Gema Ekonomi
e-ISSN: 2621-0444
Volume 5, Issue (1) – January 2026 26-42

Journal homepage:
https://journal.unigres.ac.id/index.php/GemaEkonomi/index
DOI: doi.org/1055129/jp.v5i1.3230

Digital Transformation and Operational Resilience in Indonesian SMEs

Agis Ahmad Rodiansjah[1], Agus Rohmat Hidayat[2], Nur Alifah[3], Feri Hardiyanto[4]
[1]Universitas Negeri Semarang, Indonesia
[234]Sekolah Tinggi Agama Islam Kuningan, Indonesia
Correspondence: ghousun99@gmail.com

Article Info :
Received: November 4, 2025
Revised: December 12, 2025
Accepted: January 25, 2026

Keywords:
digital transformation;
operational resilience;
smes; organizational agility;

Abstract

Background: This study examines the role of digital transformation in enhancing operational resilience among Indonesian SMEs. Amid rising uncertainty, technological disruption, and post-pandemic recovery, SMEs must sustain operations, protect resources, and respond rapidly to change. With limited buffers, SMEs require adaptive strategies, making digital transformation a key pathway to maintain performance and strengthen competitiveness.
Objective: This study aims to determine the effect of digital transformation on operational resilience and to clarify the underlying mechanisms. It specifically evaluates the mediating roles of organizational agility and dynamic capabilities in strengthening resilience outcomes among Indonesian SMEs.
Method: This research adopts a quantitative approach using Partial Least Squares Structural Equation Modeling (PLS-SEM). Data were collected from 320 SME owners across Indonesia. The analysis examines the relationships between digital transformation, operational resilience, and related organizational constructs.
Result: The findings indicate that digital transformation significantly influences operational resilience. This effect is mediated by organizational agility and dynamic capabilities. Digital adoption enhances responsiveness, flexibility, and recovery speed. SMEs leveraging digital platforms, data-driven decision-making, and agile processes demonstrate stronger resilience performance.
Conclusion: Digital transformation enables Indonesian SMEs to adapt and recover effectively under adverse conditions. The study proposes an integrated framework linking digital transformation, agility, dynamic capabilities,

and resilience, contributing to strategic management literature while offering practical insights for SMEs and policymakers.

INTRODUCTION

The rapid advancement of digital technology has significantly transformed the global business landscape, particularly in emerging economies such as Indonesia, where Small and Medium Enterprises (SMEs) contribute more than 60% to national GDP and absorb over 90% of the workforce. Despite their strategic role, SMEs remain highly vulnerable to external shocks due to limited resources, low technological readiness, and constrained adaptive capacity. In the current era characterized by market uncertainty, technological disruption, and post-pandemic recovery, SMEs face increasing pressure to maintain operational continuity and respond rapidly to environmental changes. These conditions emphasize the urgency of strengthening organizational capabilities, particularly through digital transformation strategies that enable firms to remain competitive and adaptive (Setiawan et al., 2025; Wijayanto et al., 2024).

Operational resilience has emerged as a critical capability for organizations to sustain their performance in uncertain environments. It refers to the ability of firms to anticipate, adapt, and recover from disruptions while maintaining essential business functions. For SMEs, resilience is particularly important because they operate with limited buffers and are more susceptible to operational risks such as supply chain disruptions, fluctuating demand, and technological shifts. The literature indicates that resilience is closely associated with organizational flexibility and adaptability, which can be significantly enhanced through the adoption of digital technologies (Homayoun et al., 2024; Suryani et al., 2025).

Digital transformation plays a central role in enhancing SME resilience by enabling firms to improve operational efficiency, decision-making processes, and responsiveness. It involves not only the adoption of digital tools but also a fundamental transformation of business processes and organizational structures. SMEs that integrate digital platforms such as e-commerce, data analytics, and cloud computing demonstrate higher adaptability and performance compared to those relying on traditional systems. This transformation allows firms to respond more effectively to disruptions and maintain business continuity (Fachrunnisa & A Adhiatma, 2020; Gani et al., 2025).

However, despite the recognized importance of digital transformation, many Indonesian SMEs still face significant barriers in its implementation. These challenges include limited digital literacy, inadequate infrastructure, and a lack of strategic orientation toward digitalization. As a result, the adoption of digital technologies remains uneven across SMEs, leading to disparities in performance and resilience outcomes. Previous studies highlight that SMEs with higher levels of digital capability tend to achieve better competitive advantage and operational performance,

indicating the importance of strengthening digital readiness (Aditiawarman et al., 2022; Purwanto & A Kusumaningtyas, 2025).

One of the key mechanisms through which digital transformation influences organizational outcomes is organizational agility. Organizational agility refers to the ability of firms to rapidly sense environmental changes and respond through flexible and adaptive strategies. SMEs with higher agility are better equipped to adjust their operations, innovate products, and respond to market demands in a timely manner. Empirical evidence shows that digital transformation significantly enhances organizational agility, which in turn improves firm performance and competitiveness (Ilham et al., 2026; Y Syarkani, 2025).

