

“Digital transformation to enhance Indonesian SME performance: Exploring the impact of market competition and digital strategy”

AUTHORS Dorojatun Prihandono 

Angga Pandu Wijaya 
Bayu Wiratama 
Widya Prananta 
Syam Widia 

ARTICLE INFO Dorojatun Prihandono, Angga Pandu Wijaya, Bayu Wiratama, Widya Prananta and Syam Widia (2024). Digital transformation to enhance Indonesian SME performance: Exploring the impact of market competition and digital strategy. *Problems and Perspectives in Management*, 22(2), 103-113.
doi:[10.21511/ppm.22\(2\).2024.09](https://doi.org/10.21511/ppm.22(2).2024.09)

DOI [http://dx.doi.org/10.21511/ppm.22\(2\).2024.09](http://dx.doi.org/10.21511/ppm.22(2).2024.09)

RELEASED ON Monday, 22 April 2024

RECEIVED ON Monday, 22 January 2024

ACCEPTED ON Tuesday, 26 March 2024

LICENSE  This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

JOURNAL "Problems and Perspectives in Management"

ISSN PRINT 1727-7051

ISSN ONLINE 1810-5467

PUBLISHER LLC “Consulting Publishing Company “Business Perspectives”

FOUNDER LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

52



NUMBER OF FIGURES

2



NUMBER OF TABLES

5

© The author(s) 2024. This publication is an open access article.



BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine
www.businessperspectives.org

Received on: 22nd of January, 2024

Accepted on: 26th of March, 2024

Published on: 22nd of April, 2024

© Dorojatun Prihandono, Angga Pandu Wijaya, Bayu Wiratama, Widya Prananta, Syam Widia, 2024

Dorojatun Prihandono, Ph.D., Associate Professor, Department of Management, Faculty of Economics and Business, Universitas Negeri Semarang [Semarang State University], Indonesia. (Corresponding author)

Angga Pandu Wijaya, M.Sc., Lecturer, Department of Management, Faculty of Economics and Business, Universitas Negeri Semarang [Semarang State University], Indonesia.

Bayu Wiratama, M.M., Lecturer, Department of Management, Faculty of Economics and Business, Universitas Negeri Semarang [Semarang State University], Indonesia.

Widya Prananta, M.M., Lecturer, Department of Management, Faculty of Economics and Business, Universitas Negeri Semarang [Semarang State University], Indonesia.

Syam Widia, M.M., Lecturer, Department of Management, Faculty of Economics and Business, Universitas Negeri Semarang [Semarang State University], Indonesia.



This is an Open Access article, distributed under the terms of the [Creative Commons Attribution 4.0 International license](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited.

Conflict of interest statement:

Author(s) reported no conflict of interest

Dorojatun Prihandono (Indonesia), Angga Pandu Wijaya (Indonesia), Bayu Wiratama (Indonesia), Widya Prananta (Indonesia), Syam Widia (Indonesia)

DIGITAL TRANSFORMATION TO ENHANCE INDONESIAN SME PERFORMANCE: EXPLORING THE IMPACT OF MARKET COMPETITION AND DIGITAL STRATEGY

Abstract

In the current era, the challenges faced by SMEs in Indonesia are becoming increasingly complex. Previously, the primary challenge for SMEs has been to enhance performance. However, with the emergence of information technology, SMEs are now required to compete fiercely. SMEs in Indonesia are still in the process of digital transformation to improve their business strategies, thus limiting research focused on digital transformation in SMEs. Research also considers market complexity and digital strategy as crucial factors for SMEs. The aim of this study is to analyze the role of digital transformation in influencing SME performance. The research approach is quantitative, involving 171 SMEs owners as respondents. The instrument utilized is a Likert scale questionnaire, focusing on the majority of SMEs in Indonesia, particularly those in Java, the most populous island and business center of the country. This includes SMEs operating within various sectors, such as culinary, fashion, retail, and creative industries. The results indicate that digital strategy and market complexity influence digital transformation and SMEs performance. The research findings suggest that digital transformation mediates the influence of digital strategy and market complexity on SME performance. The novelty of this study lies in its focus on the current SMEs digitalization strategy area. This study indicates that digital transformation is an essential aspect affecting current SME performance. The results suggest that SMEs require focused strategies to strengthen resources and gain competitive advantage in complex markets.

Keywords

digital transformation, market competition, digital strategy, SME performance, digital SME

JEL Classification

M20, M21, M31

INTRODUCTION

Small and medium-sized enterprises (SMEs) play a vital role in driving economic growth, fostering innovation, and generating employment opportunities in both developed and developing economies (Munikrishnan et al., 2019). SMEs face numerous challenges and opportunities that affect their overall performance and sustainability as key contributors to the global business landscape (Vrontis et al., 2022). The performance of SMEs is a multifaceted concept that encompasses various dimensions, including financial success, operational efficiency, market share, innovation, and adaptability to changing business environments (Hamidi et al., 2018; Jin et al., 2018; Matias & Serrasqueiro, 2017). While some SMEs flourish and achieve remarkable success, others struggle to thrive in the face of competition, market volatility, and resource constraints. There is a crucial need to explore the determinants of SME performance to identify key drivers and bottlenecks that influence their growth.

