JURNAL
Riset Akuntansi dan Keuangan Indonesia
URL : http://journals.ums.ac.id/index.php/reaksi/index

Dynamic Capability Theory: Digital Transformation as a Sustainable Competitive Performance Strategy for MSMEs

Eskasari Putri[1], Ashar Mukhammad Akbar[2], Tariq Tawfeeq Yousif Alabdullah[3], Kholid Jundi Ar-Ridho[4], Arief Surya Adhi[5], Windi Amelia Adindaningtyas Putri[6]

[1,2,4,5,6]Faculty of Economic and Business, Universitas Muhammadiyah Surakarta, Indonesia

[3]Faculty of Industrial Management for Oil and Gas, University of Basrah for Oil and Gas, Iraq

email: ep122@ums.ac.id

Keywords:
Dynamic Capabilities, Digital Transformation, Sustainable Competitive Performance, MSMEs, Sensing, Seizing, Transforming

ABSTRACT

The rapid advancement of digital technologies has compelled Micro, Small, and Medium Enterprises (MSMEs) to adopt digital transformation strategies to maintain competitive performance. This study examines the role of Dynamic Capabilities—including Sensing, Seizing, and Transforming—in driving digital transformation and its impact on Sustainable Competitive Performance in MSMEs. A quantitative approach was employed, with data collected from 250 MSME respondents using a structured questionnaire. The measurement model was validated using convergent and discriminant validity tests, while hypothesis testing was conducted through structural equation modeling. The results indicate that all three dimensions of dynamic capabilities positively and significantly influence digital transformation, and digital transformation, in turn, positively affects sustainable competitive performance. These findings highlight that MSMEs with strong dynamic capabilities are better equipped to adapt to technological and market changes, achieving long-term competitiveness. This study provides both theoretical support for Dynamic Capability Theory in the context of digital transformation and practical guidance for MSMEs seeking to enhance performance through strategic digital initiatives.

p-ISSN:1411-6510
e-ISSN :2541-6111

INTRODUCTION

The rapid advancement of digital technologies has significantly transformed the business landscape, including for Micro, Small, and Medium Enterprises (MSMEs), which face increasing pressure to remain competitive amid changing markets and dynamic customer demands (Jonathan & Kuika Watat, 2020). Digital transformation involves more than simply adopting new technologies; it also requires changes in business processes, organizational structures, and human resource capabilities to align with modern business strategies (Warner & Wäger, 2019). Successful digital transformation has become a key factor for MSMEs in achieving sustainable competitive advantage, as it enables them to improve operational efficiency, expand market reach, and develop innovative business models (Sia, Soh, & Weill, 2016). Dynamic Capability Theory (DCT) offers a relevant theoretical framework for understanding how MSMEs can leverage digital transformation as a strategy for sustainable performance. DCT emphasizes three core organizational capabilities: sensing (identifying opportunities and threats), seizing (capturing opportunities), and transforming (reconfiguring processes, structures, and internal resources) to remain relevant in dynamic environments (Teece, 2007; Teece, Pisano, & Shuen, 1997). By developing dynamic capabilities, MSMEs can respond rapidly to technological and market changes, integrate digital innovations into daily operations, and sustain competitive advantages that are difficult for competitors to imitate (Barney, 1991; Chanias, Myers, & Hess, 2019). Therefore, applying DCT in MSMEs not only facilitates successful digital transformation but also serves as a key strategy for achieving sustainable competitive performance, emphasizing proactive adaptation, continuous innovation, and effective resource management in the face of market and technological dynamics.

The Resource-Based View (RBV) argues that an organization's competitive advantage originates from internal resources that are valuable, rare, difficult to imitate, and non-substitutable. This theory emphasizes the importance of owning and managing resources as the foundation of an organization's strategy. Dynamic Capability Theory (DCT) is an extension of RBV, highlighting not only resource ownership but also the organization's ability to manage, adapt, and reconfigure those resources to remain relevant in a dynamic and constantly changing environment. In other words, DCT focuses on how organizations can respond to market and technological changes by leveraging internal resources adaptively, thereby sustaining competitive advantage over time. These concepts and findings have been articulated by Barney (1991) and Teece and colleagues (1997, 2007), who underscore the importance of dynamic capabilities within the RBV context.

