

Synergizing Digital Transformation and Human Capital: Pathways to Competitive Advantage and Sustainable Growth

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ARTICLE INFO

Article history:

Received 23 July 2025

Revised 13 September 2025

Accepted 10 October 2025

Available Online 15 October 2025

Keywords:

Digital Transformation

Human Resource Quality

Competitive Advantage

MSMEs Competitiveness

Sustainable Economic Growth

Cite as:

Hanoeboen, B. R. A., Kurniawan, S. A., Ningsih, N. N., & Yusuf T, G. A. (2025). Synergizing Digital Transformation and Human Capital: Pathways to Competitive Advantage and Sustainable Growth . *Economics, Business, Accounting & Society Review*, 4(3), 349–359.
<https://doi.org/10.55980/ebasr.v4i3.268>

ABSTRACT

In the era of digital economy acceleration, micro, small, and medium enterprises (MSMEs) face increasing pressure to sustain competitiveness amid dynamic technological and market transformations. For culinary MSMEs in Ambon, digital transformation and human capital quality have become decisive factors in ensuring business resilience and sustainable growth. This study aims to examine the effects of digital transformation and human resource quality on competitive advantage and MSME competitiveness, and their subsequent implications for sustainable economic growth. It also seeks to identify the mediating role of competitive advantage in linking organizational capabilities with long-term sustainability outcomes. A quantitative explanatory approach was employed using data from 63 culinary MSME owners collected through structured questionnaires and analyzed with Partial Least Squares (SmartPLS 4.0). The results demonstrate that digital transformation significantly enhances competitive advantage through efficiency optimization and innovation, while human resource quality serves as a complementary strategic driver. Competitive advantage strongly influences MSME competitiveness, which subsequently contributes to inclusive and sustainable economic growth. The findings underscore that integrating digital technology with skilled human resources is essential for strengthening MSME competitiveness and regional economic resilience. Theoretically, this study extends the Resource-Based View by positioning digital transformation and human capital as synergistic capabilities. Practically, it provides actionable insights for policymakers and business stakeholders to design digital training programs and ecosystem support for MSMEs' sustainable advancement.

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1. Introduction

Digital transformation refers to the process of adopting digital technologies by organizations to enhance efficiency, improve service quality, and develop new business models that are more adaptive to environmental changes (Gong & Ribiere, 2021). In the context of micro, small, and medium enterprises (MSMEs), digital transformation encompasses not only the utilization of digital platforms for marketing and transactions but also the integration of technology into internal resource management (Romero & Mammadov, 2025; Ziółkowska, 2021). This comprehensive

approach is critical for strengthening efficiency, competitiveness, and sustainability. As the backbone of the national economy, MSMEs are required to adapt to rapid digitalization in order to survive amid intensifying competition and the dynamic shifts in consumer behavior. Consequently, digitalization has proven to be a vital strategy for improving the resilience, efficiency, and competitiveness of MSMEs (Clemente-Almendros et al., 2024).

In Indonesia, MSMEs accounted for more than 60% of Gross Domestic Product (GDP) and absorbed 97% of the labor force in 2024 (Coordinating Ministry for Economic Affairs, 2025). Nonetheless, MSME competitiveness continues to face significant challenges, particularly in terms of digital adoption and human resource quality. This phenomenon is also evident in Ambon City, where in 2023, 1,143 culinary MSMEs were recorded, most of which had begun utilizing digital platforms as marketing channels (Camelia & Ekawati, 2024). The entry of Gojek into Ambon in December 2018 and Grab in early 2019 further accelerated the penetration of the digital economy within the culinary sector (info-ambon, 2019; Kumparan, 2018). Culinary MSMEs with higher ratings and sales on these platforms represent relatively successful cases of digital adaptation. However, digital divides and limitations in human resource competencies remain barriers for many business actors who have yet to compete effectively within the digital ecosystem (Anatan & Nur, 2023).