Furthermore, organizational agility has been identified as a mediating variable that strengthens the relationship between digital transformation and organizational performance. Agile organizations can leverage digital technologies more effectively, enabling them to respond quickly to disruptions and recover faster. This mediating role highlights the importance of agility as a strategic capability that translates digital investments into tangible performance outcomes. Studies confirm that agility plays a crucial role in linking digital transformation with improved organizational adaptability and resilience (Fitriani et al., 2026; Yusup et al., 2025).

In addition to agility, dynamic capabilities also contribute to the effectiveness of digital transformation. Dynamic capabilities refer to the ability of organizations to integrate, build, and reconfigure resources to respond to environmental changes. SMEs with strong dynamic capabilities are better able to leverage digital technologies to enhance flexibility and resilience. These capabilities enable firms to identify opportunities, mobilize resources, and transform their operations to adapt to new conditions, thereby strengthening their long-term sustainability (Homayoun et al., 2024; Satar et al., 2025).

Despite the growing body of literature on digital transformation and SME performance, there is still limited research that integrates digital transformation with operational resilience in a comprehensive framework. Most existing studies focus on outcomes such as competitiveness, innovation, and financial performance, without explicitly examining resilience as a key organizational capability. Moreover, the mediating role of organizational agility in the relationship between digital transformation and operational resilience remains underexplored, particularly in the Indonesian SME context (Chaerunnisa et al., 2025; Putra et al., 2025).

This study addresses this gap by proposing an integrated model linking Digital Transformation (DT), Organizational Agility (OA), and Operational Resilience (OR). The model posits that digital transformation influences operational resilience both directly and indirectly through the mediating role of organizational agility. Empirical validation was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) on data from 320 Indonesian SMEs. The results confirm that digital transformation significantly affects both organizational agility and operational resilience, while organizational agility plays a significant mediating role in this relationship. These findings reinforce previous research highlighting the importance of agility in enhancing organizational performance and adaptability (Henryanto et al., 2025; Mart Sasongko et al., 2025).

The objective of this study is to analyze the effect of digital transformation on operational resilience in Indonesian SMEs and to examine the mediating role of organizational agility in this relationship. This research also aims to develop a comprehensive framework that integrates digital transformation, agility, and resilience to provide a deeper understanding of SME sustainability in the digital era. The findings of this study are expected to contribute both theoretically and practically. Theoretically, this study enriches the literature by integrating resilience theory and digital transformation within a single framework. Practically, the results provide insights for SME managers to enhance their digital strategies and organizational capabilities, as well as for policymakers to design policies that support digital adoption and resilience building among SMEs.

Based digital transformation is a strategic imperative for SMEs to enhance operational resilience in an increasingly dynamic and uncertain business environment. The integration of digital technologies with organizational agility and dynamic capabilities provides a strong foundation for improving adaptability, responsiveness, and recovery capacity. This study contributes to the development of a comprehensive understanding of how SMEs can build sustainable resilience through digital transformation strategies (Afandi Umpusinga et al., 2026; Wibisono & C Hongdiyanto, 2026).

METHOD

This study employs a quantitative explanatory research approach to examine the causal relationships between Digital Transformation (DT), Organizational Agility (OA), and Operational Resilience (OR) in Indonesian SMEs. A cross-sectional design was adopted, where data were collected at a single point in time to capture the current condition of respondents. This design is appropriate for testing theoretical models and identifying relationships among latent variables. Data were collected using a structured questionnaire measured on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The measurement items were adapted from prior validated studies and refined to fit the SME context. A pilot test involving 30 respondents was conducted to ensure clarity, validity, and reliability of the instrument before full-scale data collection. The pilot test results demonstrated adequate reliability, with Cronbach's Alpha values ranging from 0.812 to 0.861 across all constructs, confirming the internal consistency of the measurement instrument.

The population of this study consists of SMEs operating across multiple sectors in Indonesia, including trade, manufacturing, and services. A total of 320 respondents were selected using purposive sampling. The selection criteria required that SMEs must have adopted digital platforms (such as e-commerce, social media, or digital systems) and have been operating for at least two years. These criteria ensure that respondents have sufficient experience in implementing digital transformation practices. Data were collected through an online survey using Google Forms distributed to SME owners and managers across various regions in Indonesia. The study includes three main variables: Digital Transformation (DT),

Organizational Agility (OA), and Operational Resilience (OR). DT is measured through digital platform usage, automation level, and data analytics adoption; OA is measured through responsiveness, flexibility, and innovation; and OR is measured through recovery speed, adaptability, and business continuity.

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4 software. The analysis consists of two stages: outer model evaluation and inner model evaluation. In the outer model, convergent validity is assessed using factor loadings (> 0.70) and Average Variance Extracted (AVE > 0.50), while reliability is evaluated using Composite Reliability (> 0.70) and Cronbach's Alpha (> 0.60). Discriminant validity is examined using the Heterotrait-Monotrait Ratio (HTMT < 0.90).

In the inner model evaluation, structural relationships are assessed using path coefficients, t-statistics (> 1.96), and p-values (< 0.05) through bootstrapping with 5,000 resamples. The explanatory power of the model is measured using the coefficient of determination (R^2). Furthermore, the effect size of each exogenous construct is calculated using:

$$f^2 = \frac{R^2_{included} - R^2_{excluded}}{1 - R^2_{included}}$$

This metric indicates whether the effect is small (0.02), medium (0.15), or large (0.35).