Dynamic Capability Theory (DCT) emphasizes an organization's ability to detect opportunities and threats (sensing), capitalize on those opportunities (seizing), and reconfigure processes, structures, and internal resources (transforming) to remain relevant in a dynamic environment. In the context of digital transformation, DCT provides a highly relevant framework because the success of digital transformation is not determined solely by the adoption of new technologies, but also by the organization's ability to adapt business processes, organizational structures, and human resource capabilities. Organizations with strong dynamic capabilities can respond quickly to technological and market changes, integrate digital innovations into operations, and create more efficient and effective business models. With these capabilities, organizations not only succeed in implementing digital transformation but also sustain competitive advantage over time. This occurs because dynamic capabilities enable firms to continuously adapt to a rapidly changing environment, maintain the relevance of products and services, and create value that is difficult for competitors to imitate. Teece (2007) highlights that dynamic capabilities are a key source of sustainable competitive advantage in rapidly changing environments, including the era of digital transformation. In short, DCT serves as a bridge between digital transformation and sustainable competitive advantage by emphasizing an organization's adaptive capacity to continuously respond to technological and market changes.

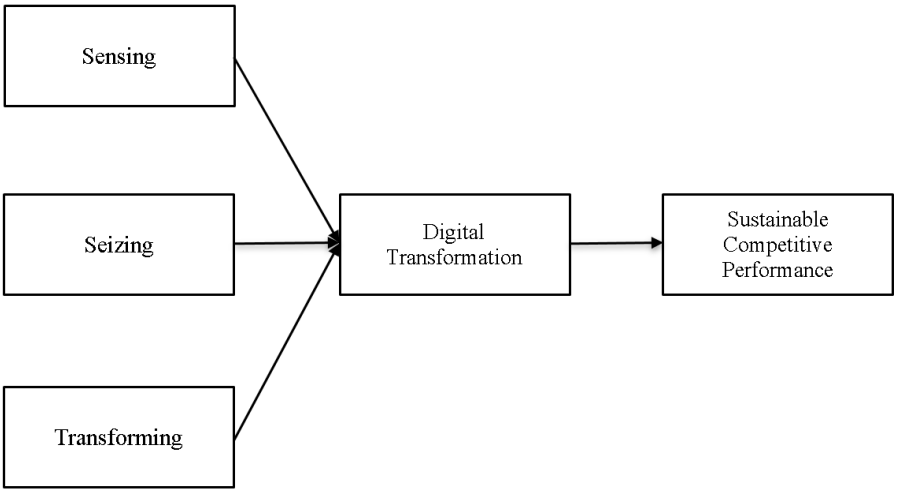


Figure 1. Research Framework

The sensing capability is a core component of the Dynamic Capability Theory, describing how organizations identify emerging opportunities and potential threats in their environment. Organizations with strong sensing capabilities are better able to understand shifting customer needs, detect new digital technologies, and anticipate competitive movements. This awareness enables them to design more accurate digital strategies and execute digital transformation more effectively. Teece (2007) emphasizes that sensing forms the foundation for innovation readiness and technology-driven change. Supporting this view, Warner and Wager (2019) found that companies actively monitoring technological trends are more prepared and quicker in implementing digital transformation initiatives. Similarly, Sia et al. (2016) showed that the ability to identify digital opportunities significantly contributes to successful digital transformation in service-based companies. Additional evidence from Dubey et al. (2019) and Khin and Ho (2019) indicates that sensing capability enhances organizational agility and accelerates the adoption of digital technologies. Based on this theoretical foundation and empirical evidence, it can be hypothesized that sensing has a positive and significant effect on digital transformation.

H1: Sensing (the organization's ability to identify opportunities and threats) has a positive and significant effect on Digital Transformation.

The seizing capability reflects an organization's ability to capitalize on opportunities that have been identified, particularly those related to digital technologies. Once opportunities are sensed, organizations that can respond quickly through strategic decision-making, technology investment, and effective resource allocation tend to achieve digital transformation more efficiently. Teece (2007) emphasizes that seizing is a core component of dynamic capabilities, enabling organizations to effectively capture innovation opportunities. Supporting this view, Warner and Wäger (2019) found that the success of digital transformation is strongly influenced by the organization's ability to act on digital opportunities through deliberate strategic actions. Similarly, Karimi and Walter (2015) reported that the ability to seize digital opportunities is significantly associated with the effectiveness of digital strategy implementation within firms. Chanias et al. (2019) also observed that organizations that respond swiftly to technological opportunities tend to exhibit higher levels of digital transformation. Based on this theoretical and empirical evidence, it can be concluded that seizing has a positive and significant effect on digital transformation.