Human resource quality plays a pivotal role in determining the success of MSMEs in the digital era. According to Human Capital Theory (Becker, 1975), education, experience, skills, and creativity constitute essential assets for enhancing productivity and innovation capacity. In the case of culinary MSMEs in Ambon, human resource quality is closely linked to the ability to manage digital technologies, respond to customer needs, and maintain product and service quality. Thus, human resource quality strengthens MSMEs' competitive advantage through product differentiation, service responsiveness, and the uniqueness of offerings (Mohd Pajri, 2024; Sjachriatin et al., 2023).

Competitive advantage, in turn, significantly contributes to strengthening business competitiveness. Timotius (2023) emphasizes that firms capable of creating advantages through differentiation or cost leadership are better positioned to compete in the market. Strong business competitiveness consistently emerges as a key driver of sustainable economic growth (Januškaite & Uziene, 2018). Enhanced MSME competitiveness, particularly in the culinary sector, contributes to job creation, income generation, and sustainable local economic circulation (Martínez-Peláez et al., 2023; Riswandi & Fitria, 2024). Hence, reinforcing competitive advantage and business competitiveness is crucial for understanding the nexus between digital transformation, human resource quality, and sustainable economic growth.

Several studies underscore the critical role of digital transformation in fostering sustainable growth through dynamic capabilities, such as improved coordination, innovation, and knowledge absorption, as demonstrated by the "Little Giants" in China (Sun et al., 2024). Continuous digital transformation has also been shown to enable MSMEs to enhance innovation, adopt data-driven decision-making, and strengthen competitive advantage (Mick et al., 2024). Research in Vietnam confirms that digital capability and digital leadership positively contribute to sustainable competitive advantage (Van Hoang et al., 2025). Similarly, a study in Indonesia found that human resource quality and digital technology significantly influence MSME export performance (Susilo, 2025). However, limited research has comprehensively examined the interplay between human resource quality and digital transformation in relation to sustainable economic growth, while incorporating the roles of competitive advantage and business competitiveness as mediating mechanisms—particularly in the context of digitally driven culinary MSMEs in Ambon.

Theoretically, this study contributes to the enrichment of MSME competitiveness literature by emphasizing digital transformation and human resource quality as primary determinants. It highlights competitive advantage and business competitiveness as crucial mediating factors that connect MSMEs' internal capabilities with sustainable performance outcomes. This approach expands understanding of the factors driving sustainable economic growth through the MSME sector, especially within the digital economy of Eastern Indonesia. Practically, the findings provide actionable insights for culinary MSME actors in Ambon to improve human resource quality and leverage digital transformation in order to achieve sustainable competitive advantage. Furthermore, the study offers policy recommendations for local governments and digital platform providers

(GoFood and GrabFood) to strengthen the culinary MSME ecosystem, thereby ensuring its optimal contribution to sustainable economic growth in Ambon City.

Digital Transformation, Human Resource Quality, and Competitive Advantage

Digital transformation is defined as the process of adopting and integrating digital technologies into business models, operational processes, and customer interactions to enhance efficiency and value creation (Gong & Ribiere, 2021; Rini Fadhina et al., 2022). In the context of MSMEs, digital transformation extends beyond the use of digital platforms for marketing and transactions, encompassing the application of technology in managing internal resources (Martínez-Peláez et al., 2023; Purnomo et al., 2024; Putri et al., 2023). This holistic approach enables improvements in operational efficiency, competitiveness, and business resilience.

Conversely, human resource (HR) quality reflects individual capabilities manifested through education, skills, experience, and creativity, which collectively support productivity and innovation (Becker, 1975). High-quality HR plays a pivotal role in leveraging digital opportunities, processing information, and developing relevant strategies for business growth (Ludin et al., 2023). These capabilities, in turn, are critical determinants of competitive advantage—the superior position an organization holds relative to its competitors through the creation of unique capabilities within the industry (Grant & Baden-Fuller, 2004). This position aligns with the VRIN principle, whereby capabilities must be valuable, rare, inimitable, and non-substitutable (Pickering & Hill, 2007).

