



**THE INFLUENCE OF DIFFERENTIATION STRATEGY, MARKET
ADAPTATION, AND DIGITAL CAPABILITY ON COMPETITIVE
ADVANTAGE: THE MEDIATING ROLE OF BUSINESS AGILITY IN E-
COMMERCE FIRMS**

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Abstract

This study aims to analyze the influence of Differentiation Strategy, Market Adaptation, and Digital Capability on Competitive Advantage, with Business Agility serving as a mediating variable in e-commerce companies in Indonesia. A quantitative approach was employed using a causal research design. Data analysis was conducted through Structural Equation Modeling-Partial Least Squares (SEM-PLS), as it effectively handles complex models and small to medium-sized samples. Data were collected via an online questionnaire distributed to business managers, digital strategists, and decision-makers in e-commerce firms. A total of 110 respondents were analyzed using a purposive sampling technique. The results indicate that both Differentiation Strategy and Digital Capability have a significant effect on Competitive Advantage, both directly and indirectly through Business Agility. Meanwhile, Market Adaptation only has a significant indirect effect through Business Agility. These findings highlight that Business Agility plays a crucial mediating role in strengthening competitive advantage in the digital era.

Keywords: Differentiation Strategy, Market Adaptation, Digital Capability, Business Agility



INTRODUCTION

The e-commerce industry has experienced exponential growth over the past decade, driven by technological advancements, increasing internet penetration, and changing consumer behavior. Online shopping has become a preferred choice for customers due to its convenience, wider product selection, and competitive pricing (Faraz Ahmed Wajidi et al., 2023). The rapid evolution of digital platforms and mobile commerce has further accelerated this transformation, making e-commerce one of the most dynamic and competitive industries worldwide. Businesses are now leveraging artificial intelligence (AI), big data, and automation to enhance user experience and streamline operations, contributing to the sector's continuous expansion (Zhao, 2023).

Companies must differentiate themselves to attract and retain customers in an environment where price wars, fast delivery, and personalized shopping experiences have become standard expectations (Li, 2017). To sustain growth and profitability, businesses must develop strong competitive advantages by implementing innovative strategies that enhance their market positioning and operational efficiency. In this context, factors such as differentiation strategy, market adaptation, and digital capability play a crucial role in ensuring long-term success (S. Zhang & Qiu, 2024);(Xin et al., 2022).

Differentiation strategy is one of the most effective ways for e-commerce firms to establish a unique position in the market. By offering distinctive products, superior customer service, or innovative business models, companies can create strong brand recognition and customer loyalty (L. Zhang, 2022). Successful e-commerce companies invest in unique product offerings,



personalized marketing strategies, and value-added services to maintain their competitive edge (Gregory et al., 2019);(Christian, Girsang, et al., 2024).

Market adaptation is equally important, as consumer preferences and technological landscapes are constantly evolving. Businesses that fail to adapt risk becoming obsolete in the fast-changing digital economy. E-commerce firms must stay agile by analyzing market trends, responding to shifting customer needs, and integrating new technologies to enhance their offerings. By leveraging digital capabilities, e-commerce firms can create seamless shopping experiences, improve operational efficiency, and gain a sustainable competitive advantage (Jiang et al., 2018). The rapid growth of the e-commerce industry is driven by technological advancements, changing consumer behavior, and increasing competition in the digital marketplace. As competition intensifies, e-commerce firms must develop sustainable competitive advantages to maintain their market share and profitability (Chen et al., 2021). However, differentiation alone is insufficient in a rapidly evolving digital landscape (W. Wang, 2022).

Beyond these factors, business agility has emerged as a critical determinant of competitive advantage, particularly in dynamic and uncertain markets. Business agility refers to an organization's ability to rapidly adapt to environmental changes, seize new opportunities, and effectively allocate resources in response to evolving market conditions (Anantharaman et al., 2024);(G. Wang, 2024). In the e-commerce sector, firms with high agility can quickly adjust marketing strategies and restructure their business models to meet changing customer demands (Christian, Rembulan, et al., 2024). Studies by (Hagen et al., 2019) suggest that agile firms are better positioned to navigate market uncertainty, while (Abourokbah et al., 2023) emphasize that agility acts as



a mediator between digital innovation and business performance, indicating that without agility, digital capabilities may not fully translate into competitive advantage (Purwanto & Ihalauw, 2017).

