



ARTIFICIAL INTELLIGENCE MARKETING CAPABILITIES AND COMPETITIVE ADVANTAGE: THE MEDIATING ROLE OF CUSTOMER AGILITY IN THE DIGITAL BANKING SECTOR

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Abstract

In the era of massive digital transformation, the banking sector faces immense pressure to adopt advanced technologies to maintain market relevance. This study aims to investigate the influence of Artificial Intelligence Marketing Capabilities (AIMC) on competitive advantage by positioning Customer Agility as a mediating variable in the context of the digital banking sector. Using a quantitative approach and Structural Equation Modeling (SEM) analysis, data were collected from marketing managers and decision-makers at a leading digital bank. The results show that AIMC significantly improves banks' ability to predict customer needs, which in turn strengthens customer agility. Furthermore, customer agility is shown to mediate the relationship between AI capabilities and competitive advantage, confirming that technology alone is insufficient without an organization's ability to respond quickly to changing customer behavior. These findings provide theoretical contributions to the Resource-Based View (RBV) and provide practical implications for banking management to prioritize investment in customer-oriented AI infrastructure to win the competition in a saturated market.

Keywords: Artificial Intelligence Marketing Capabilities, Competitive Advantage, Customer Agility, Digital Banking, Resource-Based View

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INTRODUCTION

The global financial industry landscape is currently experiencing unprecedented disruption, driven by the integration of artificial intelligence (AI) into core marketing strategies. According to Davenport and Ronanki (2018), companies that fail to integrate AI capabilities into their marketing functions will be left behind in understanding the rapidly evolving complexity of consumer data. In the digital banking sector, AI is no longer simply an automation tool, but rather a strategic capability that enables companies to personalize

services at scale. Huang and Rust (2021) emphasize that the evolution of AI from a mechanical to an analytical and intuitive stage has forced digital banks to reimagine how they interact with the market ecosystem to create sustainable value.

The importance of competitive advantage in digital banking has become increasingly crucial with the emergence of agile *fintech* entities . Porter (1985) in his foundational theory stated that competitive advantage arises from a company's ability to create value for customers that exceeds the cost of creating it, a concept now translated into AI algorithmic efficiency. In a modern context, Bharadwaj et al. (2013) argue that competitive advantage in the digital era relies heavily on the synchronization of business and IT strategies, with AI-based marketing spearheading market penetration. The banking sector, traditionally considered rigid, must now transform into a data-driven organization to secure market share from more innovative competitors (Vial, 2019).

Artificial Intelligence Marketing Capabilities (AIMC) refer to an organization's ability to leverage AI technology to execute marketing activities more effectively and efficiently than conventional methods. Mikalef and Gupta (2020) explain that AIMC includes the use of *machine learning* for customer segmentation, predictive analytics for *churn* management , and automated recommendation systems. Without these capabilities, banks will struggle to process massive volumes of data, or *big data*, into actionable insights. Furthermore, Dwivedi et al. (2021) state that the success of AIMC implementation depends heavily on the readiness of human resources and an organizational culture that supports technology experimentation.

However, possessing advanced AI technology does not automatically guarantee competitive advantage if an organization lacks customer agility . Sambamurthy et al. (2003) define customer agility as a company's ability to detect and respond to opportunities for innovation through intense interactions with customers. In the digital banking industry, customer preferences are changing rapidly, requiring banks to be not only analytically intelligent but also operationally agile. Roberts and Grover (2012) add that this agility acts as a bridge that transforms insights from customer data into concrete actions that provide a market advantage.

The relationship between AIMC and *customer agility* is based on the premise that AI provides organizations with sharper "senses." Grewal et al. (2020) argue that AI enables companies to conduct real-time monitoring of customers' digital behavior, which directly improves the organization's response time. Through predictive algorithms, digital banks can anticipate customer issues before they arise, creating a high perception of agility (Haleem et al., 2022). Therefore, AIMC is considered a key antecedent that triggers organizational dynamism in responding to fluctuating market needs.

From the *Resource-Based View* (RBV) perspective, AI-based marketing capabilities are categorized as valuable, rare, and difficult to imitate. Barney (1991) emphasized that strategic resources must possess VRIN (Valuable, Rare, Inimitable, Non-substitutable) characteristics to generate sustainable competitive advantage. AI, when combined with in-depth market knowledge, creates barriers for competitors to imitate the operational efficiency and quality of customer experience offered by digital banks (Verhoef et al., 2021). This advantage becomes even more evident when banks are able to convert data into customer loyalty through highly personalized services.

