



Digital Innovation Based Business Development Strategies for MSMEs in the Industry 4.0 Era

Nisa Ardiansyah, Raihana Zahra Aurellia*, Wahyu Anatasya, Petra Carrolline Putri S, Haris Al Hakim, Rusdi Hidayat N

Business Administration Program, Universitas Pembangunan Nasional "Veteran" Jawa Timur, Indonesia

DOI: <https://doi.org/10.47134/umkm.v2i1.780>

*Correspondence: Raihana Zahra Aurellia

Email: 23042010251@student.upnjatim.ac.id

Received: 21-06-2025

Accepted: 28-06-2025

Published: 31-07-2025



Copyright: © 2025 by the authors. Submitted for open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

Abstract: While small and medium-sized enterprises (MSMEs) are at the core of the nation's economy, they still face a number of challenges when expanding, especially during the Industrial Revolution 4.0, which requires them to adapt to digital technology. Small and medium-sized businesses (MSMEs) have a great opportunity to increase competition, operating efficiency, and market reach through digital innovation. In this article, we will discuss various ways to grow MSME businesses using digital innovations such as e-commerce, digital payment systems, the use of social media, and business process automation. This review was conducted through a qualitative descriptive literature study method. The results show that strategically and sustainably applying digital innovations can scale up MSME businesses and increase their resilience to external shocks. However, this progress must be accompanied by policies that support MSMEs, improved digital literacy, and infrastructure support. This article provides conceptual and practical contributions for MSME actors, government, and academics in designing adaptive and sustainable business development models in the digital era.

Keywords: MSMEs, Digital Innovation, Business Development Strategy, Industry 4.0, Digital Transformation

Introduction

Micro, small, and medium-sized enterprises (MSMEs) play an important role in the Indonesian economy as they contribute to GDP and create jobs and economic equity. More than 64 million small and medium-sized enterprises (MSMEs) operate in Indonesia, contributing more than 97% of the national workforce, according to data from the Ministry of Cooperatives and SMEs (2022). However, behind this important role, MSMEs also face many problems when growing their business. These include a lack of digital adoption, capitalization, market access, and technology. In the era of the Industrial Revolution 4.0, these issues are increasingly evident. Small and medium-sized enterprises (MSMEs) must be able to adapt to digitalization and technological advancements.

In the era of the Fourth Industrial Revolution (Industry 4.0), digital technology has revolutionized the way businesses operate, interact with customers, manage supply chains, and innovate. Technologies such as e-commerce, digital payment systems, cloud computing, and social media platforms offer MSMEs a range of opportunities to improve

efficiency, reduce costs, expand market reach, and personalize customer experiences. These tools allow small businesses to overcome traditional constraints such as limited physical reach, high marketing costs, and inefficient manual operations. Digital innovation is no longer optional—it has become a necessity for survival and competitiveness.

Yet, the rate of digital adoption among MSMEs in Indonesia remains suboptimal. A study by Google and Temasek (2021) reveals that only about 24% of Indonesian MSMEs have embraced digital transformation comprehensively. Key challenges include a lack of digital literacy, limited access to reliable internet infrastructure, constrained financial resources for technology investment, and resistance to organizational change. These issues are especially prevalent among micro and small enterprises operating in less developed regions. As a result, there is a growing digital divide between tech savvy MSMEs and those left behind. If not addressed strategically, this divide could lead to unequal economic growth and marginalization of traditional businesses.

To bridge this gap and foster inclusive digital progress, MSMEs must adopt digital innovation not merely as a technical upgrade, but as a holistic business development strategy. This requires aligning digital tools with operational goals, enhancing internal capabilities, and building sustainable customer relationships through digital channels. It also requires understanding local business environments and tailoring solutions that suit the specific needs and readiness levels of each enterprise.

A compelling case in this regard is Kedai Kopi Sekawan, a local MSME based in Surabaya, East Java. This coffee shop has shown a thoughtful and adaptive approach to integrating digital innovation into its business model. Positioned near several universities, Kedai Kopi Sekawan actively utilizes Instagram and TikTok to engage with its core customer base college students and young professionals. The business combines traditional culinary offerings with modern branding and marketing techniques, utilizing customer feedback from online platforms to continuously refine its products and services. The owner has also demonstrated agility by adjusting business hours based on academic schedules and maintaining strong team collaboration through internal evaluations. These strategies reflect not only technical adoption, but also a deep understanding of the socio economic environment and customer behavior.