By exploring these relationships, this study contributes to both academic research in strategic management and digital business, as well as offering practical insights for companies seeking to develop adaptive and innovative strategies. Understanding how firms can leverage agility to enhance their differentiation strategies, adapt to market changes, and strengthen digital capabilities will provide valuable guidance for e-commerce businesses striving for long-term success in an increasingly competitive landscape.

LITERATURE REVIEW

Differentiation Strategy and Competitive Advantage

Differentiation strategy is a business approach in which firms seek to create unique value propositions that distinguish their products or services from competitors (Islami et al., 2020). Competitive advantage. Kim & Mauborgne in (Mustafa & Al-Rubaie, 2021) introduced the concept of the "Blue Ocean Strategy," which emphasizes value innovation as a means of differentiation. In the context of e-commerce, (Cuong et al., 2020) found that firms implementing differentiation strategies tend to enhance customer loyalty and brand equity, leading to long-term competitive advantages.

Market Adaptation in E-Commerce Firms

Market adaptation refers to a firm's ability to adjust its strategies, operations, and offerings in response to evolving market conditions. Teece et al. (1997) in (Vu, 2020) define this as a dynamic capability that enables firms to sense



market changes, seize opportunities, and transform resources effectively. In the digital era, successful e-commerce firms continuously adapt to shifting consumer preferences, emerging technologies, and regulatory developments (Berlianto, 2019).

Digital Capability as a Competitive Enabler

Digital capability refers to a firm's ability to leverage digital technologies to optimize operations, enhance customer experiences, and drive innovation. (Wielgos et al., 2021) found that firms with robust digital capabilities experience improved operational efficiency and customer engagement. Additionally, (Turi et al., 2023) demonstrated that big data analytics, artificial intelligence, and automation significantly contribute to business agility and decision-making effectiveness.

Business Agility as a Mediator

Business agility refers to an organization's capacity to rapidly respond to market changes, innovate, and efficiently allocate resources. (Al-Omouh, 2022) suggest that agility mediates the relationship between technological resources and business performance, meaning that digital capabilities must be supported by agility to be fully effective (Abusalma, 2021) propose that firms with high agility can reconfigure their business models quickly, thereby sustaining competitive advantages.

Variable	Dimension	Indicator	References
Differentiation Strategy	Product Uniqueness	Unique product design, and quality	(Islami et al., 2020)
	Brand Positioning	Strong brand identity and perception	(Kotler & Armstrong, 2018)
	Innovation Strategy	Continuous innovation in products/services	(Mustafa & Al-Rubaie, 2021)



Market Adaptation	Consumer Responsiveness	Understanding and meeting changing customer needs	(Vu, 2020)
	Technological Adaptation	Adoption of new digital tools and platforms	(Jaworski et al., 2020)
	Regulatory Compliance	Flexibility in responding to policy changes	(Sheng et al., 2021)
Digital Capability	IT Infrastructure	Robustness of IT systems and platforms	(Raj et al., 2024)
	Digital Skills	Workforce competence in digital technologies	(Turi et al., 2023)
	Data-Driven Decision Making	Utilization of analytics and AI for business strategies	(Bui & Le, 2023)
Business Agility (Mediating Variable)	Operational Agility	Speed and efficiency in responding to market shifts	(Al-Omoush, 2022)
	Strategic Agility	Flexibility in modifying business strategies	(Abusalma, 2021)
	Customer Agility	Rapid adaptation to customer feedback and trends	(Park et al., 2023)
Competitive Advantage (Dependent Variable)	Cost Leadership	Ability to offer lower prices while maintaining quality	(Aisyah, 2024)
	Differentiation Advantage	Unique offerings that create customer preference	(Farida & Setiawan, 2022)
	Market Positioning	Brand strength and competitive positioning	(Tufan & Mert, 2023)

RESEARCH METHOD

This study employs a quantitative approach with a causal research design, aiming to analyze the influence of differentiation strategy, market adaptation, and digital capability on competitive advantage, mediated by business agility. Given the complexity of relationships among variables, Structural Equation