Over the years, researchers have attempted to unravel the complexities surrounding SME performance by investigating a wide array of factors. Traditional determinants, such as access to finance, market conditions, and managerial capabilities, have been studied extensively. However, in today's rapidly evolving business landscape, characterized by digitalization and technological advancements, new factors and challenges are emerging (Eller et al., 2020), necessitating a fresh and comprehensive examination of SME performance. The significance of a business strategy lies in its ability to demonstrate a successful digital transformation when a company incorporates the latest goods or services delivery methods, thus highlighting its prowess in the market. Industry 4.0 adoption in SMEs can be driven by technological, organizational, and environmental factors but requires knowledge competencies and value chain digitalization readiness for success (Ghobakhloo et al., 2022). Despite the growing acknowledgment of digitalization as a potential tool to optimize SME performance, there remains a significant research gap in the application of the resource-based view (RBV) theory within the context of SME digitalization, particularly in developing countries with limited technological infrastructure and low digital literacy rates (Bala & Feng, 2019). While previous studies have extensively examined digitalization's impact on SMEs from a consumer-oriented perspective, such as through the technology acceptance model (TAM) (Moorthy et al., 2023; Saeedi et al., 2022), there is limited research that explores the utilization of RBV theory to understand the role of digitalization in enhancing SME performance. The limitations are consistent with the Indonesian context, where there is limited utilization of digital technology and the Internet by SMEs. SMEs in Indonesia are currently shifting from traditional management to digitalization, thus aligning with the research focus based on previous studies. This research gap highlights the need for further investigation into how SMEs in developing countries can leverage digitalization as a strategic resource to achieve competitive advantage and sustainable growth.

1. LITERATURE REVIEW

The resource-based view (RBV) theory offers a strategic framework particularly relevant for SMEs, helping them navigate the complexities of competitive markets with limited resources. At its core, RBV theory underscores the significance of internal resources and capabilities as fundamental drivers of competitive advantage and sustained performance. For SMEs, this entails a meticulous examination and exploitation of their unique resource base. RBV theory provides a framework for understanding competitive advantage in SMEs by focusing on the management of unique resources, capabilities, and firm-specific phenomena (Yang et al., 2022). RBV theory further elucidates the significance of these advantages by emphasizing how a firm's unique resources, such as digital capabilities and technological infrastructure, can contribute to its competitive advantage. Through the lens of RBV theory, digitalization becomes a strategic resource that SMEs can leverage to enhance their performance (Beckmann et al., 2023). Digital strategy involves aligning products and services with digital technology based on the company's core business perspective, encompassing aspects

like value creation, value proposition mechanisms, digital technology, business strategic transformation, and external factors influencing the company (Poddar & Agarwal, 2019). The primary output of a digital strategy often involves creating new value propositions, which entail various dimensions, such as leveraging digital technology, transforming value creation mechanisms, and implementing organizational changes (Okfalisa et al., 2021).

SME entrepreneurs facilitate digital transformation by renewing managerial cognition, developing managerial social capital, forming business teams, and enhancing organizational capabilities with assistance from digital platform service providers (Li et al., 2018). SMEs that engage in digital transformation benefit from allocating more resources to business model testing and actively participating in strategy implementation, according to Westerlund (2020). Investing in digital technologies, enhancing employee digital skills, and implementing digital transformation plans may enhance performance and ensure sustainable development (Teng et al., 2022). Digital technologies have a substantial effect on the economic sustainability and social worth of SMEs, with entrepreneurial atti-

tude acting as a moderator, according to Vrontis et al. (2022). Digital technologies are used in marketing by small and medium-sized enterprises to establish client relationships and generate value for each firm (Ziółkowska, 2021). Technological and contextual aspects enhance organizational capacities, leading to the success of digital transformation in SMEs (Zhang et al., 2022).

Social media adoption enhances the connection between technology, organization, and environment, leading to improved performance in small and medium-sized enterprises (Qalati et al., 2021). Digital transformation is linked to SME performance. Investing in digital technologies, employee digital skills, and digital transformation plans can enhance performance and ensure sustainable development (Teng et al., 2022). Embracing digital technology has a beneficial impact on both the economic and environmental performance of businesses in strategically growing industries (Li et al., 2022). Adopting social media has a favorable impact on the performance of small and medium enterprises in developing nations. Relative advantage, cost-effectiveness, compatibility, interaction, entrepreneurial attitude, and customer pressure are key contributors to this influence (Qalati et al., 2022).

SMEs that engage in digital transformation benefit from allocating more resources to business model testing and actively participating in strategy implementation (Gamache et al., 2020). According to Teng et al. (2022), focusing on digital technologies, enhancing employee digital skills, and implementing digital transformation strategies are crucial for enhancing SME performance and ensuring sustainable development. Digitalization greatly enhances the connection between dynamic capabilities and SME performance while merely moderating the link between transforming capability and SME performance (Martins, 2023). The market competition directly influences businesses, affecting their products, services, and overall operations. The significance of this competitive pressure can pose challenges for businesses, and if left unaddressed, it may eventually lead to bankruptcy (Gaiardelli et al., 2021). In the current digital era, the rapid escalation of competitive burden has become a driving factor pushing entrepreneurs toward embracing

digital transformation. The global market's increasing globalization and business internationalization exemplify the competitive pressures faced by entrepreneurs worldwide, including SMEs (Graf et al., 2019).

The digital marketing revolution enhances consumer experiences and fosters sustainable growth, giving organizations a competitive advantage (Noori Hussain et al., 2023). Market rivalry motivates small and medium-sized enterprises to implement new digital technologies, leading to company transformation, improved competitiveness, and product repositioning (Silva et al., 2022). The variables that have the largest impact on SME performance in digital transformation include technological competency, management, technology, and technical competence in marketing and innovation (Kim & You, 2020). The digital transformation of local SMEs is driven by the utilization of social network platforms, innovation processes, workplace culture, and information and communication technologies (Hönigsberg & Dinter, 2019). Digital transformation has a substantial impact on developing client relationships and facilitating convenient access for South African SMEs, mostly through online selling and digital marketing platforms (Jeza & Lekhanya, 2022). Global entrepreneurial mindset and local market rivalry drive small and medium-sized enterprises to cultivate technological and marketing skills, resulting in improved performance in global marketplaces (Jin et al., 2018). Market-oriented small and medium-sized enterprises enhance their competitive edge through the development of distinctive products, high quality, and competitive pricing, leading to improved performance.