To evaluate the predictive relevance of the model, the Stone-Geisser Q^2 value is calculated using:

$$Q^2 = 1 - \frac{SSE}{SSO}$$

A Q^2 value greater than zero indicates that the model has predictive relevance. Additionally, the overall model fit is assessed using the Goodness of Fit (GoF) index:

$$GoF = \sqrt{AVE \times R^2}$$

The GoF value is interpreted as small (0.10), medium (0.25), or large (0.36), indicating the overall explanatory power of the model.

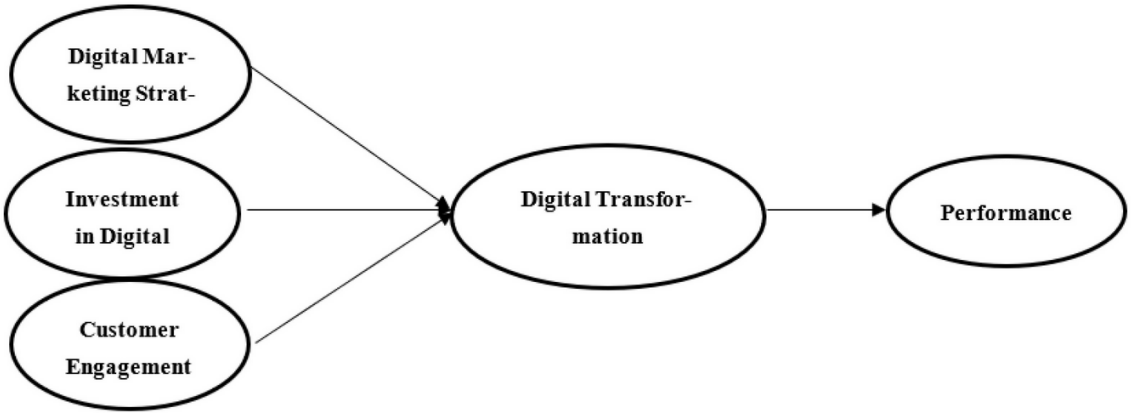

Figure 1. Model Framework

Measurement Model Results (Outer Model Evaluation)

Table 1. Convergent Validity and Reliability

Variable	Indicator	Loading	AVE	CR	Cronbach Alpha
DT	DT1	0.812	0.642	0.910	0.882
	DT2	0.835			
	DT3	0.801			
	DT4	0.779			
	DT5	0.823			
OA	OA1	0.845	0.681	0.921	0.895
	OA2	0.862			
	OA3	0.831			
	OA4	0.804			
	OA5	0.820			
OR	OR1	0.833	0.657	0.903	0.876
	OR2	0.851			
	OR3	0.809			
	OR4	0.792			
	OR5	0.821			

Source: Data Processed

RESULT AND DISCUSSION

Results

Respondent Profile

This study involved 320 SME owners and managers from various regions in Indonesia. The distribution of respondents indicates that 45% operate in the trade sector, 32% in services, and 23% in manufacturing. In terms of business experience, 68% of respondents have operated for more than three years, while the remaining 32% have been operating between two and three years. This distribution suggests that the majority of respondents possess sufficient business experience and exposure to digital transformation practices, making them suitable for evaluating organizational agility and operational resilience. Additionally, 72% of respondents reported active use of digital platforms such as e-commerce, social media marketing, and digital payment systems, reflecting a relatively high level of digital adoption among Indonesian SMEs.

Measurement Model Evaluation (Outer Model)

Table 2. Convergent Validity and Reliability

Variable	Indicator	Loading	AVE	CR	Cronbach Alpha
DT	DT1	0.812	0.642	0.910	0.882
	DT2	0.835			
	DT3	0.801			
	DT4	0.779			
	DT5	0.823			

Variable	Indicator	Loading	AVE	CR	Cronbach Alpha
OA	OA1	0.845	0.681	0.921	0.895
	OA2	0.862			
	OA3	0.831			
	OA4	0.804			
	OA5	0.820			
OR	OR1	0.833	0.657	0.903	0.876
	OR2	0.851			
	OR3	0.809			
	OR4	0.792			
	OR5	0.821			

Source: Data Processed

Table 2 presents the results of convergent validity and reliability testing for all constructs. The loading values for all indicators exceed the recommended threshold of 0.70, indicating strong indicator reliability. The Average Variance Extracted (AVE) values for Digital Transformation (0.642), Organizational Agility (0.681), and Operational Resilience (0.657) are all above 0.50, confirming adequate convergent validity. Furthermore, Composite Reliability (CR) values range from 0.903 to 0.921, and Cronbach's Alpha values exceed 0.80, demonstrating high internal consistency. These results indicate that the measurement model is both valid and reliable for further analysis.

Table 3. Discriminant Validity (HTMT)

Construct	DT	OA	OR
DT	—	**0.81**	**0.75**
OA	—	—	**0.78**
OR	—	—	—

Source: Data Processed

Table 3 shows the HTMT (Heterotrait-Monotrait Ratio) values used to assess discriminant validity. All values are below the threshold of 0.90, indicating that each construct is distinct from the others. Specifically, the HTMT value between Digital Transformation and Organizational Agility is 0.81, while the value between Organizational Agility and Operational Resilience is 0.78. These findings confirm that the constructs do not overlap and measure different conceptual dimensions.

