Overall, the high quality of information serves as a catalyst for improving usability, convenience, and consumer confidence in e-commerce platforms, which theoretically explains the positive and significant relationship between information quality and e-commerce adoption (Lala et al., 2002).

H6: the quality of social media information has a positive and significant impact on e-commerce adoption.

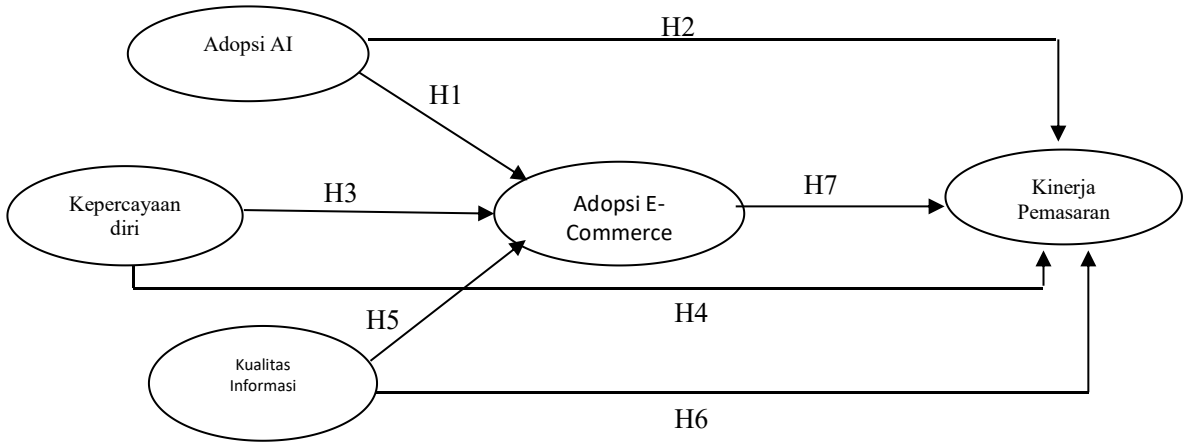
g. Information quality and Marketing Performance

When the information provided in the context of marketing is too much or too complex, consumers can feel overwhelmed (Muawanah & Trisnaningsih, 2022). This results in their inability to process information effectively, thereby reducing the positive impact of information quality on marketing performance, although the quality of information is important, its impact on marketing performance depends on the context, the way it is delivered, and the extent to which the information is relevant and understandable to the target market (Huang & Rust, 2021). If these factors are not met, the quality of information does not always contribute significantly to improving marketing performance. Theoretically, it shows that the quality of information alone is not enough to ensure good marketing performance (Rahmawati et al., 2019). Other factors such as relevance, the context of acceptance by the audience, and the organization's ability to utilize such information become key elements that determine marketing success (Surjatmodjo, 2023). When these elements are not met, the relationship between information quality and marketing performance becomes insignificant or even negative (Tolstoy et al., 2022).

H7: the quality of information has a negative and insignificant effect on marketing performance.

Based on the description of the research hypotheses (Figure 1), we can depict the research model and proposed hypotheses as follows.

Figure 1. The Proposed Research Model



METHOD

Types Of Research

Using a quantitative approach, this study aims to utilize the adoption of the role of artificial intelligence (AI), trust, and information quality in improving the implementation of e-commerce and marketing operations of MSMEs. The population in this study were all MSME actors in Palopo City. However, because the number of MSME populations involved in this study is not known for sure, this study uses a non-probability sampling method for data collection. This technique was chosen because it allows sampling even though the population size is not clear.

To determine the sample, this study identified respondents using social media with the snowball sampling technique, where the first respondents selected would provide references or

