



The Role of Digital Technology in Driving Sustainable Growth for SMEs

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Abstract

In the ever-evolving digital age, digital technologies have played a crucial role in facilitating sustainable growth in small and medium-sized enterprises (SMEs). This article aims to explore how digital technologies, including management software, e-commerce platforms, and data analytics tools, can be used to improve operational efficiency, expand markets, and promote sustainable business practices in SMEs. Using a comprehensive literature approach, we review various case studies and current research that illustrate the implementation of digital technologies in the context of SMEs. Our findings show that digital technologies not only enable SMEs to reduce operational costs and improve competitiveness, but also support the development of greener practices through more efficient resource management and waste reduction. In addition, the adoption of digital technologies has the potential to increase transparency and accountability in the supply chain, which is key to achieving sustainable growth goals. The article also discusses the challenges SMEs face in implementing digital technologies, including resource limitations and skills shortages, and provides strategic recommendations for making optimal use of digital technologies. In conclusion, digital technology serves as a significant enabler for sustainable growth in SMEs, but successful adoption requires strategic support and proper training to overcome existing barriers.

Keywords: digital technology, SMEs, sustainable growth, operational efficiency, e-commerce, data analytics

INTRODUCTION

MSMEs contribute to the national economy not only by encouraging the expansion of large companies but also by providing products and services that cannot be efficiently provided by large companies due to cost constraints (Reza Aulia, 2020). They must innovate and promote their products in the world market (Hamdan, 2021). Proficiency in technology, especially in the context of Industry 4.0, is crucial for MSMEs to improve their competitiveness (Afdal et al., 2021; Hamdan, 2021). However, MSMEs often show a lack of readiness to react quickly to technological advancements (Afdal et al., 2021). The sustainability of MSMEs is linked to their capacity to innovate (Endris & Kassegn, 2022).

Small and medium-sized enterprises (SMEs) have a significant impact on the economies of developed and developing countries (Aulia, 2023). The success of MSMEs in competitive markets depends on their capacity to innovate, particularly in the areas of technology and pricing (Afdal et al., 2021). Micro, Small, and Medium Enterprises (MSMEs) have been recognized as playing an important role in achieving the Sustainable Development Goals (SDGs) (Sobir, 2018). Innovative business concepts and solutions from MSMEs can facilitate the achievement of the Sustainable Development Goals (SDGs). The private sector, including MSMEs, has the potential to function in a more sustainable and ethical manner, thereby creating new economic prospects (Sobir, 2018). Micro, Small, and Medium Enterprises (MSMEs) have various problems that impact their sustainability, such as limited access to financial resources, inadequate infrastructure assistance, inadequate marketing facilities, and financial difficulties. For survival and growth, MSMEs must adhere to quality standards, utilize technology, offer competitive prices, innovate, and engage in worldwide marketing. Proficiency in technology, particularly in the context of Industry 4.0, is critical for MSMEs to improve competitiveness.

The rapid advancement of technology globally is a huge potential that needs to be considered and explored. Companies in small and medium industries are forced to change their direction to encourage technological innovation, so that they become more modern, sophisticated, and able to adapt to contemporary market demands that prioritize efficiency and effectiveness. (Sugiarto Hartono, S.Kom., 2017). Technological barriers have a significant impact on product modification and quality (Ritzén & Sandström, 2017). Research by Jones et al. (2017) identifies issues that industry may face in contributing to

and providing insight into the role of technology in facilitating the transition to a more sustainable future for humanity.

