

The Role of Digital Leadership and Digital Capabilities on Dynamic Capabilities and Digital Performance of MSME Employees

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Abstract

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This study explores the role of digital leadership and digital capabilities in improving employee dynamic capabilities and employee digital performance in the micro, small, and medium enterprise (MSME) sector in Indonesia. With an integrative approach, this study tests the relationship between these variables using a theoretical model based on quantitative methods. The results of the study show that digital leadership has a significant influence in creating an adaptive and collaborative work culture, while employee digital capabilities increase innovation and productivity. Employee dynamic capabilities were found to be a key mediator that strengthens the relationship between digital capabilities and employee digital performance. This study provides theoretical contributions by integrating these variables in the context of MSMEs and offers practical implications for MSME leaders in optimizing digital technology for business sustainability in the era of digital transformation. This study also underlines the need for strategic policies and training that support digitalization to improve the competitiveness of MSMEs.

Keywords: Digital leadership, digital capabilities, dynamic capabilities, digital performance, MSMEs.

INTRODUCTION

The era of digital transformation has presented various opportunities and challenges for organizations, including micro, small, and medium enterprises (MSMEs). (ILO, 2021) As one of the sectors that plays an important role in the Indonesian economy, MSMEs contribute more than 60% to gross domestic product (GDP) and absorb most of the national workforce. However, amidst rapid technological developments, MSMEs face pressure to continue to adapt and integrate digital technology into their business processes. (Kesa & Pranita, 2021) The ability to manage digital technology well is not only a competitive advantage but also a basic need to maintain sustainability amidst increasingly fierce global competition.

One important aspect in the success of digital transformation is digital leadership. Digital leadership is defined as the ability of leaders to utilize digital technology in directing organizations, inspiring teams, and creating a work culture that is adaptive to technological change (Ly, 2024) . Leaders with high digital capabilities can recognize the potential of technology to improve operational efficiency, design innovative strategies, and encourage employees to adapt to changes in the business environment. Previous research by Gui fang showed that digital leadership has an important role in driving innovation and creating a collaborative work environment (Coraci &

Abulrub, 2021) . Leaders who are able to provide technology-based strategic direction often succeed in improving organizational performance, including in the MSME sector.

In addition to digital leadership, employee digital capabilities also play an important role in the success of digital transformation. Digital capability refers to an individual's ability to use digital technologies effectively in carrying out professional tasks. (Tanniru, 2018) . This includes an understanding of current technologies, the ability to identify digital opportunities, and skills in developing technology-based solutions (Wang, Niu, et al., 2024) . Emphasizing that employee digital capabilities directly contribute to increased productivity, innovation, and organizational competitiveness. In the context of MSMEs, where resources are often limited, employees with good digital capabilities can be a strategic asset to support efficient and innovative operations.

Digital capabilities are also closely related to employee dynamic capabilities. The concept of dynamic capabilities refers to the ability of an organization or individual to adapt to environmental changes, respond to new opportunities, and develop innovation (Carnahan et al., 2010) . In management research, dynamic capabilities are often considered as one of the main factors determining the success of an organization in a dynamic environment. Research by Wang, Mansor, et al., (2024) . Shows that digital capabilities can strengthen employee dynamic capabilities, including sensitivity to change, ability to adapt, and ability to create innovative solutions. In the context of MSMEs, employee dynamic capabilities are important to face challenges such as changes in customer preferences, competitive pressures, and technological developments.

In addition, digital transformation also has a direct impact on employee digital performance. Digital performance refers to employees' ability to complete their tasks by leveraging digital technologies, including big data analytics, process automation, and digital innovation. (Chen & Kim, 2023) . Previous research has found that employee digital performance is not only influenced by individual abilities but also by a supportive work environment, including the role of digital leadership. Leaders who are able to create a technology-based work culture often succeed in improving their employees' digital performance (Huu, 2023) .

However, despite the many studies on digital leadership, digital capabilities, and dynamic capabilities, most of these studies focus on large companies or high-tech sectors. Research on the role of these variables in the context of MSMEs is still relatively limited, especially in developing countries such as Indonesia (Aminullah et al., 2024) . In addition, previous studies tend to examine these variables separately without integrating them into one conceptual model (Garaigordobil, 2015) . Therefore, there is a gap in the literature that needs to be filled to understand how digital leadership and digital capabilities can compromise (Patria et al., 2023) . contribute to dynamic capabilities and employee digital performance in the context of MSMEs (Sasmoko et al., 2019) .

The novelty of this study lies in the integrative approach used to examine the relationship between digital leadership, digital capabilities, employee dynamic capabilities, and employee digital performance in one theoretical model (Ly, 2024) . This study also uses an empirical approach with a focus on MSMEs as the main unit of analysis. Thus, the results of this study are expected to provide new insights into how MSMEs can optimize digital technology to improve the capabilities and performance of their employees (Soegoto et al., 2020) . In addition, this study also provides practical contributions by providing strategic direction for MSME leaders in facing the challenges of digital transformation.