recommendations to other relevant people to participate in the study. Thus, this study managed to collect 275 respondents who agreed to participate. However, after screening, only 222 responses were considered valid and complete. This study excluded 50 incomplete responses at the initial analysis stage, so the response rate received was 80.72%, which is a fairly high response rate. Based on the literature, a response rate of more than 15% is considered acceptable for a methodology survey.The sampling technique used in this study is non-probability sampling, more specifically snowball sampling. This selection technique is based on the number of populations involved in MSMEs in Palopo City. Snowball sampling was chosen because it makes it easier to find relevant respondents by relying on recommendations from previous respondents. The reason for choosing the non-probability sampling technique is because the number of MSME populations is not known for sure, making it more difficult to apply probability sampling techniques that require complete information about the population. Snowball sampling is very effective when the population is difficult to identify and access, as in this case, where not all MSME actors are registered or clearly recorded. Statistical Analysis or Data Processing: The data collected from 222 respondents were then analyzed using Structural Equation Modeling (SEM) based on Partial Least Squares (PLS). This technique was chosen because it is very suitable for testing relationships between complex variables and for measuring causal models in research. SEM-PLS allows researchers to test hypotheses regarding the influence of AI adoption, self-confidence, and information quality on e-commerce adoption and MSME marketing performance. By using SEM-PLS, researchers can measure direct and indirect relationships between variables and test the strength of the relationship between AI adoption, self-confidence, information quality, e-commerce adoption, and marketing performance. Data that has been processed with SEM-PLS will provide more detailed information about the interactions between variables, as well as the extent to which these factors affect the marketing performance of MSMEs.Furthermore, with the description of the age of 21-25 years (0.55%). Furthermore, the level of education is SMA/SMK (0.48%). Furthermore, the duration you usually use AI in a day is 1>2 hours (0.32%).%). In general, the duration of use of AI ranges from 1 to 2 hours. Furthermore, other types of managed MSME businesses (0.54%). Furthermore, business turnover (0.39%). Furthermore, the times you usually use AI for business activities in one day during the day (0.45%).

Table 1. Respondent Description

Variables	Percentage (%)	Variables	Percentage %
Gender		**Types of MSME businesses managed**	
Man	103 (0.46%)	Service	33 (0.14%)
Woman	119 (0.53%)	Culinary	16 (0.7%)
		Trading	50 (0.22%)
		Manufacturing	4 (0.1%)
		Another	121 (0.54%)
Age		**Business Turnover**	
15-20 years	40 (0.18%)	< Rp.500,000	49 (0.22%)
21-25 years old	122 (0.55%)	Rp.1,000,000 - Rp.5,000,000	87 (0.39%)
26-30 years old	44 (0.20%)	Rp.6,000,000 - Rp.10,000,000	33 (0.15%)
31-40 years old	9 (0.4%)	Rp.11,000,000	52 (0.23%)
41-50 years old	5 (0.2%)		
Level of education		**The times you would typically use AI are:**	
JUNIOR HIGH SCHOOL	6 (0.2%)	**business activities in one day**	
High School/Vocational School	107 (0.48%)	Morning (06:00 - 10:00)	51 (0.23%)
Diploma (D3)	16 (0.17%)	Afternoon (11:00 - 15:00)	99 (0.45%)
Bachelor degree)	86 (0.39%)	Afternoon (16:00 - 18:00)	77 (0.35%)
Master (S2)	16 (0.7%)	Evening (18:00 - 00:00)	73 (33%)
The duration you usually use AI in a day			
< 1 hour	49 (0.22%)		
1 > 2 hours	70 (0.32%)		
2 > 3 hours	53 (0.24%)		
4 hours	52 (0.23%)		

Measurement items and scales

Measurement items and scales are the main components of quantitative research that often affect research results. A proper measurement Item must be able to capture the concept of the construct being measured. The same measurement items were used in previous empirical studies. Due to the complexity of scale development, the use of existing measurement items is usually considered more practical than creating new measurement items. AI adoption (AI); Trust (KD); information quality (KI); e-commerce adoption (AE); Marketing performance (KP) is measured using a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Table 2. Measurement items

Construction	Loading
AI Adoption(AI) Adapted from Chen et al. (2015), (Hansen & Bøgh, 2021; Ulas, 2019), Dwivedi et al. (2023), Rebs et al. (2019); α = 0.897; CR = 0.927; AVE = 0.762	
E-commerce	0.835
Information systems	0.912
Customer Experience	0.892
supply chain	0.851
Confidence(KD) Adapted from Blanchard et al. (2002), (Compte & Postlewaite, 2005), Caplin and Leahy's(2001), Brunnermeier and Parker's (2005); α = 0.873; CR = 0.913; AVE = 0.724	
Motivation	0.836
Performance	0.837
Ego utility	0.870
Anticipatory utility	0.860
Information Quality(KI) Adapted from Lala et al. (2002), Shaked and Sutton (1982), (Moizer, 1986; Sutton and Lampe, 1991; Sutton, 1993), (Craig, 2000); α = 0.890; CR = 0.923; AVE = 0.749	
Web trust	0.812
Process understanding	0.889
increased confidence	0.896
Better business bureau (BBB) online	0.862
E-commerce Adoption(AE) Adopted from Shemi, AP, & Procter, C. (2018), Juste, R., & Milyung, P. (2016), (Razavi & AbAziz, 2017), Ginta, G. (2014); α = 0.913; CR = 0.938; AVE = 0.792	
Stages of e-commerce development	0.874
E-commerce adoption model	0.885
Stages of growth for E-business	0.898
E-commerce maturity model	0.903
Marketing Performance(KP) Adopted from (Thomas, 2009; Xia & Zhang, 2010), (Shoham, 1998), (Brouthers,2013), Chang et al. (2010); α = 0.859; CR = 0.904; AVE = 0.703	
Online marketing capabilities (OMC)	0.873
Investment development (ROI)	0.843
Revenue growth	0.869
Sales growth	0.858