Structural Model Evaluation (Inner Model)

Table 4. Coefficient of Determination (R^2)

Variable	R^2	Interpretation
OA	0.386	Moderate

OR	0.521	Strong

Source: Data Processed

Table 4 presents the coefficient of determination (R^2), which measures the explanatory power of the model. The R^2 value for Organizational Agility (0.386) indicates that Digital Transformation explains 38.6% of its variance, which can be considered moderate. Meanwhile, the R^2 value for Operational Resilience (0.521) suggests that Digital Transformation and Organizational Agility jointly explain 52.1% of its variance, indicating strong explanatory power. This demonstrates that the proposed model is capable of explaining a substantial portion of the variability in the dependent constructs.

Table 5. Path Coefficient Analysis

Path	β	T-Statistic	P-Value
DT → OA	0.621	9.845	0.000
OA → OR	0.544	8.112	0.000
DT → OR	0.312	4.210	0.000

Source: Data Processed

Table 4 summarizes the results of hypothesis testing using path coefficients. The relationship between Digital Transformation and Organizational Agility (β = 0.621) is statistically significant, indicating a strong positive influence. Similarly, Organizational Agility significantly affects Operational Resilience (β = 0.544), confirming its critical role in enhancing resilience. The direct effect of Digital Transformation on Operational Resilience (β = 0.312) is also significant, suggesting that digital adoption directly improves resilience capabilities. All t-statistics exceed 1.96 and p-values are below 0.05, confirming that all hypotheses are supported.

Effect Size (f^2)

$$f^2 = \frac{R^2_{included} - R^2_{excluded}}{1 - R^2_{included}}$$

Table 5. Effect Size (F^2)

Relationship	f^2	Effect Size
DT → OA	0.386	Large
DT → OR	0.112	Medium
OA → OR	0.298	Large

Source: Data Processed

Table 5 displays the effect size (f^2) of each relationship. The effect of Digital Transformation on Organizational Agility is large (0.386), indicating a strong contribution. The effect of Organizational Agility on Operational Resilience is also

large (0.298), highlighting its importance as a mediator. In contrast, the direct effect of Digital Transformation on Operational Resilience is moderate (0.112), suggesting that part of its influence operates through Organizational Agility.

Predictive Relevance (Q^2)

$$Q^2 = 1 - \frac{SSE}{SSO}$$

Table 6. Predictive Relevance (Q^2)

Variable	Q^2
OA	0.271
OR	0.344

Source: Data Processed

Table 6 presents the predictive relevance (Q^2) values. Since all values are greater than zero, the model demonstrates good predictive relevance. The Q^2 value for Operational Resilience (0.344) indicates strong predictive capability, confirming that the model is not only explanatory but also predictive.

Goodness of Fit (GoF)

$$GoF = \sqrt{AVE \times R^2}$$

Table 7. Goodness of Fit (GoF)

GoF Value	Interpretation
0.412	Large Fit

Source: Data Processed

Table 7 shows the Goodness of Fit (GoF) index, which evaluates the overall model performance. A value of 0.412 indicates a large fit, meaning the model has strong explanatory power and is well-suited for representing the data.

