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Reporting the Performance of Micro, Small, and Medium Enterprises: Evidence from Mahakam Ulu, Indonesia

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Abstract

This study aims to identify the profile of MSMEs based on five categories: (1) production/industrial MSMEs, (2) trading MSMEs, (3) service MSMEs, (4) agribusiness MSMEs, and (5) creative/digital MSMEs. Additionally, the factors influencing MSME performance are analyzed. To maximize outcomes, the study also investigates factors beyond established boundaries that may affect the success or failure of MSMEs. The research methodology employs a descriptive-qualitative approach, utilizing interviews, observations, documentation, and literature reviews. The study found that among the twenty-five MSMEs examined in Mahakam Ulu Regency, the majority were owned by individuals of productive age, with most operating in the agribusiness and trade sectors on a micro to medium scale. Furthermore, most business capital was sourced from financial institutions such as credit unions. Factors influencing MSME performance include the owners' educational background, adoption of technology (including digital payment systems and social media), and access to infrastructure, distribution channels, and regulations. Also, challenges and opportunities for MSME performance are shaped by local consumer preferences, geographical limitations, and limited banking involvement as a source of capital. The findings of this study are expected to serve as sustainable targets for stakeholders focusing on a locally wise economy.

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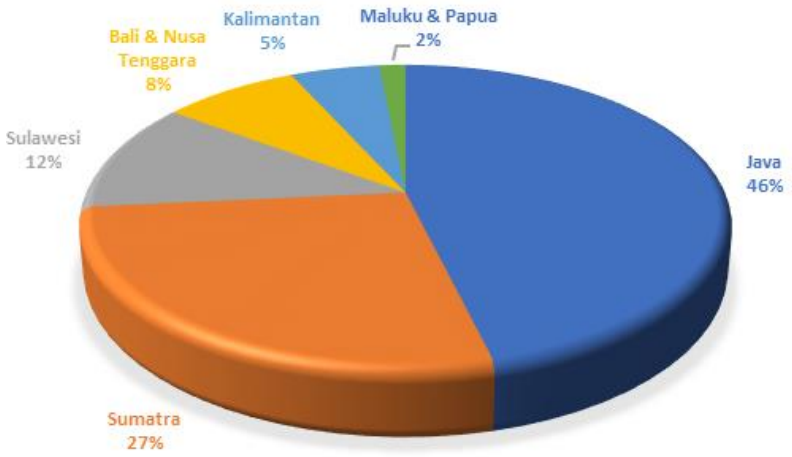
Keywords: Economic Development, Descriptive-Qualitative, MSME Performance, Pentahelix, Mahakam Ulu

1. Introduction

Currently, the majority of MSMEs in Indonesia remain focused on survival and have yet to demonstrate comprehensive competitiveness (Anatan & Nur, 2023; Susanti *et al*., 2023) [1, 2]. Approximately 95% of MSMEs, especially micro-scale enterprises, have not fully utilized technology and continue to face challenges related to product quality, access to financing, and marketing. These issues stem from limited resources and insufficient connectivity with modern technology. To enhance the competitiveness of MSMEs, the Indonesian government has launched various programs, including subsidies for the People's Business Credit/Kredit Usaha Rakyat (KUR) and digitalization initiatives, such as through banking agents like BRILink, which manages 740,000 agents with annual transactions reaching Rp 1.4 trillion (Deny, 2024) [3].

Specifically, the latest data on the distribution of MSMEs in Indonesia, as of 2023, is divided across six major islands (see Figure 1). According to the data, the total number of MSMEs in Indonesia in 2023 reached 66 million business units. Moreover, the distribution reveals a significant imbalance in both the number and growth of MSMEs across regions. The distribution of MSMEs by region, ranked by the number of units, is as follows: (1) Java Island with 6.19 million MSMEs (46.19%), (2) Sumatra Island with 3.66 million MSMEs (27.30%), (3) Sulawesi Island with 1.56 million MSMEs (11.66%), (4) Bali and Nusa Tenggara

Islands with 1.08 million MSMEs (8.07%), (5) Kalimantan Island with 701,790 MSMEs (5.24%), and (6) Maluku and Papua Islands with 206,508 MSMEs (1.54%). In other words, nearly half of all MSME business units are concentrated on Java Island and its surrounding areas.