A significant barrier is the absence of available, sufficient and low-cost funding, which hinders development, productivity gains, competitiveness and investment in innovation, including the ability to adopt digital solutions (Santoso, 2020). A further difficulty is the absence of environmental laws and regulations that encourage sustainable activities (Satapathy & Mishra, 2022). Microenterprises, Small, and Medium Enterprises (MSMEs) must adhere to quality standards, utilize technology, and offer competitive prices to ensure their survival and growth (Fachrunnisa et al., 2020). Proficiency in technology, particularly in the context of Industry 4.0, will positively impact the sustainability of MSMEs (Bello Manjarrez, 2020; Herawati et al., 2019). However, MSMEs consistently show a reduced ability to adapt quickly to current technological advancements. Business sustainability is intrinsically linked to the ability to innovate. The efficacy of MSMEs in the competitive landscape depends largely on their capacity to innovate and adapt to evolving market conditions (RupeikaApoga & Petrovska, 2022).

In addition, MSMEs face challenges in implementing sustainable digital transformation, which are categorized into three levels of significance: organizational, environmental, and technological (Matt & Rauch, 2020). The main barriers relate to organizational characteristics, including lack of digital skills and expertise, resistance to change, and insufficient leadership support (Reis et al., 2018). Environmental issues, including inadequate infrastructure and resources, are barriers to sustainable digital transformation (Saputri & Utami, 2023; Wójcik-Karpacz et al., 2021). Technological issues, including limited access to technology and high implementation costs, are major barriers. Micro, Small, and Medium Enterprises must re-evaluate their decision-making processes and implement technology in a significant and sustainable way to overcome these challenges (Afdal et al., 2021).

Technology contributes significantly to the sustainability of MSMEs. Micro, Small, and Medium Enterprises (MSMEs) must adhere to quality standards, use advanced technology, and offer competitive prices to thrive and advance, especially in the context of Industry 4.0 (Afdal et al., 2021). Investing in and encouraging the sustainability of MSMEs can lead to great progress towards a profitable economy. A significant barrier for MSMEs is the scarcity of available, adequate, and reasonable funding, which hinders their ability to invest in innovation and apply technology effectively and sustainably (Endris & Kassegn, 2022; Wu et al., 2018).

Technological proficiency, particularly in the context of Industry 4.0, will improve the

performance of MSMEs in the competitive landscape. Lack of access to technology and lack of innovation are problems faced by MSMEs in achieving sustainability (Afdal et al., 2021). Digital transformation is a process that changes the dynamics of business operations and their interactions with consumers, suppliers, and employees. Sustainable digital transformation can help MSMEs achieve their sustainability goals (Rupeika-Apoga & Petrovska, 2022). However, MSMEs must re-evaluate their decision-making processes and implement technology in a significant and sustainable manner. The application of Industry 4.0 technology can improve the sustainability of MSMEs in the service industry. Micro, Small, and Medium Enterprises (MSMEs) must adopt Industry 4.0 technology. Technology to maintain global competitiveness and achieve sustainability (Pandya & Kumar, 2023).

Yuwana's research (2020) shows that the implementation of digital marketing and transactions has a positive impact on the sustainability of MSMEs, allowing them to market globally through digital/internet technology to optimize sales and profits (Basry and Sari, 2018). Micro, Small, and Medium Enterprises (MSMEs) are an integral part of economic development in Indonesia. Sometimes, data on the originality and distinctiveness of various products show great progress, requiring the application of unique techniques to remain competitive in the global market (Zainurrafiqi and Rachmawati, 2019). In order to remain competitive, MSME players must innovate, display the distinctiveness of their products, and improve technology in accordance with commercial advances. E-commerce and social media are technologies that are considered capable of increasing sales and business-related information. E-commerce, social media, online transportation, online retail, and other internet-based companies are the driving force of the digital economy in Southeast Asia (Databooks, 2019b).

Finland's National Innovation Strategy states that the need for innovation arises from 'globalization, sustainable development, new technologies, and demographic changes in the population' (Lehto, Kairisto-Mertanene, & Penttilä, 2011). Entrepreneurship that utilizes digital technology, such as online MSMEs, is increasingly prominent due to the shift in consumer behavior due to the Covid-19 pandemic. A shift in consumption behavior from offline to online, increased use of digital technology, and an increase in traffic of about 15-20% have been seen. e-learning, e-commerce, digital integration, increased demand for delivery services, and a growing need for health and hygiene equipment.