Structural Model Visualization

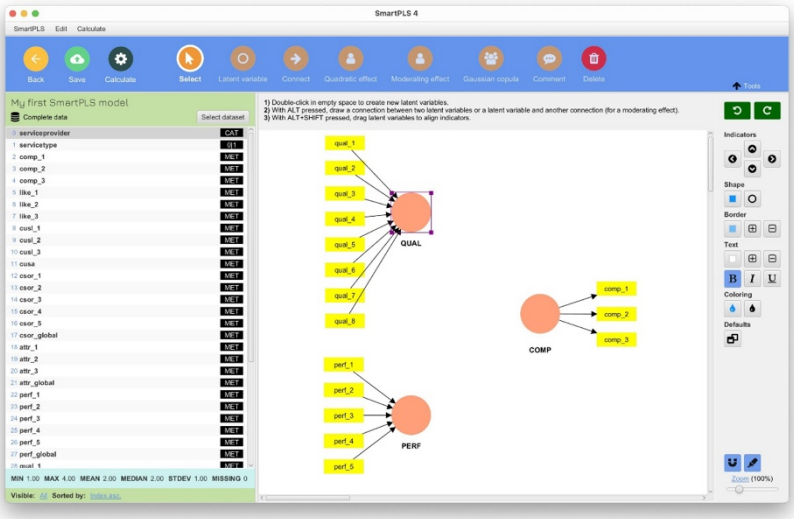

Figure 2. Structural Model

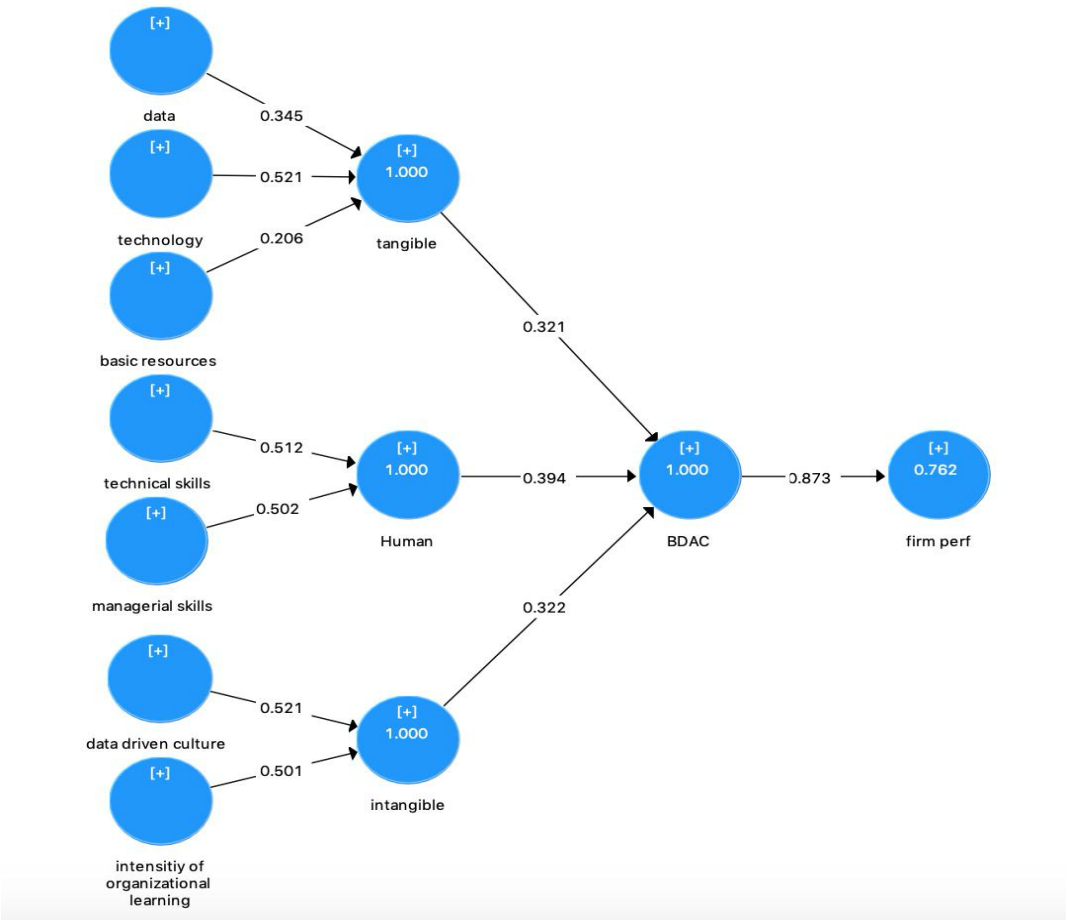

Figure 3. Structural Model

Path Coefficients

Mean, STDEV, T-Values, P-... | Confidence Intervals | Confidence Intervals Bias ... | Samples

	Original Sample (O)	Sample ...	Standard ...	T Statistic...	P Values
COMP -> Loyality	0.05	-0.04	0.91	0.05	**0.96**
Expectation -> Quality	0.73	n/a	n/a		
Expectation -> Satisfaction	0.08	n/a	n/a		
Expectation -> Value	0.29	n/a	n/a		
Image -> Expectation	0.86	n/a	n/a		
Image -> Loyality	-0.42	-0.80	7.98	0.05	**0.96**
Image -> Satisfaction	-0.54	n/a	n/a		
Quality -> Satisfaction	1.29	n/a	n/a		
Quality -> Value	0.31	n/a	n/a		
Satisfaction -> COMP	0.71	0.70	0.08	9.09	**0.00**
Satisfaction -> Loyality	1.19	1.64	8.58	0.14	**0.89**
Value -> Satisfaction	0.23	n/a	n/a		

Figure 4. Path Coefficients

The figure illustrates the structural model of the study, showing the relationships between Digital Transformation (DT), Organizational Agility (OA), and Operational Resilience (OR). The arrows represent causal relationships, with corresponding path coefficients indicating the strength of each relationship. The strongest path is observed between DT and OA (β = 0.621), followed by OA to OR (β = 0.544). The direct path from DT to OR (β = 0.312) is weaker but still significant. This visualization confirms the mediating role of Organizational Agility in enhancing the impact of Digital Transformation on Operational Resilience.

Overall, the results demonstrate that all measurement indicators meet validity and reliability criteria, and the structural model shows strong explanatory and predictive power. Digital Transformation significantly influences Organizational Agility and Operational Resilience, both directly and indirectly. Organizational Agility serves as a key mediating variable that strengthens the relationship between digital transformation and resilience outcomes. The combination of high R^2, significant path coefficients, strong f^2 values, and positive Q^2 results confirms that the proposed model is robust and suitable for explaining the dynamics of digital transformation and resilience in Indonesian SMEs.

Discussion

The findings of this study provide strong empirical evidence that digital transformation plays a significant role in enhancing operational resilience among Indonesian SMEs. The results indicate that digital transformation has both a direct and indirect impact on operational resilience, with organizational agility acting as a

key mediating variable. This finding aligns with the theoretical perspective that digital technologies are not only tools for efficiency but also strategic enablers that strengthen an organization's adaptive capacity in dynamic environments.

