



CHALLENGES, STRATEGIES, AND ROLES OF DIGITAL TRANSFORMATION IN THE DEVELOPMENT OF MICRO, SMALL, AND MEDIUM ENTERPRISES (MSMES)

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ABSTRACT

This study examines the dynamics of entrepreneurship in Batam City, Indonesia's strategic free trade zone bordering Singapore and Malaysia, with a particular focus on the challenges faced by micro, small, and medium enterprises (MSMEs) and the role of digital transformation in strengthening their competitiveness. Using a descriptive qualitative approach based on library research, data were compiled from prior scholarly publications, government reports, and policy documentation related to MSMEs in Batam. The findings indicate that Batam is home to approximately 75,000 MSME units employing more than 156,000 workers, with the culinary sector being the most dominant. Key challenges identified include limited financial and digital literacy, restricted access to capital, weak business legality, and intense competition arising from the homogeneity of business types. Meanwhile, institutional support such as the Integrated Business Service Center (PLUT) and digital financial literacy programs has been shown to strengthen entrepreneurial capacity. Digital transformation, through the adoption of e-commerce, digital bookkeeping, and online-based marketing, emerges as a significant leverage factor for improving MSME performance and competitiveness in the era of Industry 4.0. The study recommends strengthened synergy among local government, educational institutions, and business actors in designing sustainable entrepreneurship mentoring programs oriented toward digital technology mastery.

Keywords: entrepreneurship; MSMEs; Batam; digital transformation; Business competitiveness

INTRODUCTION

Entrepreneurship is one of the main drivers of economic growth in a region, because it is able to create jobs, encourage innovation, and increase people's income. In Indonesia, Micro, Small, and Medium Enterprises (MSMEs) are the backbone of the national economy with a contribution of more than 61% to the Gross Domestic Product (GDP) and absorb around 97% of the national workforce. This strategic role makes the development of entrepreneurship and MSMEs a priority agenda in economic development policies, both at the central and regional levels. Batam City, as one of the Free Trade Zone (FTZ) areas that directly borders Singapore and Malaysia, has unique economic characteristics. Its status as an industrial city and international port makes Batam an attraction for investment, labor, and entrepreneurial activities across sectors. Based on data from the Batam City Cooperatives and Micro Enterprises Office, the number of MSME actors in this city was recorded to reach around 75,575 business units that absorb more than 156,000 workers, with the culinary sector as the most dominant sector. The geographical condition and status of this free trade area should be a great opportunity for the growth of new entrepreneurs who are highly competitive.

However, behind this potential, MSME actors in Batam City still face various structural challenges. A number of previous studies have shown that problems such as low financial literacy, lack of understanding of business legality, limited access to capital, and weak managerial capacity are still the main obstacles that hinder the growth and upgrading of MSMEs. In addition, the homogeneity of business types also triggers fierce



competition between business actors with similar products, thus demanding stronger differentiation and innovation strategies.

On the other hand, the Industrial Revolution 4.0 era brings new opportunities through digital transformation. The adoption of digital technology, such as e-commerce, digital financial recording applications, and marketing through social media, is considered to be able to increase operational efficiency and expand the reach of the MSME market. The Batam City Government through the Cooperatives and Micro Enterprises Office has also presented various assistance programs, one of which is through the Integrated Business Service Center (PLUT), which provides managerial training, business consulting, legality facilitation, access to capital, and digital marketing for MSME actors.

Based on this background, this study aims to: (1) analyze the conditions and dynamics of entrepreneurship in Batam City; (2) identify the main challenges faced by MSME actors; and (3) examine the role of digital transformation and institutional support in encouraging business competitiveness and sustainability in Batam City. The results of this research are expected to provide academic contributions as well as practical recommendations for stakeholders in formulating more effective entrepreneurship development policies.

LITERATURE REVIEW

Entrepreneurship Concept

Entrepreneurship is defined as the process of creating something new through the exertion of time and effort, by incurring financial, psychological, and social risks, in order to obtain rewards in the form of personal gain and satisfaction. The entrepreneurial spirit is reflected in the ability of individuals to recognize opportunities, innovate, and dare to take measurable risks in running a business. In the context of MSMEs, entrepreneurship is a determining factor for business success, especially in small and medium business groups that have the potential to develop into larger-scale businesses.

Micro, Small, and Medium Enterprises (MSMEs)

Based on Law of the Republic of Indonesia Number 20 of 2008, MSMEs are grouped based on the criteria of assets and business turnover. MSMEs have a strategic role in the economy because they contribute to job creation, income equity, and regional economic growth. However, the characteristics of MSMEs, which are generally managed in a simple manner, also give rise to various limitations, especially in aspects of financial management, marketing, and business governance.

Financial and Digital Literacy of MSMEs

Financial literacy is the ability of business actors to understand and manage business financial aspects appropriately, including recording transactions, separating personal and business finances, and long-term financial planning. Previous research shows that financial literacy and digital literacy have a positive effect on the performance of MSMEs. This low literacy is often the cause of a mixture of personal and business finances, as well as the lack of financial recording that is still done manually for most MSME actors in Batam City.

Digital Transformation and Competitiveness of MSMEs

Digital transformation refers to the process of adopting information and communication technology in carrying out business activities, ranging from marketing, transactions, to financial management. A case study on culinary MSMEs in Batam City shows that the transformation to digital platforms contributes to improving the financial



performance of businesses, although the level of readiness of business actors in adopting this technology still varies. Collaboration between business actors, educational institutions, and the government is considered to be an important key in accelerating the mastery of digital technology by MSMEs.