The advantages of implementing business-oriented digital technology are as

follows:

1) Reduces costs, 2) Increased adaptability, 3) Minimized inaccuracies, 4). Accelerated response time, 5). Optimizing labor costs in marketing (Afolayan et al., 2015), and the main advantage of online trading is the facilitation of consumer interaction (Haryanto, 2014). Therefore, to effectively improve the performance of MSMEs, stakeholders must utilize and regularly update digital technology in their business activities.

The application of digital technology, especially for MSMEs, can facilitate the required growth of 2%. The progress of a nation's economy cannot be separated from the various efforts made by its people, especially those made by Micro, Small and Medium Enterprises. In 2018, the MSME profile showed around 63 million micro businesses (98.68%), 783 thousand small businesses (1.22%), 60 thousand medium-sized businesses (0.09%), and 5,000 large enterprises (0.01%). (Ministry of Cooperatives and SMEs, 2019).

Digital transformation is essential for MSMEs to respond to external disruptions and achieve long-term sustainability (Rupeika-Apoga & Petrovska, 2022). The importance of digital transformation for business viability and sustainability has been emphasized, which requires MSMEs to access new markets and apply technology in a way that is sustainable (Rupeika-Apoga & Petrovovka, 2022). meaningful and sustainable (Kilay et al., 2022). Sustainable digital transformation can help MSMEs overcome barriers to entry, including limited access to funding and markets, allowing them to reach new clients and markets (Respatiningsih, 2021).

Therefore, research is essential to ascertain the influence of digital technology in driving sustainable growth in MSMEs, given the importance of digital technology worldwide and its function as the backbone of the economy. This research aims to uncover the barriers MSMEs face in achieving sustainability and explain how digital transformation and entrepreneurship can facilitate growth and development in Indonesia.

LITERATURE REVIEW

MSMEs Development

Micro, Small, and Medium Enterprises (MSMEs) in Indonesia are critical to economic development, job creation, and income equality. Maurina and Rusdianto, 2023; Novitasari, 2023;

Prasetyo and Ellitan, 2023; Triyani et al., 2023. Micro, Small and Medium Enterprises (MSMEs) have shown resilience during the crisis and play an important role in poverty alleviation and promoting social inclusion (Jalunggono et al., 2022). Despite facing constraints such as limited capital, MSMEs contribute greatly to the national economy. Government assistance is critical to their progress, especially in underdeveloped areas. The flexibility and responsiveness of MSMEs allow them to capitalize on opportunities and respond to changes in consumer demand, encouraging entrepreneurship and innovation. MSMEs contribute significantly to Indonesia's economic environment by fostering economic diversification, increasing productivity and promoting sustainable development.

Digital Transformation in MSMEs

The importance of digital transformation to ensure firm survival has been emphasized, and MSMEs must access new markets and apply technology in a meaningful and sustainable way (Kilay et al., 2022). Sustainable digital transformation can help MSMEs overcome entry barriers, including lack of financial resources and market access, while enabling them to interact with new clients and markets (Rupeika-Apoga & Petrovska, 2022). Digital transformation entails the use of digital technologies across all aspects of an organization, resulting in major changes in operational processes and the delivery of value to customers. Digital transformation offers many potentials for MSMEs, such as increased efficiency, improved market access, and increased consumer engagement (Ancillai et al., 2019; Bala & Verma, 2018; Singh et al., 2018). Research (Amri et al., 2020; Kurniawan et al., 2023; Wulandari et al., 2020) investigated the effect of digital technology adoption on MSME performance in Indonesia. The results showed that the application of digital technology has a positive effect on the performance of MSMEs, thereby increasing sales and improving the performance of MSMEs. improve customer satisfaction. However, the study identified that MSMEs face many obstacles in utilizing digital technology, such as a lack of knowledge and skills, limited access to financing, and insufficient government support.

