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Digital Skill Moderation in the Relationship between Digital Exploitation Capability and Transformation Performance

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Abstract

Digital transformation is a strategic issue for micro, small, and medium enterprises (MSMEs) in the face of the dynamics of an increasingly competitive business environment. This study aims to analyze the influence of digital exploitation capability, strategic agility, and digital skills on transformation performance, as well as test the role of digital skills as a moderation variable in the relationship between digital exploitation capability and transformation performance. This study uses a quantitative approach with the Structural Equation Modeling–Partial Least Squares (SEM-PLS) method. Data was collected through a structured questionnaire from 233 MSME owners in Kendari City. The descriptive results show that the majority of respondents have a high level of education, dominated by women, and are of productive age, which indicates cognitive and adaptive readiness for digital transformation. The findings of the study show that digital exploitation capability, strategic agility, and digital skills play an important role in driving the transformation performance of MSMEs. In addition, digital skills have been proven to strengthen the effectiveness of digital exploitation capabilities in producing more optimal transformational performance. This research provides a theoretical contribution by strengthening the perspective of dynamic capability in the context of MSMEs, as well as practical implications for the development of policies and strategies to improve the digital capabilities of MSMEs in developing regions.

Keywords: Digital Exploitation Capability; Strategic Agility; Digital Skills; Performance Transformation

1. Introduction

Digital transformation has become a key strategic agenda for organizations in the face of an increasingly dynamic, complex, and technology-laden business environment [1]. Digital transformation is not only concerned with the adoption of digital technologies, but also includes the ability of organizations to reconfigure business processes, operational models, and internal resources to create sustainable value [2]. In this context, transformation performance represents the success of the organization in translating digital initiatives into organizational change and real performance improvements [3, 4]. For micro, small, and medium enterprises (MSMEs), digital transformation is becoming increasingly urgent as competition pressures increase and consumer behavior changes [5].

However, various studies show that many MSMEs have not been able to get the optimal benefits from digital transformation due to limited internal capabilities and low utilization of technology that has been adopted. This phenomenon shows that the success of MSME digital transformation is highly dependent on the ability to exploit digital resources, strategic agility, and digital skills of business owners [6]. Digital exploitation capability refers to the ability of an organization to utilize and optimize available digital technology to improve efficiency, process innovation, and value creation. An ambidextrous approach that balances digital exploitation and exploration is associated with higher MSMEs' transformation performance, while digital exploitation constitutes a key dynamic capability that enables organizations to adapt and innovate sustainably during the transformation process [7].

Strategic agility and digital skills play a key supporting factor in ensuring the success of digital transformation. Strategic agility allows organizations to respond quickly to environmental changes through resource reconfiguration and strategy adjustments [8]. Meanwhile, digital skills reflect an individual's competence in using digital technology effectively, which is an important prerequisite for the implementation of digital transformation. Low digital skills are often the main obstacle to transformation, especially for MSMEs [9]. Although the literature on digital transformation continues to grow, most research still focuses on large corporations and developed country contexts. Empirical research examining the transformation performance of MSMEs in developing regions is still relatively limited. In addition, many studies have examined the direct relationship between digital capabilities and performance, without delving into the internal mechanisms as well as contextual factors that influence these relationships [10]. In terms of theoretical gaps, there are inconsistencies related to the role of strategic agility and digital skills in the digital transformation model. Some studies position digital skills as an independent variable, while other studies show its role as a contextual or moderation factor. The digital paradox phenomenon also shows that digital investment does not always result in improved performance due to weak alignment between strategies, capabilities, and organizational readiness [6]. This emphasizes the need for a theoretical approach based on dynamic capability to explain the digital transformation process more comprehensively.

This study proposes a mechanism for resolving research gaps by integrating digital exploitation capability and strategic agility as the main determinants of transformation performance, and placing digital skills as a moderation variable [11]. This approach emphasizes that the ability to exploit digital technology will only have an optimal impact when organizations have strategic agility and adequate individual digital competencies [12]. Conceptually, digital exploitation capability allows MSMEs to maximize the value of technology that has been adopted, strategic agility ensures sustainable adaptation to environmental changes, and digital skills strengthen the effectiveness of the implementation of these capabilities. Evidence suggests that higher digital skills strengthen the relationship between digital capabilities and transformation performance, allowing this research model to explain the internal mechanisms of MSME digital transformation more holistically [13].