H2: Seizing (the ability to capture opportunities) has a positive and significant effect on Digital Transformation.

The transforming capability reflects an organization's ability to modify its processes, structures, and internal resources to adapt to digital opportunities and market demands. Organizations with strong transforming capabilities not only adopt new technologies but also reorganize business processes, adjust organizational structures, and enhance employee skills to align with digital strategies. Teece (2007)

p-ISSN:1411-6510
e-ISSN:2541-6111

emphasizes that transforming is a core element of dynamic capabilities, enabling organizations to sustain competitive advantage through continuous adaptation and change. Supporting this view, Warner and Wäger (2019) found that organizations capable of effectively transforming internal processes and structures are more likely to succeed in digital transformation initiatives. Additionally, Jonathan and Kuika Watat (2020) reported that changes in organizational structures and processes accelerate digital technology adoption and improve overall organizational performance. Chanias et al. (2019) also highlighted that systematic organizational transformation plays a critical role in ensuring that digital strategy implementation is effective. Based on this theoretical foundation and empirical evidence, it can be hypothesized that transforming has a positive and significant effect on digital transformation.

H3: Transforming (the ability to change processes, structures, and resources) has a positive and significant effect on Digital Transformation.

Digital transformation in the context of MSMEs refers to the adoption and integration of digital technologies to transform business processes, increase efficiency, and create added value. Studies by Sebastian et al. (2017) and Kane et al. (2015) emphasize that digitalization plays a crucial role in improving operational performance, expanding market reach, and fostering sustainable competitive advantage. At the operational level, digital transformation is evident in the use of social media, financial applications, cloud services, and the integration of digital channels in marketing and customer service. Successful digitalization not only impacts cost efficiency but also increases MSME responsiveness to market needs. Therefore, digital transformation is believed to have a positive impact on improving MSME performance and sustainable competitiveness.

H4: Digital Transformation has a positive impact on Sustainable Competitive Performance

METHODS

This study employs a quantitative approach using a survey method to examine the influence of organizational dynamic capabilities on digital transformation and sustainable competitive performance in MSMEs. The research population consists of owners or managers of MSMEs that have implemented at least one form of digitalization, such as digital management systems, e-commerce, or digital marketing (Jonathan & Kuika Watat, 2020; Sia, Soh, & Weill, 2016). The sample is selected using purposive sampling, with a minimum size of 5–10 times the number of indicators to ensure the validity of the analysis (Hair et al., 2017). The research variables include sensing (the ability to detect opportunities and threats), seizing (the ability to capture opportunities), transforming (the ability to adjust processes, structures, and resources), digital transformation, and sustainable competitive performance, with indicators adapted from previous studies (Teece, 2007; Teece, Pisano, & Shuen, 1997; Barney, 1991; Chanias, Myers, & Hess, 2019).

Data are collected through a 5-point Likert scale questionnaire, supported by semi-structured interviews and company documentation to strengthen validity (Warner & Wäger, 2019). The questionnaire is tested for validity and reliability using Confirmatory Factor Analysis (CFA) and Cronbach's Alpha, with values above 0.7 considered reliable (Hair et al., 2017). Data analysis is conducted descriptively to understand respondent profiles and digitalization characteristics, and Structural Equation Modeling (SEM) is employed to examine the relationships between variables, including the effect of sensing, seizing, and transforming on digital transformation and sustainable competitive performance. The model is evaluated using R^2, path coefficients, t-values, and p-values to determine the significance of relationships, and goodness-of-fit tests are applied to assess model-data compatibility (Teece, 2007; Warner & Wager, 2019).

Ethical considerations are observed, including data confidentiality and voluntary participation, while data triangulation through questionnaires, interviews, and documentation is conducted to enhance the validity and reliability of findings (Jonathan & Kuika Watat, 2020; Chanias, Myers, & Hess, 2019). This approach aims to provide a comprehensive understanding of the role of dynamic capabilities in supporting digital transformation and achieving sustainable competitive advantage for MSMEs.

