

The Role of E-commerce for MSMEs as a Digital Marketing Strategy in Facing Industrial Revolution 4.0

Peran E-commerce Bagi UMKM Sebagai Strategi Pemasaran Digital Dalam Menghadapi Revolusi Industri 4.0

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ABSTRACT

In the era of industrial revolution 4.0, the role of E-commerce for Micro, Small and Medium Enterprises (MSMEs) is becoming increasingly important as a digital marketing strategy. This research aims to investigate the impact of E-commerce adoption by MSMEs in facing changes in global business dynamics. Through the Systematic Literature Review method, we analyzed relevant academic literature to understand the level of adoption, benefits, digital marketing strategies, and the impact of the industrial revolution 4.0 on MSMEs that adopt E-commerce. The research results show that MSMEs that adopt E-commerce experience increased competitiveness through market expansion, increased operational efficiency, and direct interaction with consumers. Digital marketing strategies, such as the use of social media and online advertising, dominate MSME efforts to increase visibility. The role of E-commerce has also proven vital in helping MSMEs adapt to the industrial revolution 4.0. The conclusions of this research highlight the complexity of the challenges and opportunities facing MSMEs, including technological barriers and the need for digital skills development. Policy implications include government support, digital skills development, facilitation of collaboration between MSMEs, and industry 4.0 awareness campaigns. This research provides in-depth insight into the crucial role of E-commerce for MSMEs in facing the industrial revolution 4.0, with the hope of providing guidance for practitioners, researchers and policies to support the growth and sustainability of MSMEs in this digital era.

Keywords: E-commerce, Micro, Small and Medium Enterprises (MSMEs), Digital Marketing Strategy, Industrial Revolution 4.0

ABSTRAK

Di era revolusi industri 4.0, peran E-commerce bagi Usaha Mikro, Kecil, dan Menengah (UMKM) menjadi semakin penting sebagai strategi pemasaran digital. Penelitian ini bertujuan untuk mengetahui dampak adopsi E-commerce oleh UMKM dalam menghadapi perubahan dinamika bisnis global. Melalui metode Systematic Literature Review, kami menganalisis literatur akademis yang relevan untuk memahami tingkat adopsi, manfaat, strategi pemasaran digital, dan dampak revolusi industri 4.0 terhadap UMKM yang mengadopsi E-commerce. Hasil penelitian menunjukkan bahwa UMKM yang mengadopsi E-commerce mengalami peningkatan daya saing melalui perluasan pasar, peningkatan efisiensi operasional, dan interaksi langsung dengan konsumen. Strategi pemasaran digital seperti penggunaan media sosial dan periklanan online mendominasi upaya UMKM untuk meningkatkan visibilitas. Peran E-commerce juga terbukti penting dalam membantu UMKM beradaptasi dengan revolusi industri 4.0. Kesimpulan penelitian ini menyoroti kompleksitas tantangan dan peluang yang dihadapi UMKM, termasuk hambatan teknologi dan perlunya pengembangan keterampilan digital. Implikasi kebijakan mencakup dukungan pemerintah, pengembangan keterampilan digital, fasilitasi kolaborasi antar UMKM, dan kampanye kesadaran industri 4.0. Penelitian ini memberikan wawasan mendalam mengenai pentingnya peran E-commerce bagi UMKM dalam menghadapi revolusi industri 4.0, dengan harapan dapat memberikan pedoman bagi para praktisi, peneliti dan kebijakan untuk mendukung pertumbuhan dan keberlanjutan UMKM di era digital ini.

Kata Kunci: E-commerce, Usaha Mikro, Kecil dan Menengah (UMKM), Strategi Pemasaran Digital, Revolusi Industri 4.0

Introduction

In the era of Industrial Revolution 4.0, a shift in the business paradigm is an inevitability that cannot be avoided. In this context, Micro, Small and Medium Enterprises (MSMEs) as the backbone of the national economy are faced with demands to adapt to fundamental changes in industrial governance. One of the crucial efforts that MSMEs can take as a proactive step is to utilize the existence of E-commerce as a digital marketing strategy (Winarsih, 2021). In the context of the Industrial Revolution 4.0, digital connectivity has become a key driver of business transformation. MSMEs, as a sector that is generally more limited in resources, need to understand that E-commerce is not just a transaction tool, but a foundation for bridging access gaps and facilitating the adoption of more effective digital marketing strategies. Challenges faced by MSMEs in adopting E-commerce include limited technological knowledge, access to capital, and competition with large business players (Tarute, 2018). However, with proper E-commerce integration, MSMEs can access a wider market share, increase visibility, and interact more closely with consumers. Collaboration opportunities with large E-commerce platforms and government policy support can also be significant growth drivers (Verhovnik, 2021).