Kendari City is the center of economic activity in Southeast Sulawesi Province with the dominant role of MSMEs in the regional economy. However, most MSMEs in Kendari City still face limitations in the use of digital technology, strategic agility, and digital skills of business owners. This condition makes Kendari City a relevant context to study the transformation performance of MSMEs in a developing environment. This study aims to analyze the influence of digital exploitation capability, strategic agility, and digital skills on the transformation performance of MSMEs in Kendari City, as well as test the role of digital skills as a moderation variable in the relationship between digital exploitation capability and transformation performance. The contribution of this research is expected to be theoretical by enriching the literature on MSME digital transformation based on dynamic capability, and practical by providing strategic recommendations for MSME owners and policymakers in increasing the success of digital transformation at the local level.

2. Research Methods

This study uses a quantitative approach with an explanatory research design to test the causal relationship between digital exploitation capability, strategic agility, and digital skills on the transformation performance of MSMEs. The analysis method used is Structural Equation Modeling–Partial Least Squares (SEM-PLS) because it is able to analyze the simultaneous relationships between latent variables, suitable for a predictive research model and does not require normal data distribution. Data was collected through a structured questionnaire distributed to MSME owners in Kendari City, with question items adapted from previous research and measured using a five-point Likert scale.

The population of this study is all MSME owners in Kendari City who have utilized digital technology in their business activities. The sampling technique uses purposive sampling with the criteria of MSME owners who have been operating for at least one year and use digital technology. The number of samples used in this study was 223 respondents, which had met the minimum sample size requirements in the SEM-PLS analysis. Data analysis was carried out using SmartPLS software, with the evaluation stages of measurement models (outer model) and structural models (inner model), including testing the direct influence and effect of digital skill moderation on the relationship between digital exploitation capability and transformation performance.

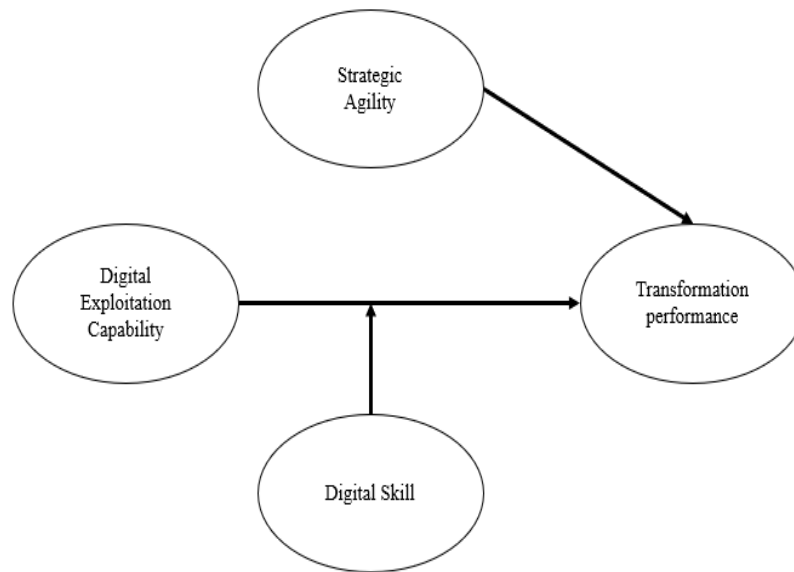


Figure 1. Conceptual Framework

3. Results and Discussions

Results

From a total of 233 respondents who own MSMEs in Kendari City, the majority of respondents have a Bachelor's Degree (42.06%), followed by respondents with Master's Degree education as many as 89 people (38.20%). Meanwhile, respondents with high school education amounted to 46 people (19.74%). This distribution shows that most of the MSME owners in this study have a higher education background, which indicates the potential for cognitive readiness in accepting and implementing digital transformation. Judging from gender, respondents were dominated by women, namely 156 people (66.95%), while male respondents amounted to 77 people (33.05%). In terms of age, the age group of 29–35 years was the largest group with 90 respondents (38.63%), followed by the age group of 22–28 years old with 76 respondents (32.62%). Furthermore, the age group of 35–40 years amounted to 40 respondents (17.17%), and the age group of 36–42 years was the least with 27 respondents (11.59%). Overall, the age distribution shows that the majority of MSME owners are at a productive age, which is relatively adaptive to the use of digital technology and changes in business strategies.