The experience of Kedai Kopi Sekawan illustrates how digital innovation can serve as a strategic lever for MSMEs to grow, sustain operations, and remain competitive in the digital economy. However, questions remain about the effectiveness and replicability of such practices in other contexts. This study aims to analyze how digital innovation is implemented as a business development strategy at Kedai Kopi Sekawan and to evaluate its impact on the MSME's overall performance in the Industry 4.0 era. The insights derived from this case study are expected to inform broader MSME development strategies in

Indonesia and provide practical guidance for other small businesses seeking to embrace digital transformation.

This research aims to 1) examine the role of digital innovation in driving the growth and competitiveness of MSMEs in the digital era; 2) identify digital technology based business development strategies that can be implemented by MSMEs; 3) analyze internal and external factors that influence the successful implementation of digital innovation in the development of MSMEs; 4) analyze the implementation of digital innovation as a business development strategy at Kedai Kopi Sekawan and to evaluate its impact on the MSME's performance in the Industry 4.0 era.

Literature Review

A. Definition of MSMEs and their Role in the Economy

Micro, small, and medium enterprises (MSMEs) are a distinct type of business in that they have a typically simple yet customizable scale of operation, ownership, and management structure. According to Law of the Republic of Indonesia No. 20 Year 2008, micro, small, and medium enterprises (MSMEs) are classified based on their total assets and annual revenue; Micro Enterprises can have a net worth of up to IDR 50 million; and Small Enterprises can have a net worth of up to IDR 500 million. In reality, MSMEs can be found in almost all areas of the economy, from trade, services, small scale manufacturing, agriculture, to folk crafts. Small and medium-sized businesses (MSMEs) are crucial for creating jobs, reducing social disparities, and strengthening the domestic economic base that is resilient to global crises. According to the Ministry of Cooperatives and SMEs (2022), MSMEs are at the core of inclusive and equitable national economic development, contributing more than 61% to Gross Domestic Product (GDP) and absorbing around 97% of the national workforce.

Despite making a significant contribution, MSMEs still face a number of structural issues that hinder their progress. These include lack of access to formal financing, lack of management skills, and lack of access to market technology and information. Many MSMEs remain stagnant at the micro scale as they struggle to scale up to higher levels of business. One important aspect of concern today is the inability to adjust to advances in digital technology. Digital technology can help MSMEs expand their market reach, improve operational efficiency, and strengthen their competitiveness. In today's digital era, MSMEs must be able to compete with big businesses and imported products that are more easily accessible through online platforms. Therefore, to ensure that MSMEs are not left behind and are able to optimally contribute to the national digital economy, it is crucial to strengthen digital based business development strategies.

In addition, MSMEs have strategic benefits in terms of cultural preservation and local economic empowerment through local products such as culinary, handicrafts and creative industries. When facilitated with the right business development strategies, many community based MSMEs have the potential to develop into excellent local brands. However, due to the lack of a sustainable coaching system, lack of technological knowledge, and lack of linkages between MSMEs and the national digital ecosystem, this potential is often not well realized. Therefore, institutional strengthening and digital based strategic planning are needed. This aims to increase the income of small and medium enterprises (MSMEs) and improve Indonesia's overall economic resilience.

B. Digital Innovation and its Relevance for MSMEs

The use of ICT to add value to business processes that improve efficiency, speed and customer experience. This is known as digital innovation. Digital innovation in small and medium industries (MSMEs) includes not only the use of computers or the internet, but also entire systems that enable businesses to change the way they sell, produce, manage finances, and build relationships with customers. Now, technologies such as e-commerce, digital payments, social media, and accounting software are critical components in improving the capabilities of small businesses. According to research conducted by Vial (2019), digital transformation allows small firms to access market opportunities that were previously only accessible to large companies. Digitalization allows MSMEs to improve operational efficiency, expand markets without building physical branches, and enhance their brand reputation online.

In the midst of changing consumer behavior and market dynamics driven by the Industrial Revolution 4.0, digital innovation for MSMEs is becoming increasingly important. Modern consumers tend to search for goods through the internet, compare prices, and choose practical and fast transactions through digital systems. Therefore, MSMEs must have the ability to adapt their business models to meet the needs of digital consumers. In addition, digital technology helps with more accurate inventory management, transaction recording, and financial reporting. Ultimately, it helps small and medium enterprises (MSMEs) establish more professional governance. Digital innovation can help MSMEs upgrade and become part of a more competitive global supply chain in the long run. However, the success of this integration largely depends on the technological readiness, digital literacy, and commitment of the MSME players themselves.