Changes in consumer behavior in the digital era require MSMEs to understand customer preferences and needs in depth. E-commerce provides opportunities for sophisticated data analysis, enabling personalization of customer experiences and increased competitiveness in global markets. E-commerce not only facilitates transactions, but can also increase the operational efficiency of MSMEs through business process automation. In addition, collaboration with E-commerce platforms provides access for MSMEs to increase product and service innovation, support sustainability, and meet changing market demands (Rojas, 2022). Industrial Revolution 4.0 brought major changes in the way business is run. MSMEs need to adapt quickly so as not to be left behind. This research will provide a better understanding of how E-commerce can be the key to responding to changes in technology and consumer behavior. The adoption of E-commerce by MSMEs is not only beneficial for the business actors themselves, but can also be a driver of local economic growth. This research can provide insight into how the development of MSMEs through E-commerce can create a stronger business ecosystem (Silva, 2022).

This article aims to dig deeper into the role of E-commerce in supporting the growth of MSMEs amidst the dynamics of the Industrial Revolution 4.0. With the rapid development of information and communication technology, E-commerce is not just a tool for expanding markets, but has become the main foundation for optimizing digital marketing strategies. The emphasis on the involvement of MSMEs in the E-commerce ecosystem will be explained comprehensively to provide an overview of the positive impacts that can be obtained through the use of this platform (Stich, 2020). This research can open insight into how E-commerce facilitates the development of product and service innovation for MSMEs. By understanding the impact of this technology, MSMEs can increase their competitiveness and create added value for customers. This research can detail how MSMEs can collaborate more effectively with large E-commerce platforms. This can include discussions about marketing strategies, technical support, and collaboration opportunities that can increase the competitiveness of MSMEs. Through this research, it is hoped that the challenges and opportunities faced by MSMEs in integrating E-commerce as a digital marketing strategy can be identified. In-depth analysis of changes in consumer behavior, increased operational efficiency, and the influence of technology on product and service development will be the main focus to understand the full potential of the role of E-commerce in supporting the growth of MSMEs in the Industrial Revolution 4.0 era (Šimberová, 2022).

Literature Review

E-commerce as a Driver of MSME Growth

E-commerce opens up significant market access for MSMEs. Through online platforms, MSMEs can reach customers at the local, national and even international levels without geographical constraints. This not only increases sales potential, but also expands the reach of the business, creating greater growth opportunities. E-commerce has an important role in increasing the competitiveness of MSMEs. By utilizing digital technology, MSMEs can present their products or services in an attractive way, optimize the consumer experience, and compete effectively with large businesses. This triggers a shift in the dynamics of competition at the global level (Pelletier, 2019).

Apart from being a marketing tool, E-commerce creates strategic collaboration opportunities. MSMEs can partner with large E-commerce platforms to increase their visibility, access advanced technology infrastructure and obtain the necessary logistics support. It's not just about selling products, but also building mutually beneficial synergies. In facing rapid consumer changes, E-commerce gives MSMEs the flexibility to adapt. Mardiyati details how data from online transactions can be used to analyze consumer trends, understand preferences and optimize marketing strategies. This helps MSMEs stay relevant in an ever-changing market (Straková, 2022).

Changes in Consumer Behavior in the Digital Era

Modern consumers tend to prefer shopping online for convenience, wider product selection and customizable offers. E-commerce is the main platform that facilitates this transformation by providing easy and fast access to various products. E-commerce strengthens interactions between businesses and consumers. Through this platform, MSMEs can communicate directly with customers, collect feedback and respond to questions more quickly. This dynamic allows for closer, mutually beneficial relationships between businesses and consumers. E-commerce provides a solution by allowing consumers to shop anytime and anywhere without having to visit a physical store. The ability to make transactions quickly is also a key factor in consumer decision making (Teng, 2022). E-commerce not only makes shopping easier, but can also increase customer satisfaction. Research shows that responsive customer service, flexible returns policies, and fast shipping via E-commerce can create a positive experience for consumers, which in turn, increases customer loyalty. The adoption of digital marketing strategies focused on E-commerce, such as online campaigns, digital loyalty programs and digital-based content, has become crucial to adapt to the preferences and expectations of modern consumers (Kaluge, 2023).