Prior studies indicate that digital transformation plays a key role in driving innovation and supporting data-driven decision-making (Xu et al., 2024), while HR quality enhances MSMEs' capacity to meet export standards, understand international trade procedures, and adapt to global market dynamics (Vasani & Abdulkareem, 2024). Nevertheless, research examining the simultaneous relationships between digital transformation, HR quality, and competitive advantage in the context of digitally-driven culinary MSMEs remains relatively scarce.

Based on this theoretical foundation, it is hypothesized that digital transformation enables MSMEs to respond more rapidly to market changes, optimize coordination, and strengthen competitiveness through innovation. Concurrently, HR quality acts as a key enabler in adapting digital technologies to create value and sustainable competitive strategies. Hence, the study proposes the following hypotheses:

H1: Digital Transformation positively and significantly affects Competitive Advantage

H2: Human Resource Quality positively and significantly affects Competitive Advantage

Competitive Advantage and Business Competitiveness

In strategic management literature, competitive advantage is regarded as the foundational element for achieving sustainable business competitiveness. MSMEs that develop unique capabilities (Thamrin et al., 2025), innovate consistently (Sari et al., 2023), and optimize operational efficiency (Triwahyono et al., 2023) are more likely to strengthen their market position. Business competitiveness refers to a firm's capacity to maintain and expand market share through product quality, competitive pricing, and adaptive capabilities in response to environmental changes (Hidayat et al., 2025). Several studies have demonstrated a strong link between competitive advantage and business competitiveness, although most research has focused on manufacturing or large-scale enterprises (Kuncoro & Suriani, 2018). This gap highlights the importance of understanding how competitive advantage drives MSME competitiveness, particularly in the dynamic digital culinary sector. Theoretically, stronger competitive advantage is expected to lead to higher business competitiveness, enabling MSMEs to respond more effectively to consumer needs and navigate market dynamics. Accordingly, the following hypothesis is formulated:

H3: Competitive Advantage positively and significantly affects Business Competitiveness

Business Competitiveness and Sustainable Economic Growth

Business competitiveness plays a critical role not only in enhancing firm performance but also in driving aggregate productivity, job creation, and investment stability, ultimately supporting macroeconomic dynamics (Boikova et al., 2021; Lafuente et al., 2016; Ruzekova et al., 2020). This contribution suggests that micro-level competitiveness can have broader effects, reinforcing an

inclusive and resilient economic foundation. In other words, higher business competitiveness enhances the potential to support long-term sustainable economic growth.

Sustainable economic growth is understood as a process of improving societal welfare while accounting for social, environmental, and governance dimensions (Chipalkatti et al., 2021; Phan, 2024; Safdar et al., 2022). The link between business competitiveness and economic sustainability is reflected in firms' ability to integrate innovation, resource efficiency (Rosário et al., 2024), and social responsibility into their strategies (Zahid et al., 2024).

Empirical evidence suggests that strong competitiveness fosters an adaptive and sustainability-oriented economic ecosystem (Boyer, 2020; Liu & Stephens, 2019). Consequently, the integration of innovation, resource efficiency, and cross-stakeholder collaboration is essential in this process. Despite this, empirical studies on MSMEs—particularly in the digital culinary sector in Eastern Indonesia—remain limited, emphasizing the need to examine the real contribution of MSME competitiveness to sustainable economic growth. Based on this theoretical basis, the following hypothesis is proposed:

H4: Business Competitiveness positively and significantly affects Sustainable Economic Growth