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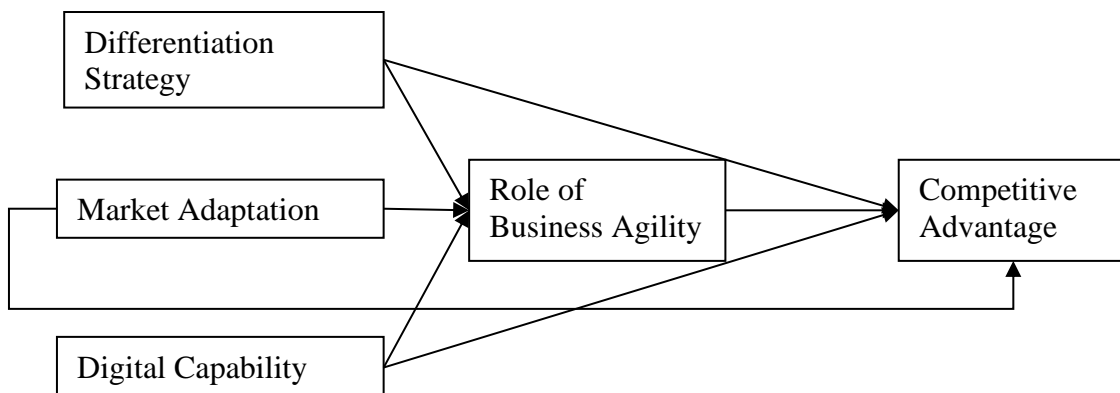


Modeling-Partial Least Squares (SEM-PLS) is used as the analytical method. SEM-PLS is preferred due to its ability to handle small to medium-sized samples, accommodate non-normal data distribution, and effectively estimate complex structural relationships.

The population of this study consists of e-commerce firms operating in Indonesia, particularly those that have implemented digital transformation strategies. The minimum sample size follows the recommendation of (Hair et al., 2019), which suggests 100 respondents for SEM-PLS analysis, ensuring statistical power and model robustness (Henseler et al., 2015). The questionnaire will be distributed online using Google Forms or survey platforms, targeting respondents with relevant decision-making roles in e-commerce firms.

The study utilizes primary data collection through a structured questionnaire. The questionnaire consists of items measured on a 5-point Likert scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree. Each construct is measured based on validated indicators derived from previous studies.

The conceptual framework for this study examines how differentiation strategy, market adaptation, and digital capability contribute to competitive advantage, with business agility acting as a mediating variable.





Based on theoretical foundations and previous research, the following hypotheses are proposed:

- H1: Differentiation Strategy has a significant positive effect on Competitive Advantage.
- H2: Market Adaptation has a significant positive effect on Competitive Advantage.
- H3: Digital Capability has a significant positive effect on Competitive Advantage.
- H4: Differentiation Strategy has a significant positive effect on Business Agility.
- H5: Market Adaptation has a significant positive effect on Business Agility.
- H6: Digital Capability has a significant positive effect on Business Agility.
- H7: Business Agility has a significant positive effect on Competitive Advantage.
- H8: Business Agility mediates the relationship between Differentiation Strategy and Competitive Advantage.
- H9: Business Agility mediates the relationship between Market Adaptation and Competitive Advantage.
- H10: Business Agility mediates the relationship between Digital Capability and Competitive Advantage.

To ensure construct validity and reliability, the measurement model is assessed using convergent validity, discriminant validity, and reliability tests. Convergent validity is evaluated using Average Variance Extracted (AVE), where a value of ≥ 0.5 is considered acceptable. For reliability, Cronbach's Alpha and Composite Reliability (CR) are measured, with a threshold of ≥ 0.7 indicating sufficient internal consistency. These tests confirm whether the indicators used accurately measure the intended latent variables.

Once the measurement model meets validity and reliability requirements, the structural model is tested to examine the relationships between constructs. The model's predictive power is assessed using R^2 (coefficient of determination),



where higher values indicate stronger explanatory power. Additionally, path coefficients (β) and t-values obtained through bootstrapping determine the significance of relationships. The effect size (f^2) is evaluated to measure the impact of each predictor variable, while Predictive Relevance (Q^2) is tested using the Blindfolding technique. A model with $Q^2 > 0$ suggests good predictive capability.

The data analysis follows a structured approach to ensure the validity of results. First, preliminary data screening is conducted to identify missing values and outliers. Next, the measurement model is tested to validate the constructs. Once the outer model meets validity and reliability standards, the structural model is analyzed using SmartPLS through bootstrapping. Hypothesis testing is performed by examining path coefficients and significance levels (p-values). Additionally, mediation analysis is conducted using Variance Accounted For (VAF) to determine whether business agility serves as a partial or full mediator in the relationship between strategic variables and competitive advantage.