However, there is a research gap regarding the mechanisms by which AIMC specifically impacts competitive advantage in developing countries. Most previous studies have focused on the direct impact of AI without considering dynamic mediating variables such as customer agility (Chanas et al., 2019). In the digital banking sector, where switching costs are often low, customer agility is a determining factor in whether a bank will survive or be lost to the competition (Awan et al., 2021). Therefore, understanding the mediating role of *customer agility* is highly relevant to explaining the AI-based value creation process.

Furthermore, the dynamics of the digital banking sector require a deep understanding of cognitive ergonomics and human-AI interactions. Overgoor et al. (2019) note that effective AI marketing requires a balance between machine automation and human marketing intuition to ensure that the resulting strategy remains human-centric. An organization's inability to align these two aspects can lead to failure to respond to the market agilely, even if the technology used is very expensive (Mustak et al., 2021). Competitive advantage,

therefore, is not solely a product of algorithms, but rather the result of the harmony between technology and organizational agility in meeting customer expectations.

Empirically, this research is also driven by the phenomenon of accelerated adoption of digital banking applications that provide intelligent features such as AI-based personal financial management. Mogaji et al. (2020) observed that today's banking customers have higher expectations for service speed and product relevance. If a bank is able to use AI to detect changes in a customer's lifestyle and promptly offer relevant financial solutions, the bank has demonstrated high customer agility. This agility, according to Teece et al. (1997) in dynamic capabilities theory, enables a company to reconfigure its competencies to face a rapidly changing environment.

In conclusion, based on this background, the integration of AI in marketing is no longer merely an option but a strategic imperative. However, the effectiveness of AI in creating competitive advantage depends heavily on its ability to trigger a company's agility in interacting with customers (Conboy et al., 2020). This study aims to fill this gap in the literature by exploring the mediating role of *customer agility* in the relationship between AIMC and competitive advantage in the digital banking sector. By understanding this mechanism, it is hoped that banking practitioners can design digital marketing strategies that are not only technologically intelligent but also humanly responsive (Darmanto et al., 2023).

METHODS

This study employed a quantitative approach with an explanatory design to test the causal relationships between the variables studied. The study population comprised marketing managers, data analysts, and strategic decision-makers in the digital banking sector in Indonesia. *Purposive sampling* was used to ensure respondents had a thorough understanding of AI implementation in their organizations (Hair et al., 2019). Primary data were collected through an online questionnaire designed using a five-point Likert scale. The research instrument was adapted from previously validated literature to measure AI

marketing capabilities, customer agility, and competitive advantage (Mikalef & Gupta, 2020). Prior to large-scale data collection, a pilot study was conducted to ensure the reliability and content validity of each question posed to respondents.

Data analysis was conducted using variance-based *Structural Equation Modeling* (SEM) techniques with SmartPLS software, which is considered effective for testing complex research models with mediating variables and limited sample sizes. The analysis stage begins with an evaluation of the measurement model to test the convergent validity, discriminant validity, and composite reliability of the research constructs (Henseler et al., 2015). After the measurement model was declared eligible, a structural model evaluation was conducted *through* a *bootstrapping* procedure to test the significance of the relationships between variables and the strength of the mediating influence of *customer agility*. This approach allows researchers to comprehensively map the influence pathways of AI capabilities on competitive advantage while minimizing estimation errors in dynamic digital research models (Sarstedt et al., 2020).

Research Hypothesis

Based on the literature review and the developed framework, this study proposes four main hypotheses as the basis for empirical testing. First (H1), *Artificial Intelligence Marketing Capabilities* have a positive and significant effect on the *Competitive Advantage* of digital banking. Second (H2), *Artificial Intelligence Marketing Capabilities* have a positive effect on *Customer Agility*. Third (H3), *Customer Agility* has a positive effect in increasing *Competitive Advantage*. Finally (H4), *Customer Agility* significantly mediates the relationship between *Artificial Intelligence Marketing Capabilities* and *Competitive Advantage* (Sambamurthy et al., 2003). These hypotheses are built on the assumption that the integration of intelligent technology must be able to produce agile organizational responses to customer needs in order to be converted into sustainable competitive advantage in the digital banking market.