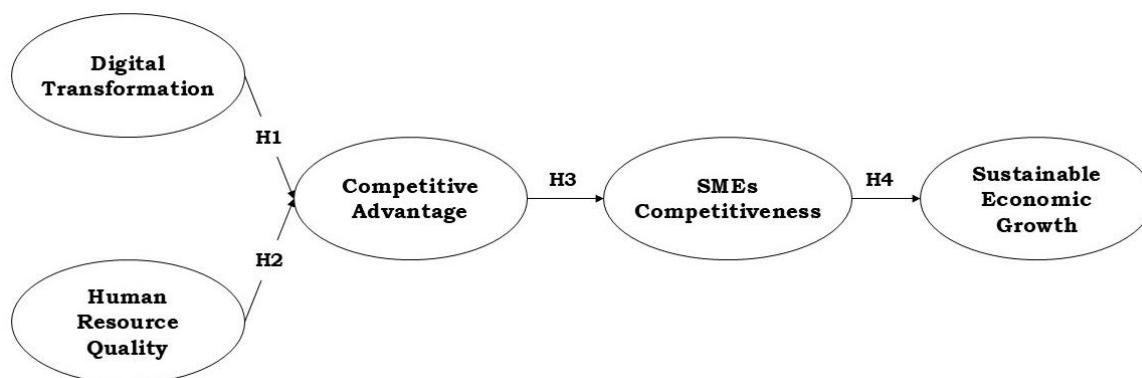


Figure 1: Research Framework

2. Methods

Sample and Data Collection

This study is explanatory research, aiming to analyze and elucidate the causal relationships between digital transformation, human resource quality, competitive advantage, MSME competitiveness, and sustainable economic growth. The research adopts a quantitative approach, focusing on culinary MSMEs registered and active on the digital platforms GoFood and GrabFood in Ambon City. The population comprises all culinary MSMEs listed on these platforms. Purposive sampling was employed to select respondents based on a minimum customer rating criterion of 4.0 stars. Of the 70 MSMEs meeting this criterion, 63 provided complete responses, which were included in the analysis. The sample size is considered adequate according to Roscoe (1975), who suggests that a sample ranging from 30 to 500 is suitable for quantitative research.

Data were collected offline through the direct distribution of structured printed questionnaires to the respondents. The questionnaire consisted of two main sections: respondent demographic information (gender, age, business tenure, and number of employees) and measurement items representing the study variables. Each item was structured based on the relevant variable indicators and assessed using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Collected data were subsequently analyzed using SmartPLS version 4.0 to examine validity, reliability, and causal relationships among the variables.

Table 1. Operational Definitions and Variable Measurement

Variable	Description	Source
Digital Transformation	The organizational process of leveraging digital technologies to enhance operations, innovation, and customer engagement. Measured by MSMEs' capabilities to market, transact, maintain, monitor, and make decisions using digital media and systems.	(Susanti et al., 2023))
Human Resource Quality	Represents individual capacities that support organizational success through managerial expertise, experience, and the ability to respond to change and drive innovation. Measured using managerial experience, managerial skills, and employees' competencies in responding to changes and supporting innovation.	(Hossain et al., 2024)
Competitive Advantage	A firm's ability to outperform competitors within the same industry or market by leveraging its resources and strengths. Measured by MSMEs' abilities to create, adapt, manage, differentiate, establish, and organize.	(Susanti et al., 2023)
Business Competitiveness	The MSMEs' capacity to maintain and expand market share through sales growth, cost efficiency, and digital marketing strategies. Measured using indicators of increased sales, cost reduction, optimized digital marketing, cost-to-revenue control, and entrepreneurs' welfare.	(Fang et al., 2024)
Sustainable Economic Growth	The enhancement of business welfare and productivity while ensuring long-term sustainability and leveraging technology for operational efficiency. Measured through effectiveness, efficiency, and economic performance.	(Syapsan, 2019)

3. Results

Respondent Profile

A total of 63 culinary MSMEs actively operating on the GrabFood and GoFood platforms in Ambon City participated in this study. In terms of gender, the majority of respondents were female (57.1%), while the remaining were male (42.9%). Regarding age, respondents were categorized into five groups: <20 years (6.3%), 21–30 years (25.4%), 31–40 years (31.7%), 41–50 years (23.8%), and >50 years (12.8%). Based on business duration, most respondents had operated their businesses for more than three years (47.6%), followed by those in the 1–3 years category (36.5%), and less than one year (15.9%). Concerning the number of employees, the majority of MSMEs employed 2–4 workers (55.6%), followed by >4 workers (25.4%), and micro-enterprises operated with fewer than one additional worker (19.0%). This distribution indicates that culinary MSMEs in Ambon are generally in the growth phase, with relatively small but stable business structures, predominantly staffed by micro- to small-scale labor.