Operational Efficiency Through E-commerce

Through online platforms, MSMEs can automate various operational stages, including inventory management, order processing and delivery tracking. This automation not only reduces manual workload, but also minimizes the risk of errors and increases overall operational efficiency. By using an E-commerce platform, information about stock, prices and product specifications can be accessed in real-time by various parties in the business ecosystem. This reduces the need for manual communication and ensures that all parties involved have access to accurate and up-to-date information (Omrani, 2022). By providing online communication channels, MSMEs can respond to customer questions and input more quickly. The use of chatbots and automated customer support systems can also optimize customer service, increase customer satisfaction and reduce response times. By reducing the need for physical stores and associated overhead costs, E-commerce helps MSMEs allocate their resources more efficiently. Additionally, adoption of cloud technology and E-commerce management systems can provide cost-effective solutions for storing and managing business data (Pelletier, 2019).

By automating routine tasks and providing easy access to necessary data, E-commerce can help MSME employees focus on more strategic tasks. This results in significant productivity improvements in daily operations. MSMEs that use E-commerce can quickly adapt their operational strategies, introduce new products, and respond to changing consumer trends. This provides a significant competitive advantage in an ever-changing business environment (Gouveia,2022). E-commerce not only acts as a transaction tool, but also as a catalyst for operational efficiency for MSMEs. Through automating business processes, increasing the efficiency of providing information, and optimizing customer service, E-commerce has a positive impact that can increase the competitiveness and operational sustainability of MSMEs. Adopting this digital marketing strategy is a must for MSMEs who want to remain relevant and develop in this digital era (Rupeika, 2022).

MSME collaboration with E-commerce Platforms

Collaboration with E-commerce platforms provides wider market access for MSMEs. By utilizing the platform's existing infrastructure and customer base, MSMEs can reach consumers at the local, national and international levels without geographic constraints. Through this platform, MSMEs can take advantage of digital technology, such as online payments, data analysis and digital marketing, to increase their competitiveness in an increasingly digital market. Collaboration brings technical and logistical support from E-commerce platforms to MSMEs (Rojas,2022). The platform provides advanced technology infrastructure, customer service and logistics support that allows MSMEs to concentrate on the core of their business without having to deal with operational complexities.

Collaboration allows MSMEs to optimize their marketing efforts. Through features such as digital advertising, product recommendations, and consumer behavior analysis, E-commerce platforms help increase the visibility and promotion of MSME products. Collaboration with E-commerce platforms creates consumer trust in MSMEs. Consumers often have more trust in familiar and reputable platforms. This gives MSMEs an advantage in building consumer trust and increasing the likelihood of successful transactions (Fachrunnisa, 2022). collaboration brings increased operational efficiency for MSMEs. By utilizing the automation tools and features provided by the platform, MSMEs can optimize inventory management, order processing and other operational activities. The theory of business synergy between MSMEs and E-commerce platforms highlights the importance of collaboration as a growth strategy. By synergizing, MSMEs can expand market reach, increase visibility and optimize their operations (Ghobakhloo, 2021).

Research Methods

This research aims to conduct a systematic literature review to understand the role of E-commerce as a digital marketing strategy for MSMEs in facing the industrial revolution 4.0. Determining the research topic and formulating research questions is the main focus in the literature review. Select an academic database (such as Google Scholar, IEEE Xplore, or ScienceDirect) and design a set of keywords appropriate to the research topic. Conduct literature searches according to predetermined keywords, and expand or detail the search over time. Assess the methodological quality of each selected literature to ensure the validity and credibility of the research. Identify and extract relevant information from each article, including main findings, research methodology, and implications for the role of E-commerce in MSME digital marketing.

Results and Discussions

Level of E-commerce Adoption by MSMEs

From the literature review, there are variations in the level of E-commerce adoption by MSMEs. Most studies show increasing adoption, but there are also challenges such as

technological barriers, implementation costs, and lack of knowledge. The difference in the level of E-commerce adoption shows the complexity in implementing this technology by MSMEs. Further efforts are needed to support MSMEs that face technological or financial barriers to increase adoption rates (Aji, 2021). Many studies document a significant increase in E-commerce adoption by MSMEs. Factors such as increasing technological accessibility, improved internet connectivity, and better understanding of the benefits of E-commerce have been key drivers in increasing adoption. Despite the positive trend, the challenges faced by MSMEs in adopting E-commerce remain significant. Technological barriers, such as limited IT infrastructure and accessibility to modern technology, are the main obstacles. The cost of implementing E-commerce, especially for MSMEs with limited resources, is also a determining factor in the level of adoption (Dethine, 2020).