RESULTS AND DISCUSSIONS

Respondent Characteristics Analysis and Measurement Model Research data collected from 200 digital banking practitioners in Indonesia shows a respondent profile dominated by middle-level managers with operational experience above five years. Based on the evaluation of the measurement model (*outer model*), all research constructs meet the criteria for convergent validity with an *Average Variance Extracted* (AVE) value above 0.50 and *loading factors* exceeding the threshold of 0.70 (Hair et al., 2019). In addition, the reliability of the model is confirmed through *Cronbach's Alpha* and *Composite Reliability* values , all of which are above 0.70, indicating that the instrument used has excellent internal consistency. Discriminant validity tests using the *Heterotrait-Monotrait Ratio* (HTMT) criteria also show that each variable in this model has a unique identity that is different from each other, so that structural analysis can be continued without multicollinearity constraints (Henseler et al., 2015).

Hypothesis Testing and Path Significance The results of the structural model testing through the *bootstrapping* procedure provide empirical confirmation of all hypotheses proposed in this study. It was found that *Artificial Intelligence Marketing Capabilities* (AIMC) have a positive and significant direct effect on the competitive advantage of digital banking ($B = 0.42, p < 0.01$). Temuan ini mendukung argumen Davenport dan Ronanki (2018) yang menyatakan bahwa penguasaan teknologi cerdas dalam fungsi pemasaran memungkinkan perusahaan untuk mengidentifikasi inefisiensi pasar secara lebih presisi. Selain itu, AIMC juga terbukti menjadi prediktor kuat bagi **customer agility** ($B=0.58, p < 0.01$), which indicates that the more sophisticated a bank's AI capabilities, the faster they are able to detect changes in customer preferences in the digital ecosystem (Sambamurthy et al., 2003).

Table 1

Hypothesis Testing Results

Hypothesis	Path Relationship	Path Coefficient (β)	T-Statistics	P-Values	Conclusion
H1	AIMC \rightarrow Competitive Advantage	0.42	5.23	0.000	Supported
H2	AIMC \rightarrow Customer Agility	0.58	8.41	0.000	Supported
H3	Customer Agility \rightarrow Competitive Advantage	0.35	4.12	0.000	Supported
H4	AIMC \rightarrow Customer Agility \rightarrow Comp. Adv.	0.20	3.89	0.001	Supported

The Mediating Role of Customer Agility

One of the most crucial findings in this study is the proven mediating role of *customer agility* in the relationship between AIMC and competitive advantage. The indirect effect shows a significant value, which means that AI capabilities do not instantly create competitive advantage unless the technology is successfully transformed into organizational agility in responding to customers. Roberts and Grover (2012) emphasize that in the highly volatile digital banking environment, predictive insights from AI must be followed by rapid responsive actions to avoid losing market momentum. This confirms that

agility acts as a catalyst that transforms technological capital into tangible competitive capital in the eyes of customers (Awan et al., 2021).

Discussion: AI as a Driver of Competitive Advantage The positive relationship between AIMC and competitive advantage indicates that digital banks capable of integrating *machine learning* into customer behavior analysis have a competitive edge over conventional banks. Through this capability, banks can offer "hyper-personalization" that makes customers feel personally understood, a concept that Huang and Rust (2021) argue is the pinnacle of modern digital marketing strategy. This advantage is not only transactional but also relational because AI can detect potential customer *churn* early and provide relevant preventative solutions. This success reinforces the *Resource-Based View* (RBV) theory, which states that the integration of technology and organizational knowledge creates an advantage that is difficult for competitors to replicate (Barney, 1991).

Discussion: The Dynamics of Customer Agility in Digital Banking

Customer agility has proven to be a key factor in the success of digital transformation in the financial sector. When a digital bank has a strong AIMC, they are able to conduct market experiments more quickly and accurately, which is the essence of customer agility (Mikalef & Gupta, 2020). Grewal et al. (2020) argue that AI acts as a "central nervous system" that enables banks to move from a reactive strategy to a proactive one. In the Indonesian market, where millennials and Gen Z are highly dominant, agility in releasing new application features or changing service policies in *real-time* is a crucial factor in determining a digital bank's market position (Mogaji et al., 2020).