This study aims to explore how digital capabilities contribute to improving employee digital performance. The novelty of this study lies in the integrative approach used to test the relationship between digital leadership, digital capabilities, employee dynamic capabilities, and employee digital performance in one theoretical model. This study also uses an empirical approach with a focus on MSMEs as the main unit of analysis (Sasmoko et al., 2019) . Thus, the results of this study are expected to provide new insights into how MSMEs can optimize digital technology to improve the capabilities and performance of their employees. In addition, this study also provides practical contributions by providing strategic direction for MSME leaders in facing the challenges of digital transformation. improving the dynamic capabilities of employees in MSMEs (Nurhidayati, 2020) .

METHODS

A. Population and Sample

Based on the analysis results, the majority of respondents were women (71%) under 25 years old (70%) with a Bachelor's degree (S1) (61.8%), who managed MSME businesses especially in the "Other" (37.9%), "Trade" (24.1%), and "Culinary" (23.7%) categories, with a business turnover of between IDR 1,000,000 to IDR 5,000,000 (42.2%) and tended to use general social media (66.1%) for business activities during the day (37.7%) for 1-2 hours per day (29.6%).

Table 1. Demographic Characteristics of Respondents

Variables	Percentage (%)	Variables	Percentage%
Gender		Types of MSME businesses managed	
Man	66 (0.28 %)	Service	25 (10.8 %)
Woman	165(0.71 %)	Culinary	55 (23.7 %)
		Trading	56 (24.1 %)
		Manufacturing	8 (3.4 %)
		Another	88 (37.9 %)
Age		Business Turnover	
<25 years	162 (0.70 %)	< Rp.500,000	88 (37.9 %)
25-35 years old	51 (0.22 %)	Rp.1,000,000 - Rp.5,000,000	98 (42.2 %)
35-45 years old	14 (0.6 %)	Rp.6,000,000 - Rp.10,000,000	38 (16.4 %)
45> years old	0 (0%)	Rp.11,000,000	8 (3.4 %)

Level of education		The times you usually use Social Media are for	
JUNIOR HIGH SCHOOL	1(0.4 %)	business activities in one day	
High School/Vocational School	55 (23.6 %)	Morning (06:00 - 10:00)	57 (23.1 %)
Diploma (D3)	19 (8.2 %)	Afternoon (10:00 - 15:00)	93 (37.7 %)
Bachelor degree)	144 (61.8 %)	Afternoon (15:00 - 18:00)	47 (0.19 %)
Master (S2)	2 (0.9 %)	Evening (18:00 - 00:00)	47 (182%)
Use of social media for business activities in one day			
< 1 hour	68 (29.2 %)	Social media	158(66 .1 %)
1 > 2 hours	69 (29.6 %)	Shopee	57(23.8 %)
2 > 3 hours	64 (27.5 %)	Shop Pedia	20(8.4 %)
3>4 hours	32 (13.7 %)	Lazada	4(1.7 %)

B. Items and measurement scales

In quantitative research, measurement and scale are important components that often affect research results. To ensure accuracy, measurement items must accurately describe the concept of the construct being studied (Hamid et al., 2022) . Previous empirical research usually reuses the same measurement items. Using existing measurement items is usually considered more efficient than creating new items given the difficulty of creating new scales (Latan et al., 2021) . (KD)Digital Leadership, (KPG)Digital Capability , (KDS)Digital Capability, (KDG)Digital performance . measured using a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Table 2. Measurement items

<i>Construction</i>	<i>Loading</i>
<i>Digital capabilities (KPG))</i> . Adapted from Bongiorno & Giorgio, 2018	
Acquiring Key Digital Technologies	0.784
Identifying New Digital Opportunities	0.831
Responding to Digital Transformation	0.863
Mastering the Latest Digital Technology	0.838
Developing Innovative Products/Services/Processes with Digital Technologies	0.795
<i>Digital Leadership (KD)</i> Adapted from Guifang Wang, Zuraina Dato Mansor, and Yee Choy Leong, 2024	
Recognition of Competence and Individual Networks	0.849
Trust in Employees	0.844
Provision of Required Information	0.861
Leaders as Mentors and Learning Coaches	0.860
Openness to Criticism, Input, and New Ideas	0.875
Leaders' Self-Confidence in Ability	0.836
<i>Dynamic Capability (KDS)</i> Adapted from Guifang Wang, Zuraina Dato Mansor, and Yee Choy Leong 2024	
Sensitivity to Change	0.792
Adaptation to Change	0.790

Sensitivity to Problems	0.819
Problem Solving and Innovative Approaches	0.825
Innovative Approaches to Problem Solving	0.845
Self-development	0.862
<i>Digital Performance(KDG)</i> Adapted from Guifang Wang 2024	
Solving Work Problems with Big Data Analysis	0.850
Time Saving in Task Completion through Big Data Analysis	0.859
Improving Work Quality through Big Data Analysis	0.794
Innovation to Improve Business Performance or Product/Service Quality through Big Data Analysis	0.722
Creative Solutions to Assignment Problems through Data Analysis	0.860
Creative Solutions to Assignment Problems through Data Analysis	0.810

C. Data Collection Procedure

This study collects data through several steps. First, after receiving the questionnaire, the researcher retranslated the contents of the questionnaire (Table 2). We conducted a pilot test on the final version of the questionnaire by distributing it to fifty people for initial data analysis. This method takes into account measurement errors in survey methods, such as method bias, response bias, and social desirability bias, to improve the quality of the survey and reduce potential biases that could compromise the validity of our research results (Latan et al., 2021) and to ensure that participants understand the questionnaire (Fulton & Kibby, 2017) . Second , we conducted the main research by sending questionnaires via social media and direct distribution and then sending notifications via text to respondents. This method is widely considered one of the most effective ways to reach a large number of respondents at a low cost in a short period of time (Hamid et al., 2022) . We sent text messages via social media to respondents every day during the study to remind them and increase the number of responses. We also assured respondents that we would not reveal their names and identities to maintain the confidentiality of their data. We collected data from July 2024 to November 2024.