RESULTS AND DISCUSSIONS

Table 1 Respondent Profile

Category	Frequency	Percentage
Gender		
Male	140	56%
Female	110	44%
Age		
Under 25 years	30	12%
25–49 years	180	72%
Over 49 years	40	16%
Education		
Primary and Secondary School	25	10%
Diploma and Bachelor's Degree	200	90%
Business Duration		
Less than 5 years	60	24%
5–10 years	120	48%
More than 10 years	70	28%
Business Scale		
Micro	130	52%
Small	90	36%
Medium	30	12%

This study involved 250 respondents, consisting of 140 males (56.00%) and 110 females (44.00%), who are owners or managers of MSMEs. The majority of respondents were aged 25–49 years (72.00%) and held a Diploma or Bachelor's degree (80.00%), indicating that decision-makers are in their productive age with adequate educational backgrounds. In terms of business experience, most respondents had been operating their enterprises for 5–10 years (48.00%), and regarding business scale, the majority were micro-enterprises (52.00%), followed by small (36.00%) and medium (12.00%) enterprises. This profile reflects diverse characteristics of MSMEs in terms of age, education, experience, and business scale, making the data representative of the real conditions of MSMEs in the context of digital transformation and the development of dynamic capabilities.

Table 2 Covergent validity and reliability

Construct	Item	Factor Loading	Croncbach's alpha	Rho_A	CR	AVE
Sen1	Our company continuously monitors market and technology trends.	0.884	0.893	0.896	0.926	0.758
Sen2	We are able to identify new business opportunities faster than our competitors.	0.891				
Sen3	We proactively detect potential threats or risks arising from market or technological changes.	0.871				
Sen4	The company has systems to collect important information about customers and competitors.	0.834				
Sei1	Our company can make strategic decisions quickly when digital opportunities arise.	0.843	0.871	0.871	0.912	0.721

p-ISSN:1411-6510
e-ISSN:2541-6111

Table 2. (continued)

Construct	Item	Factor Loading	Croncbach's alpha	Rho_A	CR	AVE
Sei2	We allocate resources effectively to exploit digital business opportunities.	0.864				
Sei3	We can transform market opportunities into profitable products, services, or processes.	0.834				
Sei4	The company is willing to invest in strategic digital innovations.	0.855				
Tran1	The company regularly adjusts internal processes to support digital transformation.	0.872	0.891	0.892	0.924	0.753
Tran2	Our organizational structure is flexible and can change according to business needs.	0.868				
Tran3	We train and develop human resources to adapt to new technologies.	0.888				
Tran4	The company can integrate digital technology across all operational processes.	0.908				
Digi1	The company has adopted digital technologies in daily operations.	0.871	0.871	0.871	0.912	0.721
Digi2	Digital systems are well-integrated across various business functions.	0.873				
Digi3	Digital transformation has improved operational efficiency.	0.863				
Digi4	The company is capable of creating new digital-based business models.	0.916				
Sus1	Digital transformation has increased customer satisfaction.	0.882	0.907	0.907	0.935	0.782
Sus2	Digitalization helps the company maintain or increase market share.	0.847				
Sus3	Digital transformation provides competitive advantages that are difficult for competitors to imitate.	0.875				
Sus4	The company's long-term performance improves as a result of utilizing digital technologies.	0.866				

Table 2 shows the results of convergent validity and reliability testing for all constructs, including Sensing, Seizing, Transforming, Digital Transformation, and Sustainable Competitive Performance. All items demonstrate strong factor loadings ranging from 0.834 to 0.916, exceeding the recommended 0.70 threshold, indicating good individual item reliability. The constructs also show high internal consistency, with Cronbach's Alpha values from 0.871 to 0.907, Rho_A from 0.871 to 0.907, and Composite Reliability (CR) from 0.912 to 0.935, all above the 0.70 benchmark. Additionally, the Average Variance Extracted (AVE) ranges from 0.721 to 0.782, confirming adequate convergent validity. These results suggest that all items reliably and validly measure their respective constructs, making the measurement model suitable for further structural analysis.

Fornell-Larker criterion

	Digital Transformation	Seizing	Sensing	Sustainable Competitive Performance	Transforming
Digital Transformation	0.881				
Seizing	0.796	0.849			
Sensing	0.799	0.852	0.870		
Sustainable Competitive Performance	0.933	0.795	0.810	0.884	
Transforming	0.848	0.864	0.819	0.840	0.868