The literature review offers insights into the appropriate behavior for SMEs in the contemporary era, particularly in the post-pandemic landscape. The RBV theory continues to play a significant role as a foundational framework for SMEs to acquire their resources. Moreover, it delineates how small businesses can optimize their resources to analyze internal and external factors and address business challenges. These resources encompass various factors, including business performance, digital transforma-

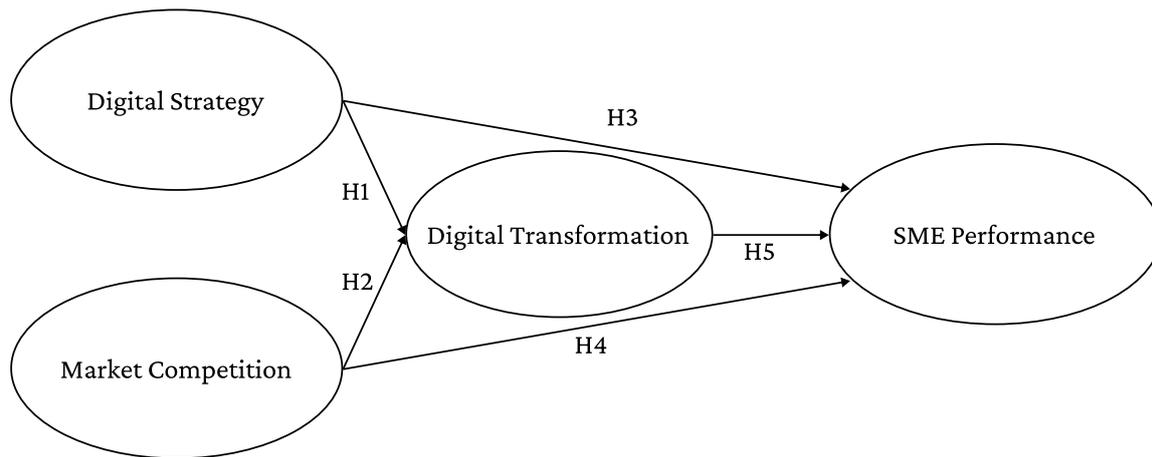


Figure 1. Research framework

tion, digital strategy, and market competition. This study focuses on SMEs in Indonesia, offering a distinct perspective on how Indonesian SMEs endeavor to enhance their performance through digitalization. The study can serve as a foundation for SMEs to operate and aims to conduct an empirical analysis to confirm and further examine the relationships between determinants. Moreover, this model can provide significant evidence of how SMEs can implement their plans using digital transformation to enhance their performance. Figure 1 illustrates the research framework based on the literature review, and the hypotheses are as follows:

- H_1 : *SMEs' digital strategy positively influences digital transformation.*
- H_2 : *Market competition positively influences SME digital transformation.*
- H_3 : *Digital strategy positively influences SME performance.*
- H_4 : *Market competition positively influences SME performance.*
- H_5 : *Digital transformation positively influences SME performance.*
- H_6 : *Digital strategy positively influences SME performance through digital transformation.*
- H_7 : *Market competition positively influences SME performance through digital transformation.*

2. METHOD

This study applied a quantitative methodology to analyze the data and variables. The adoption of a quantitative approach is suitable for handling large datasets from SMEs. The study's target population comprised SMEs in Indonesia that have implemented digital transformation. This is because the adoption of digital technology among SMEs in Indonesia is still limited. The study focuses on business centers in Indonesia, primarily located in Java. Sampling is conducted using a purposive approach, wherein SMEs owners who have adopted digital business practices in marketing, payment, or operations are selected as respondents. The total sample size is determined considering a confidence level of 95%, a margin of error of 5%, and a population proportion of 10%. Consequently, 139 SMEs were sampled. Questionnaires were distributed to SMEs, resulting in a larger sample size of 171. Therefore, this study utilizes a sample of 171 SMEs operating in various fields, including culinary, fashion, retail, and creative industries. The study ensured the fulfillment of the normality assumption and utilized the Maximum Likelihood Estimation (MLE): The data collection process involved the use of structured and closed questions. The questionnaire was thoughtfully designed to produce reliable responses from the sample, containing a series of statements or questions. These statements were measured using a Likert scale with scores ranging from one to five. The distributed questionnaire comprises several variables, as shown in Table 1.

To conduct the analysis, the study utilized structural equation modeling-partial least squares (SEM-PLS).

Table 1. Research indicators

Variable	Indicator
Market Competition (Jin & Cho, 2018)	The business experiences rapid growth.
	The business faces intense competition.
	Numerous competitors enter the business.
Digital Strategy (Eller et al., 2020)	The shift toward digital business proves beneficial for SMEs.
	Enhanced consumer shopping experiences are facilitated through the digitization of services.
	The success of SMEs is determined by digital innovation.
Digital Transformation (Min & Kim, 2021)	SMEs have adopted standard technology in digital business.
	SMEs have implemented different digital business models compared to their competitors.
	SMEs have policies in place to strengthen digital business.
Business Performance (Fernandes et al., 2020)	SMEs have successfully achieved planned targets.
	Consumers are satisfied with the services provided by SMEs.
	Consumers trust the services provided by SMEs.
	Consumers are loyal toward shopping at SMEs.