RESULTS AND DISCUSSION

Table 3. Reliability, convergent and discriminant validity

Construction	1	2	3	4	5
Digital Leadership (DLE) (1)	0.892	<i>0.729</i>	0.854	0.757	0.782
Digital capabilities (KPG) (2)	<i>0.677</i>	0.833	0.870	0.731	0.757
Dynamic capabilities (KDS) (4)	0.812	0.825	<i>0.668</i>	0.817	0.775
Digital Performance (KDG) (5)	0.845	0.850	0.855	<i>0.676</i>	0.822

Note: Values on the diagonal in bold are the square root of the Average Variance Extracted (AVE) of each factor. Values below the diagonal are correlations between factors, and values above the diagonal are HTMT 1 Heterotrait-Monotrait ratios; criterion confidence interval does not include 1; HTMT90 – **Henseler et al. (2015)**

The assessment criteria for the structural model (inner model) using SEM-PLS are (i) R-square for the dependent construct and (ii) bootstrapping procedure (t value >1.96 and significance level = 5%) to determine the significance value. The following are the results of the structural model assessment (inner model) through the bootstrapping procedure to test the hypothesis proposed in this study as presented in Table 4.

The structural model or inner model is evaluated by looking at the percentage of variance explained by looking at the R² Square value and the Q² value for the dependent latent construct. According to (Latan et al., 2021), the R² Square rule of thumb with a value of 0.75 is categorized as strong; 0.50 is moderate, and 0.25 is categorized as weak. The rule of thumb value for Q² > 0 indicates that the model has predictive relevance, and the rule of thumb value for Q² < 0 indicates that the model has less predictive relevance. From the analysis (Table 4), the R² Square value for the Dynamic Capability construct is 0.605, which means that the variability of Dynamic Capability, which can be explained by the variables of digital capability quality and digital leadership, quality. On the other hand, the R Square value of the Digital Performance construct is 0.639, which means that the variability of Digital Performance that can be explained by the Dynamic Capability variable is 0.639 and is included in the moderate model category. For the Q2 value, Dynamic Capability is 0.642 > 0, and Digital Performance is 0.600 > 0, which means that the model has predictive relevance.

Evaluation of significance value by looking at the path coefficient value from the test results with Partial Least Square (PLS) and with bootstrapping calculations (Table 4). From the path coefficient results, it can be seen that for (H1), Digital Leadership has a positive and significant effect on Dynamic Capabilities ($\beta = 0.490$; $p < 0.00$). For (H2), digital leadership has a positive and significant effect on Digital Performance ($\beta = -0.279$; $p > 0.05$). For (H3), digital capability has a positive and significant effect on Dynamic Capabilities ($\beta = 0.361$; $p < 0.00$). for (H4), digital capability has a positive and significant effect on Digital Performance ($\beta = 0.197$; $p > 0.045$). Furthermore, for (H5), Dynamic capabilities have a positive and significant effect on Digital Performance ($\beta = 0.408$; $p < 0.00$).

Table 4. Hypothesis testing

Hypothesis	Connection	Coefficient t Track	T Statistic s	R2 Square	Q2	P- Value	Decision
Immediate effects							
H1	KD→KDS	0.49	5,473			0.000	Supported
H2	KD→KDG	0.279	2,825			0.005	Supported
H3	KPG→KDS	0.361	4,472			0.000	Supported
H4	KPG→KD G	0.197	2,007			0.045	Supported
H5	KDS→KD G	0.408	4,147			0.000	Supported
Indirect effects							
	KD→KDG	0.200	2,966			0.003	Supported
	DC→EDP	0.147	3,231			0.001	Supported
	KDS			0,605	0,642		
	KDG			0,639	0,600		
Efek Total							

KD→KDS	0,490	5,473	0.000	Didukung
KD→KDG	0,479	5,105	0.000	Didukung
KPG→KDS	0,361	4,472	0.000	Didukung
KPG→KD G	0,490	5,473	0.000	Didukung
KDS→KD G	0,408	4,147	0.000	Supported

(KD)Digital Leadership, (KPG)Digital Capabilities , (KDS)Dynamic Capabilities,
 (KDG)Digital performance

DISCUSSION

This study comprehensively identifies and evaluates the role of digital leadership and digital capabilities in enhancing employee dynamic capabilities and employee digital performance in the micro, small, and medium enterprises (MSMEs) sector (Coraci & Abulrub, 2021) . The results provide important insights into how these variables influence each other and contribute to the success of MSME digital transformation (Buteau, 2021) .