Table 1. Assessment of PLS-SEM

Variables	Items	Loading	Cronbachs Alpha	Composite Reliability	Average Variance Extracted
Digital Exploitation Capability (DEC)	DEC1	0,905	0,934	0,953	0,835
	DEC2	0,909			
	DEC3	0,909			
	DEC4	0,931			
Strategic Agility (SA)	SA1	0,891	0,961	0,969	0,861
	SA2	0,924			
	SA3	0,956			
	SA4	0,925			
	SA5	0,941			
Digital Skills (DS)	DS1	0,922	0,939	0,950	0,793
	DS2	0,873			
	DS3	0,896			
	DS4	0,883			
	DS5	0,879			
Performance Transformation	PT1	0,923	0,938	0,954	0,837
	PT2	0,947			

(PT)	PT3	0,892
	PT4	0,898

The evaluation of the Partial Least Squares Structural Equation Modeling (PLS SEM) measurement model demonstrates that all constructs used in the study meet the required standards for validity and reliability. The variables assessed include Digital Exploitation Capability, Strategic Agility, Digital Skills, and Transformation Performance. All item indicators show loading factor values greater than 0.70, which confirms that convergent validity has been achieved. The values of Cronbach's Alpha and Composite Reliability for each construct are above 0.90, indicating a very high level of internal consistency and reliability within the measurement model. Moreover, the Average Variance Extracted for each variable exceeds the threshold of 0.50, showing that each construct can explain more than half of the variance in its observed indicators. These findings confirm that the measurement instruments applied in this study are both statistically valid and reliable, and are therefore appropriate to be used in the next stage of structural model testing. In addition to meeting statistical thresholds, the strength of the measurement model supports the overall quality of the research framework. The consistency and clarity of the constructs ensure accurate representation of the theoretical concepts being measured. This robust foundation enhances the credibility of subsequent hypothesis testing and structural path analysis in the study.

Table 2. Predictive relevance analysis of Purchase Intention

	R Square	Q2
Strategic Agility	0,638	0,854
Purchase Intention	0,597	

The results of the predictive relevance analysis show that structural models have strong predictive power. The R-Square value of the Strategic Agility variable of 0.638 indicates that the exogenous variables in the model are able to explain 63.8% of the Strategic Agility variation, while the rest are influenced by other factors outside the model. Furthermore, the R Square value of the Purchase Intention variable is 0.597, which shows that 59.7% of the Purchase Intention variation can be explained by the predictive construct in this study. In addition, a Q² value of 0.854 indicates a very high level of predictive relevance, indicating that the model has excellent predictive capabilities and is empirically relevant

Table 3. Discriminant Validity

	1	2	3	4
Need for Cognition (1)				
Perceived Review Credibility (2)	0,426			
Purchase Intention (3)	0,495	0,761		
Purchase Intention (4)	0,486	0,814	0,791	

The validity of the discriminators in this study was evaluated using the Heterotrait–Monotrait Ratio (HTMT) method to ensure that each latent construct has adequate conceptual differences. Based on the test results in Table 3, all HTMT values between constructs were below the recommended threshold limit, which was < 0.85, with the highest value of 0.814. These findings show that each construct has a good level of discrimination and does not overlap with each other in measuring the concepts studied. Thus, it can be concluded that the validity of the discriminant has been met, so that the measurement model is feasible to use for further structural model analysis.