3. RESULTS

An extensively recognized standard for adequate structural validity entails loading factors exceeding 0.7 for all indicators. This study is dedicated to assessing and verifying that the measurement instrument meets this crucial requirement. As depicted in Figure 2, all indicators met the specified criteria.

Table 2 highlights the significance of various factors in influencing digital transformation and SME performance. The positive path coefficients suggest that businesses that strategically plan their digital initiatives and navigate market competi-

tion are likely to experience favorable outcomes in terms of digital transformation progress and SME performance.

Table 2. Path coefficients

Variable	Digital Transformation	SME Performance
Digital Strategy	0.464	0.305
Digital Transformation	–	0.449
Market Competition	0.309	0.119

The reliability test in Table 3 demonstrates that all four variables in the measurement instrument exhibit satisfactory levels of internal consistency. Both Cronbach’s alpha and Composite Reliability

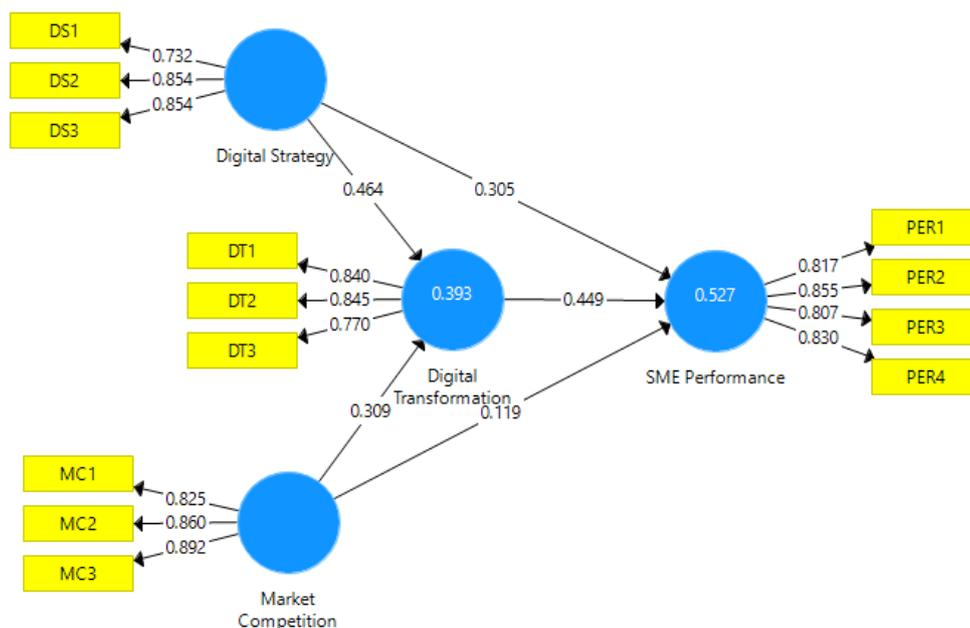


Figure 2. Loading factor results

values are well above the recommended threshold of 0.7, indicating that each variable is consistently measuring the same underlying construct.

Table 3. Reliability test

Variable	Cronbach's Alpha	Composite Reliability
Digital Strategy	0.751	0.856
Digital Transformation	0.753	0.859
Market Competition	0.823	0.894
SME Performance	0.847	0.897

Tables 4 and 5 show the positive and significant effects of digital strategy, digital transformation, and market competition on SME performance. Both the direct and indirect paths demonstrate how strategic planning, digital transformation initiatives, and responding to market competition can collectively enhance the performance of small and medium-sized enterprises.

This study conducted a comprehensive examination of seven hypotheses using SmartPLS, with the corresponding test results presented in Table 4 and Table 5. The findings revealed significant insights into the relationships between various factors influencing SMEs. Firstly, it was confirmed that SMEs digital strategy has a positive impact on their digital transformation, (H1 accepted). Additionally, the study identified that market competition plays a pivotal role in driving SMEs digital transformation (H2 accepted), highlighting the external market pressures that influence technological adoption among smaller enterprises.

Table 4. Direct effects

Path	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Digital Strategy → Digital Transformation	0.464	0.053	8.734	0.000
Digital Strategy → SME Performance	0.305	0.057	5.300	0.000
Digital Transformation → SME Performance	0.449	0.065	6.919	0.000
Market Competition → Digital Transformation	0.309	0.051	6.067	0.000
Market Competition → SME Performance	0.119	0.057	2.082	0.038

Table 5. Indirect effects

Path	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Digital Strategy → Digital Transformation → SME Performance	0.208	0.044	4.705	0.000
Market Competition → Digital Transformation → SME Performance	0.139	0.032	4.364	0.000

Furthermore, the research demonstrated that both digital strategy and market competition positively influence SMEs overall performance (H3 and H4 accepted), underscoring the strategic importance of these factors in enhancing business outcomes. Notably, the study also highlighted the direct positive impact of digital transformation on SMEs performance (H5 accepted), emphasizing the transformative role of technology in business success. Moreover, the findings supported the notion that a well-implemented digital strategy contributes positively to SMEs performance through its influence on digital transformation (H6 accepted). Lastly, the study showed that market competition enhances SMEs performance by driving digital transformation initiatives (H7 accepted).

4. DISCUSSION

The findings demonstrate that digital strategy significantly influences SMEs digital transformation. The adoption and implementation of digital strategies exert a considerable impact on SMEs, influencing their path toward digital transformation and subsequently enhancing their overall market performance. The results support Zhang et al. (2023), who identified digital strategy as critical in aiding SMEs to embrace digital transformation. Additionally, Teng et al. (2022) corroborate that a digital strategy approach enables SMEs to identify the digital technologies, tools, and platforms most suitable for their company model and target audience. AlNuaimi et al. (2022) reinforce

that digital strategy assists SMEs in effectively allocating resources, establishing timetables, and optimizing procedures, all of which are critical for a successful digital transformation. The adoption of digital strategies has a significant impact on the digital transformation process in SMEs (Vrontis et al., 2022). As SMEs integrate digital technology into their operations, products, and services, their organizational culture, processes, and customer interactions undergo fundamental changes (Hossain et al., 2022).