Source: data modified from Purwadi *et al*. (2026) [4].

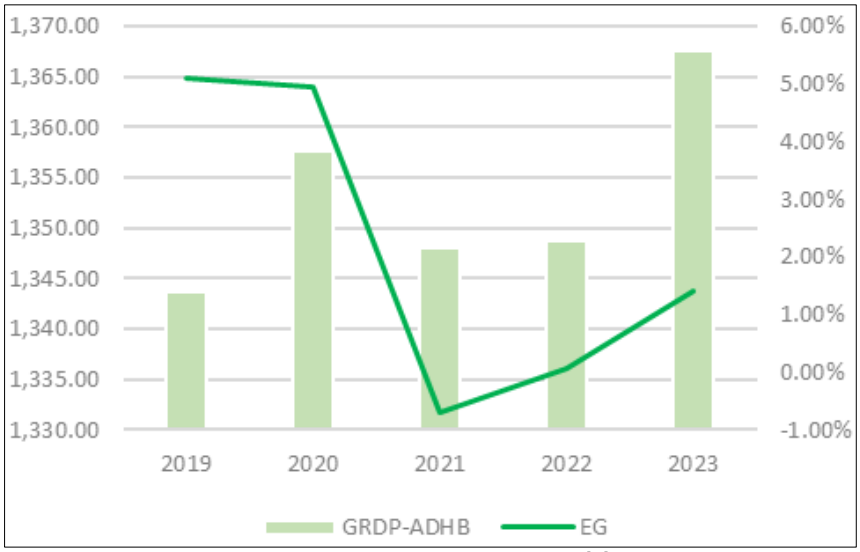
Fig 1: Distribution of MSMEs by region, 2023 (%)

It should be noted that MSMEs are classified into five categories (Anatan & Nur, 2023; Koesrianti & Tanega, 2024; Lantowa & Machmud, 2020; Purwani *et al*., 2025) [1, 5–7]. First, production or industrial MSMEs focus on manufacturing goods, such as snack food businesses, handicrafts, and batik production. Second, trading MSMEs specialize in buying and selling products or services, including grocery stores, market vendors, and online shops. Third, service MSMEs provide services or expertise, such as barbershops, salons, laundries, repair shops, and photocopying services. Fourth, agribusiness MSMEs operate in the agriculture, fisheries, and livestock sectors, including vegetable farmers, poultry farmers, and freshwater fish farmers. Fifth, creative or digital MSMEs rely on creativity or digital technology, such as graphic design, content creation, dropshipping businesses, online stores via marketplaces, and small startups.

Currently, official publications from the Central Statistics Agency/Badan Pusat Statistik (BPS) do not provide specific data on the number and distribution of MSMEs in Mahakam Ulu Regency. Nevertheless, according to the BPS-East Kalimantan Province (2024) [8], the number of Micro and Small Industries/ Industri Mikro dan Kecil (IMK) in East Kalimantan Province reached approximately 35,641 businesses in 2023, reflecting a significant increase compared to the previous year. For MSME case studies, the Industry, Trade, Cooperatives, and SME Agency/Dinas Perindustrian, Perdagangan, Koperasi, dan UKM (DPPKUKM) of East Kalimantan Province (2024) [9] noted that from 2021 to 2023, the number of MSMEs across various business levels increased, averaging 385,320 units, with an average growth rate of 16.47%. Yearly totals of MSMEs in East Kalimantan were 344,540 units in 2021, 351,274 units in 2022, and 460,147 units in 2023. The growth rate of MSMEs in East Kalimantan rose from 1.95% between 2021 and 2022 to a dramatic 30.99% from 2021 to 2023. By scale, micro businesses accounted for the largest share of MSMEs, followed by small businesses, and then medium-sized businesses. Regarding growth rates, medium-sized businesses exhibited the most significant increase, with an 8.86% growth from 2021 to 2022 and a remarkable 227.96% growth from 2022 to 2023. Small businesses ranked second in growth, increasing from 0.07% in 2021 to 196.57% in 2022. Although micro businesses dominate in number, their growth rates were considerably lower than the other categories, with 2% growth from 2021 to 2022 and 26.02% from 2022 to 2023. Regionally, the development of MSMEs in East Kalimantan Province is closely linked to the role of Mahakam Ulu Regency.