Note: AI adoption (AI); confidence (KD); information quality (KI); e-commerce adoption (AE); marketing performance (KP).

Data collection procedure

This study used several steps in the data collection procedure. First, in the development of the questionnaire, This study applies a reverse translation procedure from English to Indonesian and back to English. It is aimed at ensuring the clarity of the content of the questionnaire. Secondly, after obtaining the final version of the questionnaire, a preliminary trial was carried out by sending questionnaires to 50 respondents for preliminary data analysis. This procedure minimizes the potential for bias that could affect the validity of research results. This stage includes calculating possible measurement errors in survey methods, such as method bias, response bias, and social desirability bias, to improve survey quality, and ensure questionnaires are understood by

respondents. Third, the main research was conducted by distributing questionnaires through social media and email. This deployment is followed by a notification via text message to ensure the sent questionnaire has been received by the respondent. This method is considered one of the best methods to reach a wide range of respondents at low cost and in a short time. To improve response rates, at the end of each month during the study period, we sent respondents an email as a reminder. To maintain the confidentiality of respondents ' personal data, we ensure that their names and identities will not be disclosed in this study. Data collection was carried out during the period October 2024 to December 2024.

RESULTS AND DISCUSSION

Results

Hypothesis testing (see Figure 1) was conducted using Structural Equation Modeling (SEM) through Partial Least Squared (PLS-SEM). This study used SmartPLS software package version 4. PLS-SEM was used in this study because it is often used in the field of marketing and management research with the aim of analyzing causal relationships between latent constructs. In addition, this technique is effective in estimating causal relationships in theoretical models based on empirical data. Criteria to evaluate the structural model (outer model) using SEM-PLS are (i) reliability test which can be seen from the value of composite reliability and cronbach's alpha, (ii) convergent validate which can be seen from the value of loading factor and the value of average variance extracted (AVE), and (iii) discriminant validate which can be seen from the value of the square root of Ave and correlation between latent constructs. The next step is to evaluate the outer model through a reliability test that aims to prove the accuracy, consistency and accuracy of the instrument in measuring the construct. Reliability test is done by looking at the value of composite reliability (>0.70). Thus, it can be concluded that the data is reliable (Table 3).

Convergent validity is concerned with the principles by which the measures (real variables) of a given construct must be highly correlated. Convergent validity testing is done by examining the value of the loading factor compared to the rule of thumb (> 0.6), then by looking at the average value of the extracted variance (AVE) compared to the rule of thumb (> 0.50). Based on the results of convergent validity testing, the loading factors on each construct all have values greater than the rule of thumb (> 0.60). The values of each extracted mean of variance (AVE) for each construct all have values greater than the rule of thumb (>0.50) (Table 3). We applied two criteria in evaluating discriminant validity. First, we apply the criterion by which the square root of the Ave variable must be higher than its correlation with other variables. Second, we evaluated the heterotrait-monotrait ratio (HTMT) of the correlations. According to Henseler et al ., (2015), HTMT is more sensitive in decreasing discriminant validity compared to other criteria. To demonstrate discriminant validity, the HTMT between the two constructs must be less than 0.90. These two criteria support the discriminant validity of all our variables (Table 3).

Table 3. Reliability, convergent validity and discriminant

Construction	1	2	3	4	5
AI Adoption (AI) (1)	*0.762*	*0.762*	0.310	0.291	0.164
E-commerce Adoption (AE) (2)	0.322	0.322	0.890	0.452	0.637
Self Confidence (KD) (3)	0.340	0.340	*0.724*	0.851	0.746
Marketing Performance (KP) (4)	0.304	0.304	0.860	*0.703*	0.839
Information Quality (KI) (5)	0.727	0.727	0.408	0.321	*0.749*

Note: The values on the diagonal in bold are the square roots of the Average Variance Extracted (AVE) of each factor. The values below the diagonal are the correlations between factors, and the values above the diagonal are the HTMT 1 Heterotrait-Monotrait ratios; the criterion confidence interval does not include 1; HTMT90 –Henseler et al. (2015) *AI adoption (AI); Trust (KD); Information quality (KI); E-commerce adoption (AE); Marketing performance (KP).*

The assessment criteria for the structural model (inner model) using SEM-PLS are (i) R-square for the dependent construct and (ii) bootstrapping procedure (t value >1.96 and significance level = 5%) to determine the significance value. The following are the results of the structural model assessment (inner model) through the bootstrapping procedure to test the hypothesis proposed in this study as presented in Table 4.