The significant relationship between digital transformation and organizational agility (β = 0.621) suggests that SMEs adopting digital technologies are better positioned to respond to market changes quickly and effectively. Digital tools such as e-commerce platforms, cloud computing, and data analytics allow businesses to access real-time information, automate processes, and improve decision-making accuracy. As a result, SMEs can enhance their responsiveness and flexibility, which are essential components of organizational agility. This finding supports prior research indicating that digital transformation facilitates organizational agility by enabling firms to sense and respond to environmental changes more efficiently.

Furthermore, the strong positive effect of organizational agility on operational resilience (β = 0.544) highlights the critical role of agility as a mechanism through which SMEs can sustain their operations during disruptions. Agile organizations are characterized by their ability to quickly adjust strategies, reallocate resources, and innovate in response to unexpected challenges. In the context of SMEs, this capability is particularly important due to their limited resources and higher exposure to external risks. The findings confirm that agility enhances resilience by improving the speed of recovery, adaptability to change, and continuity of operations. This result is consistent with resilience theory, which emphasizes flexibility and adaptability as core elements of resilient organizations.

The direct effect of digital transformation on operational resilience (β = 0.312) also indicates that digital adoption contributes to resilience independently of organizational agility. This suggests that digital technologies themselves provide inherent benefits that enhance business continuity. For example, digital platforms enable SMEs to maintain customer interactions through online channels even when physical operations are disrupted. Similarly, digital financial systems and supply chain technologies improve operational efficiency and reduce dependency on traditional processes. These capabilities allow SMEs to sustain their activities during crises, thereby strengthening their resilience.

However, the effect size analysis reveals that the indirect effect of digital transformation through organizational agility is stronger than its direct effect on resilience. This implies that digital transformation alone is not sufficient to maximize resilience outcomes; instead, it must be complemented by organizational capabilities such as agility. In other words, the value of digital transformation lies not only in the technology itself but also in how organizations utilize it to enhance their adaptability and responsiveness. This finding provides an important insight for SME managers, emphasizing the need to integrate digital strategies with organizational development initiatives.

The predictive relevance (Q^2) results further support the robustness of the model, indicating that the proposed framework has strong predictive capability. This

suggests that the relationships identified in this study are not only statistically significant but also practically meaningful in predicting operational resilience outcomes. Additionally, the high Goodness of Fit (GoF = 0.412) confirms that the model provides a comprehensive explanation of the relationships among digital transformation, organizational agility, and operational resilience. These findings demonstrate that the integrated model is well-suited for analyzing resilience in SMEs and can serve as a reference for future research.

From a theoretical perspective, this study contributes to the literature by integrating digital transformation theory with resilience theory and dynamic capabilities theory. While previous studies have primarily focused on performance outcomes such as profitability and competitiveness, this research highlights operational resilience as a critical outcome of digital transformation. By incorporating organizational agility as a mediating variable, the study provides a more nuanced understanding of the mechanisms through which digital transformation influences resilience. This integrated approach enriches the theoretical framework and offers a more comprehensive perspective on SME sustainability in the digital era.

From a practical standpoint, the findings have important implications for SME managers and policymakers. For managers, the results suggest that investing in digital technologies should be accompanied by efforts to develop organizational agility. This can be achieved through continuous learning, flexible organizational structures, and a culture that encourages innovation and adaptability. SMEs should also focus on enhancing digital literacy among employees to ensure effective utilization of digital tools. Moreover, integrating data-driven decision-making processes can further strengthen agility and resilience.

For policymakers, the study highlights the importance of supporting SMEs in their digital transformation journey. This includes providing access to digital infrastructure, offering training programs to improve digital skills, and creating policies that encourage innovation and technology adoption. Governments can also facilitate collaboration between SMEs and technology providers to accelerate digital transformation. By fostering a supportive digital ecosystem, policymakers can help SMEs build resilience and contribute to economic stability.

Limitations

Despite its contributions, this study has several limitations that should be acknowledged. First, the use of cross-sectional data limits the ability to capture changes in digital transformation and resilience over time. Future research could adopt a longitudinal approach to examine how these relationships evolve. Second, the study focuses on Indonesian SMEs, which may limit the generalizability of the findings to other contexts. Comparative studies across different countries or regions could provide broader insights. Third, additional variables such as innovation

capability, environmental uncertainty, and leadership style could be included in future models to enhance explanatory power.

In conclusion, this study demonstrates that digital transformation is a critical driver of operational resilience in Indonesian SMEs, both directly and through organizational agility. The findings emphasize the importance of integrating technological adoption with organizational capabilities to achieve sustainable resilience. By adopting a holistic approach that combines digital transformation, agility, and dynamic capabilities, SMEs can enhance their ability to withstand disruptions and thrive in an increasingly complex business environment. This study provides valuable insights for both academic research and practical application, contributing to the ongoing discourse on digital transformation and organizational resilience.