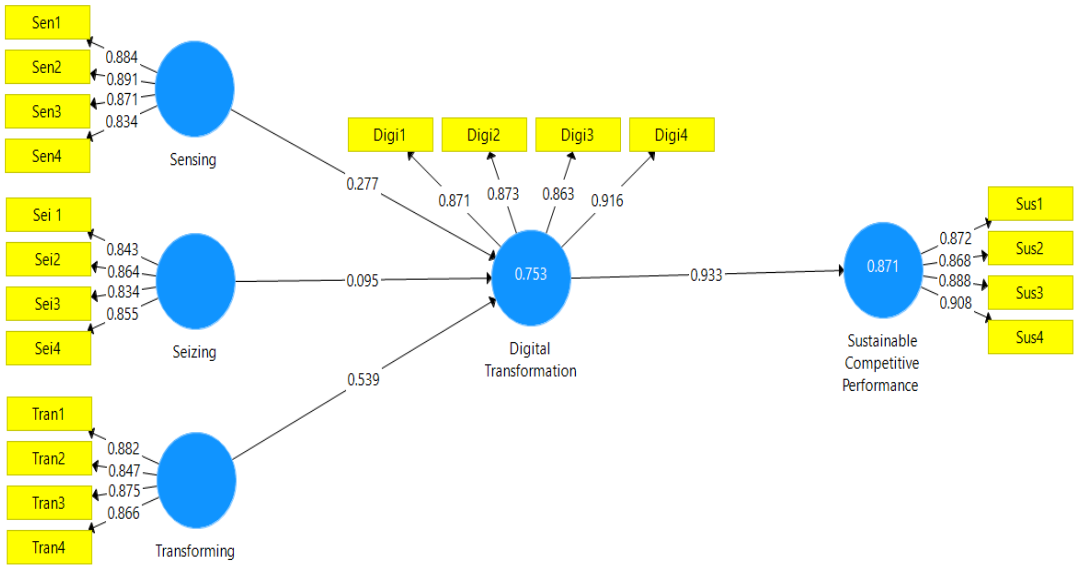
Table 3 presents the results of the Fornell-Larcker Criterion for assessing discriminant validity among the constructs: Digital Transformation, Seizing, Sensing, Sustainable Competitive Performance, and Transforming. The square roots of AVE for each construct range from 0.849 to 0.884 and are higher than their correlations with other constructs, indicating that each construct is empirically distinct and possesses good discriminant validity. These results confirm that the measurement model is reliable and valid, making it suitable for further structural model analysis.

Summary of hypothesis test

H	Path	B	T statistic	P value	Result
H1	Digital Transformation -> Sustainable Competitive Performance	0.012	79.595	0.000	Supported
H2	Seizing -> Digital Transformation	0.092	3.031	0.003	Supported
H3	Sensing -> Digital Transformation	0.072	3.829	0.000	Supported
H4	Transforming -> Digital Transformation	0.080	6.739	0.000	Supported

Table 4 presents the results of hypothesis testing for this study. All four proposed hypotheses are supported. Specifically, H1 shows that Digital Transformation has a positive and significant effect on Sustainable Competitive Performance ($\beta = 0.012$, $t = 79.595$, $p < 0.001$), indicating that implementing digital transformation contributes to improving long-term competitive performance. H2 indicates that Seizing positively and significantly influences Digital Transformation ($\beta = 0.092$, $t = 3.031$, $p = 0.003$), suggesting that the ability to capture opportunities drives the adoption of digital initiatives. H3 reveals that Sensing has a positive and significant impact on Digital Transformation ($\beta = 0.072$, $t = 3.829$, $p < 0.001$), demonstrating that detecting opportunities and threats facilitates digital transformation. Lastly, H4 confirms that Transforming positively and significantly affects Digital Transformation ($\beta = 0.080$, $t = 6.739$, $p < 0.001$), highlighting that adapting processes, structures, and resources enhances the success of digital transformation. Overall, these results support the notion that dynamic capabilities (Sensing, Seizing, and Transforming) play a critical role in driving digital transformation, which in turn improves sustainable competitive performance.

p-ISSN:1411-6510
e-ISSN:2541-6111



Discussions

The results of this study indicate that Digital Transformation has a positive and significant effect on Sustainable Competitive Performance, supporting the first hypothesis. This finding aligns with previous studies highlighting that the adoption of digital technologies not only enhances operational efficiency but also strengthens a company's long-term competitive position (Bharadwaj et al., 2013; Teece, 2007). Therefore, MSMEs that effectively implement digital transformation are more likely to achieve sustainable competitive advantage. Furthermore, the study shows that Seizing has a positive and significant impact on Digital Transformation, indicating that an organization's ability to capture and exploit market opportunities, including digital opportunities, is critical in driving digital initiatives. This finding is consistent with Dynamic Capability Theory, which emphasizes that organizations must act quickly and appropriately to seize opportunities to remain relevant in a dynamic environment (Teece et al., 1997; Eisenhardt & Martin, 2000).