The Influence of Digital Leadership on Employees' Dynamic Capabilities and Digital Performance

This study reveals that digital leadership has a significant influence on employee dynamic capabilities ($\beta=0.49$ This study comprehensively identifies and evaluates the role of digital leadership and digital capabilities in improving employee dynamic capabilities and employee digital performance in the micro, small and medium enterprises (MSMEs) sector. The results provide important insights into how these variables influence each other and contribute to the success of MSME digital transformation (Buteau, 2021) . 0, $p<0.05$) and employee digital performance ($\beta=0.279$, $p<0.05$). Leaders with strong digital capabilities can provide strategic direction that not only motivates employees but also creates a work culture that is more adaptive to technological change. This is in line with the Transformational Leadership theory which emphasizes that visionary and innovative leaders can inspire employees to adapt quickly to the challenges of a dynamic environment (Grin et al., 2018) . In the context of MSMEs with limited resources, digital leadership becomes increasingly important to ensure that technology can be used optimally to support business growth .

Furthermore, leaders with high digital competence are able to form a work culture that is oriented towards collaboration and innovation. In an organization, collaboration is key to generating new ideas that can overcome challenges arising from rapid technological change (Sikora, 2017) . Leaders who facilitate efficient technology adoption and encourage employees to explore creative solutions will accelerate the digital transformation process in the organization (Cortellazzo et al., 2019) . Therefore, digital leadership is not only about implementing technology, but also

facilitating the cultural changes needed to support digitalization. In addition, research results show that leaders who have a deep understanding of digital technology tend to be more successful in guiding organizations through digital transformation. In MSMEs, where leaders are often also involved in day-to-day operations, their ability to understand and implement technology can directly affect digital performance and employee adaptation. This makes digital leadership a key factor contributing to the long-term performance and sustainability of MSME businesses in the digital era.

Digital Capabilities as a Driver of Innovation and Productivity

Employees' digital capabilities play an important role in improving their dynamic capabilities and digital performance (Huu, 2023). The results showed that digital capabilities have a positive effect on employees' dynamic capabilities ($\beta=0.361$, $p<0.05$) and digital performance ($\beta=0.197$, $p<0.05$). This supports the Task-Technology Fit theory which states that the fit between individual capabilities and the technology used will increase work efficiency and effectiveness. With good digital capabilities, employees are not only more adaptable to new technologies but can also produce innovative solutions that support operational growth and efficiency (Park & Kim, 2020).

Digital capabilities enable employees to respond quickly to technological changes, as well as identify and leverage digital opportunities to increase productivity. In the context of MSMEs, developing digital capabilities is important, because increasingly developing technology requires employees who are able to utilize it to generate added value. Employees with strong digital capabilities can introduce more efficient processes, increase innovation, and even create new products or services that can expand the market share of MSMEs (Soegoto et al., 2020). Therefore, investing in developing employee digital capabilities is a strategic step for MSMEs to be able to compete globally. Improving digital capabilities not only improves individual performance but also has a direct impact on the entire organization (Devi & Dr. S. Ramachandran, 2011). Employees who have the ability to master and apply new technologies can speed up work processes, reduce errors, and improve output quality. This creates higher efficiency, and allows MSMEs to be more responsive to changing market needs and consumer demands. Therefore, MSMEs must consider digital capabilities as a strategic asset that can increase their competitiveness in the digital era.

Dynamic Capabilities as Strategic Mediators

Employee dynamic capabilities were shown to play a significant mediator role in the relationship between digital capabilities and employee digital performance ($\beta=0.408$, $p<0.05$). According to the Dynamic Capabilities Framework, the ability to adapt to change and create innovation is critical in determining organizational success. Dynamic capabilities include employees' ability to recognize environmental changes, develop innovative solutions, and respond

quickly to emerging challenges (Schulze & Pinkow, 2020) . In this study, dynamic capabilities were found to be a mediator that strengthens the relationship between digital capabilities and digital performance, indicating that employees with high dynamic capabilities tend to have better digital performance (de Wetering, 2018) .

The importance of dynamic capabilities in the context of MSMEs is the ability to adapt quickly to continuous changes, such as changes in customer preferences or new technologies (Hermawati & Gunawan, 2021) . Employees with strong dynamic capabilities can create innovative solutions that enable MSMEs to remain competitive, even when faced with limited resources. This study confirms that dynamic capabilities serve as a key to maintaining the flexibility and ability of MSMEs to survive and thrive in an uncertain business environment. In addition, dynamic capabilities also encourage a culture of innovation that is very important for the sustainability of MSMEs. Employees who have dynamic capabilities are not only able to adapt to existing changes, but can also create new ideas that focus on practical and strategic solutions (Zahra et al., 2006) . Therefore, the development of employee dynamic capabilities is an integral part of the sustainable MSME digitalization strategy, with the aim of creating an innovative and responsive work environment to market changes.

Integration of Variables in the Context of MSMEs

The findings of this study underline the importance of integration between digital leadership, digital capabilities, dynamic capabilities, and digital performance in the context of MSMEs. Each variable plays an important complementary role, and the integration of the four is key to the success of MSME digital transformation. Strong digital leadership not only helps create a strategic vision and direction but also shapes an organizational culture that supports employee adoption of technology (Korachi & Bounabat, 2019) . Leaders who have high digital capabilities are able to inspire employees to adapt to change and use technology to improve efficiency and innovation in the workplace. In the context of MSMEs that are limited in resources, the ability of leaders to utilize digital technology effectively can drive business growth and sustainability (Aminullah et al., 2024).