The structural model or inner model is evaluated by looking at the percentage of variance explained by looking at the R2 Square value and the Q2 value for the dependent latent construct. According to the rule of thumb, R2 Square with a value of 0.75 is categorized as important; 0.50 is moderate, and 0.25 is categorized as weak. The rule of thumb value for Q2 > 0 indicates that the model has predictive relevance, and the rule of thumb value for Q2 < 0 indicates that the model has less predictive relevance. From the analysis (Table 4), the R2 Square value for the trust construct is 0.285, which means that the variability of trust, which can be explained by the variables of information quality, system quality, and social media marketing activities in the model is 28.5% and is included in the weak model category. On the other hand, the R Square value of the user satisfaction construct is 0.675, which means that the variability of user satisfaction that can be explained by the variables of information quality, system quality, social media marketing activities, and trust in the model is 67.5% and is included in the moderate model category. For the Q2 value, the trust construct is 0.251 > 0, and the user satisfaction construct is 0.541 > 0, which means that the model has predictive relevance. Evaluation of the significance value by looking at the path coefficient value from the test results with Partial Least Square (PLS) and with bootstrapping calculations (Table 4). From the path coefficient results, it can be seen that for (H1), AI Adoption has a positive and significant effect on e-commerce Adoption (β = 0.362; p <0.05). For (H2), AI Adoption has a negative and insignificant effect on marketing performance (β = -0.084; p> 0.05). For (H3), e-commerce adoption has a positive and significant effect on marketing performance (β = 0.403; p <0.05). Furthermore, for (H4), self-confidence has a positive and significant effect on e-commerce adoption (β = 0.450; p> 0.05). Furthermore, for (H5), self-confidence has a significant positive effect on marketing performance (β=0.553; p<0.05). For (H6), information quality has a positive and significant effect on e-commerce adoption (β=0.453; p<0.05). Then for (H7), the information quality construct has a negative and insignificant effect on e-commerce adoption (β= -0.099; p>0.05).

Table 4. Hypothesis Testing

Hypothesis	Relationships	Patch coefficients	T Statistics	R2 Square	Q2	p-Value	Decision
Direct Effect							
H1	AI → AE	0.362	6,595**			0.000**	Supported
H2	AI → KP	-0.084	1.634ns			0.102ns	Not supported
H3	AE → KP	0.403	5.149**			0.000**	Supported
H4	KD → AE	0.45	6.126**			0.000**	Supported
H5	KD → KP	0.553	7,443**			0.000**	Supported
H6	KI → AE	0.288	3.256**			0.001**	Supported
H7	KI → KP	0.099	1.743ns			0.081ns	Not supported
Indirect effects							
	AI → AE → KP	0.146	4.143**			0.000**	Supported
	KD → AE → KP	0.181	3,796**			0.000**	Supported
	KI → AE → KP	0.116	2,641**			0.008**	Supported
	AE			0.285	0.259		
	KP			0.675	0.541		
Effect Total							
	AI → KP	0.146	4.143			0.000**	
	KD → KP	0.181	3,796			0.000**	
	KI → KP	-0.116	2,641			0.008**	

*Note: ** statistically significant at 5%; ns not significant. The rule of thumb for R Square values is as follows: 0.75 for strong category; 0.50 for medium category, and 0.25 for weak category. The rule of thumb value for Q2 > 0 indicates that the model has predictive relevance, and the rule of thumb for Q2 < 0 indicates that the model has no predictive relevance. AI adoption (AI); Trust (KD); Information quality (KI); E-commerce adoption (AE); Marketing performance (KP).*

DISCUSSION

The purpose of this study is toForanalyzes the role of artificial intelligence (AI) adoption, self-confidence, and information quality in increasing e-commerce adoption and MSME marketing performance. Based on the results of data analysis conducted with SmartPLS, this study found several important findings that will be discussed in a theoretical and practical framework.