Similarly, Sensing also has a positive and significant effect on Digital Transformation, confirming that the ability to detect opportunities and threats from market and technological changes forms a crucial foundation for initiating digital transformation. This aligns with prior research showing that proactive organizations in identifying trends and risks are better able to anticipate changes and adjust their digital strategies effectively (Teece, 2007; Pavlou & El Sawy, 2011). Finally, Transforming, which refers to the organization's capability to adjust processes, structures, and internal resources, also positively and significantly affects Digital Transformation. This emphasizes that digital transformation requires not only technology adoption but also changes in organizational structure, business processes, and resource management to ensure successful implementation. This finding is in line with research suggesting that an organization's adaptive capability in modifying internal resources is key to successful digital transformation (Wang & Ahmed, 2007; Teece, 2007). Overall, these results highlight the dynamic capabilities (Sensing, Seizing, and Transforming) play a critical role in driving Digital Transformation, which in turn enhances Sustainable Competitive Performance. This provides empirical evidence that MSMEs with strong dynamic capabilities are better prepared to respond to technological and market changes and can maintain sustainable competitive advantages over time.

CONCLUSIONS

This study demonstrates that Dynamic Capabilities, namely Sensing, Seizing, and Transforming, play a significant role in driving Digital Transformation in MSMEs, which in turn positively affects Sustainable Competitive

Performance. The results suggest that organizations that are able to identify market opportunities and threats, capitalize on these opportunities, and adapt their processes, structures, and resources are more likely to succeed in digital transformation and maintain long-term competitive advantage. For practitioners, MSMEs are advised to continuously strengthen their dynamic capabilities to ensure effective implementation of digital initiatives. Future research could investigate the influence of external factors such as government policies, cloud computing, or digital ecosystems to further understand what contributes to successful digital transformation. From a theoretical perspective, this study reinforces Dynamic Capability Theory in the context of digital transformation, emphasizing the importance of organizational adaptability. Practically, the findings provide guidance for MSMEs to develop digital strategies based on internal strengths, enhancing efficiency, innovation, and competitiveness over time.

p-ISSN:1411-6510
e-ISSN :2541-6111

REFERENCE

Ainin, S., Parveen, F., Moghavvemi, S., Jaafar, N. I., & Shuib, N. L. M. (2015). Factors influencing the use of social media by SMEs and its performance outcomes. Industrial Management & Data Systems, 115(3), 570–588. https://doi.org/10.1108/IMDS-07-2014-0205

Bharadwaj, A. (2000). A resource-based perspective on information technology capability and firm performance: An empirical investigation. MIS Quarterly, 24(1), 169–196.

Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. (2013). Digital business strategy: Toward a next generation of insights. MIS Quarterly, 37(2), 471–482. https://doi.org/10.25300/MISQ/2013/37.2.12

Bhatti, S. H., Ahmed, A., Ferraris, A., Hirwani Wan Hussain, W. M., & Wamba, S. F. (2025). Big data analytics capabilities and MSME innovation and performance: A double mediation model of digital platform and network capabilities. *Annals of Operations Research*, 350(2), 729–752. https://doi.org/10.1007/s10479-022-05002-w

Bhuiyan, M. R. I., Faraji, M. R., Rashid, M., Bhuyan, M. K., Hossain, R., & Ghose, P. (2024). Digital Transformation in SMEs Emerging Technological Tools and Technologies for Enhancing the SME's Strategies and Outcomes. *Journal of Ecohumanism*, *3*(4), 211–224. https://doi.org/10.62754/joe.v3i4.3594

Costanza, D. P., Blacksmith, N., Coats, M. R., Severt, J. B., & DeCostanza, A. H. (2016). The Effect of Adaptive Organizational Culture on Long-Term Survival. *Journal of Business and Psychology,* 31(3), 361–381. https://doi.org/10.1007/s10869-015-9420-y

Dong, J. (2023). Study on the Identification of Financial Risk Path Under the Digital Transformation of Enterprise Based on DEMATEL-ISM-MICMAC. https://doi.org/10.48550/arXiv.2305.04216