MSME Sustainability

Sustainability indicates the capacity of a business to maintain its activities and fulfill its financial commitments over a long period of time. Sustainability is critical to the

economic development and job creation of MSMEs (Endris & Kassegn, 2022; Jatmiko et al., 2021; Kurniawan et al., 2023; Santoso, 2020; Tekola & Gidey, 2019). Nonetheless, MSMEs in Indonesia face many obstacles in achieving sustainability, such as limited access to financing, inadequate technology adoption, and reduced production. Digital transformation, digital dividends, and entrepreneurship can significantly contribute to the sustainability of MSMEs in Indonesia. Adoption of digital technology can increase productivity, improve competitiveness, and increase market access. Digital benefits, including improved financial performance, can help improve the sustainability of MSMEs. Entrepreneurship enables MSMEs to recognize and take advantage of new opportunities, resulting in sustainable growth.

RESEARCH METHODOLOGY

In writing this article, using the literature review method as data collection using google scholar with the keyword "*The Role of Digital Technology in Driving Sustainable Growth for SMEs*" and brings up around 12,700 articles for a span of 5 years. In addition, another keyword is "Digital Transformation for Sustainable SMEs" which brings up 16,900 articles with the same time span from 2019 to 2024. After selection, 55 articles were obtained with a composition of 6 local articles and 49 international articles.

The author reviews, sorts, and searches for articles / literature sources that will be a reference according to the topic, namely the Role of Digital Technology in Driving Sustainable Growth for SMEs. This literature uses qualitative, quantitative, and mixed method approaches. The author's strategy to obtain articles that are in accordance with the topic is to add quotes (") to the search so that the articles obtained are in accordance with the topic. In addition, the author also explores international articles to provide new sources of literacy and references.

RESULT AND DISCUSSION

The Role of Digital Technology and Digitization

Based on the analysis of the previous literature review, digital technology and digitalization have an important role in strengthening business strategy and improving MSME performance.

Digital technologies, including the adoption of AI and SCM, can mediate the influence of business strategy on innovation performance. Digital technologies also enable MSMEs to break down organizational boundaries and drive sustainable innovation activities. Digital technology (e-commerce and social media) are two variables that collaborate to become intermediaries (mediation) in order to be able to compete in the global market, the results of this study are supported by research conducted (Raymond and Bergeron, 2008), (Kim et al., 2017), (Khin and Ho, 2018), (Valdez Juárez et al., 2018), because MSME players can do online marketing.

In addition, Digitalization helps SMEs to improve their operational capabilities by automating business processes, improving communication with customers, and integrating data from various sources for better decision-making. This enables SMEs to operate more efficiently and respond quickly to market changes.

In research (Basuki & Suwarno, 2021) provides findings showing that digital technology partially mediates business strategy on MSME performance. Digital technology is an intermediary variable that is able to compete in the global market, because MSME players can do online marketing, so that their products are recognized and can increase sales.

In the study (Ozturk et al., 2024), the results showed that digitalization and MSME development provide a win-win situation and can reduce climate change in the long run and become more environmentally sustainable.

Digital Transformation as Key to Sustainability

Digitalization facilitates innovation and flexibility in MSME operations, allowing small businesses to adapt quickly to market changes and crises. Digital transformation must include various dimensions such as organizational culture, leadership, digital skills, and digital technology itself. The innovations that MSMEs can make through digital transformation will improve the financial performance and non-financial performance of MSMEs both in the short and long term. Long-term healthy financial performance can certainly increase the stability and sustainability of MSMEs.

The use of digital technology expands innovation capabilities by enabling a more open approach to product development. SMEs can utilize customer feedback data, market trends, and competitor analysis to update their business and product strategies.