Beyond operational improvements, digital innovation also empowers MSMEs to engage in value co-creation with customers, enabling more personalized experiences and responsive product development. Through interactive platforms, customer feedback, and real time analytics, MSMEs can better understand evolving consumer expectations and

tailor their offerings accordingly. This participatory dynamic not only enhances customer satisfaction but also strengthens brand loyalty and fosters innovation cycles driven by direct market insights. Thus, digital innovation is not only a technical upgrade, but also a strategic enabler of more collaborative and customer centric business practices.

Instead, MSMEs can utilize digital innovations to solve conventional limitations that have been hindering their progress. For example, social media based marketing or online marketplaces can overcome the limitations of local market access, allowing products to be sold out of town and even overseas. In addition, the use of free or low cost platforms allows MSMEs to still appear professional. In fact, according to a study conducted by Google, Temasek, and Bain (2021), digitized MSMEs have the ability to drive Indonesia's digital economic growth to US\$124 billion by 2025. As a result, MSMEs that do not immediately adopt digital innovation risk falling behind their competitors and losing relevance in an increasingly digitalized market.

C. Digital Business Development Strategy

For MSMEs, a digital business development strategy is a systematic effort to incorporate digital technology into the business model to accelerate business growth, improve efficiency and expand market access. The strategy involves transforming the entire business process, not just creating a social media account or joining a trading platform. This includes the digitization of marketing, the use of financial and inventory management applications, and the use of digital based customer relationship management (CRM) systems to improve customer retention. Kotler et al. (2021) state that technology should be used to understand and serve customers in a smarter, faster, and more personalized way. In practice, MSMEs must first determine their business positioning, define their digitization goals, and then select technologies that match their capacity.

Digital marketing through social media such as Instagram, TikTok, and Facebook is one of the digital strategies that many MSMEs use. It allows them to build brand awareness quickly and cheaply. Using Telegram or WhatsApp Business to communicate with customers also speeds up the ordering and service process. Many MSMEs are now using e-commerce platforms such as Shopee, Tokopedia, and Bukalapak to manage logistics and increase their reach. To simplify financial recording, use cloud based accounting applications such as Mekari, BukuKas, or Jurnal. If implemented in a planned and consistent manner, these strategies will have a positive impact on revenue growth and the professionalism of MSMEs in managing businesses. However, MSMEs must not only imitate, but also understand the right strategies for their business.

In addition, regular measurement and evaluation of digital performance should support the MSME's digital development plan to direct the adaptation process. MSMEs can

use KPIs, or key performance indicators, such as the number of online store visitors, sales conversions, social media content engagement, and customer retention rates. By using a simple yet informative analytics dashboard, businesses can make more data driven decisions rather than just based on intuition. In addition, an effective digital strategy requires collaboration with fellow MSME businesses and technology platforms that provide training and technical support services. This method allows MSMEs to not only passively use technology, but also actively participate in building a productive and sustainable digital business ecosystem.

Table 1. Summary of Relevant Literature

No	Source (Title & Author)	Focus of Study	Relevance to This Study
1.	Marketing 5.0: Technology for Humanity – Kotler et al. (2021)	Integration of digital technology in marketing and customer engagement	Provides foundational insight into digital marketing strategies for MSMEs
2.	Business Model Generation – Osterwalder & Pigneur (2020)	Business Model Canvas framework for value creation and innovation	Supports the analysis of MSME business structure through BMC
3.	Understanding Digital Transformation – Vial (2019)	Role of digital transformation in improving business processes and performance	Clarifies the strategic role of digital innovation in MSME development
4.	e-Conomy SEA 2021 – Google, Temasek, Bain & Company (2021)	Southeast Asia's digital economy growth and MSME engagement	Shows that digital MSMEs can achieve 72% sales growth via marketplace participation

D. Challenges and Barriers to MSME Digitalization

While digitization opens up many opportunities for the growth of MSMEs, this transformation faces many significant problems and structural barriers. One of the main barriers is the lack of digital literacy among micro and rural businesses. Many start up businesses do not know how to use simple applications such as e-commerce, social media platforms, or simple bookkeeping software. Most small and medium enterprises (MSMEs) still use manual methods to keep records of transactions and conduct word of mouth marketing. More than 60% of MSMEs in developing countries are not ready for digital transformation, according to a World Bank study (2023) because they lack an understanding of the benefits and how digital technology works for their business. This causes the digitization process to often stall at an early stage because businesses don't know where to start.

Limited technology infrastructure is another challenge, especially in outer urban areas that are not yet fully covered by stable internet networks and adequate digital devices. It is difficult for small and medium-sized enterprises (MSMEs) to participate effectively in the digital economy if they do not have access to fast and cheap internet. In addition, there are

limited funds to purchase the necessary app subscriptions, laptops or smartphones. Digitalization is considered an additional cost rather than a long term investment by many MSMEs as they do not have much money. These barriers are compounded by the lack of ongoing mentoring programs and technical training from both the government and the private sector. As a result, despite the desire for change, the use of digital strategies does not go well or even fails completely.