The findings indicate a positive influence of digital strategies on SMEs performance. These results corroborate previous findings, such as those of Kim (2021) and Teng et al. (2022), which suggest that digital strategy affects SME performance. Digitalization enables SMEs to engage with customers through various social media platforms and services (Dressler & Paunovic, 2021). Min and Kim (2021) explain why digital strategies affect SME performance: technology adoption facilitates SME operations in dynamic environments, ensuring optimal and effective business operations. Targeting the younger generation through digital technology has become a strategic approach for SMEs, maximizing the potential of digital platforms and ultimately enhancing business performance (Gamache et al., 2020; Kim, 2021).

Digital transformation profoundly influences SMEs internal processes and their interactions with customers. Through digitization, SMEs gain the ability to reach a broader audience and penetrate new markets. Digital strategies assist SMEs in developing innovative products and services that cater to the evolving needs of tech-savvy consumers. By embracing digital channels and platforms, SMEs enhance communication with customers, deliver personalized experiences, and foster deeper customer relationships. These findings are consistent with Becker and Schmid (2020), who highlight the fundamental role of digital transformation in enhancing business performance. One of the most notable advantages is the expanded market reach and customer acquisition (Chinakidzwa & Phiri, 2020). As SMEs adopt digital tactics and establish their online presence, they can attract a larger consumer base beyond their local markets, leading to increased growth and revenue generation. Moreover, digital transformation empowers

SMEs to remain agile and responsive to shifting market dynamics. By implementing digital strategies, SMEs can swiftly adapt to emerging trends, consumer preferences, and competitive challenges.

Digital transformation enhances SMEs capabilities for data collection and analysis, leading to data-driven decision-making processes. By leveraging data analytics, SMEs gain valuable insights into customer behavior, market trends, and operational performance. This data-driven approach enables SMEs to make informed decisions, optimize strategies, and refine their offerings, ultimately resulting in improved overall performance (Nagy et al., 2018). The effective utilization of digital strategies plays a critical role in determining the long-term sustainability and success of SMEs in the business landscape. SMEs possess significant potential to leverage digitalization, particularly in reaching younger demographic markets (Okocha et al., 2019).

The findings underscore the influence of market competition on SME digital transformation. These findings support Zhang et al. (2022), who indicate that SME transformation is impacted by market competition. In high-competition environments, businesses tend to explore new markets through digital transformation to attract more consumers. In today's hyper-competitive business landscape, SMEs face significant pressure to adapt and embrace digital transformation to stay relevant, gain a competitive edge, and achieve long-term success. These results are consistent with Jin and Pan (2023), who demonstrate the positive effect of market competition on SME digital transformation, particularly with government support. Intense market competition prompts SMEs to urgently explore and implement digital initiatives as a means of differentiation and competitive advantage. Digital transformation empowers SMEs to innovate and introduce new value propositions that distinguish them from competitors (Wahid & Zulkifli, 2021).

The findings reveal that market competition emerges as a significant factor influencing SME performance. In competitive markets, SMEs adopt innovative strategies to sustain and improve performance (Prihandono et al., 2021). The study indicates a similar positive relationship

between market competition and SME performance, as demonstrated by Prasanna et al. (2019), prompting businesses to embrace digitalization for broader customer reach and increased sales. Furthermore, digitalization enables SMEs to overcome geographical constraints and enhance performance by accessing global customers through digital channels (Dangmei & Singh, 2022; Mandal & Joshi, 2017). This study's findings highlight the critical significance of digital transformation as a moderator in the relationship between market competition, digital strategy, and SME performance. Digital transformation is a transformative process that enables SMEs to leverage digital methods to address market competition challenges and ultimately improve overall performance (Alekan et al., 2018). This finding represents a novel contribution to research, emphasizing the

role of the RBV theory in organizational research, particularly concerning the impact of technology and employees on SME performance. The results align with those of Kraft et al. (2022), indicating that digital transformation has a strong impact on SME performance. Digital transformation mitigates the impact of market competition on SME performance by facilitating the integration and implementation of digital strategies. The transformative process of digitization enables SMEs to streamline internal processes, enhance efficiencies, and improve their responsiveness to market changes (Mabula et al., 2020). Additionally, digital transformation fosters customer-centricity, which is essential for market success. SMEs engage customers through personalized and seamless experiences by embracing digital technologies, thereby fostering loyalty and increasing SME performance.

CONCLUSION

The purpose of this study is to examine determinants that have a pertinent relationship with digital transformation to enhance SMEs business performance. The findings show that digital transformation is a critical mediator, connecting market competition and digital strategy to SME performance. Market competition appears to be a significant motivator for SMEs to implement digital strategies. Digital transformation enables SMEs to provide excellent client experiences, hence increasing customer loyalty and repurchase intention. SMEs can establish strong customer relationships through tailored and smooth interactions, directly influencing their market performance. The study emphasizes the importance of digital transformation as a process that transforms SME performance in response to market competition and the strategic implementation of digital plans. The findings of this study add to a better understanding of the relationship between digital transformation, market dynamics, and SME performance, opening the way for more informed decision-making and strategic planning in the pursuit of digital development and competitiveness. Furthermore, practitioners in SMEs in any sector can start to renew their business using digital schemes strategy; although the pandemic is already over, the risks of global disaster need to have more consideration. Practitioners can also start a benchmark in other industries since market competition become a significant determinant affecting digital transformation.