Dwivedi, R., Yoshikuni, A. C., Kamal, M. M., Zhou, D., & Dwivedi, P. (2024). Journal of Innovation innovation in digital transformation. *Journal of Innovation & Knowledge*, *9*. https://doi.org/https://doi.org/10.1016/j.jik.2024.100589

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? Strategic Management Journal, 21(10–11), 1105–1121. https://doi.org/10.1002/1097-0266(200010/11)21:10/11

El Hilali, W., El Manouar, A., & Janati Idrissi, M. A. (2020). Digital transformation and SMEs' sustainability: A review of literature. International Journal of Innovation Science, 12(3), 218–234. https://doi.org/10.1108/IJIS-08-2019-0083

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18(1), 39–50. https://doi.org/10.2307/3151312

Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2019). A primer on partial least squares structural equation modeling (PLS-SEM) (2nd ed.). Sage.

Hutama, D. (2023). Impact of Digital Capability on SMEs Performance: Mediating Role of Digital Business Transformation. *WACANA, Jurnal Sosial Dan Humaniora*, *26*(3), 122–131. https://doi.org/10.21776/ub.wacana.2023.026.03.02

Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2015). Strategy, not technology, drives digital transformation. MIT Sloan Management Review and Deloitte University Press.

Knudsen, E. S., Lien, L. B., Timmermans, B., Belik, I., & Pandey, S. (2021). Stability in turbulent times? The effect of digitalization on the sustainability of competitive advantage. *Journal of Business Research*, 128, 360–369. https://doi.org/10.1016/j.jbusres.2021.02.008

Leão, P., & da Silva, M. M. (2021). Impacts of digital transformation on firms' competitive advantages: A systematic literature review. *Strategic Change*, 30(5), 421–441. https://doi.org/10.1002/jsc.2459

Legner, C., Eymann, T., Hess, T., Matt, C., Böhmann, T., Drews, P., Mädche, A., Urbach, N., & Ahlemann, F. (2017). Digitalization: Opportunity and Challenge for the Business and Information Systems Engineering Community. *Business and Information Systems Engineering*, 59(4), 301–308. https://doi.org/10.1007/s12599-017-0484-2

Lenka, S., Parida, V., & Wincent, J. (2017). Digitalization Capabilities as Enablers of Value Co-Creation in Servitizing Firms. *Psychology and Marketing*, 34(1), 92–100. https://doi.org/10.1002/mar.20975

Loo, M. K., Ramachandran, S., & Raja Yusof, R. N. (2023). Unleashing the potential: Enhancing technology adoption and innovation for micro, small and medium-sized enterprises (MSMEs). *Cogent Economics and Finance*, 11(2). https://doi.org/10.1080/23322039.2023.2267748

Luftman, J. N. (1996). Applying the strategic alignment model. In J. Luftman (Ed.), Competing in the Information Age (pp. 43-69). *New York: Oxford University Press*

Luftman, J., Kempaiah, R., & Nash, E. (2006). Key issues for IT executives 2005. MIS Quarterly Executive, 5(2), 81–99.

Nair, J., Chellasamy, A., & Singh, B. N. B. (2019). Readiness factors for information technology adoption in SMEs: testing an exploratory model in an Indian context. *Journal of Asia Business Studies*, 13(4), 694–718. https://doi.org/10.1108/JABS-09-2018-0254

Nasiri, M., Ukko, J., Saunila, M., & Rantala, T. (2020). Managing the digital supply chain: The role of smart technologies. Technovation, 96-97, 102121. https://doi.org/10.1016/j.technovation.2020.102121

Pavlou, P. A., & El Sawy, O. A. (2011). Understanding the elusive black box of dynamic capabilities. Decision Sciences, 42(1), 239–273. https://doi.org/10.1111/j.1540-5915.2010.00287.x

Qasim, D., Shuhaiber, A., Bany Mohammed, A., & Valeri, M. (2024). E-entrepreneurial attitudes and behaviours in the United Arab Emirates: an empirical investigation in the digital transformation era. *European Journal of Innovation Management*, 27(8), 3014–3034. https://doi.org/10.1108/EJIM-09-2022-0461

Remondino, M., & Zanin, A. (2022). Logistics and Agri-Food: Digitization to Increase Competitive Advantage and Sustainability. *Literature Review and the Case of Italy. Sustainability (Switzerland)*, 14(2). https://doi.org/10.3390/su14020787

Salem, I. E., Elbaz, A. M., Magdy, A., Hassan, H., & Ba Awain, A. M. (2025). Behavioural and innovative traits driving digital transformation and competitive advantage: the role of entrepreneurship orientation. *Asia-Pacific Journal of Business Administration,* 1–23. https://doi.org/10.1108/APJBA-03-2025-0231

Sarstedt, M., Ringle, C. M., & Hair, J. F. (2014). Partial least squares structural equation modeling. In H. H. K. M. (Ed.), Handbook of market research (pp. 1–40). Springer.