In addition to internal factors and infrastructure, another challenge is the lack of policy integration between central and local governments in supporting the acceleration of MSME digitalization. Many digitization training or assistance programs are still one way and do not meet the specific needs of MSME players. The absence of implementation standards, success measurement, and sustainable incentive systems also causes many digitalization initiatives to stall. According to the Indonesian Chamber of Commerce and Industry (KADIN, 2023), digitization programs without needs mapping and evaluation tend to produce short term results without long term effects. Therefore, digital based development plans for MSMEs must be accompanied by a systemic approach: human resource capacity building, infrastructure improvement, fiscal incentives, and multi stakeholder collaboration. This must be done so that digital transformation truly becomes a solution, not just a discussion.

E. Digital Innovation as a Business Development Strategy for MSMEs

In the context of Industry 4.0, digital innovation is widely recognized as a fundamental driver of business transformation, particularly for micro, small, and medium sized enterprises (MSMEs). Digital innovation refers to the use of digital technologies to create new or improve existing business processes, products, and services with the goal of enhancing performance and delivering greater value to customers (Vial, 2019). For MSMEs, digital innovation enables businesses to overcome traditional limitations in scale, visibility, and customer engagement by leveraging tools such as e-commerce platforms, digital payments, social media marketing, and cloud based applications.

Unlike large corporations that typically have access to more resources and technological infrastructure, MSMEs are often required to adopt more flexible and low cost digital strategies. This means integrating digital tools into daily operations in ways that are efficient, scalable, and sustainable. Scholars such as Bharadwaj et al. (2013) argue that digital business strategy is not merely about technology adoption, but about aligning digital capabilities with business goals to create competitive advantages. For MSMEs, this may include shifting marketing efforts to social media platforms, utilizing customer feedback to refine product offerings, or adopting basic point of sale systems to improve transaction processes.

Kedai Kopi Sekawan serves as a practical example of how digital innovation can be implemented as a core strategy for business development in the MSME sector. Located near a student community in Surabaya, the café uses platforms like Instagram and TikTok not only for promotional content but also for building customer relationships through interaction and feedback. By collaborating with local influencers and adopting a youth focused branding strategy, the business successfully taps into the digital behavior of its target market. In this case, digital innovation is not viewed as a separate function but as an integrated component of the overall business model that supports customer engagement, operational planning, and brand positioning.

Moreover, digital innovation allows MSMEs to remain agile in responding to market shifts and consumer trends. By embracing digital channels, Kedai Kopi Sekawan can adjust marketing campaigns in real time, manage operational schedules according to academic calendars, and maintain product quality with digital inventory tools. These practices highlight how MSMEs can transition from reactive problem solving to proactive strategy building through digital means. Thus, analyzing the digital innovation strategies applied in such businesses provides valuable insights into how small enterprises can develop and sustain growth in the Industry 4.0 era.

Methodology

This research uses a descriptive qualitative approach to describe the phenomenon of MSME business development through digital innovation in the Industry 4.0 era. This approach was chosen because the issues studied are complex, dynamic and highly contextualized, so more accurate analysis can be achieved through exploratory data mining rather than using numerical measurements. Qualitative research allows researchers to thoroughly understand how MSME actors respond to technological change; what strategies they use; and what elements influence digital transformation. As a result, the results of this research are expected to not only explain what is happening but also explain why and how it is happening in the daily practice of business development.

This research uses desk research, or literature review, to collect data. National and international indexed scientific journals, recent textbooks on management and digital business, as well as reports from trusted research institutions such as the World Bank, McKinsey & Company, Google, and Yahoo! are examples of literature used in this research. The analysis process began with determining the main themes, synthesizing theories, and evaluating how well the previous findings fit with the state of MSMEs in Indonesia.

SWOT Analysis, Business Model Canvas (BMC), and PESTEL Analysis are some of the strategic analysis tools often used in business development research used by researchers when conducting literature analysis. SWOT is used to determine the strengths, weaknesses,

opportunities, and threats that MSMEs face during the digitization process. BMC is used to understand how MSMEs can form a valuable and integrated digital business model. Meanwhile, PESTEL Analysis is an analysis of strengths, weaknesses, It is hoped that this research can provide a comprehensive strategic overview of how MSMEs can use digital innovation to develop their business adaptively and sustainably.