AUTHOR CONTRIBUTIONS

Conceptualization: Dorojatun Prihandono, Angga Pandu Wijaya, Bayu Wiratama.

Data curation: Dorojatun Prihandono, Angga Pandu Wijaya, Bayu Wiratama, Widya Prananta.

Formal analysis: Dorojatun Prihandono, Angga Pandu Wijaya, Widya Prananta, Syam Widia.

Funding acquisition: Dorojatun Prihandono.

Investigation: Dorojatun Prihandono, Angga Pandu Wijaya.

Methodology: Dorojatun Prihandono, Angga Pandu Wijaya.

Project administration: Dorojatun Prihandono, Angga Pandu Wijaya.

Resources: Dorojatun Prihandono, Syam Widia.

Software: Dorojatun Prihandono, Bayu Wiratama.

Supervision: Bayu Wiratama, Widya Prananta.

Validation: Angga Pandu Wijaya, Widya Prananta, Syam Widia.

Visualization: Syam Widia.

Writing – original draft: Dorajatun Prihandono, Angga Pandu Wijaya, Bayu Wiratama.

Writing – review & editing: Dorajatun Prihandono, Angga Pandu Wijaya, Bayu Wiratama, Widya Prananta, Syam Widia.

REFERENCES

- Alekam, J. M. E., Othman, S., Md Ladin, M. R., & Alshuaibi, A. S. (2018). The preceding role of social: Innovation, knowledge, capital and entrepreneurship as mediating effects in building Malaysian SME business performance. *Indian Journal of Public Health Research and Development*, 9(11), 1509-1514. <https://doi.org/10.5958/0976-5506.2018.01662.5>
- AlNuaimi, B. K., Kumar Singh, S., Ren, S., Budhwar, P., & Vorobyev, D. (2022). Mastering digital transformation: The nexus between leadership, agility, and digital strategy. *Journal of Business Research*, 145, 636-648. <https://doi.org/10.1016/j.jbusres.2022.03.038>
- Bala, H., & Feng, X. (2019). Success of small and medium enterprises in Myanmar: Role of technological, organizational, and environmental factors. *Journal of Global Information Technology Management*, 22(2), 100-119. <https://doi.org/10.1080/1097198X.2019.1603511>
- Becker, W., & Schmid, O. (2020). The right digital strategy for your business: An empirical analysis of the design and implementation of digital strategies in SMEs and LSEs. *Business Research*, 13(3), 985-1005. <https://doi.org/10.1007/s40685-020-00124-y>
- Beckmann, M., Garkisch, M., & Zeyen, A. (2023). Together we are strong? A systematic literature review on how SMEs use relation-based collaboration to operate in rural areas. *Journal of Small Business & Entrepreneurship*, 35(4), 515-549. <https://doi.org/10.1080/08276331.2021.1874605>
- Chinakidzwa, M., & Phiri, M. (2020). Impact of digital marketing capabilities on market performance of small to medium enterprise agro-processors in Harare, Zimbabwe. *Business: Theory and Practice*, 21(2). <https://doi.org/10.3846/btp.2020.12149>
- Dangmei, J., & Singh, A. P. (2022). Towards digitalization of MSME in Manipur: A roadmap. *International Journal of Research in Management*, 4(1). <http://dx.doi.org/10.33545/26648792.2022.v4.i1a.55>
- Dressler, M., & Paunovic, I. (2021). Sensing technologies, roles and technology adoption strategies for digital transformation of grape harvesting in sme wineries. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(2), Article 123. <https://doi.org/10.3390/joitmc7020123>
- Eller, R., Alford, P., Kallmünzer, A., & Peters, M. (2020). Antecedents, consequences, and challenges of small and medium-sized enterprise digitalization. *Journal of Business Research*, 112, 119-127. <https://doi.org/10.1016/j.jbusres.2020.03.004>
- Fernandes, C. I. M. A. S., Ferreira, J. J. M., Lobo, C. A., & Raposo, M. (2020). The impact of market orientation on the internationalization of SMEs. *Review of International Business and Strategy*, 30(1), 123-143. <https://doi.org/10.1108/RIBS-09-2019-0120>
- Gaiardelli, P., Pezzotta, G., Rondini, A., Romero, D., Jarrahi, F., Bertoni, M., Wiesner, S., Wuest, T., Larsson, T., Zaki, M., Jussen, P., Boucher, X., Bigdeli, A. Z., & Cavaliere, S. (2021). Product-service systems evolution in the era of Industry 4.0. *Service Business*, 15(1), 177-207. <https://doi.org/10.1007/s11628-021-00438-9>
- Gamache, S., Abdul-Nour, G., Baril, C., & Xu, W. (Rev. ed.). (2020). Evaluation of the influence parameters of Industry 4.0 and their impact on the Quebec manufacturing SMEs: The first findings. *Cogent Engineering*, 7(1), Article 1771818. <https://doi.org/10.1080/23311916.2020.1771818>
- Ghobakhloo, M., Iranmanesh, M., Vilkas, M., Grybauskas, A., & Amran, A. (2022). Drivers and barriers of Industry 4.0 technology adoption among manufacturing SMEs: A systematic review and transformation roadmap. *Journal of Manufacturing Technology Management*, 33(6), 1029-1058. <https://doi.org/10.1108/JMTM-12-2021-0505>
- Graf, M., Peter, M., & Gatzziu-Griivas, S. (2019). Foster strategic orientation in the digital age: A methodic approach for guiding SME to a digital transformation. In W. Abramowicz & A. Paschke (Eds.), *Business Information Systems Workshops* (pp. 420-432). Cham: Springer. https://doi.org/10.1007/978-3-030-04849-5_37
- Hamidi, S. R., Aziz, A. A., Shuhidan, S. M., Aziz, A. A., & Mokhsin, M. (2018). SMEs maturity model assessment of IR4.0 digital transformation. In A. Lokman, T. Yamanaka, P. Lévy, K. Chen, & S. Koyama (Eds.), *Proceedings of the 7th International Conference on Kansei Engineering and Emotion Research 2018* (pp. 721-732). Singapore: Springer. https://doi.org/10.1007/978-981-10-8612-0_75
- Hönigsberg, S., & Dinter, B. (2019). Toward a method to foster the digital transformation in SME networks. *40th International Conference on Information Systems, ICIS 2019*. Retrieved from <https://scholar.archive.org/work/f2p5lcsiwjfytealrjgfov2py/access/way->