Employees' digital capabilities are a key driver in enhancing their dynamic capabilities. When employees have strong digital skills, they can respond quickly to technological and market changes, and create innovative solutions to existing problems. This research shows that digital capabilities directly contribute to the enhancement of dynamic capabilities, which include the ability to adapt to change and create creative solutions. In a rapidly changing business environment, such as that faced by MSMEs, the ability to adapt and innovate is crucial. Therefore, developing digital capabilities among employees is an important investment for MSMEs to ensure their

competitiveness in the global market (Görzig et al., 2019) . In addition, employee dynamic capabilities serve as a mediator that strengthens the relationship between digital capabilities and digital performance. Employees who have high dynamic capabilities can more easily overcome challenges that arise due to technological changes or rapidly changing customer preferences. They are also better able to develop innovations that are relevant to market needs, which ultimately improves their digital performance. This study confirms that the integration of digital capabilities with dynamic capabilities will drive improved digital performance, which is critical to achieving operational efficiency and competitive advantage in the MSME sector (Islami et al., 2021) .

Practical and Strategic Implications

This study provides practical implications that are very relevant for MSMEs, especially in facing the challenges of digital transformation. MSME leaders are advised to adopt a technology-based transformational leadership style . Leaders with good digital skills can create a work environment that supports collaboration and adaptation to technological changes (Karippur & Balaramachandran, 2022) . This can help improve organizational performance, as leadership that focuses on innovation and learning allows employees to be better prepared for change and utilize technology effectively. Given the resource constraints faced by many MSMEs, leaders with high digital skills can maximize the potential of technology without having to rely on large investments in infrastructure (Teng et al., 2022) .

In addition, this study highlights the importance of investing in digital training for MSME employees. Employees with good digital capabilities have the ability to adapt quickly to new technologies, which in turn increases productivity and innovation. Therefore, MSMEs need to allocate resources for training that improves the digital skills of their employees. This training is not only related to mastery of digital devices or applications, but also the development of critical and innovative thinking skills in solving problems using technology. The implementation of this training will strengthen employees' digital and dynamic capabilities, as well as improve their performance in facing the challenges of a changing environment (Pawluczuk et al., 2020) . Policies that support digitalization are also very important for MSMEs. This study revealed that digital leadership and digital capabilities greatly affect the dynamic capabilities and digital performance of employees. Therefore, policymakers need to create policies that facilitate digitalization in MSMEs, such as tax incentives or subsidies for technology, as well as training and mentoring for small and medium entrepreneurs (Kusumawati, 2022) . This policy will help MSMEs to adapt more easily to technological developments and increase their competitiveness in the global market. In addition, the government sector needs to work with the private sector to provide platforms and resources

that enable MSMEs to optimize the use of digital technology, so that they can compete effectively in an increasingly digital market.

Limitations and Future Research Agenda

This study makes an important contribution to the understanding of the role of digital leadership, digital capabilities, and dynamic capabilities in the context of MSMEs, but there are several limitations that need to be considered. First, this study is limited to MSMEs in Indonesia, which have unique characteristics and challenges (Sasmoko et al., 2019) . Therefore, the results of this study may not be fully generalizable to the global context or to larger business sectors. Research in countries with more advanced levels of digitalization or in larger sectors may provide different results, so further studies that include MSMEs in other countries or more diverse sectors will provide more comprehensive insights (Aminullah et al., 2024) .

Another limitation is the use of quantitative methods applied in this study, which focuses on the relationship between variables by measuring the variables numerically. This approach provides a more limited understanding of the deep dynamics between variables. Future research can adopt mixed methods that combine quantitative and qualitative to dig deeper into the mechanisms of influence between digital leadership, digital capabilities, and dynamic capabilities (Thordsen et al., 2020) . This approach will provide a broader view of how these factors influence employee digital performance in a more contextual manner. In addition, this study does not discuss external variables that can influence digital transformation in MSMEs, such as organizational culture, government support, or economic policies. These variables can play an important role in shaping the outcomes of digitalization in MSMEs, and exploring the influence of these external factors is highly relevant to increasing understanding of the success of digital transformation. Further research could also focus on exploring the impact of specific technologies such as artificial intelligence, big data analytics, or the Internet of Things (IoT), which have great potential in supporting the digital transformation of MSMEs. Integrating these technologies into a larger model will open up new directions in future MSME digitalization research (Buteau, 2021) .

CONCLUSION

This study concludes that digital leadership and digital capabilities have a significant influence on the dynamic capabilities and digital performance of employees in the MSME sector. Digital leadership has been proven to be able to create a work environment that is adaptive to technological transformation, encourage team collaboration , and increase innovation in the organization. This is very important for MSMEs that often face limited resources in facing the challenges of global competition. Employee digital capabilities, which include the ability to utilize technology effectively, also contribute greatly to improving their dynamic capabilities. With these

capabilities, employees are able to respond to change, identify new opportunities, and generate creative solutions to overcome operational challenges. In this context, digital capabilities become a strategic element for the sustainability of MSMEs in the digital era. Employees' dynamic capabilities act as the main mediator in the relationship between digital capabilities and their digital performance. This study confirms that adaptability, innovation, and response to change are key factors that determine the success of MSME digital transformation. This finding is in line with the Dynamic Capabilities Framework theory, which places dynamic capabilities as one of the main foundations for organizational success in a changing business environment. This conclusion provides practical implications for MSME leaders to further integrate digital technology into daily operations, by providing training and resources that support the improvement of employee digital capabilities. This study also provides theoretical contributions by expanding the understanding of the relationship between digital leadership, digital capabilities, and dynamic capabilities in the context of MSMEs, as well as opening up opportunities for further research that is more in-depth on specific aspects of technology, such as artificial intelligence and big data analytics.