Results and Discussion

A. Digital Business Development Strategy Model for MSMEs

For MSMEs, digital based business development strategies can be divided into several models, each adapting to internal capabilities and environmental conditions. The gradual digital transformation model is the most commonly used. In this model, MSMEs start by digitizing marketing processes on social media, then move on to e-commerce, and finally incorporate digital payment systems and app based financial management. The ecosystem cooperation model is also frequently used; MSMEs strategically cooperate with digital platforms, logistics providers, and technology training providers to accelerate the digital adoption process in a structured manner. A McKinsey report (2022) shows that MSMEs that implement collaboration based strategies have twice the chance of increasing in sales compared to MSMEs that adopt technology individually and are not integrated.

B. Results of Strategic Analysis (SWOT, BMC, PESTEL)

Table 2. SWOT Analysis - Kedai Kopi Sekawan

Aspect	Description
Strengths	<ul style="list-style-type: none"> Strong digital branding on Instagram & TikTok with tailored content for student lifestyles. Prime location adjacent to university clusters ensures constant foot traffic.
Weaknesses	<ul style="list-style-type: none"> Absence of integrated CRM and cloud-based POS systems leads to informal, manual data handling. Limited budget restricts investment in advanced analytics tools.
Opportunities	<ul style="list-style-type: none"> Growing coffee culture among Indonesian youth and rising demand for local lifestyle brands. Potential for low-cost influencer marketing and user-generated content collaborations.
Threats	<ul style="list-style-type: none"> Intensifying competition from well-funded franchise chains. Reliance on social-media algorithms (e.g., TikTok feed changes) may reduce reach unpredictably. Financial constraints hinder rapid tech upgrades.

Table 3. Business Model Canvas – Kedai Kopi Sekawan

Element	Description
Key Partners	Local micro-influencers, Instagram & TikTok platforms, regional coffee bean suppliers.
Key Activities	<ul style="list-style-type: none"> – Creating and scheduling engaging social media posts and stories. – Gathering real-time feedback via Instagram polls to refine seasonal menu offerings.
Key Resources	In-house creative team, strong social media content library, strategic campus-adjacent cafe outlet.
Value Propositions	Affordable, locally-sourced specialty coffee served in a trendy, student-friendly atmosphere that blends physical experience with digital community.
Customer Relationships	Two-way digital communication (DM, comments, story replies) fosters loyalty; active engagement through Q&A sessions and interactive giveaways.
Customer Segments	University students and early-career professionals in Surabaya seeking convenient, Instagram-worthy café experiences.
Channels	Instagram & TikTok for brand storytelling, WhatsApp Business for order management, on-campus pop-up events for direct engagement.
Cost Structure	Fixed costs (rent, utilities, salaries), variable costs (coffee beans, ingredients), digital marketing expenses, occasional influencer fees.
Revenue Streams	Beverage and snack sales, sponsored social-media collaborations, ticketed mini-events (e.g., open-mic nights), occasional merchandise.

Table 4. PESTEL Analysis – MSME Digitalization

Factor	Implication
Political	Government initiatives such as <i>Bangga Buatan Indonesia</i> and local digital MSME grants provide training and subsidized tech adoption.
Economic	Adoption of digital payment and bookkeeping tools lowers operational costs by up to 20% and expands market reach beyond Surabaya.
Social	High digital literacy among youth and prevalence of cashless transactions encourage online engagement and mobile ordering.
Technological	Wide availability of free or low-cost platforms (Instagram, TikTok, Canva) lowers entry barriers for digital marketing and basic analytics.
Environmental	Shift to e-receipts and cashless payments reduces paper waste; potential for energy-efficient lighting and IoT-based inventory monitoring.
Legal	Enforcement of data protection regulations requires MSMEs to secure customer data and comply with privacy standards.

In addition, data integration and personalization of services based on digital technology is an emerging strategy model among MSMEs. In this model, businesses change the products and promotions offered to customers by using consumer behavior data from e-commerce platforms, social media insights, and transaction history. In addition to increasing customer loyalty, this strategy lowers promotional costs and strengthens long term relationships. Digitalization has evolved from a mere tool to an essential component in building a dynamic and consumer centric business strategy. Many MSMEs in the fashion, food and beverage, and creative services industries rely heavily on two way communication

with customers. With this kind of strategy, MSMEs have a great opportunity to compete with larger companies, due to their proximity and flexibility to market changes.