Table 2. Respondent Characteristics (n = 63)

Characteristic	Frequency (n)	Percentage (%)	
Gender	Male	27	42.9
	Female	36	57.1
Age (years)	< 20	4	6,3
	21–30	16	25,4
	31–40	20	31.7
	41–50	15	23.8
	> 50	8	12.8
Business duration (years)	< 1	10	15,9
	1–3	23	36,5
	> 3	30	47,6
Number of employees	< 1	12	19,0
	2–4	35	55,6
	> 4	16	25,4

Validity and Reliability Analysis

The evaluation of the measurement model indicates that all constructs have met the criteria for reliability and convergent validity (Table 3). Convergent validity was assessed using outer loadings

and Average Variance Extracted (AVE). All factor loadings exceeded the threshold of 0.70, ranging from 0.736 to 0.953 (Sarstedt et al., 2019), while the AVE values for each construct also surpassed the minimum criterion of 0.50, ranging from 0.631 to 0.831 (Sarstedt et al., 2019). These findings confirm that the indicators employed can substantially explain the variance of the constructs.

Subsequently, reliability was evaluated based on Cronbach's Alpha and Composite Reliability (CR). Cronbach's Alpha values for all constructs were above 0.70, ranging from 0.795 to 0.959, indicating good internal consistency (Kurniawan et al., 2021). This is further supported by CR values ranging from 0.871 to 0.967, all exceeding the recommended threshold of 0.70 (Kurniawan et al., 2021). Therefore, it can be concluded that each construct demonstrates strong and reliable composite reliability.

Table 3. Validity and Reliability

Variable	Indicator	Loading	Cronbach's Alpha	CR	AVE
Digital Transformation	DT1	0.908	0.849	0.896	0.643
	DT2	0.882			
	DT3	0.883			
	DT4	0.799			
	DT5	0.767			
Human Resource Quality	HC1	0.868	0.804	0.871	0.631
	HC2	0.758			
	HC3	0.882			
	HC4	0.793			
Competitive Advantage	CA1	0.804	0.959	0.967	0.831
	CA2	0.915			
	CA3	0.939			
	CA4	0.898			
	CA5	0.951			
	CA6	0.953			
MSMEs Competitiveness	SC1	0.863	0.865	0.903	0.654
	SC2	0.736			
	SC3	0.926			
	SC4	0.777			
	SC5	0.757			
Sustainable Economic Growth	SEG1	0.900	0.795	0.880	0.711
	SEG2	0.857			
	SEG3	0.768			

Source: Smart PLS 4.0 Output (2025)

Hypothesis Testing Results

Table 4. Hypothesis Results

Hypothesis	Original Sample (O)	T Statistics	Original Sample (O)
H1 Digital Transformation → Competitive Advantage	0.729	6.988	0.000
H2 Human Resource Quality → Competitive Advantage	0.227	2.140	0.032
H3 Competitive Advantage → MSMEs Competitiveness	0.919	42.348	0.000
H4 MSMEs Competitiveness → Sustainable Economic Growth	0.856	21.682	0.000

Source: Smart PLS 4.0 Output (2025)