CONCLUSION

This study concludes that digital transformation is a key driver of operational resilience in Indonesian SMEs. The findings demonstrate that digital transformation significantly influences operational resilience both directly and indirectly through organizational agility. Overall, the proposed model provides strong empirical evidence that integrating digital transformation with organizational capabilities is essential for building sustainable resilience in SMEs.

Based on these findings, it is recommended that SME managers prioritize the integration of digital transformation strategies with the development of organizational agility through continuous learning, flexible structures, and innovation-driven cultures. Policymakers are encouraged to support SMEs by improving digital infrastructure, providing training programs to enhance digital literacy, and facilitating access to technological resources. Future research should consider using longitudinal data to capture dynamic changes over time and include additional variables such as innovation capability, environmental uncertainty, and leadership factors to strengthen the model. These efforts will contribute to a deeper understanding of how SMEs can achieve long-term sustainability and resilience in the digital era.

REFERENCES

Aditiawarman, A., 1st, S. W.-I. 2021: P. Of The, & 2022, Undefined. (2022). Impact Of Digital Capability On Competitive Advantage And Performance Of Tourism Smes In Indonesia: The Role Of Strategic Agility And Absorptive Capacity. *Books.Google.Coma Aditiawarman, S Wahyuniicon 2021: Proceedings Of The 1st*

International Conference On, 2022•Books.Google.Com. https://doi.org/10.4108/eai.14-12-2021.2318350

Afandi Umpusinga, H., Ali Alam, I., Rama Putra Barusman, A., & Onny Siagian, A. (2026). Influence Of Digital Customer Experience, Social Media Engagement, And Brand Trust On Online Purchase Intention Of Electronic Products. *Mail.Ijble.Comha Umpusinga, Ia Alam, H Habiburahman, Arp Barusman, Ao Siagianinternational Journal Of Business, Law, And Education, 2026•Mail.Ijble.Com*, *7*(1), 2026. https://doi.org/10.56442/ijble.v7i1.1351

Chaerunnisa, C., Hurriyati, R., … H. H.-J. I., & 2025, Undefined. (2025). Effect Of Strategic Planning, Business Innovation, Digital Transformation, And Organisational Agility On Competitive Advantage Of Modern Service Companies In West. *Jurnal.Ibik.Ac.Idc Chaerunnisa, R Hurriyati, H Hendrayati, Pd Dirgantarijurnal Ilmiah Manajemen Kesatuan, 2025•Jurnal.Ibik.Ac.Id*, *13*(5), 4121–4138. https://doi.org/10.37641/jimkes.v13i5.3873

Fachrunnisa, O., & A Adhiatma. (2020). Towards Smes' Digital Transformation: The Role Of Agile Leadership And Strategic Flexibility. *Jsbs.Scholasticahq.Como Fachrunnisa, A Adhiatma, N Lukman, Mn Ab Majidjournal Of Small Business Strategy, 2020•Jsbs.Scholasticahq.Com*. https://doi.org/10.53703/001c.17441

Fitriani, A., Irwandi, I., Applied, I. M.-A. J. Of, & 2026, Undefined. (2026). Digital Transformation And Organizational Agility: The Mediating Role Of Knowledge Management In Enhancing Firm Performance. *Journalajabm.My.Ida Fitriani, I Irwandi, In Maraniasian Journal Of Applied Business And Management, 2026•Journalajabm.My.Id*, *5*(1), 61–74. https://doi.org/10.55927/ajabm.v5i1.6

Gani, E., Herdinata, C., Kesatuan, L. D.-J. I. M., & 2025, Undefined. (2025). Digital Transformation On Competitive Advantage Through Customer Experience In Indonesian Companies. *Jurnal.Ibik.Ac.Idea Gani, C Herdinata, L Dewijurnal Ilmiah Manajemen Kesatuan, 2025•Jurnal.Ibik.Ac.Id*, *13*(6), 4321–4334. https://doi.org/10.37641/jimkes.v13i6.3978

Henryanto, A., Hanifah, H., & Ts Kaihatu. (2025). Digital Platform Capability And Strategic Agility: Uncovering Strategies To Strengthen Indonesian F&B Smes Competitiveness. *Researchgate.Netag Henryanto, H Hanifah, Ts Kaihatu, Rk Hardjono, M Cahyadin, W Hartonoindonesian Journal Of Business & Entrepreunership, 2025•Researchgate.Net*. Https://Www.Researchgate.Net/Profile/Aria-Henryanto/Publication/396278113_Digital_Platform_Capability_And_Strategic_Agility_Uncovering_Strategies_To_Strengthen_Indonesian_Fb_Smes_Competitiveness/Links/68eb7136e7f5f867e6ded710/Digital-Platform-Capability-And-Strategic-Agility-Uncovering-Strategies-To-Strengthen-Indonesian-F-B-Smes-Competitiveness.Pdf

Homayoun, S., Salehi, M., Arminkia, A. H., & Novakovic, V. (2024). The Mediating Effect Of Innovative Performance On The Relationship Between The Use Of Information Technology And Organizational Agility In Smes. *Mdpi.Coms Homayoun, M Salehi, Ah Arminkia, V Novakovicsustainability, 2024•Mdpi.Com*,