RESULTS AND DISCUSSION

Evaluation of the Measurement Model (Outer Model)

Four criteria were considered in evaluating the outer model: Convergent Validity, Discriminant Validity, Composite Reliability, and Cronbach's Alpha. The figure below illustrates the research model.

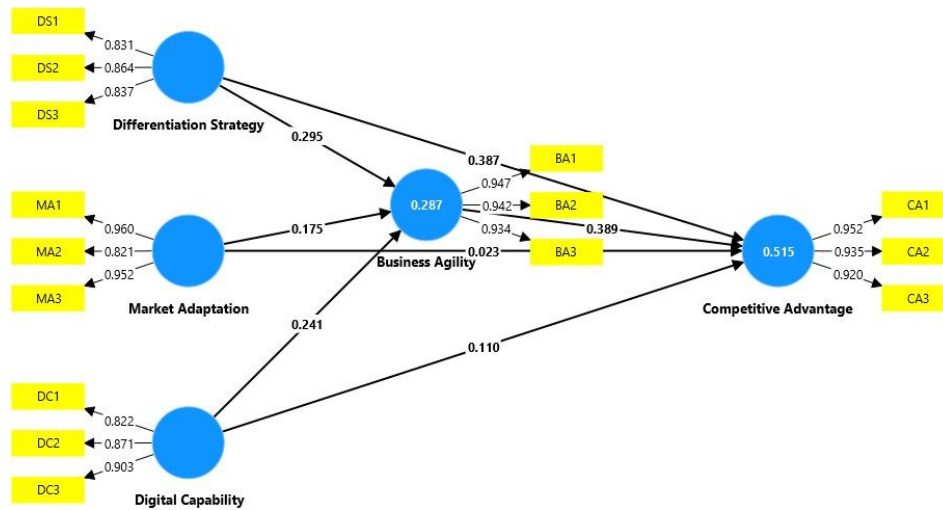


Figure 1.
Outer Model

Figure 1 illustrates the outer loading values of the variables used in this study. As shown, all outer loading values meet the validity criteria, as they exceed the threshold of 0.7.

Validity Test

The validity test is used to measure whether a questionnaire is valid or not. In this study, validity testing was conducted using convergent validity and Average Variance Extracted (AVE). An individual indicator is considered to have high reflection when it correlates more than 0.7 with the construct it measures. However, according to Dahri, (2017) for early-stage research in scale development, loading values ranging from 0.5 to 0.6 are considered acceptable.

Table 1.
Validity Test Results

Variabel		Outer Loading	AVE	Description
Business Agility	BA1	0.947	0.886	Valid
	BA2	0.942		Valid
	BA3	0.934		Valid
Competitive Advantage	CA1	0.952	0.876	Valid
	CA2	0.935		Valid



	CA3	0.920		Valid
Digital Capability	DC1	0.822	0.750	Valid
	DC2	0.871		Valid
	DC3	0.903		Valid
Differentiation Strategy	DS1	0.831	0.713	Valid
	DS2	0.864		Valid
	DS3	0.837		Valid
Market Adaptation	MA1	0.960	0.834	Valid
	MA2	0.821		Valid
	MA3	0.952		Valid

Based on the results of the instrument validity test, it was found that out of 31 indicators, 9 were deemed invalid. Therefore, only 22 valid indicators were used in this study.

Reliability Test

This study employed two types of reliability tests: Cronbach's Alpha and Composite Reliability. Cronbach's Alpha measures the lower bound of reliability, and the data is considered reliable if it has a Cronbach's Alpha value greater than 0.7. Meanwhile, Composite Reliability assesses the true reliability of a variable. A construct is considered to have high reliability if the Composite Reliability score is greater than 0.7.