Sebastian, I. M., Ross, J. W., Beath, C. M., Mocker, M., Moloney, K. G., & Fonstad, N. O. (2017). How big old companies navigate digital transformation. MIS Quarterly Executive, 16(3), 197–213.

Singh, M., O'Brien, J., Padwalkar, S., Whelan, A., Manning, E., Jayes, F., Murphy, J., Treacy, S., & Brosnan, A. (2023). Unpacking Digital Transformation Risk: A Systematic Review On Why Digital Transformations Often Fail To Deliver Value. *Thirty-First European Conference on Information Systems (ECIS 2023), March*.

Sinha, S., Priyadarshi, P., & Kumar, P. (2016). Organizational culture, innovative behaviour and work related attitude: Role of psychological empowerment. *Journal of Workplace Learning,* 28(8), 519–535. https://doi.org/10.1108/JWL-06-2016-0055

Siregar, E. A., Wardi, Y., & Marwan, &. (2025). The Role of Technology in Increasing the Competitiveness of SMEs in the Digital Era. *Social Economics and Technology*, *6*(1), 589–600. https://doi.org/10.33122/ejeset.v6i1.451

p-ISSN:1411-6510
e-ISSN :2541-6111

Sonar, H., Ghag, N., Singh, R. K., Daim, T. U., & Agrawal, S. (2025). Digitalization of operations for sustainable value creation by SMEs: analysis of barriers in the era of Industry 4.0. *Journal of Knowledge Management*, 29(6), 2018–2045. https://doi.org/10.1108/JKM-05-2024-0522

Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. Strategic Management Journal, 28(13), 1319–1350. https://doi.org/10.1002/smj.640

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. Strategic Management Journal, 18(7), 509–533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z

Telukdarie, A., Dube, T., Munsamy, M., Murulane, K., & Mongwe, R. (2024). Navigating Digital Challenges for SMEs: A Two-Tier Approach to Risks Mitigation and Sustainability. *Sustainability (Switzerland)*, 16(14). https://doi.org/10.3390/su16145857

Verdu-Jover, A. J., Alos-Simo, L., & Gomez-Gras, J. M. (2018). Adaptive culture and product/service innovation outcomes. *European Management Journal*, 36(3), 330–340. https://doi.org/10.1016/j.emj.2017.07.004

Vial, G. (2019). Understanding digital transformation: A review and a research agenda. The Journal of Strategic Information Systems, 28(2), 118–144. https://doi.org/10.1016/j.jsis.2019.01.003

Wang, C. L., & Ahmed, P. K. (2007). Dynamic capabilities: A review and research agenda. International Journal of Management Reviews, 9(1), 31–51. https://doi.org/10.1111/j.1468-2370.2007.00201.x

Wang, Z. (2023). Digital Transformation and Risk Management for SMEs: A Systematic Review on Available Evidence. *Advances in Economics, Management and Political Sciences*, *65*(1), 209–218. https://doi.org/10.54254/2754-1169/65/20231639

Yuwono, T., Novandari, W., Suroso, A., & Setyanto, R. P. (2025). The importance of ICT adoption on MSMEs performance: the mediating role of distinctive competencies. *Journal of Enterprising Communities*, 19(3), 610–630. https://doi.org/10.1108/JEC-06-2024-0113

Zaman, S. A. A., Vilkas, M., Zaman, S. I., & Jamil, S. (2025). Digital technologies and digitalization performance: the mediating role of digitalization management. *Journal of Manufacturing Technology Management,* 36(2), 307–333. https://doi.org/10.1108/JMTM-04-2024-0176

Zhao, J., & Liu, X. Y. (2024). ICT, Supply Chain Digital Integration Capability, and Firm Financial Performance: The Antagonistic Effects of Perceived Government Support and Cognitive Constraints on Digital Transformation. *SAGE Open*, 14(2). https://doi.org/10.1177/21582440241241887