- [back/https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1119&context=icis2019](https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1119&context=icis2019)
17. Hossain, M. R., Akhter, F., & Sultana, M. M. (2022). SMEs in Covid-19 crisis and combating strategies: A systematic literature review (SLR) and a case from emerging economy. *Operations Research Perspectives*, 9, Article 100222. <https://doi.org/10.1016/j.orp.2022.100222>
 18. Jeza, S., & Lekhanya, L. (2022). The influence of digital transformation on the growth of small and medium enterprises in South Africa. *Problems and Perspectives in Management*, 20(3), 297-309. [https://doi.org/10.21511/ppm.20\(3\).2022.24](https://doi.org/10.21511/ppm.20(3).2022.24)
 19. Jin, B., & Cho, H. J. (2018). Examining the role of international entrepreneurial orientation, domestic market competition, and technological and marketing capabilities on SME's export performance. *Journal of Business & Industrial Marketing*, 33(5), 585-598. <https://doi.org/10.1108/JBIM-02-2017-0043>
 20. Jin, B., Jung, S., & Jeong, S. W. (2018). Dimensional effects of Korean SME's entrepreneurial orientation on internationalization and performance: The mediating role of marketing capability. *International Entrepreneurship and Management Journal*, 14(1), 195-215. <https://doi.org/10.1007/s11365-017-0457-4>
 21. Jin, X., & Pan, X. (2023). Government attention, market competition and firm digital transformation. *Sustainability (Switzerland)*, 15(11), Article 9057. <https://doi.org/10.3390/su15119057>
 22. Kim, S. S. (2021). Sustainable growth variables by industry sectors and their influence on changes in business models of smes in the era of digital transformation. *Sustainability*, 13(13), Article 7114. <https://doi.org/10.3390/su13137114>
 23. Kim, S. S., & You, Y. Y. (2020). Study on the influencing factors of business success variables of technology startup entrepreneurs. *Research in World Economy*, 11(2). <https://doi.org/10.5430/rwe.v11n2p170>
 24. Kraft, C., Lindeque, J. P., & Peter, M. K. (2022). The digital transformation of Swiss small and medium-sized enterprises: Insights from digital tool adoption. *Journal of Strategy and Management*, 15(3), 468-494. <https://doi.org/10.1108/JSMA-02-2021-0063>
 25. Li, L., Su, F., Zhang, W., & Mao, J. Y. (2018). Digital transformation by SME entrepreneurs: A capability perspective. *Information Systems Journal*, 28(6), 1129-1157. <https://doi.org/10.1111/isj.12153>
 26. Li, X., Wu, T., Zhang, H., & Yang, D. (2022). Digital technology adoption and sustainable development performance of strategic emerging industries: The mediating role of digital technology capability and the moderating role of digital strategy. *Journal of Organizational and End User Computing*, 34(8), 1-18. <https://doi.org/10.4018/joeuc.315645>
 27. Mabula, J. B., Dongping, H., & Chivundu-Ngulube, C. D. (2020). SME manager's perceived cooperative support, commitment and trust on learning and entrepreneurship orientation for firm innovation. *Human Systems Management*, 39(2), 233-250. <https://doi.org/10.3233/HSM-190735>
 28. Mandal, P., & Joshi, N. (2017). B2B digital marketing strategies for small and medium enterprises (SME). *Journal of Advances and Scholarly Researches in Allied Education*, 12(2). Retrieved from <http://ipublisher.in/p/55236>
 29. Martins, A. (2023). Dynamic capabilities and SME performance in the COVID-19 era: The moderating effect of digitalization. *Asia-Pacific Journal of Business Administration*, 15(2), 188-202. <https://doi.org/10.1108/APJBA-08-2021-0370>
 30. Matias, F., & Serrasqueiro, Z. (2017). Are there reliable determinant factors of capital structure decisions? Empirical study of SMEs in different regions of Portugal. *Research in International Business and Finance*, 40, 19-33. <https://doi.org/10.1016/j.ribaf.2016.09.014>
 31. Min, S. A., & Kim, B. Y. (2021). SMEs' digital transformation competencies on platform empowerment: A case study in South Korea. *The Journal of Asian Finance Economics and Business*, 8(6), 897-907. <http://dx.doi.org/10.13106/jafeb.2021.vol8.no6.0897>
 32. Moorthy, K., Nian Ci, T., Amalina Kamarudin, A., S. Govindarajo, N., & Chun Ting, L. (2023). Upsurge of online shopping in Malaysia during COVID-19 pandemic. In U. Ayman (Ed.), *A New Era of Consumer Behavior – In and Beyond the Pandemic*. IntechOpen. <https://doi.org/10.5772/intechopen.108049>
 33. Munikrishnan, U. T., Imm, N. S., Ann, H. J., & Yusof, R. N. R. (2019). Disintermediation threat: Do small medium traditional travel agencies in Malaysia embrace ICT adequately? *Pertanika Journal of Social Sciences and Humanities*, 27(1).
 34. Nagy, J., Oláh, J., Erdei, E., Máté, D., & Popp, J. (2018). The role and impact of industry 4.0 and the internet of things on the business strategy of the value chain – The case of Hungary. *Sustainability*, 10(10), Article 3491. <https://doi.org/10.3390/su10103491>
 35. Noori Hussain, H., Yousif Alabdullah, T. T., Ahmed, E. R., & M. Jamal, K. A. (2023). Implementing technology for competitive advantage in digital marketing. *International Journal of Scientific and Management Research*, 6(6), 95-114. <https://doi.org/10.37502/ijsmr.2023.6607>
 36. Okfalisa, Anggraini, W., Nawanir, G., Saktioto, & Wong, K. Y. (2021). Measuring the effects of different factors influencing on the readiness of smes towards digitalization: A multiple perspectives design of decision support system. *Decision Science Letters*, 10(3), 425-442. <https://doi.org/10.5267/j.dsl.2021.1.002>
 37. Okocha, F., Eyiolorunshe, T., Idiegbeyan-Ose, J., Aregbesola, A., & Owolabi, S. (2019). Access to information as a veritable strategy for successful entrepreneurship in a developing country. *IOP Conference Series: Materials Science and Engineering*, 640(1), 012125. <https://doi.org/10.1088/1757-899X/640/1/012125>