Table 2.
Results of the Reliability Test

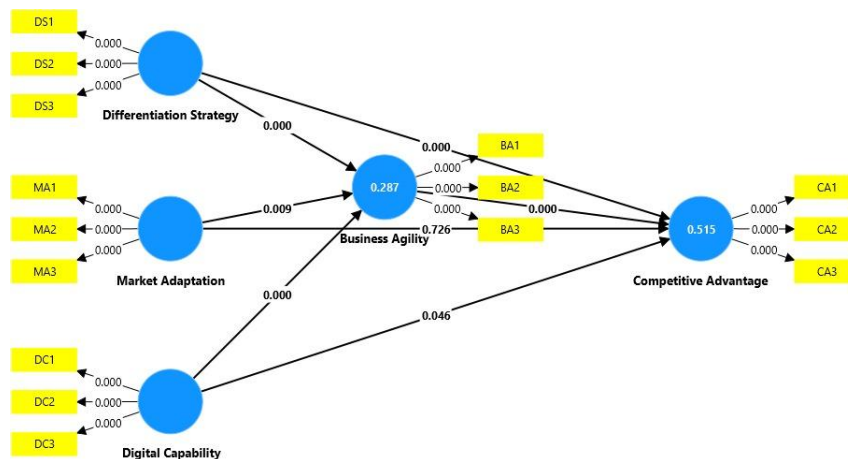
	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)
Business Agility	0.936	0.937	0.959
Competitive Advantage	0.929	0.931	0.955
Differentiation Strategy	0.799	0.799	0.882
Digital Capability	0.834	0.855	0.900
Market Adaptation	0.898	0.908	0.938



The results of the reliability test indicate that all instruments are deemed reliable, as both Cronbach’s Alpha and Composite Reliability scores are greater than 0.7.

Evaluation of the Structural Model (Inner Model)

Evaluating the hypothesized relationships between latent constructs is the core of structural model assessment. The evaluation of the inner model can be described as follows:



R-Square Test

The R-Square coefficient of determination is used to measure the extent to which endogenous variables are influenced by other variables. Based on data analysis conducted using the SmartPLS software, the R-Square values are presented in the table below:

Table 3.
R-Square Test Results

	R-square	R-square adjusted
Business Agility	0.287	0.276
Competitive Advantage	0.515	0.505

Based on the analysis results, the R-square value for the Business Agility variable is 0.287, indicating that 28.7% of the variance in Business Agility can be explained by Differentiation Strategy, Market Adaptation, and Digital Capability. Meanwhile, the R-square value for Competitive Advantage is 0.515, suggesting

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that 51.5% of the variance in Competitive Advantage can be explained by the three independent variables along with Business Agility as a mediating variable.

Hypothesis Testing

The results can be used to address the research hypotheses based on the data analysis conducted. The T-statistics and P-values were examined to test the hypotheses in this study. A research hypothesis is considered accepted if the P-value is less than 0.05. The following table presents the findings from the hypothesis testing conducted using the inner model:

Table 4.
Hypothesis Testing Results

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Business Agility -> Competitive Advantage	0.389	0.390	0.065	5.980	0.000
Differentiation Strategy -> Business Agility	0.295	0.294	0.070	4.209	0.000
Differentiation Strategy -> Competitive Advantage	0.387	0.388	0.064	6.044	0.000
Digital Capability -> Business Agility	0.241	0.242	0.063	3.810	0.000
Digital Capability -> Competitive Advantage	0.110	0.112	0.055	2.000	0.046
Market Adaptation -> Business Agility	0.175	0.177	0.067	2.597	0.009
Market Adaptation -> Competitive Advantage	0.023	0.021	0.067	0.350	0.726
Differentiation Strategy -> Business Agility -> Competitive Advantage	0.115	0.115	0.035	3.251	0.001
Digital Capability -> Business Agility -> Competitive Advantage	0.094	0.094	0.029	3.183	0.001
Market Adaptation -> Business Agility -> Competitive Advantage	0.068	0.069	0.029	2.350	0.019



Table 4 presents the results of the path analysis using PLS-SEM to test the direct and indirect effects among the variables in this study. The results show that all direct paths—such as the effects of Differentiation Strategy, Digital Capability, and Market Adaptation on Business Agility, as well as the effect of Business Agility on Competitive Advantage—are statistically significant ($p < 0.05$). However, the direct effect of Market Adaptation on Competitive Advantage is not significant ($p = 0.726$).

Discussion

This section provides a detailed discussion of each hypothesis based on the findings of the study, incorporating recent references (2018–2024) as requested :

Hypothesis 1: Business Agility → Competitive Advantage

The results of the study indicate that Business Agility has a significant effect on Competitive Advantage (Original Sample = 0.389; $p = 0.000$). Furthermore, the study by (Yusuf et al., 2023) showed that business agility enables companies to seize market opportunities more swiftly and efficiently, ultimately strengthening their strategic position.