The Role of AI Adoption in Increasing E-Commerce Adoption in MSMEs

Artificial Intelligence (AI) has become an important element in digital transformation in the MSME sector, especially in facilitating e-commerce adoption. AI adoption enables automation of operational processes and data analytics, which contribute to efficiency and effectiveness in decision making. Based on the environmental organizational technology theory, technological readiness is a determining factor for the success of AI adoption. Previous research by Davis (1989) in the Technology Acceptance Model (TAM) theory also supports that the perception of ease of use and benefits of AI are the main factors that motivate MSMEs to integrate AI into their e-commerce platforms. AI, such as chatbots and predictive algorithms, helps MSMEs improve customer experience by providing more personalized and responsive services. For example, AI-based chatbots

can answer customer questions in real-time, thereby increasing customer satisfaction and loyalty. In addition, AI enables customer behavior analysis to understand market preferences and needs.

These results are consistent with research conducted by (Pokhrel, 2024), which found that AI drives marketing efficiency by increasing the relevance of promotional campaigns. However, the main challenges in adopting AI involve high investment costs and limited technical skills among MSMEs. Therefore, the role of government and educational institutions is crucial in providing training and access to AI technology at affordable costs. The practical implications of this AI adoption are increasing digital market penetration and enabling MSMEs to compete in the global market.

Self-Confidence as a Moderating Factor in AI Adoption

Self-confidence plays an important role in the decision-making process of MSMEs to adopt new technologies such as AI. Self-efficacy, which refers to an individual's belief in their ability to achieve certain goals, is a catalyst in overcoming resistance to change. Bandura (1997) in his theory of self-efficacy explains that individuals with high levels of self-confidence are more likely to try new things and face challenges proactively. In the context of MSMEs, self-confidence influences the extent to which business actors are able to explore the potential of AI in improving their business performance. MSMEs who believe in their ability to learn and use AI show higher levels of technology adoption. Research by (Zhang, 2024) shows that simulation-based training can increase the self-efficacy of MSMEs, which ultimately accelerates the process of technology adoption. In addition, self-confidence is also closely related to previous experience and knowledge. MSMEs with experience using digital technology tend to have higher self-confidence in adopting AI. However, business actors who lack self-confidence face psychological barriers, such as fear of failure and technological complexity. Therefore, an inclusive approach, such as providing mentorship programs and practical guidance, can help overcome these barriers.

Information Quality and Its Relevance to E-Commerce Adoption

Information quality is a key element in ensuring the success of e-commerce adoption. Accurate, relevant, and up-to-date information provides a strong basis for MSMEs to make strategic decisions. In the Diffusion of Innovation theory (Rogers, 2003), the attribute of reliable information is one of the main factors in influencing the level of adoption of new technologies. The availability of quality information helps MSMEs understand the benefits, risks, and how to use e-commerce effectively. For example, MSMEs who have access to market data and consumer trends can develop more targeted marketing strategies. A study by (Huang & Rust, 2021) shows that information quality affects the level of user satisfaction with e-commerce platforms, which has an impact on the sustainability of the adoption of the technology.

However, the challenge faced by MSMEs is the difficulty in filtering valid information amidst the flood of data (information overload). Therefore, a platform is needed that can present organized and relevant information to support decision making. The use of technologies such as big data and machine learning can help MSMEs analyze data efficiently, resulting in meaningful and actionable insights

.

The Relationship between AI Adoption, Self-Confidence, and Information Quality on MSME Marketing Performance

The synergy between AI adoption, confidence, and information quality has a significant impact on MSME marketing performance. AI plays a role in automating marketing processes, such as market segmentation and content personalization, which increases the efficiency and effectiveness of marketing campaigns. MSME actors' confidence is a driving factor in optimally utilizing AI, while information quality ensures that the marketing strategies developed are based on valid data.

Research by (Noranee & Kadir Bin Othman, 2023) shows that the combination of these three variables increases innovation in MSME marketing strategies. For example, the use of AI for customer data analytics allows MSME actors to identify new market opportunities, while information quality helps them design relevant strategies. Confidence is a determining element in taking measured risks to implement this strategy. However, this success is not without challenges. MSME actors need to overcome internal obstacles, such as limited resources and resistance to change, as well as external obstacles, such as tight market competition. Therefore, a holistic approach is needed that includes capacity building, access to technology, and policy support to increase AI adoption, confidence, and information quality among MSME actors.

Implications and contributions This study provides theoretical and practical contributions in understanding the factors that influence e-commerce adoption and MSME marketing performance. Theoretically, this study broadens the understanding of the interaction between technology, psychology, and information in the context of technology adoption. Practically, these findings provide guidance for policy makers, MSME actors, and technology providers to improve an inclusive and sustainable digital ecosystem. In the future, further research is needed to explore other variables that may influence technology adoption, such as organizational culture and external support. In addition, a longitudinal approach can provide deeper insights into the dynamics of change in technology adoption and MSME marketing performance over time.