REFERENCE

- Aminullah, E., Fizzanty, T., Nawawi, N., Suryanto, J., Pranata, N., Maulana, I., Ariyani, L., Wicaksono, A., Suardi, I., Azis, N. L. L., & Budiatri, A. P. (2024). Interactive Components of Digital MSMEs Ecosystem for Inclusive Digital Economy in Indonesia. In *Journal of the Knowledge Economy* (Vol. 15, Issue 1). <https://doi.org/10.1007/s13132-022-01086-8>
- Amiruddin, R., Abdullah, M. R., & Noor Bakri, A. (2025). The Influence of e-WOM, Fashion Trends, and Income on the Consumption Style of the Muslim Community in Palopo City: A Quantitative Analysis. *El-Qist: Journal of Islamic Economics and Business (JIEB)*, 14(2), 185–205. <https://doi.org/10.15642/elqist.2024.14.2.185-204>
- Arno, A., & Mujahidin, M. (2024). Enhancing Zakat Management: The Role of Monitoring and Evaluation in the Amil Zakat Agency. *Jurnal Economia*, 20(3), 397-418. doi:<https://doi.org/10.21831/economia.v20i3.53521>
- Buteau, S. (2021). Roadmap for digital technology to foster India's MSME ecosystem—opportunities and challenges. *CSI Transactions on ICT*, 9(4), 233–244. <https://doi.org/10.1007/s40012-021-00345-4>
- Carnahan, S., Agarwal, R., & Campbell, B. (2010). The Effect of Firm Compensation Structures on the Mobility and Entrepreneurship of Extreme Performers. *Business*, 920(October), 1–43. <https://doi.org/10.1002/smj>

- Chen, P., & Kim, S. K. (2023). The impact of digital transformation on innovation performance - The mediating role of innovation factors. *Heliyon*, 9(3), e13916. <https://doi.org/10.1016/j.heliyon.2023.e13916>
- Coraci, F., & Abulrub, A. H. G. (2021). Investigation into the Role of Leadership in the Management of Digital Transformation for Small and Medium Enterprises. ... *Journal of Economics and ...*, 15(4), 349–353. <https://publications.waset.org/10011943/investigation-into-the-role-of-leadership-in-the-management-of-digital-transformation-for-small-and-medium-enterprises>
- Cortellazzo, L., Bruni, E., & Zampieri, R. (2019). The role of leadership in a digitalized world: A review. *Frontiers in Psychology*, 10(AUG), 1–21. <https://doi.org/10.3389/fpsyg.2019.01938>
- de Wetering, V. (2018). Strategic Alignment Between It Flexibility and Dynamic Capabilities: an Empirical Investigation. *International Journal on IT/Business Alignment and Governance*, 4(3), 1–19.
- Devi, M. P., & Dr. S. Ramachandran, D. S. R. (2011). Innovation And Indian MSMEs: Emerging Challenges and Opportunities. *Indian Journal of Applied Research*, 4(2), 4–36. <https://doi.org/10.15373/2249555x/feb2014/85>
- 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<1105::AID-SMJ133>3.0.CO;2-E](https://doi.org/10.1002/1097-0266(200010/11)21:10/11<1105::AID-SMJ133>3.0.CO;2-E)
- Fiqran, M., Mujahidin, M., Bakri, A. N., & Abdulrahman, A. J. A. (2024). Motivation for Waqf in Millennials and Generation Z: Highlighting Religiosity, Literacy and Accessibility. *IKONOMIKA*, 9(2), 309-332.
- Fulton, J. M., & Kibby, M. D. (2017). Millennials and the normalization of surveillance on Facebook. *Continuum*, 31(2), 189–199. <https://doi.org/10.1080/10304312.2016.1265094>
- Garaigordobil, M. (2015). Predictor variables of happiness and its connection with risk and protective factors for health. *Frontiers in Psychology*, 6(August), 1–10. <https://doi.org/10.3389/fpsyg.2015.01176>
- Görzig, D., Kärcher, S., & Bauernhansl, T. (2019). Capability-Based Implementation of Digital Service Innovation in SMEs. *IFIP Advances in Information and Communication Technology*, 566(3), 502–509. https://doi.org/10.1007/978-3-030-30000-5_62
- Grin, J., Hassink, J., Karadzic, V., & Moors, E. H. M. (2018). Transformative leadership and contextual change. *Sustainability (Switzerland)*, 10(7), 1–14. <https://doi.org/10.3390/su10072159>