Hypothesis 2: Differentiation Strategy → Business Agility

Differentiation Strategy was found to significantly influence Business Agility (Original Sample = 0.295; $p = 0.000$). This implies that a company's efforts to create unique, innovative, and valuable products or services help drive greater flexibility in responding to market dynamics. According to recent research by (Shajrawi & Aburub, 2023), companies implementing a differentiation strategy tend to have more adaptive organizational systems and processes, as product innovation often requires rapid operational changes.

Hypothesis 3: Differentiation Strategy → Competitive Advantage

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Differentiation Strategy also has a direct and significant effect on Competitive Advantage (Original Sample = 0.387; $p = 0.000$). Research by (Aisyah, 2024) suggests that differentiation allows companies to move beyond price competition and create value that is difficult for competitors to replicate. In the context of e-commerce, this can take the form of exclusive features, personalized customer service, or innovative delivery systems.

Hypothesis 4: Digital Capability → Business Agility

The results show that Digital Capability has a significant effect on Business Agility (Original Sample = 0.241; $p = 0.000$). A company's ability to manage digital technologies such as big data, cloud computing, and AI has been shown to enhance its ability to respond quickly to changes and challenges. Research by (Saputra et al., 2021) indicates that digital capabilities accelerate decision-making processes, cross-team collaboration, and strategy execution—all of which are critical indicators of agility.

Hypothesis 5: Digital Capability → Competitive Advantage

Digital capability also has a significant effect on Competitive Advantage (Original Sample = 0.110; $p = 0.046$), though with a relatively small effect. This indicates that digital technology remains a crucial element in forming competitiveness, especially in the highly technology-dependent e-commerce industry. A study by (Velyako & Musa, 2023) confirmed that digital capability enhances operational efficiency and enables the development of innovative customer-based services (Tufan & Mert, 2023).

Hypothesis 6: Market Adaptation → Business Agility

The findings reveal that Market Adaptation significantly influences Business Agility (Original Sample = 0.175; $p = 0.009$). This result aligns with the



work of (Jaworski et al., 2020, Abusalma, 2021) , who found that organizations adaptive to business environments are better positioned to change strategies and processes swiftly.

Hypothesis 7: Market Adaptation → Competitive Advantage

Interestingly, the study indicates that Market Adaptation does not significantly impact Competitive Advantage (Original Sample = 0.023; $p = 0.726$). As (Sheng et al., 2021) emphasize, external adaptation must be coupled with internal innovation and the strengthening of unique value propositions.

Hypothesis 8: Differentiation Strategy → Business Agility → Competitive Advantage

The study confirms that Business Agility significantly mediates the relationship between Differentiation Strategy and Competitive Advantage (Original Sample = 0.115; $p = 0.001$). This means that differentiation strategies, such as offering unique products or innovative services, have a stronger impact on competitive advantage when coupled with the company's agility in adapting to market and technological changes (Mustafa & Al-Rubaie, 2021, Farida & Setiawan, 2022) stress that without agility, differentiation strategies risk failing to meet customer expectations in real-time, especially in the highly competitive e-commerce sector.

Hypothesis 9: Digital Capability → Business Agility → Competitive Advantage

The indirect effect of Digital Capability on Competitive Advantage through Business Agility is also significant (Original Sample = 0.094; $p = 0.001$). In e-commerce, this includes fast responses to customer demands, real-time marketing strategy adjustments, and expedited product innovation cycles (Pratama & Dahlan, 2023).



Hypothesis 10: Market Adaptation → Business Agility → Competitive Advantage

Finally, Business Agility also mediates the relationship between Market Adaptation and Competitive Advantage (Original Sample = 0.068; $p = 0.019$). This implies that a company's ability to adapt to market changes results in a competitive advantage only when paired with agile, flexible, and adaptive organizational processes (Sheng et al., 2021).

CONCLUSION

This research indicates that Differentiation Strategy, Digital Capability, and Market Adaptation positively impact Business Agility. Additionally, Differentiation Strategy and Digital Capability directly influence Competitive Advantage, while Market Adaptation only has an indirect effect through Business Agility. Furthermore, Business Agility proves to be a significant mediator in enhancing the competitive advantage of e-commerce companies.

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