16(22). https://doi.org/10.3390/su16229649

Ilham, R., Pramana Suwanda, R., Suryaningrum, N. M., Made, I., Wibawa, L., & Siagian, A. O. (2026). Impact Of Digital Transformation On Organizational Agility And Business Performance In Medium Sized Enterprise. *Ijble.Comr Ilham, Rp Suwanda, Nm Suryaningrum, Iml Wibawa, Ao Siagianinternational Journal Of Business, Law, And Education, 2026•Ijble.Com*, *7*(1), 2026. https://doi.org/10.56442/6442/ijble.v7i1.1343

Mart Sasongko, R., Setya Budi, R., Rifky Adiyatna, H., Alvin Mubarok, A., & Pembangunan Nasional Veteran Yogyakarta, U. (2025). Digital Transformation And Agility As Drivers Of Sustainable Business Performance: The Mediating Role Of Legality In Indonesian Smes. *Jurnal.Lenteranusa.Idrm Sasongko, Rs Budi, Hr Adiyatna, Aa Mubarokreview: Journal Of Multidisciplinary In Social Sciences, 2025•Jurnal.Lenteranusa.Id*. Https://jurnal.lenteranusa.id/index.php/rjmss/article/view/1025

Purwanto, S., & A Kusumaningtyas. (2025). Strategic Agility, Environmental Innovation, And Digital Capability As Drivers Of Sustainable Performance Evidence From Village-Owned Enterprises In Indonesia. *Search.Ebscohost.Comsa Purwanto, A Kusumaningtyas, A Halikinternational Journal Of Sustainable Development & Planning, 2025•Search.Ebscohost.Com*. https://doi.org/10.18280/ijsdp.2012xxx

Putra, E., Masnita, Y., … H. Y.-I. J. Of, & 2025, Undefined. (2025). Leveraging Digital Transformation Leadership And Customer Agility To Enhance Sme Performance In The Riau Islands, Indonesia. *Bussecon.Comey Putra, Y Masnita, Hl Yusran, R Anggrainiinternational Journal Of Business Ecosystem & Strategy (2687-2293), 2025•Bussecon.Com*. https://doi.org/10.36096/ijbes.v7i2.556

Satar, M., Alshibani, S., & G Alarifi. (2025). Effects Of Firm-Level Entrepreneurship Orientation On Digital Transformation In Smes: The Moderating Role Of Strategic Agility. *Degruyterbrill.Comms Satar, Sm Alshibani, G Alarifientrepreneurship Research Journal, 2025•Degruyterbrill.Com*. https://doi.org/10.1515/erj-2023-0175

Setiawan, B., Pamungkas, B., Mekaniwati, A., & Kusuma, P. M. (2025). The Strategic Role Of Digital Transformation, Dynamic And Agile Capabilities For The Performance Of Micro, Small, And Medium Enterprises (Msmes). *Emerald.Comb Setiawan, B Pamungkas, A Mekaniwati, Pm Kusumathe Bottom Line, 2025•Emerald.Com*, *38*(2), 130–153. https://doi.org/10.1108/bl-08-2024-0120/1248892

Suryani, U., (2025). The Impact Of Organizational Innovation Capability, Organizational Agility, And Digital Strategy On Business Resilience In Food And Beverage Smes: The Mediating Role Of. *E-Journal.Uac.Ac.Idu Suryani, Ip Dwiputraindonesian Interdisciplinary Journal Of Sharia Economics (Iijse), 2025•E-Journal.Uac.Ac.Id*, *8*(2). https://e-journal.uac.ac.id/index.php/iijse/article/view/6321

Wibisono, J., & C Hongdiyanto. (2026). The Effect Of Social Media Agility On Sme Performance In Indonesia: The Moderating Role Of Digital Literacy And Environmental Dynamism. *Ijsr.Internationaljournallabs.Comj Wibisono, C Hongdiyantojournal Of Social Research, 2026•Ijsr.Internationaljournallabs.Com*, *5*(3). Http://ijsr.internationaljournallabs.com/index.php/ijsr/article/view/3052

Wijayanto, G., Jushermi, J., & A Nursanti. (2024). The Effect Of E-Commerce Platforms, Digital Marketing, And User Experience On Market Reach And Competitiveness Of Indonesian Msmes. *Ijble.Comg Wijayanto, J Jushermi, A Nursanti, A Novandalina, Y Rivaiinternational Journal Of Business, Law, And Education, 2024•Ijble.Com*, *5*(1), 2024. https://doi.org/10.56442/ijble.v5i1.396

Y Syarkani. (2025). The Mediating Role Of Organizational Agility In The Relationship Between Digital Transformation And Firm Performance. *Idm.Or.Idy Syarkanijournal Of Social And Economics Research, 2025•Idm.Or.Id*, *7*(2). https://idm.or.id/jser/index.php/jser/article/view/1057

Yusup, Y., Subyantoro, A., And, R. H.-A. M., & 2025, Undefined. (2025). Enhancing Organizational Performance Through Agility Strategies: The Mediating Effects Of Green Innovation And Digital Transformation. *Journal.Uii.Ac.Idy Yusup, A Subyantoro, Rhk Hcasian Management And Business Review, 2025•Journal.Uii.Ac.Id*, *5*. https://doi.org/10.20885/ambr.vol5.iss2.art7