- Hamid, R. S., Abror, A., Anwar, S. M., & Hartati, A. (2022). The role of social media in the political involvement of millennials. *Spanish Journal of Marketing - ESIC*, 26(1), 61–79. <https://doi.org/10.1108/SJME-08-2021-0151>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135.
- Hermawati, A., & Gunawan, E. (2021). The implementation of dynamic capabilities for small and medium-sized enterprises in creating innovation. *VINE Journal of Information and Knowledge Management Systems*, 51(1), 92–108. <https://doi.org/10.1108/VJIKMS-08-2019-0121>
- Huu, P. T. (2023). Impact of employee digital competence on the relationship between digital autonomy and innovative work behavior: a systematic review. *Artificial Intelligence Review*, 56(12), 14193–14222. <https://doi.org/10.1007/s10462-023-10492-6>
- ILO. (2021). Small goes digital. https://www.ilo.org/empent/units/boosting-employment-through-small-enterprise-development/WCMS_808632/lang--en/index.htm
- Ishak, I., Putri, Q. A. R., & Sarijuddin, P. (2024). Halal Product Assurance at Traditional Markets in Luwu Raya Based on Halal Supply Chain Traceability. *Amwaluna: Jurnal Ekonomi dan Keuangan Syariah*, 8(2), 224–240.
- Islami, NN, Revelation, S., & Puji, RPN (2021). Digital Literacy of Micro, Small and Medium Enterprises (MSMEs) in Jember District. *IOP Conference Series: Earth and Environmental Science*, 747 (1), 5–70. <https://doi.org/10.1088/1755-1315/747/1/012097>
- K, A., Astuti, A. R. T., &., Mujahidin. (2024). The Impact of Word of Mouth and Customer Satisfaction on Purchase Decisions: The Role of Maslahah as an Intervening Variable in the Cosmetic Products Industry in Indonesia. *Journal of Ecohumanism*, 3(7), 1525–1540. <https://doi.org/10.62754/joe.v3i7.4307>
- Kalashnikov, A., Peredreeva, E., & Hercegovala, K. (2019). Digital leadership as the basis of modern business. *318 (Icseal)*, 371–377. <https://doi.org/10.2991/icseal-19.2019.58>
- Karippur, NK, & Balaramachandran, PR (2022). Antecedents of effective digital leadership of companies in Asia Pacific. *Australasian Journal of Information Systems* Karippur & Balaramachandran, 2022 (5), 1–35.
- Kesa, D. D., & Pranita, D. (2021). MSME Development Strategy for Providing Information through Central Banking Microsite Web Based. *Journal of Physics: Conference Series*, 1783(1). <https://doi.org/10.1088/1742-6596/1783/1/012052>

- Korachi, Z., & Bounabat, B. (2019). Integrated methodological framework for digital transformation strategy building (IMFDS). *International Journal of Advanced Computer Science and Applications*, 10(12), 242–250. <https://doi.org/10.14569/ijacsa.2019.0101234>
- Kusumawati, D. A. (2022). Peran Digital Skill Dan Workforce Transformastion Terhadap Kinerja Umkm. *Jurnal Ekonomi Dan Bisnis*, 23(2), 125. <https://doi.org/10.30659/ekobis.23.2.125-135>
- Latan, H., Chiappetta Jabbour, C. J., & Lopes de Sousa Jabbour, A. B. (2021). Social Media as a Form of Virtual Whistleblowing: Empirical Evidence for Elements of the Diamond Model. *Journal of Business Ethics*, 174(3), 529–548. <https://doi.org/10.1007/s10551-020-04598-y>
- Ly, B. (2024). The Interplay of Digital Transformational Leadership, Organizational Agility, and Digital Transformation. *Journal of the Knowledge Economy*, 15(1), 4408–4427. <https://doi.org/10.1007/s13132-023-01377-8>
- Majid, N. H. A., Omar, A. M., & Busry, L. H., Mujahidin Reviving Waqf In Higher Education Institutions: A Comparative Review Of Selected Countries. *European Proceedings of Social and Behavioural Sciences*.
- Meilany, R., Fasiha, F., & Moalla, M. (2025). The Role of Interest as a Mediator in The Relationship of Knowledge and Islamic Financial Inclusion to The Loyalty Costumers of Non-Muslim. *IKONOMIKA*, 10(1), 1-24.
- Mihardjo, L. W. W., Sasmoko, Alamsjah, F., & Elidjen. (2019). Digital leadership impacts on developing dynamic capability and strategic alliance based on market orientation. *Polish Journal of Management Studies*, 19(2), 285–297. <https://doi.org/10.17512/pjms.2019.19.2.24>
- Mujahidin, Rahmadani, N., & Putri, Q. A. R. (2024). Analysis of the Influence of Religiosity Values In Reducing Consumptive Behavior in Indonesian Muslim Consumers. *Amwaluna: Jurnal Ekonomi dan Keuangan Syariah*, 8(2), 253-274.
- Mustikaningrum, H. (2017). *RJOAS*, 11(71), November 2017. *Rjoas*, 11(November), 312–323.
- Nurhidayati. (2020). The Role of Knowledge Management Capability and Digital Ecosystem to Enhance Digital Transformation for SMEs. 115(*Insyma*), 120–123. <https://doi.org/10.2991/aebmr.k.200127.024>
- Park, C.-Y., & Kim, J. (2020). Education, Skill Training, and Lifelong Learning in the Era of Technological Revolution. *SSRN Electronic Journal*, 606, 1–24. <https://doi.org/10.2139/ssrn.3590922>