However, it is important to realize that the digital strategy model should be tailored to each MSME's level of readiness. Some businesses are not able to implement complex systems right away, so a customized roadmap approach is an effective solution. This method allows MSMEs to create a digitalization roadmap that is tailored to their business scale, product type, and target market. For MSMEs to move forward without experiencing significant obstacles, the government and training institutions can play an important role in helping to develop this roadmap. Therefore, business development that relies on digital innovation should be considered a long lasting endeavor that requires clear direction, support from the ecosystem, and commitment from the businesses themselves.

Furthermore, the success of digital based strategies also hinges on the ability of MSMEs to cultivate a culture of continuous learning and innovation within their organizations. Digital transformation is not a one time shift but an ongoing process that requires adaptive leadership, openness to experimentation, and responsiveness to evolving consumer preferences and technological trends. MSMEs that invest in upskilling their workforce and fostering digital mindsets are better positioned to sustain competitive advantages in a volatile market landscape. As such, embedding digital competencies into the core organizational values and encouraging agile practices can significantly enhance the effectiveness and longevity of digital innovation strategies.

C. Implementation of Digital Innovation by MSMEs in the Field

The business sector, geographical location and digital literacy level of businesses influence the progress in the implementation of digital innovations by MSMEs in Indonesia. Some MSMEs have fully embraced digitalization, such as the use of simple accounting software, e-commerce platforms for sales, digital payment systems, and social media for promotion. Due to the large number of direct interactions with consumers, MSMEs in the culinary and fashion industries, for example, can quickly adapt to technology. A study conducted by Google and Temasek (2021) found that joining a marketplace platform increased sales for 72% of active digital MSMEs. This shows that the targeted implementation of digital innovation can have a direct impact on business performance.

On the other hand, many MSMEs are still very young or have not even digitized yet. Some small businesses, especially in underdeveloped areas, still have difficulty accessing digital tools, do not understand the benefits of technology, or are afraid to try new things. In some situations, MSMEs lack a broader digital marketing strategy and only use WhatsApp as their only communication channel with customers. In addition, they are unable to utilize analytics features that are freely available on many platforms. This shows

that there is a sharp digital divide between small and medium-sized businesses (MSMEs) in Indonesia, which if not corrected can lead to inequality in local economic growth.

Therefore, digital innovation in MSMEs must be supported with educational and helpful methods. Local governments, educational institutions, and the private sector should work together to provide technical training, digitalization assistance, and incentives to encourage micro, small, and medium enterprises (MSMEs) to continue growing. Since businesses can experience the benefits of technology in their operations firsthand, hands on training models have proven to be more effective than one way seminars. The formation of MSME digital communities can also help people collaborate with each other, share experiences, and collectively drive local innovation. Digital innovation will be more equitable and sustainable among MSMEs if it is done in a consistent and structured manner.

Moreover, understanding the unique challenges faced by MSMEs in diverse regional contexts is critical to designing inclusive digital transformation programs. Rural MSMEs, for instance, may struggle not only with infrastructure limitations such as unstable internet connectivity and lack of digital devices, but also with cultural and language barriers that hinder effective technology adoption. Policymakers must therefore adopt a place based approach that considers local socio economic characteristics, while ensuring that support mechanisms are not one size fits all but tailored to specific business realities. Bridging the digital divide requires not just access to tools but the cultivation of trust, relevance, and long term support for digital adaptation in every region.

D. Impact of Digital Transformation on MSME Performance

Digital transformation greatly affects various aspects of MSME performance, including operations, finance and marketing. Increased work effectiveness and time is one of the most obvious impacts. With an app based inventory management system, MSMEs do not need to record transactions manually, which is usually time consuming and error prone. The use of digital point of sale (POS) systems, bookkeeping applications, and online cashier platforms automatically and in real time helps MSMEs record sales, track stock, and compile financial reports. McKinsey & Company (2022) research shows that digital transformation is not only a tool, but can also substantially change the way MSMEs work. They experienced an increase in efficiency of up to 35% and a decrease in operating costs of up to 20%.

Furthermore, digital transformation fosters a data driven decision making culture that enables MSMEs to respond to market trends with greater accuracy and speed. By leveraging analytics tools, even small businesses can identify consumer preferences, predict demand patterns, and evaluate the effectiveness of their campaigns in real time. This data centric approach allows MSMEs to shift from reactive to proactive business strategies, ultimately improving agility and competitiveness. As digital maturity increases, the ability to innovate

continuously based on reliable data insights becomes a key differentiator in sustaining performance improvements.