The hypothesis testing results confirm that all proposed relationships are statistically significant. Digital transformation exerts a strong and positive influence on competitive advantage ($\beta = 0.729$; $t = 6.988$; $p < 0.001$), highlighting its central role in enhancing firms' strategic positioning. Human resource quality also contributes positively to competitive advantage ($\beta = 0.227$; $t = 2.140$; $p = 0.032$), although its effect is comparatively weaker. Furthermore, competitive

advantage demonstrates a substantial impact on MSMEs' competitiveness ($\beta = 0.919$; $t = 42.348$; $p < 0.001$), underscoring its pivotal role in strengthening organizational performance. Finally, MSMEs' competitiveness significantly drives sustainable economic growth ($\beta = 0.856$; $t = 21.682$; $p < 0.001$), confirming the strategic contribution of culinary MSMEs in Ambon to broader economic development.

4. Discussion

The results of the first hypothesis (H1) indicate that digital transformation has a significant positive effect on competitive advantage (Original Sample = 0.729, $p = 0.000$). This finding underscores that leveraging digital technologies strengthens the competitive position of MSMEs through data integration, accelerated business processes, and enhanced responsiveness to market dynamics. These results are consistent with Shehadeh et al. (2023) and Susanti et al. (2023), who emphasize that digital transformation serves as a source of new strategic capabilities in achieving competitive advantage. Furthermore, in the context of business development, digital transformation is not merely a technological implementation but also a strategic capability that generates added value, operational efficiency, and sustainable innovation opportunities (Kraus et al., 2022).

The second hypothesis (H2) demonstrates that human capital quality significantly influences competitive advantage (Original Sample = 0.227, $p = 0.032$). This confirms that human capital remains a critical factor in establishing competitive advantage. The finding aligns with Hamadamin and Atan (2019) and Zhang-Zhang et al. (2022), highlighting that employees' skills, experience, and competencies constitute strategic assets that are difficult for competitors to replicate. Conceptually, workforce capabilities act as strategic enablers ensuring the successful implementation of business strategies and technological adoption, thereby strengthening long-term competitive advantage.

The third hypothesis (H3) confirms that competitive advantage has a highly significant effect on MSMEs' competitiveness (Original Sample = 0.919, $p = 0.000$). This suggests that MSMEs' competitive advantage, achieved through product differentiation, operational efficiency, and service innovation, directly enhances market competitiveness. These findings support Mahdi et al. (2019) and Zairbani and Jaya Prakash (2025), who assert that competitive advantage forms the foundational basis for determining an organization's market position.

Finally, the fourth hypothesis (H4) reveals that MSMEs' competitiveness significantly affects sustainable economic growth (Original Sample = 0.856, $p = 0.000$). This indicates that competitive MSMEs not only sustain individual business continuity but also contribute to inclusive and sustainable economic growth. This aligns with Abdallah et al. (2024) and Surya et al. (2021), who highlight that highly competitive MSMEs act as key drivers of both local and national economies. Moreover, competitive MSMEs reinforce local economic structures through supply chain integration and value creation (Meier et al., 2025), facilitating synergy among business actors, increasing production capacity, and accelerating innovation.

5. Conclusion

The findings of this study confirm that digital transformation and human capital quality are primary determinants of MSMEs' competitive advantage. Digital transformation functions not merely as technology implementation but as a strategic capability generating efficiency, added value, and sustainable innovation. Meanwhile, human capital constitutes an irreplaceable asset ensuring successful business strategy execution and technological adaptation, thereby reinforcing long-term competitive advantage. Furthermore, competitive advantage significantly enhances MSMEs' competitiveness, which in turn contributes to inclusive and sustainable economic growth while strengthening local economic structures via supply chain integration and value creation.

Theoretically, these results extend the literature on resource-based view and dynamic capabilities by highlighting that the synergy between digital technology and human capital constitutes a strategic foundation for achieving competitive advantage and SME competitiveness. Practically, policymakers and stakeholders should accelerate digital transformation through infrastructure support, training, and incentive policies while enhancing human capital via skills development and digital literacy programs. Consequently, MSMEs can not only maintain business continuity amid intense competition but also serve as key drivers for strengthening local and national economies.

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