The literature highlights that lack of knowledge about the potential and benefits of E-commerce remains a significant barrier. Some MSMEs may not yet be fully aware of the opportunities offered by E-commerce platforms, and limited knowledge can be a barrier in taking steps towards adoption. The complexity of implementing E-commerce technology, especially for MSMEs that do not yet have strong digital infrastructure, adds to the level of difficulty (Brodny, 2020). This includes systems integration, data security and an understanding of digital business governance. Analysis of variability in adoption rates and identification of challenges provides the basis for policy recommendations and support efforts. Further efforts are needed to provide technical support, training and financial incentives to mitigate technological barriers and implementation costs (Aji, 2021).

Benefits of E-commerce for MSMEs

The literature highlights the various benefits of E-commerce for MSMEs, including market expansion, increased operational efficiency, and increased competitiveness. Access to global markets and direct interaction with consumers are also considered significant advantages. The significant benefits of E-commerce provide an understanding that investment in this technology can provide long-term benefits for MSMEs. Marketing strategies that are integrated with E-commerce help MSMEs to be more adaptive to market changes (Kaluge, 2023). E-commerce gives MSMEs access to a wider market, even at the global level. Through online platforms, MSMEs can penetrate geographical boundaries and reach potential consumers in various locations. The ability to sell products or services online opens up opportunities to diversify the market and gain new market share. E-commerce integration can provide significant operational efficiencies. Sales, payment and inventory management processes can be digitally optimized, reducing operational costs and increasing productivity. Automation of routine tasks can also help MSMEs focus on innovation and growth (Omran, 2022).

The presence of E-commerce gives MSMEs a competitive advantage. The ability to adapt to market trends, adjust product offerings, and respond quickly to changing consumer demands becomes easier with the adoption of this technology. MSMEs that are active in the digital space can build a strong brand image and attract the attention of potential customers. One of the most prominent advantages is the ability to run business globally (Rojas, 2022). MSMEs can take advantage of E-commerce to export products or services to international markets without facing significant geographical obstacles. This opens the door to significant growth and diversification opportunities. E-commerce creates a direct channel between MSMEs and consumers. Through online platforms, MSMEs can interact, listen to feedback and understand consumer preferences in more depth. This allows for better personalization in service and product offerings, increasing customer satisfaction (Aji, 2021). MSMEs involved in E-commerce have an advantage in facing market changes. By collecting and analyzing real-time consumer data, MSMEs can respond quickly to market trends and make strategic adjustments, minimizing business risks.

Digital Marketing Strategy

Literature findings show that MSMEs that adopt E-commerce often involve digital marketing strategies. This includes leveraging social media, online advertising and data analysis to increase visibility and understand consumer preferences. The discussion emphasizes the importance of digital marketing strategies in the context of E-commerce (Silva, 2022). MSMEs need to understand digital consumer trends, build a strong online presence, and use data to improve personalization and effectiveness of marketing campaigns. MSMEs involved in E-commerce often utilize social media as one of their main marketing strategies. Platforms such as Facebook, Instagram, and Twitter have become effective channels for building an online presence, interacting with consumers, and promoting products or services. Online advertising, whether through social media platforms, search engines or dedicated websites, is becoming an integral component of an MSME's digital marketing strategy. Digital advertising allows MSMEs to target more specific audiences, measure campaign effectiveness more accurately, and maximize the use of marketing budgets (Stich, 2020).

Data analysis is key in MSME digital marketing strategies. Through monitoring and analyzing consumer data, MSMEs can understand purchasing behavior, consumer preferences and market trends. This information can be used to craft more effective campaigns and increase product visibility. Discussions in the literature emphasize the importance of a strong online presence. MSMEs need to build and maintain websites or E-commerce platforms that are attractive, easy to access, and provide a good experience to users (Teng, 2022). A solid online presence is the basis for building consumer trust. The success of an MSME digital marketing strategy also depends on a deep understanding of digital consumer trends. Understanding online consumer behavior, preferences in interacting with brands, and expectations of digital shopping experiences is an important basis for designing relevant campaigns. A successful digital marketing strategy also includes personalization of content and campaigns. By utilizing consumer data, MSMEs can present relevant content and adjust marketing campaigns according to individual preferences, increasing effectiveness and consumer response (Silva, 2022).

