



TECHNOLOGY COMPETITION IN IMPROVING ENTREPRENEURIAL COMPETITIVENESS

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ABSTRACT

This research aims to analyze how technology can enhance the competitiveness of entrepreneurs, particularly in the Micro, Small, and Medium Enterprises (MSMEs) sector in the digital era. Using the case study method and a qualitative approach, this research examines various relevant literature, documents, and secondary data without conducting direct field observations. The analysis results show that digital technology plays a very important role as the main driver of innovation, improving operational efficiency, and expanding market access. In addition, legal regulations such as consumer protection, intellectual property rights, and data security become factors that support the creation of professional and sustainable businesses. Innovation, business adaptation, and the use of data and analytics have proven to enhance the ability of SMEs to face market changes and build stronger relationships with customers. Collaboration between technology, sustainable innovation, customer focus, and data-driven decision-making is the key to creating competitive entrepreneurship amidst the rapidly changing times.

Keywords: Digital Technology, Competitiveness, MSMEs, Innovation, Legal Protection, Business Adaptation, Data Analytics, Entrepreneurship.

1. INTRODUCTION

In the context of globalization and rapid digital advancement, the world of entrepreneurship faces new challenges and opportunities that have never existed before. Business actors, especially in the MSME sector, are required to compete not only at the local level, but also nationally and internationally. However, limited resources, access to markets, and the ability to adapt to technological changes are often major obstacles to increasing competitiveness. Therefore, technology plays a crucial role as the primary driver of innovation and competitive advantage in an increasingly competitive landscape.

Technology today is not merely a tool but has become a foundational element in creating efficiency, accelerating innovation processes, and expanding business accessibility. Digital transformation encourages entrepreneurs to adopt various digital solutions, ranging from online marketing, data analysis, to the use of application platforms that facilitate interaction with consumers. In addition, the integration of legal aspects such as consumer protection, intellectual property rights, and information security has become increasingly crucial for businesses to operate professionally and sustainably in the digital era.

Not only that, innovation and business adaptation are important elements to remain relevant amid rapid market changes. Companies that can observe shifting trends, maximize the use of digital technology, and create positive engagement and experiences for customers will have a greater chance of growing and developing. The use of data and analytics also serves as the foundation for making more accurate, faster decisions that positively impact business sustainability.

Thus, collaboration between the use of technology, continuous innovation, customer focus, and data-driven decision-making are key factors in creating competitive entrepreneurship. Only by combining all these elements can business actors build flexible, professional businesses that can survive amid increasingly rapid changes.

RESEARCH METHODE

This study adopts a case study method with a qualitative approach. The case study was selected so that the researcher could conduct an in-depth analysis of the role of technology in improving the competitiveness of entrepreneurs, especially in the MSME sector in the digital age. This method is highly appropriate because the research does not involve direct data collection in the field but rather focuses on reviewing various relevant secondary data sources, such as academic articles, research reports, writings, and official data related to the topic.

The data collection process was conducted through literature review and documentation. The sources used include academic publications, previous research, government regulations, and reports from institutions related to MSMEs and digital transformation. The collected data is then analyzed using descriptive-qualitative methods to identify patterns, relationships, and key findings on how technology, innovation, legal aspects, and data utilization contribute to enhancing entrepreneurial competitiveness.

The data analysis technique used is content analysis, which involves examining the content of documents and literature to identify key themes aligned with the research focus. The researcher grouped information based on important aspects such as technological innovation, legal protection, digital marketing strategies, customer experience, and data-driven decision-making. Each finding was linked and compared with theory and previous research results to strengthen the validity of the analysis.

With this approach, it is hoped that the research can provide a comprehensive understanding of the role of technology in entrepreneurship without the need for direct observation or interviews in the field. The results of this case study analysis are expected to serve as a foundation for developing relevant strategies and policies to support entrepreneurial competitiveness in the digital era.

2. RESULT AND ANALYSIS

The Role of Technology as a Driver of Entrepreneurial Competitiveness

An entrepreneur is someone who creates and runs a business with the aim of making a profit, while being willing to take risks, such as opening an online store, providing graphic design services, or building a technology startup. MSMEs are the backbone of the national economy, but they often face challenges in terms of competitiveness due to limited resources, market access, and the ability to adapt to digitalization. Meanwhile, competitiveness is the ability to compete with other businesses. Entrepreneurs with high competitiveness mean their businesses can survive, attract customers, and even grow faster than competitors.