Table 4. Path Coefficient and Hypotheses Testing

Path	Original Sample	Standard Deviation	T Statistics	P Values
Digital Skill -> Transformation performance	0,180	0,054	3,302	0,001
Digital Exploitation Capability -> Transformation performance	0,293	0,098	2,978	0,003
Strategic Agility -> Transformation performance	0,772	0,047	16,605	0,000
Perceived Review Credibility -> Perceived Belongingness -> Purchase Intention	0,327	0,089	3,658	0,000

The test results showed that Digital Skill had a positive and significant effect on the Transformation Performance of MSMEs in Kendari City ($\beta = 0.180$; $t = 3.302$; $p < 0.01$). These findings indicate that the higher the level of digital skills possessed by MSME owners, the better the transformation performance achieved. In the context of MSMEs, digital skills play an important role in supporting the effective use of digital technology, starting from the use of social media, e-commerce platforms, to business management applications, thereby encouraging business process changes and improving transformational performance.

Furthermore, Digital Exploitation Capability was shown to have a positive and significant effect on Transformation Performance ($\beta = 0.293$; $t = 2.978$; $p < 0.01$). These results show that the ability of MSME owners in Kendari City to exploit available digital technologies—such as digital system optimization, customer data utilization, and increased operational efficiency—has a real contribution to the success of business transformation. These findings confirm that digital transformation is not only determined by the adoption of technology, but especially by the ability of MSMEs to maximize the value of the technology.

The results also showed that Strategic Agility had the strongest and most significant influence on Transformation Performance ($\beta = 0.772$; $t = 16.605$; $p < 0.001$). These findings indicate that strategic agility is a key factor in the success of MSME transformation in Kendari City. MSME owners who are able to respond quickly to market changes, adjust business strategies, and flexibly reconfigure resources tend to have higher transformation performance. This shows that in the midst of the dynamics of the business environment, strategic agility is a crucial capability in supporting the sustainability of MSMEs.

In addition to direct influence, the test results also showed significant indirect influence through the mediation mechanism ($\beta = 0.327$; $t = 3.658$; $p < 0.001$). These findings indicate that the relationships between variables in the model are not only direct, but also work through intermediary variables that reinforce business intentions and behaviors. In the context of MSMEs in Kendari City, these results confirm that the success of transformation and strategic decisions of business owners is influenced by interrelated psychological and perceptual processes, thus reinforcing the importance of a holistic approach in understanding the behavior and performance of MSMEs.

Discussion

The results of this study demonstrate that digital skills, digital exploitation capability, and strategic agility play a significant role in enhancing the transformation performance of micro, small, and medium enterprises in Kendari City. These findings are consistent with prior research, which has emphasized that successful digital transformation depends not only on the adoption of technology, but also on the internal capabilities of organizations and their human resources to strategically manage and integrate that technology into core business functions [9, 14].

The analysis showed that digital exploitation capability had a positive and statistically significant impact on transformation performance. This supports the view that an enterprise's ability to effectively utilize digital resources such as existing systems, customer data, and digital platforms plays a key role in driving successful transformation. Organizations that strike a balance between maximizing current digital tools and exploring new ones are generally more agile and better equipped to adapt to change [12]

Digital exploitation is also considered a part of dynamic capabilities that enable continuous learning and innovation within firms [15]. This capability is particularly crucial for micro, small, and medium enterprises, which often operate with limited resources and must optimize the technology they already possess before making new investments. Past research has also highlighted that digital optimization can improve efficiency and reduce operational costs, contributing directly to stronger transformation outcomes [4].

However, achieving transformation through digital investment is not guaranteed. Some researchers have pointed out the existence of a digital paradox, where technology investments do not lead to performance improvement unless aligned with business strategy and organizational models [6]. Therefore, digital exploitation capability must be developed intentionally and aligned closely with strategic business planning.

Among the three key variables, strategic agility showed the strongest influence on transformation performance. Prior studies have emphasized that this capability allows enterprises to quickly adapt resources, processes, and knowledge in response to new digital opportunities [16]. In highly dynamic and uncertain environments, this adaptability becomes critical for business continuity and growth.

Strategic agility has also been associated with stronger decision-making capabilities in times of disruption.