In the study (Skare et al., 2023), the results found that digital transformation strengthens the ability and flexibility of SMEs to address key business issues. Furthermore, the findings revealed that digitally transformed SMEs have fewer concerns about access to new and traditional customers, changes in competition, access to finance, rising input costs, external shocks, and regulatory changes.

In (Jing et al., 2023), the results show that digital exploitation capabilities are positively related to market-driven business model innovation, while digital exploration capabilities are positively related to market-driven business model innovation. In particular, business model innovation plays a fully mediating role in the process of digital ambidextrous capabilities that enhance transformation performance. This research sheds new light on the current debate around SMEs' digital transformation and will be instructive for both academics and business managers.

Crisis Impact and Digital Transformation

Digital transformation in MSMEs has started since 2000, but crises such as the Covid - 19 pandemic have provided new challenges that the digitization process is accelerating. This rapid change must be adjusted by MSMEs so that their businesses continue to be adaptive and relevant to the times. The choice to follow the development of digital transformation is a must for MSMEs to maintain their own business continuity. The use of digital technology significantly enhances the innovation capabilities of SMEs. Social media, analytics tools, and data management software enable SMEs to gather customer feedback, optimize production processes, and develop new products that better suit market needs.

In the study (Borah et al., 2022), the results show that the use of social media has a positive and significant direct effect on innovation capabilities and sustainable MSME performance and innovation capabilities also have a positive and significant direct impact on sustainable SME performance. In addition, the research findings also revealed that the use of social media can improve the sustainable performance of MSMEs if mediated by innovation capabilities and moderated by digital leadership.

The study (Zimmermann et al., 2024) supports the assumption that the use of digital technology in processes related to supply chain management has a positive effect on the innovation performance of MSMEs.

Positive Impact on Sustainability and Growth

Digital technology makes a positive contribution to the sustainability of SME businesses, especially in overcoming challenges caused by external crises such as the COVID-19 pandemic. Digitization initiatives allow businesses to keep operating at lower costs and increase productivity through automation. Moreover, the adoption of digitization-enabled green technologies also helps SMEs to meet environmental sustainability standards. Adoption of green technology practices such as energy efficiency and carbon emission reduction is driven by digital technology, which also improves market competitiveness.

However, according to research (Aulia et al., 2023), digital transformation and entrepreneurship were found to play an important role in driving sustainability by enabling MSMEs to streamline their operations, access new markets, and adapt to changing market conditions. On the other hand, MSMEs also have barriers such as access to finance, access to markets, government policies and regulations and human resources which are important factors affecting the sustainability of MSMEs.

In the study (He & Sun, 2023) the results show that (1) SMEs can build a digital platform to break down organizational boundaries, which allows external stakeholders such as customers and suppliers to directly participate in innovation activities and utilize data to directly drive innovation activities. Such SMEs usually adopt disruptive innovation. (2) SMEs can expand and deepen their product expertise by collecting and analyzing data from customer feedback and data generated during production, and eliminate data silos between departments through data flow, thereby achieving incremental improvements to products or services.

In research (Alfarizi et al., 2024), the digital SME mindset needs to be developed by making small businesses global. The integration of Big Data and IoT in SME businesses solves all business problems and builds an innovative business culture, empowering SME employees to use technology. Internal challenges of business units can be overcome with strategic efforts and utilize external roles in building a sustainable SME digital business.

CONCLUSION

Based on the exposure to literature research above, it can be concluded that technology and digitalization play a very important role in advancing MSMEs both in the short and long term. The utilization of technology by MSMEs can include both the upstream side such as production to the marketing process / product introduction to customers. The health performance of MSMEs itself can be seen from the performance contained in the financial statements. If the financial performance of MSMEs is healthy, then in the longterm, MSMEs have the ability to survive, stabilize, and sustain.

However, each MSME has obstacles in applying its technology according to its respective industrial fields and capabilities. Adaptive ability in adjusting technology so that businesses remain relevant to the times. In addition, the government is also expected to continue to support the empowerment and development of MSMEs.

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