From a marketing perspective, digitalization helps MSMEs reach a wider range of consumers through e-commerce and social media. By using digital marketing strategies, businesses can target customer demographics based on age, location, interests, and shopping behavior. As such, their marketing campaigns will be more effective as they only target potential customers. Digital transformation also allows MSMEs to get quick customer feedback, which can then be used to tweak their products or services. MSMEs get important information about the strengths and weaknesses of their products through the review and rating features in the marketplace. This clearly helps foster customer trust and loyalty. In addition, MSMEs have a great opportunity to build strong long term relationships with with a digital system that supports two way interaction.

Digital transformation has an impact on the MSME ecosystem as a whole, not just at the level of individual businesses. Digitalization opens up opportunities for MSMEs to cooperate, work with large digital platforms, and participate in global supply chains. Many MSMEs have started to form digital cooperatives or online communities to share information, strategies, and experiences in digital business development. Some MSMEs have even started to develop digital products such as online educational content, creative products, and online training. This all shows that the digital shift has opened up new opportunities beyond conventional business models. In the long run, MSMEs that succeed in digital transformation as a whole will have the same competitiveness as large scale companies, be more resilient to crises, and more flexible in facing market changes.

E. Supporting and inhibiting factors for digital innovation in MSMEs

The success of digital innovation for MSMEs depends on various supporting factors working together. Human resources (HR) must be ready for change, in terms of technical and mental skills. To implement a digital strategy, MSME players who are eager to learn, open to technology, and able to innovate quickly are usually more successful. Available digital infrastructure, such as stable internet access and adequate technological devices, is the final component. Another very important factor in driving widespread adoption of digital innovations is government support, such as training, subsidies for digital tools, and strategic collaboration with technology companies. In addition, business environments that offer support, such as digital based MSME communities, startup ecosystems, and responsive markets, can be fertile ground for innovation.

In contrast, the digitization of small and medium enterprises (MSMEs) faces many very complex challenges. One of the biggest barriers is low digital literacy, especially for micro MSMEs located in peripheral or rural areas. Many businesses do not know how

technology functions overall and consider it an additional burden. Reliance on conventional business models is also an obstacle for MSMEs, as they are comfortable with old patterns and unwilling to take the risk of changing. In addition, many MSMEs face capital constraints to purchase digital devices, subscribe to software, or pay IT professionals. In addition, many fail to start digital transformation because they do not have an adequate system of continuous training and technical assistance. If these barriers are not addressed immediately, it will widen the gap between MSMEs that are digitized and those that are not.

Moreover, the psychological and generational dimensions of MSME actors play a subtle yet significant role in the success of digital innovation. Younger entrepreneurs tend to adopt digital tools more readily due to their familiarity and comfort with technology, whereas older business owners may be more hesitant, often requiring longer transition periods and more intensive mentoring. Understanding these demographic nuances can help tailor digital adoption strategies to better suit the target users. Effective digital transformation initiatives must therefore incorporate personalized engagement approaches that account for age, mindset, and prior exposure to technology to ensure inclusive progress across the MSME landscape.

For this reason, the digital development of MSMEs must consider internal and external support in synergy. The government should collaborate with the private sector to reach the most technologically vulnerable MSMEs and expand sector and region based mentoring programs. In addition, it is necessary to standardize digital training modules that are easily accessible and free of charge. From an internal perspective, MSMEs should create an organizational culture that is open to continuous learning and improve management capabilities to manage change. The government, academia, digital platform providers and the business community should all work together to create an enabling environment for the growth of digital MSMEs. Digital innovation has turned into a great opportunity to build resilient and globally competitive Indonesian MSMEs, with all round support.

F. Implementation and Impact of Digital Innovation at Kedai Kopi Sekawan

The findings of this study reveal that digital innovation has been integrated into multiple aspects of Kedai Kopi Sekawan's business development strategy. As a small scale MSME located in Surabaya, Kedai Kopi Sekawan leverages digital platforms especially Instagram and TikTok not merely as tools for promotion, but as core instruments for building a loyal customer base and maintaining brand visibility. Through frequent updates, aesthetic content, and active interaction with followers, the café is able to create an engaging digital presence that aligns with the behavior of its primary market: university students and young professionals.

From the interview with the business owner, it was evident that digital innovation plays a crucial role not only in marketing but also in operational planning and customer relationship management. Although the café does not yet utilize sophisticated systems such as CRM or cloud based POS, it applies digital thinking in decision making. For instance, adjustments to operating hours and promotional strategies are based on informal data collected through customer engagement and seasonal patterns related to academic schedules. This adaptive strategy demonstrates how even basic digital tools can serve as an effective foundation for innovation when aligned with local context and customer behavior.