Research has shown that during periods of crisis or rapid change such as post-pandemic recovery agile organizations are better at navigating uncertainty and pursuing innovation [17]. High levels of agility also support the successful implementation of digital business models, particularly when organizational change is required. Furthermore, agility has been identified as a mediator in the relationship between digital capability and business performance. Enterprises that are able to rapidly reconfigure internal resources in response to digital change tend to experience more positive outcomes [18]. In Kendari, strategic agility helps micro, small, and medium enterprises respond to shifting consumer preferences, competition, and emerging technologies, thus reinforcing their ability to transform successfully.

Digital skills were also found to significantly influence transformation performance. These skills include the ability to use information and communication technologies confidently and critically to achieve business objectives [14]. The absence of digital proficiency is often cited as a barrier to transformation, particularly for smaller enterprises that may lack access to digital training and development opportunities.

A more comprehensive view of digital transformation emphasizes the need to develop digital competencies alongside leadership and organizational structure [9, 14]. In this regard, digital skills not only serve as technical abilities but also support cultural change and business innovation. Leaders who possess digital competence are more capable of driving transformation initiatives and sustaining performance improvements over time [19].

Despite their importance, digital skills are not always easy to build. Barriers such as low digital confidence and cultural resistance within organizations have been reported as common challenges [20]. Addressing these challenges requires ongoing investment in training, development, and support for human capital.

The study also found that digital skills moderate the relationship between digital exploitation capability and transformation performance. Higher digital proficiency strengthens the positive effect of exploitation capability, making it more impactful on business outcomes. This finding supports the idea that technology use is highly dependent on the operator's skill level and ability to adapt [12]. In addition, digital skills extend beyond basic technical functions. They also include critical and adaptive thinking in digital environments, which allows enterprises to make strategic use of digital tools rather than just operate them [21]. Firms with higher levels of digital competence are more likely to extract value from technology, sustain innovation, and achieve long-term digital transformation.

In conclusion, this study reinforces the view that transformation performance in micro, small, and medium enterprises is significantly shaped by the interplay between digital skills, digital exploitation capability, and strategic agility. A holistic and integrated approach that includes individual skill development, strategic use of technology, and organizational adaptability is essential for successful digital transformation. These capabilities enable enterprises to not only adopt technology, but also to use it in a way that aligns with their strategic goals and responds to the ever-changing demands of the business environment.

Conclusion

Based on the findings, it can be concluded that digital skills, digital exploitation capability, and strategic agility are critical internal factors in enhancing the transformation performance of micro, small, and medium enterprises in Kendari City. The results confirm that the success of digital transformation is not solely determined by the extent to which technology is adopted but also by the ability of business owners to align technology with business strategies and operational goals. Strategic agility emerged as the most dominant factor, as it enables business owners to adapt their strategies and reconfigure organizational resources quickly and effectively in response to changes in the market. Digital exploitation capability contributes by optimizing the use of existing technologies to increase operational efficiency and create value. Meanwhile, digital skills have both a direct influence on transformation performance and a strengthening effect on the relationship between digital exploitation and performance outcomes. These findings suggest that digital transformation in micro, small, and medium enterprises is multidimensional and relies heavily on the synergy between technological readiness, human resource capacity, and strategic adaptability in navigating change. Although this study provides valuable theoretical and practical contributions, several limitations should be acknowledged. The research was geographically limited to Kendari City, which may limit the generalizability of the findings to other regions with different socio-economic conditions and levels of digital infrastructure. In addition, the study used a cross-sectional approach, which does not capture long-term changes or allow for robust causal analysis. The data were also self-reported and perception-based, which may be influenced by respondent bias. Therefore, future studies are recommended to adopt longitudinal

designs and expand to broader geographical contexts, while incorporating mixed methods to strengthen validity. From a practical perspective, these findings highlight the need for policymakers and support institutions to design capacity-building programs that enhance digital literacy, promote technology-based management training, and foster an adaptive organizational culture. Future research could also explore external factors such as policy support, access to digital infrastructure, funding availability, and market orientation as potential mediating or moderating variables that influence the success of digital transformation in micro, small, and medium enterprise sectors.

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