In enhancing competitiveness, technology is developing rapidly, and almost every aspect of our lives is interconnected with it. In the world of entrepreneurship, technology is not just a tool but has become the primary driver of innovation, efficiency, and excellence. It is clear that technology plays a crucial role in enhancing entrepreneurial competitiveness. A study by Wardhani & Nastiti (2023) emphasizes that entrepreneurship education can foster motivation and entrepreneurial skills through a combination of theoretical knowledge and practical experience.

Regarding legal protection, intellectual property rights (IPR), the legality of digital businesses, and data security and privacy remain key concerns (Aulia et al., 2024; Suhendar & Rambe., 2023). For example, trademarks are used to protect business names and logos. Copyright for works such as designs. If an entrepreneur creates an online laundry service app, the app can be registered for legal protection to prevent others from easily copying it. Consumer Protection in Digital Business When technology is used for selling or providing services, consumer protection laws become important (Rambe et al., 2023; Ayu et al., 2024). Articles in the Consumer Protection Law No. 8 of 1999 require businesses to provide honest and clear information and not deceive consumers with false advertisements.

The role of technology is indeed very significant in driving entrepreneurial progress and enhancing competitiveness. Digital technology has transformed the way companies interact with customers. Social media and other digital platforms enable companies to connect with customers directly and interactively (Maria et al., 2024; Rambe., 2024; Harahap et al., 2024). However, without a strong legal foundation and compliance with regulations, entrepreneurs may face risks such as fines, business closures, and even criminal charges (Rambe & Sihombing., 2024; Huda et al., 2024; Sanjaya et al., 2023). Therefore, entrepreneurs must now understand the law, particularly regarding licensing, consumer protection, data protection, and digital ethics. By combining technology with legal compliance, entrepreneurs can grow more professionally, safely, and sustainably.

Accelerating Innovation and Business Adaptation

Innovation as the Key to Survival and Growth: Innovation is no longer just an added advantage, but has become a primary necessity for survival amid rapidly changing market dynamics. Innovation in digital business strategies includes the use of tools such as social

media, high-quality digital content, and influencer marketing to enhance product visibility and sales (Anjaska et al., 2024; Rambe et al., 2024;). Selecting the right strategy is crucial to achieving the desired results in digital marketing.

Accelerating innovation refers to how companies speed up the process of developing new ideas—whether products, services, technologies, or even business models—to remain relevant and competitive. Innovative companies are able to read market changes more quickly and nimbly. They not only respond to trends but often create new trends that define the direction of the industry. For example, innovation in financial technology (fintech) has transformed how people transact.

Business adaptation refers to an organization's ability to change its strategies, work processes, and even internal structures in response to external environmental changes. The COVID-19 pandemic is an example of how the entire business world was forced to adapt quickly. From how people work, how they sell, to how they serve customers, everything changed in a short period of time. This research demonstrates that innovation in business strategy, especially during the digital transformation era, is crucial for the sustainability and growth of companies by leveraging digital technology. Companies that adapt quickly typically have a flexible and non-rigid work culture. They are open to feedback, make decisions swiftly, and are willing to experiment. For instance, many traditional restaurants that previously only offered dine-in services,

Technological developments and the growing popularity of the food and beverage business have led to the emergence of various food startups in many countries, including Indonesia. now provide app-based delivery services (Start-up et al., 2023). This small change is a vital form of adaptation for business continuity. It is very important for the sustainability and growth of companies by utilizing digital technology.

Strengthening Customer Experience and Engagement

Customer experience is a differentiator. This experience encompasses all customer interactions with a business, from their first encounter with the brand, through the purchasing process, to after-sales service. Customers remember not only the product, but also how they were treated. For example, two online stores may offer the same products, but customers will prefer the store that provides fast, friendly service and handles complaints professionally. The role of human resource management in the digital age is crucial in driving digital transformation within companies (Wahyudi et al., 2023). A good experience fosters loyalty, while a bad experience spreads quickly on social media and damages reputation.

Customer engagement refers to the emotional connection and active interaction between customers and the brand. This goes beyond just purchases and includes how customers interact through social media, brand communities, or loyalty programs. Strong engagement increases the likelihood of customers making repeat purchases, recommending the brand to others, and even defending the brand during crises. For example, brands like Apple or Starbucks have highly engaged customer bases, with customers willing to pay more for the quality and identity they associate with the brand.

Customers remember emotions more easily than product features. Digital transformation has significantly changed consumer behavior, prompting businesses to not only adapt their strategies but also proactively adopt technology to remain competitive in the face of rapid change (Muna et al., 2025). Therefore, creating positive emotional moments, no matter how small, can leave a lasting impression. For example, including a handwritten thank-you note in a shipment package, or remembering a customer's birthday and giving a small gift. Such interactions create intimacy and emotional connection. In the

long term, emotional moments will create loyal customers who are more patient when facing minor service disruptions. Loyalty programs are not just about discounts but a strategic way to build sustained engagement. A well-designed program can encourage customers to continue interacting, leaving reviews, or recommending friends.