To date, Mahakam Ulu continues to strive to expand its creative economy industry (Purwadi *et al*., 2024) [10]. As a region rich in natural resources, Mahakam Ulu benefits from extensive biodiversity (Setiawan *et al*., 2021) [11]. One notable opportunity to support MSMEs in this region lies in the agriculture, forestry, and fisheries sectors. MSMEs can continue to grow if raw materials are readily available. Given the abundant natural resources in Mahakam Ulu, MSME operators should ideally face no difficulty in sourcing raw materials, processing them, and producing various products. For example, the reliance of MSMEs in Mahakam Ulu Regency on natural resources presents both opportunities and future challenges. In this context, the availability of raw materials from nature is undeniable. This reality is reflected in the regional economic growth rate, as estimated through the Gross Regional Domestic Product (GRDP), which is largely based on natural resources, particularly the agricultural sector. Alongside mining and quarrying, this sector is referred to as agriculture, forestry, and fisheries due to its fundamental role in the economic structure. The BPS-Mahakam Ulu Regency (2024) [12] confirmed a significant increase in the GRDP based on current prices/atas dasar harga berlaku (ADHB) in Mahakam Ulu Regency during the period 2019–2022. Over this four-year period, the average GRDP-ADHB steadily rose, reaching Rp 1,353.08 billion. As illustrated in Figure 2, although the agriculture, forestry, and fisheries sector showed the most notable nominal value compared to the other sixteen sectors, its growth lagged considerably behind the tertiary sector (financial and insurance services, information and communication, and accommodation and food services) and the secondary sector (wholesale and retail trade, and electricity and gas supply). The average economic growth rate for the agriculture,

forestry, and fisheries sector was 2.15%. Given its foundational role in the economy, this sector remains relatively stable and maintains strong interlinkages with other sectors, contributing to value creation and supporting the sustainability of MSMEs in Mahakam Ulu Regency.



Source: data elaborated from BPS-Mahakam Ulu Regency (2024) [12].

Fig 2: GRDP-ADHB and growth rate of the agriculture, forestry, and fisheries sectors in Mahakam Ulu Regency

The availability of officially documented data—both in government publications and other documents—regarding the total number of MSMEs at the sub-district level, their scale, number of employees, capital, and turnover remains uncertain. This is because the region is a newly established autonomous area, having separated from Kutai Barat Regency in 2014 in accordance with Law Number 2 of 2013 on the "Establishment of Mahakam Ulu Regency in East Kalimantan Province". Since its separation, Mahakam Ulu has been working to develop various foundational sectors, including Human Resource Development (HRD) for managing and compiling MSME data.

Generally, across cases at both regional and national levels, MSME data is particularly difficult to obtain due to several dimensions:

1. Fragmentation and lack of connectivity in data,
2. Inadequate infrastructure for data collection,
3. Lack of official registration and formalization of businesses,
4. Incomplete information within the informal sector that complicates data gathering, and
5. The rapid growth of businesses without an interconnected distribution network, which reduces the visibility of MSMEs.

Nevertheless, the Mahakam Ulu Regency Government has implemented policies to regulate and develop the creative economy through incentive programs targeting creative economy actors, the majority of whom are MSMEs. These policies aim to facilitate, support, and assist MSMEs.

The government's commitment to supporting MSMEs is evident in the robust economic growth observed in the accommodation and food and beverage sectors, the wholesale and retail trade sector, and the financial and insurance services sector. These sectors are expanding rapidly. Besides, alongside the contributions of the agriculture, forestry, and fisheries sectors in stimulating MSMEs, the transformation within these three sectors highlights both opportunities and challenges for MSME growth and development. This progress is also reflected in the 2023 Government Agency Performance Report/Laporan Kinerja Instansi Pemerintah (LKjIP) compiled by the Mahakam Ulu Regency Government. Substantively, the report's "Achievement of Strategic Target Indicators in the Mahakam Ulu Regent's 2023 Performance Agreement" outlines sixteen strategic targets with twenty performance indicators. Among these, target number 8 focuses on the "Increased Role of the MSME Sector, Creative Economy, and Village-Owned Enterprises/Badan Usaha Milik Kampung (BUMKam)" (Mahakam Ulu Regency Government, 2024) [13]. The performance indicators for this target are measured by the "Contribution of the Trade and Services Sector (in the broad sense)," with growth targets set at 22.22% for 2025 and 23.30% for 2026.