The impact of digital innovation on performance can be seen in several key outcomes. First, the cafe has experienced increased visibility and brand awareness, which has translated into greater foot traffic and customer retention. Collaborations with local influencers have further amplified this effect, creating low cost marketing channels that expand the café's reach organically. Second, the flexibility provided by digital communication allows the business to respond quickly to market changes adjusting menus, inventory, and service delivery based on real time trends. This level of responsiveness enhances customer satisfaction and contributes to the business's long term sustainability.

Internally, digital innovation has fostered a participatory culture within the café's team. The owner conducts regular evaluations, invites employee input, and uses informal feedback loops to guide improvements. Such practices reflect a broader shift toward digital enabled governance, where business decisions are increasingly informed by data, feedback, and agile processes. While Kedai Kopi Sekawan may still operate with limited technological infrastructure, its deliberate and strategic use of digital tools exemplifies how MSMEs can thrive in the Industry 4.0 era through context aware and customer focused innovation.

In summary, the implementation of digital innovation at Kedai Kopi Sekawan serves not only as a promotional and operational tool, but as an integrated strategy that enhances competitiveness, flexibility, and consumer engagement. These findings suggest that digital innovation, when applied thoughtfully, can transform even the smallest enterprises into resilient players in a rapidly evolving digital economy. The case of Kedai Kopi Sekawan provides a valuable reference for other MSMEs aiming to adopt innovation as a pathway to sustainable growth.

Conclusion

Based on the discussion presented, it can be concluded that digital innovation is not merely an option but a strategic necessity for MSMEs seeking to grow and sustain their businesses in the Industry 4.0 era. As consumer behavior continues to evolve alongside technological advancements, MSMEs are expected to adopt digital transformation to enhance operational efficiency, broaden market reach, improve business management, and

strengthen customer relationships. A digital innovation strategy must be flexible and context sensitive to accommodate the diverse characteristics of MSMEs. Nevertheless, the success of digital transformation hinges upon several key enablers, including the readiness of human resources, reliable digital infrastructure, collaboration within the business ecosystem, and government support tailored to the needs of MSMEs. Barriers such as low digital literacy, lack of access to technology, and resistance to change must be addressed with inclusive and sustainable interventions.

The case of Kedai Kopi Sekawan illustrates how a small enterprise can effectively implement digital innovation by aligning its strategy with market behavior and local context. By utilizing social media for customer engagement, adjusting operations based on digital feedback, and maintaining brand relevance through digital platforms, the café demonstrates how MSMEs can leverage simple yet strategic digital tools to remain competitive and resilient. This real world example reinforces the argument that the successful application of digital innovation does not depend solely on the sophistication of the technology used, but on how thoughtfully it is integrated into everyday business practices. Therefore, the experience of Kedai Kopi Sekawan serves as a valuable model for other MSMEs aiming to navigate the digital economy in a practical, cost effective, and sustainable manner.

In light of the findings, it is recommended that MSME actors begin to adopt a strategic and long term perspective on digital transformation not merely as a tool for operational support, but as a core component of sustainable business development. MSME owners should be encouraged to experiment with digital tools suited to their scale and customer base, while cultivating a learning mindset among their teams.levels.

For policymakers, both central and local governments are expected to enhance their roles as enablers by providing incentives, infrastructure, and technical support to reduce barriers to digital adoption. Moreover, partnerships between MSMEs and private sector technology providers should be strengthened to ensure that digital platforms are accessible, affordable, and appropriate for small business users. Educational institutions and training centers must also play a proactive role in equipping MSME stakeholders with digital literacy and managerial skills tailored to modern business practices.

By fostering synergy across sectors and investing in inclusive digital capacity building, Indonesia can accelerate the transformation of its MSME landscape. Empowered by real life models such as Kedai Kopi Sekawan, MSMEs will be better positioned to harness digital opportunities, respond to market disruptions, and contribute meaningfully to a resilient and globally competitive national economy.

References

- Google, Temasek, & Bain & Company. (2021). e-Conomy SEA 2021: Roaring 20s – The SEA Digital Decade.
- KADIN Indonesia. (2023). Digitalisasi UMKM untuk Pemulihan dan Pertumbuhan Ekonomi Inklusif.
- Kementerian Koperasi dan Usaha Kecil dan Menengah Republik Indonesia. (2022).
- Kotler, P., Kartajaya, H., & Setiawan, I. (2021). Marketing 5.0: Technology for Humanity. Wiley.
- McKinsey & Company. (2022). How digital transformation helps small businesses grow.
- Osterwalder, A., & Pigneur, Y. (2020). Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers. Wiley.
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *Journal of Strategic Information Systems*, 28(2), 118–144.
- World Bank. (2023). SMEs and the Digital Economy: Opportunities and Challenges in Southeast Asia.