Businesses seeking to strengthen customer relationships must actively listen to their feedback. This isn't just through post-purchase surveys but also via social media, online reviews, or community forums. What's important isn't just hearing the feedback but also demonstrating that it's being acted upon. For example, if a customer suggests adding a feature to an app, and the company implements it, the customer feels valued and empowered. This strengthens both emotional and functional engagement.

Utilization of Data and Analytics for Decision Making

In the current digital era, data is no longer just a byproduct of operations, but has become a strategic asset. It holds significant business potential, making it easier to develop targeted marketing strategies. By leveraging data analytics in business, every customer interaction, business process, or digital transaction generates data that can be utilized to make more accurate and measurable decisions (Xyz, 2024). Companies that recognize the value of data from the outset will place it at the center of their business strategy planning and execution, focusing on presenting facts/data rather than discussing outcomes (Prasetyo Eka Putra et al., 2023). They collect, clean, store, and analyze data seriously, not just for reporting purposes, but as the foundation for innovation and efficiency.

Data-driven decision-making is an approach where decisions are no longer made solely based on intuition or experience but are based on facts and evidence from data analysis. Data-driven decision-making is an approach where decisions are no longer made solely based on intuition or experience but are based on facts and evidence from data analysis. Data-driven decision-making is an approach where decisions are no longer made based solely on intuition or experience, but rather on facts and evidence from data analysis. This also enables the formulation of strategies to resolve issues quickly. Teams can gain a comprehensive understanding of employee behavior, performance, and engagement through data analysis.

Data enables organizations to process large amounts of data, of various types, at high speeds. This opens up the possibility of in-depth analysis in near real-time, even for large organizations. For example, in the financial industry, data analytics is used to quickly detect fraud. Data from thousands of customers can be analyzed simultaneously to provide relevant product recommendations. The use of data also poses challenges, particularly in terms of ethics and privacy. Consumers are increasingly aware of how their data is used. Breaches of this trust can have a significant impact on a business's reputation.

Data and analytics are the cornerstones of modern decision-making. From detecting issues, understanding their causes, predicting the future, to recommending the best actions, all can be done more effectively with quality data and the right analytics. For this strategy to succeed, organizations must invest not only in technology but also in people, processes, and the ethics of data use. When all these elements work together, decisions will be more accurate, faster, and have a positive long-term impact.

This study focuses on decisions made by leaders to improve management quality and seeks to identify areas of knowledge that have not been explored before in research (Alvina Dwi Suwandita et al., 2023; Rambe et al., 2023). To better understand the people and circumstances involved, as well as the phenomena being studied, qualitative research techniques are employed. Research findings and data analysis are qualitative processes

that emphasize the importance of generalization. Artificial intelligence systems can collect and process data automatically. This reduces the manual labor required by humans. It increases productivity in this way (Ramadhana & Nasution., 2024; Rambe et al., 2024). In addition, everything is collected into a great opportunity to store important information needed in research.

CONCLUSION

Based on the results of the case study research that has been conducted, it can be concluded that technology plays a very important role in improving business competitiveness, especially in the MSME sector. Technology not only functions as a tool, but has also become a fundamental element in creating operational efficiency, accelerating innovation, and expanding market access. Digital transformation encourages businesses to utilize various digital solutions, ranging from online marketing, data analysis, to the use of applications that facilitate interaction with customers. This has proven to enhance competitive advantages and strengthen a business's position amid increasingly intense competition.

Furthermore, legal protection is also an important factor that should not be overlooked in the digital age. Compliance with regulations, consumer protection, and intellectual property rights management provide security and sustainability for businesses. The integration of technology and legal compliance enables businesses to operate in a professional, safe, and sustainable manner, while reducing potential risks.

Innovation and adaptation in business are key to addressing rapid market changes. Companies that can identify trends, effectively utilize technology, and create positive experiences and engagement for customers are more likely to grow and thrive. The use of data and analytics also serves as a crucial foundation for making more informed decisions and positively impacting business sustainability.

Overall, the collaboration between technology implementation, sustainable innovation, customer focus, legal compliance, and data-driven decision-making is a key factor in creating competitive entrepreneurship in the digital age. By combining all these aspects, business owners can develop businesses that are adaptive, professional, and capable of surviving in the midst of increasingly dynamic changes.

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