Impact of Industrial Revolution 4.0

The literature emphasizes that the role of E-commerce for MSMEs is becoming increasingly significant in facing the industrial revolution 4.0. There is a transformation in the way MSMEs interact with customers, manage supply chains and optimize their operations. The industrial revolution 4.0 brought significant changes to the business ecosystem, and E-commerce is recognized as the main pillar for increasing the adaptability of MSMEs. Understanding the impact of the industrial revolution 4.0 helps MSMEs to align their strategies with global changes. The industrial revolution 4.0 changes the way MSMEs interact with customers (Rojas, 2022). With the adoption of E-commerce, MSMEs can utilize consumer data to provide a more personalized and relevant experience. Online purchasing systems, customer reviews, and interaction via social media are key elements in forming closer relationships with consumers. Changes in industry 4.0 introduce the concept of a more connected and automated supply chain. E-commerce allows MSMEs to efficiently integrate order, inventory and delivery processes. By utilizing technology such as the Internet of Things (IoT) and big data analysis, MSMEs can increase the visibility and responsiveness of their supply chains (Teng, 2022).

In the context of industry 4.0, E-commerce plays a major role in optimizing MSME operations. Automating business processes, such as payment processing, inventory management, and order fulfillment, can improve operational efficiency, reduce costs, and increase productivity. The industrial revolution 4.0 forces MSMEs to change their business paradigm. E-commerce is not just an additional sales channel, but is the core of business strategy. MSMEs that successfully adapt to these changes can be more adaptive to market shifts and increase competitiveness. Rapid global changes, especially in the context of the

digital economy, require MSMEs to become more adaptive. By incorporating E-commerce in their strategy, MSMEs can quickly adapt their product and service offerings to changing market trends and demands (Brodny,2022).

The results of this research provide an overview of the complexity of the role of E-commerce for MSMEs in the context of digital marketing and industrial revolution 4.0, with the hope of providing guidance for policy, business practitioners and researchers to better understand and support the development of MSMEs in this digital era.

Conclusion

From the research results and discussions that have been presented, several important conclusions can be drawn regarding the role of E-commerce for MSMEs as a digital marketing strategy in facing the industrial revolution 4.0. The following conclusions can be drawn:

1. E-commerce Adoption Affects the Competitiveness of MSMEs

The level of adoption of E-commerce by MSMEs plays a crucial role in enhancing their competitiveness. This adoption opens up wider market access, increases operational efficiency, and provides a competitive advantage in the digital era.

2. Benefits Obtained by MSMEs

MSMEs that adopt E-commerce experience various benefits, including market expansion, increased operational efficiency, and the ability to interact directly with consumers. These benefits are a determining factor in the sustainability and growth of MSMEs amidst increasingly fierce competition.

3. Digital Marketing Strategy Dominates

Digital marketing strategies, especially those related to E-commerce, are a key point in MSMEs' efforts to increase visibility and optimize interactions with consumers. A deep understanding of digital consumer behavior is the key to success in this realm.

4. Positive Impact of E-commerce in Industrial Revolution 4.0

E-commerce plays a vital role in helping MSMEs adapt to the industrial revolution 4.0. Digital transformation is not only a necessity but also an opportunity for MSMEs to utilize technology and optimize their business processes.

5. Challenges and Opportunities that Need to be Faced

Despite the many benefits, MSMEs are also faced with challenges such as technological barriers and lack of resources. However, these challenges can be turned into opportunities through government support, collaboration between MSMEs, and digital skills development.

Implications and Recommendations

Based on the conclusions above, several strategic implications and recommendations can be proposed:

1. Government and Related Institutions Support

The government and related institutions need to provide further support in the form of incentives, training and financial resources to encourage the adoption of E-commerce by MSMEs.

2. Digital Skills Development

Training and digital skills development programs need to be improved to increase MSME competency in digital marketing and E-commerce management.

3. Facilitation of Inter-UMKM Collaboration

Initiatives to promote collaboration between MSMEs, especially through the use of joint E-commerce platforms, can be an effective strategy in increasing competitiveness and mutual strengthening.

4. Industry 4.0 Awareness Campaign

Awareness and training campaign efforts related to the impact of the industrial revolution 4.0 need to be strengthened so that MSMEs can understand, plan and implement business strategies that are in line with global changes.

By absorbing these conclusions, it is hoped that this research will make a positive contribution to understanding the role of E-commerce for MSMEs in facing contextual changes in the digital era and industrial revolution 4.0.

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