CONCLUSIONS

This study provides insights into the role of artificial intelligence (AI) adoption, self-confidence, and information quality in increasing e-commerce adoption and their impact on MSME marketing performance. The results show that AI adoption significantly influences e-commerce adoption, which in turn positively contributes to marketing performance. AI technology enables business process automation, complex data analysis, and personalization of marketing strategies, providing MSMEs with the efficiency they need to compete in the digital market. However, the direct effect of AI on marketing performance was found to be insignificant, indicating the importance of other supporting factors to optimize its benefits. MSME actors' self-confidence has also been shown to be an important factor in driving technology adoption. Individuals with high levels of self-confidence are more willing to take risks, including trying new innovations such as AI and e-commerce. Strong self-confidence helps entrepreneurs overcome psychological challenges such as fear of failure, thus facilitating the process of adopting digital technology. Information quality is another important element that influences business decisions.

Relevant, accurate, and reliable information supports MSMEs in understanding the benefits of technology and designing effective marketing strategies. Information quality significantly drives e-commerce adoption by providing a basis for better decision-making. However, the direct impact of information quality on marketing performance is not significant, confirming that this factor requires support from other elements to produce optimal impact. The synergy between AI adoption, confidence, and information quality forms an innovative ecosystem and supports MSME marketing performance. By utilizing AI technology, increasing confidence, and using quality information, MSMEs can create more relevant, efficient, and competitive marketing strategies. This study emphasizes the importance of a holistic approach in MSME digital transformation, involving government support, training, and wider technology access to accelerate the adoption of digital technology. These findings contribute to the development of policies and strategies that support the sustainability of MSME growth in the digital era.

REFERENCES

Adju, N. R., Alam, H. V., & Mendo, A. Y. (2022). Pengaruh Self Efficacy Dan Self Confidence Terhadap Kreativitas Pelaku Umkm Di Provinsi Gorontalo. *Jambura*, *5*(2), 672–681. http://ejurnal.ung.ac.id/index.php/JIMB

Aljarboa, S. (2024). Factors influencing the adoption of artificial intelligence in e-commerce by small and medium-sized enterprises. *International Journal of Information Management Data Insights*, *4*(2), 100285. https://doi.org/10.1016/j.jjimei.2024.100285

Almtiri, Z., Miah, S. J., & Noman, N. (2023). Impact of Business Analytics and Decision Support Systems on E-commerce in SMEs. *Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, *13864 LNCS*, 344–361. https://doi.org/10.1007/978-981-99-2233-8_25

Arroyabe, M. F., Arranz, C. F. A., Fernandez De Arroyabe, I., & Fernandez de Arroyabe, J. C. (2024). Analyzing AI adoption in European SMEs: A study of digital capabilities, innovation, and external environment. *Technology in Society*, *79*(November 2023). https://doi.org/10.1016/j.techsoc.2024.102733

Ayob, A. H. (2021). E-commerce adoption in ASEAN: who and where? *Future Business Journal*, *7*(1), 1–11. https://doi.org/10.1186/s43093-020-00051-8

Bidasari, B., Sahrir, S., Goso, G., & Hamid, R. S. (2023). Peran Literasi Keuangan dan Literasi Digital dalam Meningkatkan Kinerja UMKM. *Owner*, *7*(2), 1635–1645. https://doi.org/10.33395/owner.v7i2.1404

Blanchard, O., Brocas, I., Glaeser, E., Gilbert, D., Jewitt, I., Laibson, D., Loewenstein, G., Postlewaite, A., Pycia, M., Rotemberg, J., & Uni-, C. (2020). *Self-confidence and personal motivation* ´. August*, 871–915.

Chen, D., Esperança, J. P., & Wang, S. (2022). The Impact of Artificial Intelligence on Firm Performance: An Application of the Resource-Based View to e-Commerce Firms. *Frontiers in Psychology*, *13*(April). https://doi.org/10.3389/fpsyg.2022.884830

Fonseka, K., Jaharadak, A. A., & Raman, M. (2022). Impact of E-commerce adoption on business performance of SMEs in Sri Lanka; moderating role of artificial intelligence. *International Journal of Social Economics*, *49*(10), 1518-1531Purpose: With the rapid development of te. https://doi.org/10.1108/IJSE-12-2021-0752

Gregory, G. D., Ngo, L. V., & Karavdic, M. (2019). Developing e-commerce marketing capabilities and efficiencies for enhanced performance in business-to-business export ventures. *Industrial Marketing Management*, *78*(March), 146–157. https://doi.org/10.1016/j.indmarman.2017.03.002

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*(1), 115–135.