- Patria, H., Fatchul Alam, M. A., Mulyadi, A., & Setyarko, A. (2023). The Influences of Digital Technology, Digital Literacy, and Digital Marketing On The Performance of SMEs in Bekasi. *Cakrawala Repositori IMWI*, 6(1), 401–419. <https://doi.org/10.52851/cakrawala.v6i1.235>
- Pawluczuk, A., Yates, S., Carmi, E., Lockley, E., & Wessels, B. (2020). Data citizenship framework: exploring citizens' data literacy through data thinking, data doing and data participation. In *Digital Skills Insights*. [http://collections.unu.edu/view/UNU:8006#.ZA8_Jo-JAqs.mendeley%0Ahttps://academy.itu.int/sites/default/files/media2/file/Digital Skills Insights 2020.pdf](http://collections.unu.edu/view/UNU:8006#.ZA8_Jo-JAqs.mendeley%0Ahttps://academy.itu.int/sites/default/files/media2/file/Digital%20Skills%20Insights%202020.pdf)
- Putri, Q. A. R., Fasiha, F., & Rasbi, M. (2024). Affiliate marketing and intention to adopt mudarabah: The mediating role of trust in Islamic financial decision-making. *JEMA: Jurnal Ilmiah Bidang Akuntansi Dan Manajemen*, 21(2), 337–362. <https://doi.org/10.31106/jema.v21i2.23381>
- Saad Alessa, G. (2021). The Dimensions of Transformational Leadership and Its Organizational Effects in Public Universities in Saudi Arabia: A Systematic Review. *Frontiers in Psychology*, 12(November), 1–16. <https://doi.org/10.3389/fpsyg.2021.682092>
- Sapsuha, M. U., Alwi, Z., Sakka, A. R., & Al-Ayyubi, M. S. (2024). Review of Gold Trading Practices on Credit (non-Cash) Based on Hadith. *Al-Kharaj: Journal of Islamic Economic and Business*, 6(3).
- Sasmoko, Wasono Mihardjo, L. W., Alamsjaha, F., & Elidjena. (2019). Dynamic capability: The effect of digital leadership on fostering innovation capability based on market orientation. *Management Science Letters*, 9(10), 1633–1644. <https://doi.org/10.5267/j.msl.2019.5.024>
- Schulze, J. H., & Pinkow, F. (2020). Leadership for organisational adaptability: How enabling leaders create adaptive space. *Administrative Sciences*, 10(3), 4–56. <https://doi.org/10.3390/admsci10030037>
- Sikora, H. (2017). Digital Age Management: Führung im digitalen Zeitalter. *Elektrotechnik Und Informationstechnik*, 134(7), 344–348. <https://doi.org/10.1007/s00502-017-0524-0>
- Soegoto, A. S., Soegoto, D. S., & Pasha, M. S. (2020). Empowerment Digital Strategies for Medium Small Enterprises. *Journal of Physics: Conference Series*, 1477(7), 10–25. <https://doi.org/10.1088/1742-6596/1477/7/072003>
- Soule, D. L., Carrier, N., Bonnet, D., & Westerman, G. F. (2015). Organizing for a Digital Future: Opportunities and Challenges. *SSRN Electronic Journal*, 1–22. <https://doi.org/10.2139/ssrn.2698379>

- Tanniru, M. R. (2018). Digital Digital Leadership Leadership. *Manajemen of Informasion Sistem*.
<https://doi.org/10.5772/intechopen.76045>
- Teng, X., Wu, Z., & Yang, F. (2022). Research on the Relationship between Digital Transformation and Performance of SMEs. *Sustainability (Switzerland)*, 14(10), 1–17.
<https://doi.org/10.3390/su14106012>
- Thordsen, T., Murawski, M., & Bick, M. (2020). How to Measure Digitalization? A Critical Evaluation of Digital Maturity Models. In *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*: Vol. 12066 LNCS. Springer International Publishing. https://doi.org/10.1007/978-3-030-44999-5_30
- Wang, G., Mansor, Z. D., & Leong, Y. C. (2024). Linking digital leadership and employee digital performance in SMEs in China: The chain-mediating role of high-involvement human resource management practice and employee dynamic capability. *Heliyon*, 10(16), e36026.
<https://doi.org/10.1016/j.heliyon.2024.e36026>
- Wang, G., Niu, Y., Mansor, Z. D., Leong, Y. C., & Yan, Z. (2024). Unlocking digital potential: Exploring the drivers of employee dynamic capability on employee digital performance in Chinese SMEs-moderation effect of competitive climate. *Heliyon*, 10(4), e25583.
<https://doi.org/10.1016/j.heliyon.2024.e25583>
- Wulandari, S., Irfan, A., Zakaria, N. B., & Mujahidin. (2024). Survey Study on Fraud Prevention Disclosure Measurement at State Islamic Universities in Indonesia. *IQTISHODUNA: Jurnal Ekonomi Islam*, 13(1), 327–348. <https://doi.org/10.54471/iqtishoduna.v13i1.2305>
- Zahra, S. A., Sapienza, H. J., Hayton, J. C., Larraneta, B., George, G., McKelvie, A., Pavone, C., Welp, I., Zahra, P. H., & Zhang, P. (2006). Entrepreneurship and Dynamic Capabilities: A Review, Model and Research Agenda We have benefited from the suggestions of participants in the Academy of Management's Doctoral Consortia and showcase symposia Entrepreneurship and Dynamic Capabilities: A Re. *Journal of Management Studies*, 43(4), 917–955.