RESEARCH METHODS

This study uses a descriptive qualitative approach with a library research method. The data used is secondary data collected from various sources, including accredited scientific journal articles, official reports of the Batam City Cooperatives and Micro Enterprises Office, publications of the Ministry of Cooperatives and SMEs of the Republic of Indonesia, as well as policy documentation relevant to the development of entrepreneurship and MSMEs in Batam City.

The data analysis technique is carried out through three stages, namely: (1) data reduction, by selecting and grouping information relevant to the focus of the research; (2) data presentation, by systematically describing findings based on the theme of the study; and (3) drawing conclusions, by interpreting patterns and relationships between variables that arise from the data that has been analyzed. A comparative descriptive approach was used to compare the findings between studies to obtain a comprehensive picture of the dynamics of entrepreneurship in Batam City.

RESULTS AND DISCUSSION

Overview of Entrepreneurship in Batam City

As a Free Trade Zone area and the largest industrial city in the Riau Islands Province, Batam has a fairly dynamic business ecosystem. The following table 1 presents an overview of MSME data in Batam City collected from various sources.

Table 1. Overview of MSMEs in Batam City

Indicator	Values/Data	Source
Number of MSME actors in Batam City	± 75,575 business units	Batam City Cooperatives and Micro Enterprises Office
Absorbed workforce	> 156,000 people	Batam City Cooperatives and Micro Enterprises Office
Dominant business sector	Culinary	Data on the development of MSMEs in Batam City
Contribution of MSMEs to national GDP	> 61%	Ministry of Cooperatives and SMEs of the Republic of Indonesia
The contribution of MSMEs to the absorption of national labor	± 97%	Ministry of Cooperatives and SMEs of the Republic of Indonesia

Source: Processed from various publications (2025–2026)

The data shows that the MSME sector has a very significant role in the absorption of labor in Batam City. The dominance of the culinary sector indicates that the barrier to entry in this sector is relatively low, but on the other hand, it also gives rise to fierce competition between business actors with similar types of products.

Entrepreneurial Challenges in Batam City

The results of studies from various literature show a number of main challenges faced by MSME actors in Batam City. First, low financial literacy which is reflected in the recording of transactions that are still carried out manually and the mixing of personal



finance with business finance. Second, limited access to capital which causes some business actors to have difficulty developing their business scale. Third, there is a lack of awareness of the importance of business legality, which has an impact on the limited access of MSME actors to formal financing programs and business partnerships. Fourth, the homogeneity of business types that trigger competition between business actors with similar products, especially in the culinary sector which is the most dominant sector.

In addition to these internal challenges, the implementation of government assistance programs, such as PLUT, also still faces obstacles in the form of low participation of MSME actors and limited number of accompanying consultants. This condition shows that the success of entrepreneurship empowerment programs does not only depend on the availability of policies, but also on the effectiveness of implementation and the level of active involvement of business actors themselves.

The Role of Digital Transformation in MSME Development

Digital transformation has proven to be one of the key strategies in increasing the competitiveness of MSMEs in Batam City. Studies on culinary MSMEs show that transformation to digital platforms contributes to improving business financial performance, although the level of readiness of business actors for the adoption of this technology still varies. The use of digital financial recording applications, such as SIAPIK, has also been proven to help MSME actors fostered by the Batam City Cooperatives and Micro Enterprises Office in increasing the capacity of digital financial literacy, as a first step towards a more organized business and ready to upgrade.

Marketing based on digital platforms, including social media and online marketplaces, has also expanded the reach of the MSME market outside the Batam area, and even has the potential to reach the regional markets of Singapore and Malaysia given Batam's strategic geographical position. However, the success of digital technology adoption is highly dependent on the level of education, training, and collaboration between business actors and educational institutions and local governments.

Sustainable Entrepreneurship Development Strategy

Based on the findings above, there are several strategies that can be proposed to encourage sustainable entrepreneurial development in Batam City. First, strengthening financial and digital literacy programs in a sustainable manner and reaching more MSME actors, not only those who have become official government fosters. Second, increasing synergy between the Cooperative and Micro Enterprises Office, higher education institutions, and the private sector in providing sustainable entrepreneurship assistance. Third, encouraging diversification of business types to reduce the level of competition in the same sector, through the development of superior products based on local wisdom and the potential of border areas. Fourth, simplifying the licensing process and business legality so that more MSMEs are formal and have access to financing and wider business partnerships.

CONCLUSION

Entrepreneurship in Batam City has great potential to develop, supported by the city's strategic position as a free trade area that borders Singapore and Malaysia, as well as the growing number of MSME actors and contributes significantly to the absorption of local labor. However, a number of structural challenges, such as low financial and digital literacy, limited access to capital, lack of business legality, and competition due to homogeneous business types, are still the main obstacles for MSME actors to upgrade.



Digital transformation and institutional support through programs such as PLUT and digital financial literacy have proven to be important factors in encouraging increased capacity and competitiveness of MSMEs in Batam City. Therefore, sustainable synergy is needed between local governments, educational institutions, and business actors in designing entrepreneurship mentoring programs that are more inclusive, effective, and oriented towards mastering digital technology, in order to realize a resilient and highly competitive Batam entrepreneurial ecosystem at the regional and global levels.

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