Many sectors have been disrupted by external factors; however, this has not been the case for MSMEs, which have demonstrated resilience. There are three key components in Indonesian and East Kalimantan MSME businesses:

1. Input,
2. Process, and
3. Output.

The input component emphasizes three aspects: the quality of human resources, business experience, and capital. The process component focuses primarily on revenue and labor, while the output component is oriented toward profit and market share (Kuleh *et al*., 2025; Rosyadi & Fitriadi, 2023; Rosyadi *et al*., 2023; Rusliana *et al*., 2026; Wijaya *et al*., 2023) [14–18]. The gap between theoretical premises and practical implementation—often neglecting essential elements such as human resource management (HRM), financial management, product objectives, and profitability—has led many stakeholders, especially MSME owners, to seek a simpler understanding, clarify concepts,

and reassess the urgency of these three elements. In the context of Indonesia and East Kalimantan, these components are critical for the sustainability of MSMEs in Mahakam Ulu Regency. Given this complexity, the present study addresses the urgent need to identify and analyze the MSME sector in Mahakam Ulu Regency.

In the development process, the prospects for MSMEs in East Kalimantan are very promising in supporting livelihoods. However, it is important to recognize that regional support is essential, particularly in underdeveloped areas such as Mahakam Ulu Regency. The Mahakam Ulu Regency Government holds the authority to explore all economic potentials to accelerate regional prosperity. Although baseline data for MSMEs is not yet definitively established, this obstacle can serve as a reference point for analyzing MSME development in Mahakam Ulu Regency. The identified MSME profiles are categorized by scale as follows:

1. Ultra-micro businesses,
2. Micro businesses,
3. Small businesses, and
4. Medium-sized businesses.

The surveyed MSMEs represent each sub-district within Mahakam Ulu Regency. In addition to evaluating the implementation of MSME empowerment policies in Mahakam Ulu Regency, this study is also structured as an academic paper aimed at expanding knowledge for academic advancement, supporting MSME practitioners, and providing practical guidelines for the Mahakam Ulu Regency Government as the regulator to effectively optimize the MSME sector's potential.

2. Methods

2.1. Approach, Object and Time

This study was conducted using a descriptive qualitative method. This approach was chosen to thoroughly review and describe social phenomena or human behavior, which are not easily measured numerically. The phenomenon studied focused on four key frameworks. First, it captured the development of MSMEs in Mahakam Ulu Regency based on their scale and type. The scales of MSME businesses include:

1. Super-micro businesses,
2. Micro businesses,
3. Small businesses, and
4. Medium-sized businesses.

Second, it identified MSMEs based on their type, namely:

1. Production/industrial MSMEs,
2. Trading MSMEs,
3. Service MSMEs,
4. Agribusiness MSMEs, and
5. Creative/digital MSMEs.

Third, it investigated the components influencing MSME performance, including:

1. The quality of human resources,
2. Business experience,
3. Capital,
4. Turnover,
5. Employment,
6. Profit, and
7. Market share.

Fourth, it explored other factors impacting the success and failure of MSMEs. This study serves as a follow-up to assess the relevance of the issue by detecting the extent to which the Mahakam Ulu Government's policies empower the MSME sector. The study focuses on MSME owners located in five sub-districts of Mahakam Ulu Regency:

1. Long Bagun,
2. Long Hubung,
3. Laham,
4. Long Apari, and
5. Long Pahangai.

The study is projected to take place over five months, from March 2026 to July 2026.

2.2. Types and data sources

The data used in this study is qualitative in nature. It consists of numerical information that has been compiled and transformed using specific frequencies and quantities (units). The data sources include both primary and secondary data. Primary data is collected directly by the research team from the original source, while secondary data is obtained and processed by a third party (data provider) through reports, publications, or archives. This study relies predominantly on primary data for two reasons: secondary data on MSMEs is difficult to trace, and accurate, up-to-date information is typically acquired through field studies. Meanwhile, secondary data serves as a supplementary resource for the study.