38. Poddar, N., & Agarwal, D. (2019). A comparative study of application effectiveness between digital and social media marketing for sustainability of start-ups. *International Journal of Business Insights & Transformation*, 12(2). Retrieved from <https://www.ijbit.org/>
39. Prasanna, R. P. I. R., Jayasundara, J. M. S. B., Gamage, S. K. N., Ekanayake, E. M. S., Rajapakshe, P. S. K., & Abeyrathne, G. A. K. N. J. (2019). Sustainability of SMEs in the competition: A systemic review on technological challenges and SME performance. *Journal of Open Innovation: Technology, Market, and Complexity*, 5(4). <https://doi.org/10.3390/joitmc5040100>
40. Prihandono, D., Wijaya, A.P., & Afiffah Ainii, A. (2021). The role of competitive advantage to enhance marketing performance: A study on Indonesian MSME business community. *Jurnal Bisnis Dan Manajemen*, 22(2). <https://doi.org/10.24198/jbm.v22i2.882>
41. Qalati, S. A., Li, W., Ahmed, N., Mirani, M. A., & Khan, A. (2021). Examining the factors affecting sme performance: The mediating role of social media adoption. *Sustainability*, 13(1), Article 75. <https://doi.org/10.3390/su13010075>
42. Qalati, S. A., Ostic, D., Sulaiman, M. A. B. A., Gopang, A. A., & Khan, A. (2022). Social media and SMEs' performance in developing countries: Effects of technological-organizational-environmental factors on the adoption of social media. *SAGE Open*, 12(2). <https://doi.org/10.1177/21582440221094594>
43. Saeedi, S. A. W., Juwaidah, S., & Kelly, W. K. S. (2022). Intention to adopt Industry 4.0 technologies among small and medium enterprises in the Malaysian dairy manufacturing industry. *Food Research*, 6(2), 209-218. [https://doi.org/10.26656/fr.2017.6\(2\).211](https://doi.org/10.26656/fr.2017.6(2).211)
44. Silva, R. P., Mamede, H., & Santos, A. (2022). The role of digital marketing in increasing SMEs' competitiveness. *Proceedings of the 19th International Conference on Smart Business Technologies ICSBT*. Lisbon, Portugal. <https://doi.org/10.5220/0011118000003280>
45. Teng, X., Wu, Z., & Yang, F. (2022). Research on the relationship between digital transformation and performance of SMEs. *Sustainability*, 14(10), Article 6012. <https://doi.org/10.3390/su14106012>
46. Vrontis, D., Chaudhuri, R., & Chatterjee, S. (2022). Adoption of digital technologies by SMEs for sustainability and value creation: Moderating role of entrepreneurial orientation. *Sustainability*, 14(13), Article 7949. <https://doi.org/10.3390/su14137949>
47. Wahid, R. A., & Zulkifli, N. A. (2021). Factors affecting the adoption of digital transformation among SME's in Malaysia. *Journal of Information Technology Management*, 13(3), 126-140. <https://doi.org/10.22059/JITM.2021.83233>
48. Westerlund, M. (2020). Digitalization, internationalization and scaling of online SMEs. *Technology Innovation Management Review*, 10(4). <https://doi.org/10.22215/TIMREVIEW/1346>
49. Yang, T., Xun, J., & Chong, W. K. (2022). Complementary resources and SME firm performance: The role of external readiness and e-commerce functionality. *Industrial Management & Data Systems*, 122(4), 1128-1151. <https://doi.org/10.1108/IMDS-01-2022-0045>
50. Zhang, X., Xu, Y. Y., & Ma, L. (2023). Information technology investment and digital transformation: The roles of digital transformation strategy and top management. *Business Process Management Journal*, 29(2), 528-549. <https://doi.org/10.1108/BPMJ-06-2022-0254>
51. Zhang, X., Xu, Y., & Ma, L. (2022). Research on successful factors and influencing mechanism of the digital transformation in SMEs. *Sustainability*, 14(5), Article 2549. <https://doi.org/10.3390/su14052549>
52. Ziółkowska, M. J. (2021). Digital transformation and marketing activities in small and medium-sized enterprises. *Sustainability*, 13(5), Article 2512. <https://doi.org/10.3390/su13052512>