Hicham, N., Nassera, H., & Karim, S. (2023). Strategic Framework for Leveraging Artificial Intelligence in Future Marketing Decision-Making. *Journal of Intelligent Management Decision*, *2*(3), 139–150. https://doi.org/10.56578/jimd020304

Hollenbeck, G. P., & Hall, D. T. (2004). Self-confidence and leader performance. *Organizational Dynamics*, *33*(3), 254–269. https://doi.org/10.1016/j.orgdyn.2004.06.003

Huang, M. H., & Rust, R. T. (2021). A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science*, *49*(1), 30–50. https://doi.org/10.1007/s11747-020-00749-9

Jelahut, F. E., Utang, H. Y., Jelahut, Y. E., & Jehamat, L. (2021). MENALAR SKEPTIS ADOPSI ARTIFICIAL INTELIGENCE (AI) DI INDONESIA: 'Sebuah Tinjauan Filsafat Ilmu Komunikasi.' *Jurnal Filsafat Indonesia*, *4*(2), 172–178. https://doi.org/10.23887/jfi.v4i2.33794

Kian, R. (2021). International journal of Innovation in Management Economics and Social Sciences Provide a Model for an E-Commerce System with the Impact of Artificial Intelligence. *Journal Homepage: Www.Ijimes.Ir Int. J. Inn. Man. Eco. Soc. Sci*, *1*(3), 88–94. https://doi.org/10.52547/ijimes.1.3.88

Lala, V., Arnold, V., Sutton, S. G., & Guan, L. (2002). The impact of relative information quality of e-commerce assurance seals on internet purchasing behavior. *International Journal of Accounting Information Systems*, *3*(4), 237–253. https://doi.org/10.1016/S1467-0895(02)00069-6

Latan, H., Chiappetta Jabbour, C. J., & Lopes de Sousa Jabbour, A. B. (2021). Social Media as a Form of Virtual Whistleblowing: Empirical Evidence for Elements of the Diamond Model. *Journal of Business Ethics*, *174*(3), 529–548. https://doi.org/10.1007/s10551-020-04598-y

Luo, N. (2022). Innovation of E-Commerce Development Model under the Background of Artificial Intelligence and Wireless Communication. *Wireless Communications and Mobile Computing*, *2022*. https://doi.org/10.1155/2022/8572911

Markus, M., Tanya, S., Papers, W., Möbius, M. M., Niederle, M., Niehaus, P., & Rosenblat, T. S. (2020). *Managing self-confidence : Theory and experimental evidence Managing Self-Confidence : Theory and Experimental Evidence*. *11*.

Maszudi, E., Khaddapi, M., Kusdarianto, I., Hamid, R. S., Muhammad, & Jusni. (2020). Management of economic and environmental sustainability in international political economy perspective. *IOP Conference Series: Earth and Environmental Science*, *575*(1). https://doi.org/10.1088/1755-1315/575/1/012048

Meutia, & Ismail, T. (2019). The Development of Entrepreneurial Social Competence and Business Network to Improve Competitive Advantage and Business Performance of Small Medium Sized Enterprises: A Case Study of Batik Industry in Indonesia. *Procedia - Social and Behavioral Sciences*, *65*(ICIBSoS), 46–51. https://doi.org/10.1016/j.sbspro.2012.11.089

Mintz, O. (2023). Metrics for Marketing Decisions: Drivers and Implications for Performance. *NIM Marketing Intelligence Review*, *15*(1), 18–23. https://doi.org/10.2478/nimmir-2023-0003

Muawanah, W., & Trisnaningsih, S. (2022). Komparasi Kualitas Informasi Akuntansi dan Strategi Bertahan UMKM di Masa Pandemi. *Al-Kharaj : Jurnal Ekonomi, Keuangan & Bisnis Syariah*, *5*(3), 1396–1404. https://doi.org/10.47467/alkharaj.v5i3.1776

Mustari, & Hamzah, H. (2022). E-Business-Based Marketing Strategy in the Silk Fabric Industry of Non-Machine Weaving Equipment (ATBM) in Wajo Regency. *Proceedings of the International Conference on Social, Economics, Business, and Education (ICSEBE 2021)*, *205*(Icsebe 2021), 184–188. https://doi.org/10.2991/aebmr.k.220107.035

