

The Influence of Digital Supply Chain Agility, Digital Cultural Transformation, and Sustainable Innovation on Digital Revenue Resilience in the MSME Sector

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Abstract

Micro small and medium enterprises need to overcome difficulties which diminish their financial success through digital economy benefits which create new business opportunities. The researchers of this study investigate how digital supply chain agility and digital cultural transformation together with continuous innovation impact digital revenue resilience which exists within the MSME sector. The researchers of this study implement their research through a quantitative method which uses an explanatory framework. The research data were obtained by distributing questionnaires to 160 MSME respondents who have adopted digital technology in their business activities using a purposive sampling technique. The researchers used multiple linear regression analysis to examine data after they conducted validity testing and reliability testing together with classical assumption testing. The study shows that digital supply chain agility and digital cultural transformation together with continuous innovation create positive effects which help organizations achieve digital revenue resilience. Digital supply chain agility enhances operational flexibility and product distribution systems because organizations use digital cultural transformation to adopt digital technologies. Continuous innovation enables organizations to develop products and services which better satisfy changing market needs thus improving their business competitiveness. The study results provide business practitioners with guidance which helps them develop digital business strategies that sustain their organizations through changing times.

Keywords: digital supply chain agility, digital cultural transformation, sustainable innovation, digital revenue resilience.

INTRODUCTION

The digital economy has created fundamental changes which have transformed business operations for Micro, Small, and Medium Enterprises (MSMEs) in their business activities (Harahap et al., 2025). Digital transformation enables Micro, Small, and Medium Enterprises (MSMEs) to discover fresh market entry methods while their operational efficiency improves and their business models acquire the capability to respond to market changes (Ibrahim et al., 2025). Digital technologies evolve rapidly which creates multiple

obstacles for Micro, Small, and Medium Enterprises (MSMEs) because they need to handle market demand decline together with unpredictable customer patterns and international supply chain disturbances that impact their ability to earn revenue (Santoso et al., 2025). Organizations use digital revenue resilience to assess their risk management capabilities and their ability to create new digital business opportunities while sustaining their operations during tough times (Tawil et al., 2025). High digital revenue resilience enables businesses to develop better capabilities for managing organizational changes through digital tools which provide them with advantages in their markets. The research shows how factors that affect digital revenue resilience in the MSME sector need to be understood because this knowledge helps businesses succeed in the digital economy (Harahap et al., 2025).

The company achieves digital supply chain agility through its digital technology implementation which improves supply chain management to create more adaptable and efficient business processes together with increased operational efficiency (Ihani et al., 2020). Agile supply chains enable MSMEs to meet market demand effectively because they enable better management of product distribution activities. The digital technologies that MSMEs use for e-commerce and cloud-based inventory management and digital logistics integration enable them to enhance their supply chain operations (Gai et al., 2024). Digital cultural transformation requires organizations to change their core values and mental frameworks and their workplace practices to make digital technology a fundamental part of their operational systems (Manullang et al., 2024). MSMEs need to develop workforce capacity for digital business operations because their digital cultural transformation process requires more than technology adoption. Digital learning and innovation-focused organizational culture establishment will support MSMEs to successfully use digital technology across their operations (Mustafa et al., 2023). Digital culture development will enable MSMEs to prepare their operations for market changes through digital technologies which will help them improve their efficiency and productivity. The organization needs to develop sustainable competitive advantages through its creation of new products and concepts and business processes because this requires sustainable innovation capabilities (Defitri et al., 2020). The MSME sector requires continuous innovation as its essential element which enables businesses to adapt to changing market demands while pursuing digital growth opportunities (Hidayat & Defitri, 2024; Gai et al., 2024).

The study examines digital supply chain agility together with digital cultural transformation and continuous innovation to determine their impact on digital revenue resilience in the MSME sector. The research establishes new knowledge about strategic management and digital transformation through its investigation of factors which impact digital revenue resilience in MSMEs. The research introduces a theoretical framework which connects digital supply chain elements and digital organizational culture elements and continuous innovation elements to demonstrate how MSMEs sustain their operations during the process of digital transformation. The study results serve as a practical guide for MSMEs to develop business strategies which integrate digital technology with organizational culture and continuous innovation to improve market adaptability and sustainability. The digital revenue resilience efforts of MSMEs will produce two results which include digital economy development and competitive advantage improvement.