The Synergy of AIMC and Dynamic Capabilities Theory

The results of this study broadly support the dynamic capabilities theory developed by Teece et al. (1997), where companies must consistently reconfigure their internal competencies to adapt to the external environment. AIMC provides the cognitive infrastructure for banks, while *customer agility* provides dynamic execution capacity. Vial (2019) states that digital transformation is not just about adopting tools, but about

structural changes in how companies create value. In this context, the synergy between AI and agility creates a continuous cycle of innovation that ensures digital banks stay ahead of the competitive curve (Chanias et al., 2019). Without agility, large investments in AI risk becoming dead assets that do not provide commensurate competitive returns.

Managerial and Practical Implications

For practitioners in the digital banking sector, these findings provide strategic guidance that investment in AI must be accompanied by empowering marketing teams to be more agile in decision-making. Management should not only focus on acquiring the most advanced AI software technology but also ensure that AI-generated data can be accessed and used by business units quickly without bureaucratic barriers (Dwivedi et al., 2021). Verhoef et al. (2021) suggest that organizations need to adopt flatter and more flexible structures to maximize the potential agility driven by digital technology. Thus, competitive advantage will be created through a harmonious combination of algorithmic precision and the organization's responsiveness to dynamic customer needs (Mustak et al., 2021).

Limitations and Directions for Future Research

Although this study provides in-depth insights, there are several limitations that should be considered for future studies. This study only used *cross-sectional* data, so the long-term dynamics of changes in AI capabilities may not be fully captured. Future studies are recommended to use a longitudinal approach to examine how AI evolution impacts competitive advantage over time (Overgoor et al., 2019). Furthermore, this study was limited to the digital banking sector, so generalizing the findings to other industries such as retail or healthcare requires caution. The integration of moderating variables such as organizational culture or digital leadership could also enrich the understanding of how AIMC can be optimized across various organizational contexts (Darmanto et al., 2023).

CONCLUSION

This study provides strong empirical evidence regarding the crucial role of *Artificial Intelligence Marketing Capabilities (AIMC)* in shaping competitive advantage in Indonesia's digital banking sector. Based on the data analysis, it can be concluded that AI-based marketing capabilities are not merely operational efficiency tools, but rather strategic assets that significantly enhance banks' ability to understand, predict, and precisely serve customer needs (Huang & Rust, 2021). The research findings indicate that AIMC has a direct positive impact on competitive advantage, confirming that investing in appropriate AI technology enables digital banks to create value propositions that are difficult for traditional competitors or other *fintech* entities to imitate (Barney, 1991).

The key contribution of this study lies in identifying the mediating role of *customer agility* as an operational bridge between technology and strategy. The results confirm that AIMC will not reach its full potential in creating competitive advantage without organizational agility in responding to customer dynamics. Customer agility was shown to partially mediate this relationship, implying that the success of digital banks depends heavily on their speed in translating analytical insights from AI into concrete actions in the marketplace (Sambamurthy et al., 2003). This supports the dynamic capabilities theory, which states that firms must be able to continuously reconfigure their resources to adapt to a highly volatile digital environment (Teece et al., 1997).

Practically, this study recommends that digital bank management focus not only on procuring expensive AI technology infrastructure but also on developing an organizational culture that supports agility and rapid innovation. AI implementation should be designed to enhance human - centric interactions, so that customers perceive personalized and responsive service (Mustak et al., 2021). Future research is recommended to expand the scope of the study by including moderating variables such as government regulations regarding data ethics or customer digital readiness, to provide a more holistic understanding of the future AI-based marketing ecosystem (Verhoef et al., 2021).

REFERENCES

- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17 (1), 99–120.
- 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.
- Mustak, M., Salminen, J., Mäntylä, L., & Knight, S. (2021). Artificial intelligence in marketing: Topic modeling, bibliometric analysis, and research agenda. *Journal of Business Research*, 124, 389–404.
- Sambamurthy, V., Bharadwaj, A., & Grover, V. (2003). Shaping agility through digital options: Reconceptualizing the role of information technology in contemporary firms. *MIS Quarterly*, 237–263.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18 (7), 509–533.
- Verhoef, P.C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J.Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 122, 889–901.