Noranee, S., & Kadir Bin Othman, A. (2023). JMM17: Jurnal Ilmu Ekonomi dan Manajemen Understanding Consumer Sentiments: Exploring the Role of Artificial Intelligence in Marketing. *Jurnal Ilmu Ekonomi Dan Manajemen*, *10*(01), 15–23. https://jurnal.untag-sby.ac.id/index.php/jmm17/index

Nurjaman, K. (2022). Pemberdayaan E-Commerce di Kalangan Pelaku UMKM di Indonesia. *Jurnal Abdimas Peradaban*, *3*(1), 34–40. https://doi.org/10.54783/ap.v3i1.6

Octavia, A., Indrawijaya, S., Sriayudha, Y., Heriberta, Hasbullah, H., & Asrini. (2020). Impact on e-commerce adoption on entrepreneurial orientation and market orientation in business performance of smes. *Asian Economic and Financial Review*, *10*(5), 516–525. https://doi.org/10.18488/journal.aefr.2020.105.516.525

Pokhrel, S. (2024). No TitleΕΛΕΝΗ. *Αγαη*, *15*(1), 37–48.

Rahayu, R., & Day, J. (2017). E-commerce adoption by SMEs in developing countries: evidence from Indonesia. *Eurasian Business Review*, *7*(1), 25–41. https://doi.org/10.1007/s40821-016-0044-6

Rahmad Solling Hamid, M. I. (2017). Analisis Dampak Kepercayaan Pada Pengguna. *Jurnal Manajemen Teknologi*, *16*(3), 310–337.

Rahmawati, S., Darsono, D., & Setyowati, N. (2019). Faktor-Faktor yang Mempengaruhi Kinerja Pemasaran pada Usaha Mikro Kecil dan Menengah Pangan Olahan di Kota Surakarta. *Jurnal*

Ekonomi Pertanian Dan Agribisnis, *3*(2), 325–335. https://doi.org/10.21776/ub.jepa.2019.003.02.9

Salah, O. H., & Ayyash, M. M. (2024). E-commerce adoption by SMEs and its effect on marketing performance: An extended of TOE framework with ai integration, innovation culture, and customer tech-savviness. *Journal of Open Innovation: Technology, Market, and Complexity*, *10*(1), 100183. https://doi.org/10.1016/j.joitmc.2023.100183

Sindania, S., & Hartono, S. (2022). Peningkatan Kinerja Pemasaran Melalui Disruptive Innovation Yang Berbasis Intellectual Capital pada UMKM kabupaten Sukamara, Kalimantan Tengah. *Jurnal Ekonomi Dan Bisnis*, *21*(2), 121. https://doi.org/10.30659/ekobis.21.2.121-134

Sukrin, S., & Haryanto, A. (2023). Peran Keunggulan Bersaing Dalam Memediasi Pengaruh Sumberdaya Tidak Berwujud Terhadap Kinerja Pemasaran. *Jurnal Maneksi*, *12*(2), 451–457. https://doi.org/10.31959/jm.v12i2.1449

Surjatmodjo, D. (2023). Study of Management Information Systems on Employee Performance Through Interpersonal Communication at Regional State Intelligence Agency Offices South Sulawesi Province. *Daengku: Journal of Humanities and Social Sciences Innovation*, *3*(2), 323–328. https://doi.org/10.35877/454ri.daengku1511

Tolstoy, D., Nordman, E. R., & Vu, U. (2022). The indirect effect of online marketing capabilities on the international performance of e-commerce SMEs. *International Business Review*, *31*(3), 101946. https://doi.org/10.1016/j.ibusrev.2021.101946

Tragandi, R., Syamsarina, S., Sarmigi, E., & Mailindra, W. (2024). Pengaruh Celebrity Endorse dan Kualitas Informasi terhadap Keputusan Pembelian dengan Kepercayaan Sebagai Variabel Intervening pada Online Shop. *Jurnal Ilmiah Universitas Batanghari Jambi*, *24*(2), 1916. https://doi.org/10.33087/jiubj.v24i2.5438

Yuen, T. M. (2023). Going Digital for SMES: Adapting Business Model and Seizing Opportunities to Achieve Sustainable Business Performance. *International Journal of Academic Research in Business and Social Sciences*, *13*(2), 437–449. https://doi.org/10.6007/ijarbss/v13-i2/16370

Zhang, B. (2024). Artificial Intelligence in Marketing. *Transactions on Social Science, Education and Humanities Research*, *9*(3), 181–187. https://doi.org/10.62051/s4y73e41