

ABSTRACT

This study examines the development of global e-commerce, which has transformed into a dynamic ecosystem based on big data and Artificial Intelligence (AI), where real-time personalization and AI-driven recommendation systems are key elements in shaping the consumer shopping experience. Despite the increasing adoption of AI, empirical results regarding its effectiveness still show inconsistencies. Therefore, this study aims to analyze the influence of real-time personalization and AI-driven recommendation systems on the purchase decisions of Shopee users in Semarang City, with social media influence as a mediation variable.

This study used a quantitative approach with a survey method involving 96 purposively selected respondents. Data were analyzed using Structural Equation Modeling (SEM) based on Partial Least Squares (PLS) through SmartPLS. The analysis was conducted through testing the outer model for validity and reliability, fit model and the inner model to examine the relationships between variables and the research hypotheses.

The results show that AI-driven recommendation systems have a positive and significant effect on purchase decisions, while real-time personalization has no significant effect. Furthermore, social media influence was not shown to moderate the relationship between the two independent variables and purchase decisions. These findings indicate that the effectiveness of AI technology in e-commerce is more determined by the quality of the recommendation system than general personalization, so e-commerce platforms need to focus development on improving the accuracy and relevance of recommendation algorithms to improve consumer purchasing decisions.

Keywords: *Real time personalization, AI driven recommendation system, Social media influence, Purchase decision, E-commerce.*