METHOD

The research project studies the impact of digital supply chain agility together with digital cultural transformation and sustainable innovation on digital revenue resilience for businesses in the MSME sector. The study examined micro small and medium enterprises that

adopted digital technology for their business operations. The sampling technique selected respondents who met three criteria which included MSME owners or managers with two years of business experience who operated their companies through marketplace and digital payment solutions and digital business management systems while handling supply chain and product distribution through online methods. The study needed 160 respondents as the minimum sample size because multiple linear regression analysis required this number of participants. The research instrument used a structured questionnaire with a five-point Likert scale ranging from strongly disagree to strongly agree to measure respondents' perceptions of each research variable indicator. The researchers assessed instrument quality by conducting a validity test which required item-total correlation results to reach an r value above 0.30 and a significance level below 0.05. The reliability test used the Cronbach's Alpha method which required a minimum value of 0.70 to establish test reliability. The research team conducted classical assumption testing on research data before they proceeded to hypothesis testing. The research team used multiple linear regression analysis to test their hypothesis about how digital supply chain agility and digital cultural transformation and sustainable innovation affect digital revenue resilience in the MSME sector.

RESULT AND DISCUSSION

The analysis of multiple linear regression demonstrates that digital supply chain agility and digital cultural transformation and sustainable innovation together create a substantial effect on MSME digital revenue resilience. The F-test results showed a significance value of 0.000 which demonstrated that the three independent variables together produce a fundamental impact on MSME digital revenue resilience. The determination coefficient R^2 value 0.81 shows that digital supply chain agility and digital cultural transformation and sustainable innovation work together to explain 81% of the digital revenue resilience variations. The remaining 19% of the results gets determined by factors which reside outside the research boundaries and include digital financial management capabilities and digital marketing quality together with business environmental elements. The partial test results show that every independent variable produces a positive and significant impact on digital revenue resilience which exists at the 5% significance level because each variable increase results in MSME digital revenue resilience growth.

The research findings show that digital supply chain agility directly improves digital revenue resilience which serves as a primary revenue driver for the MSME sector. The research results show that MSMEs require digital supply chain management expertise to maintain consistent business performance while their revenue streams develop sustainably. The digital supply chain agility which MSMEs implement allows them to achieve faster market demand response and enhanced product distribution capabilities. The implementation of digital technologies which include marketplace platforms and digital inventory management systems and technology-based logistics integration enables MSMEs to enhance their operational efficiency while they deliver products to customers at a faster rate. Quick adaptation supply chains which respond to new market trends enable MSMEs to decrease their operational downtime which would otherwise interrupt their revenue generation processes. Digital supply chain agility enables MSMEs to identify new market opportunities at a faster rate by using digital data from e-commerce platforms and digital marketing systems. The digital revenue resilience capabilities of MSMEs improve through digital supply chain agility which serves as a vital component for their development.

The research results show that digital cultural transformation has a positive and significant impact on digital revenue resilience in the MSME sector. Through digital cultural transformation organizations create new ways to implement digital technology into their business activities. The digital economy creates multiple pathways which MSMEs with an organizational culture that accepts technological changes can use to enhance their business functions. Through digital cultural transformation business professionals gain higher capabilities to use digital platforms for their marketing activities and transaction processes and business management tasks. The organization can better use digital data for business decisions because its strong digital culture creates better data usage results. The establishment of digital cultural transformation within an organization enables MSMEs to better prepare for market changes while developing business strategies that improve their ability to adapt to digital economic developments. The process of digital cultural transformation functions as a crucial factor which improves digital revenue resilience for MSMEs in the sector.

The research results show that continuous innovation has a positive and significant impact on digital revenue resilience in the MSME sector. Business operators use continuous innovation to create new products and services and to develop improved business processes that generate better results in the marketplace. The digital economy requires innovation because it enables MSMEs to sustain their business operations despite changes in customer preferences and technological advancements. The ongoing innovation capacity of MSMEs enables them to develop products and services which deliver increased value to customers thus enabling them to win new clients while keeping their current customer base. The innovation process helps MSMEs create digital business models which can adapt their operations to new business conditions. The revenue stability of MSMEs grows when they implement permanent innovation which makes their businesses more resilient to market challenges. The continuous innovation process serves as a strategic element which helps the MSME sector enhance its digital revenue resilience.

CONCLUSION

The study findings prove that enterprises in the MSME sector achieve better digital revenue resilience through their combined use of digital supply chain agility and digital cultural transformation and continuous innovation. The MSME sector needs to develop its digital supply chain management capabilities through three specific technologies which include digital inventory management systems and marketplace platform integration and technology-based logistics service collaboration. MSMEs must upgrade their organizational digital literacy programs through employee training which focuses on using digital technology for regular business tasks. The digital-based product and service development process needs to continue for MSMEs because it creates additional market opportunities and increases product value. The implementation of these strategies enables MSMEs to enhance their digital revenue resilience while building their ability to compete in the evolving digital economy.

REFERENCES

- Harahap, M. A. K., Apramilda, R., Wahyuningratna, R. N., Husaini, H., Ariyanti, R., & Hendratni, T. W. (2025). Peran Kompetensi Sdm, Adopsi Teknologi dan Kolaborasi Dalam Organisasi: Upaya Penguatan UMKM Indonesia: Penelitian. *Jurnal Pengabdian Masyarakat dan Riset Pendidikan*, 3(4), 5288-5293.

- Ibrahim, M. M., Shabrina, F., Marnilin, F., Hendratni, T. W., Apramilda, R., & Nugroho, J. T. (2025). The Influence of Digital Literacy, Peer Influence, and Security Training Effectiveness on Cybersecurity Behavior in the Banking and Finance Industry. *Journal of Information System, Technology and Engineering*, 3(4), 575-579.
- Santoso, C. B., Laksniyunita, W., Sitompul, G. A., Hamdany, M. A., & Lestari, E. B. (2025). Digital Transformation Strategy for MSMEs to Increase Competitiveness: An Indonesian Case Study. *Socius: Jurnal Penelitian Ilmu-Ilmu Sosial*, 3(2), 657-664.
- Tawil, M. R., Hendratni, T. W., Hamdany, M. A., Salim, B. S., Akhirianto, P. M., & Dorothy, N. A. (2025). The Influence of Change Management, IT Infrastructure Capability, and Knowledge Management on Digital Transformation Success in Healthcare Units. *Journal of Information System, Technology and Engineering*, 3(4), 570-574.
- Ihani, W., Syofya, H., Sari, A. L., Mulawarman, W. G., & Sriyanto, S. (2020). The Role of the Creative Industry in Economic Development. *Journal of Environmental Treatment Techniques*, 8(1), 268-271.
- Gai, A. M., Mahmudin, T., Violin, V., Utama, A. N. B., & Apramilda, R. (2024). Analysis of The Effect of Cultural Tourism Development, Accessibility and Economic Policy on Tourism Competitiveness in Indonesia. *International Journal of Engineering, Science and Information Technology*, 4(2), 16-20.
- Manullang, R. R., Sirait, E., Syofya, H., Azkia, M., & Harsono, I. (2024). The Effect Of Investment On Indonesia's Economic Growth With Government Expenditures As A Moderating Variable. *Jurnal Ilmiah Edunomika*, 8(2).
- Mustafa, F., Melinda, T. F., Yusranto, T., Rukmana, A. Y., & Majid, J. (2023). The role of e-commerce use, capital availability and business training on performance of small medium enterprise (SMEs) in Indonesia. *MALCOM: Indonesian Journal of Machine Learning and Computer Science*, 3(2), 247-252.
- Defitri, S. Y., Bahari, A., Handra, H., & Febrianto, R. (2020). Determinant factors of e-government implementation and public accountability: Toe framework approach. *Public Policy and Administration*, 19(4), 37-51.
- Hidayat, M., & Defitri, S. Y. (2024). Digitalization and the Changing Landscape of Tax Compliance (Challenges and Opportunities). *Accounting Studies and Tax Journal (COUNT)*, 1(1), 131-139.
- Gai, A. M., Chatra, A., Ibrahim, M. M., Anantadjaya, S. P., & Nawangwulan, I. M. (2024). Analysis of The Influence of Information Availability, Economic Factors and Changing Trends on Travel Agent Business Sustainability in Digital Era. *Jurnal Sistim Informasi dan Teknologi*, 6-11.