2.3. Data collection techniques

In accordance with the type and source of data used, the data collection procedure for this study was conducted using the following four techniques:

1. **In-depth interviews:** These involve analyzing data through direct questions and answers between the research team and respondents. Structured interviews with a fixed list of questions are used to validate detailed information from respondents. The questions are presented to respondents via questionnaires. The questionnaire, which includes both open-ended and closed-ended questions, is provided in printed (paper) form and contains several questions. Respondents either select answers from the given options or express their responses freely without predetermined choices, allowing for more comprehensive data collection regarding the issues and strengths of MSMEs.
2. Observation, involves the direct examination of the object being studied. This technique is applied to understand behaviors and events in the field. Observation is conducted participatively, with direct involvement. Field observation relies on informal communication. Through this process, informal communication is established via two-way interaction with respondents, aiming to increase awareness, enhance understanding, and encourage change. Too, respondents can share valuable information beyond the questionnaire related to MSMEs with the research team.
3. Documentation, involves collecting data from written sources or archives, such as reports, notes, photographs, or other records. This technique is useful for supporting the validity of a study.

4. Literature review. This involves examining sources such as books, scientific articles, and journals to verify the study's findings.

2.4. Sample

The study sample was obtained using snowball sampling. According to Ahmed (2024) [19], Dosek (2021) [20], Naderifar *et al*. (2017) [21], Pasikowski (2024) [22], and Ting *et al*. (2025) [23], this model is appropriate when precise data are unavailable—such as when it is difficult to obtain or the exact population size is unknown. The sampling process begins by selecting one or more individuals who meet specific criteria and then asking them to refer others with similar characteristics. This process continues until the sample is considered sufficiently representative.

Table 1: Sample composition by regional cluster

Cluster (districts)	Sample (*n*)
Long Bagun	5
Long Hubung	5
Laham	5
Long Apari	5
Long Pahangai	5
Total	25

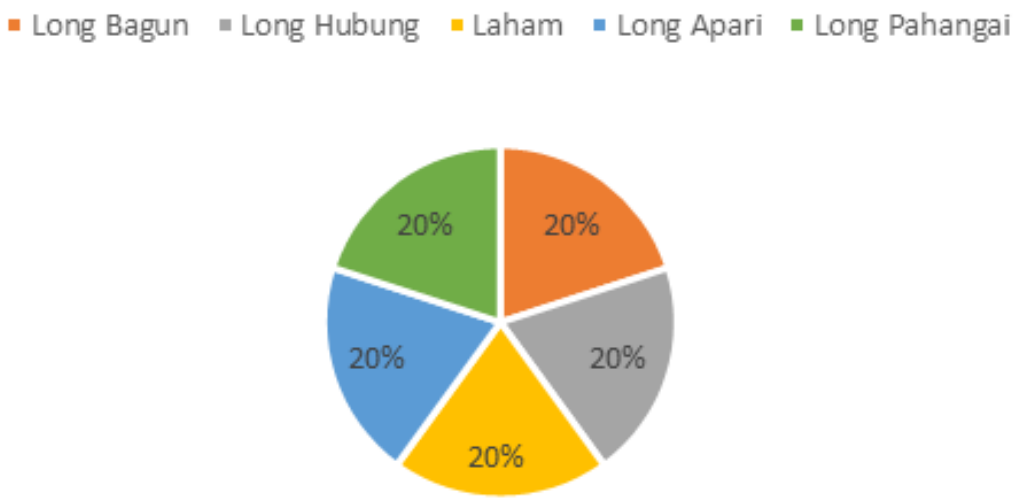
Source: Author's own.

Nonetheless, the evaluation study of the implementation of MSME empowerment policies in Mahakam Ulu Regency was conducted flexibly to adapt to field conditions. If the scale and type of MSMEs encountered were not fully represented, the data were assumed to be representative of the sample. In this study, the research team began with one MSME owner, who then referred other MSME owners for interviews. The sample selected as informants consisted of those involved in MSME groups. Table 1 outlines the sample composition based on regional clusters. In total, the sample comprises twenty-five MSMEs (n = 25) distributed across five sub-districts, ensuring that each sub-district receives an equal proportion of the sample in terms of opportunity and quantity (n = 5).

3. Results and Discussion

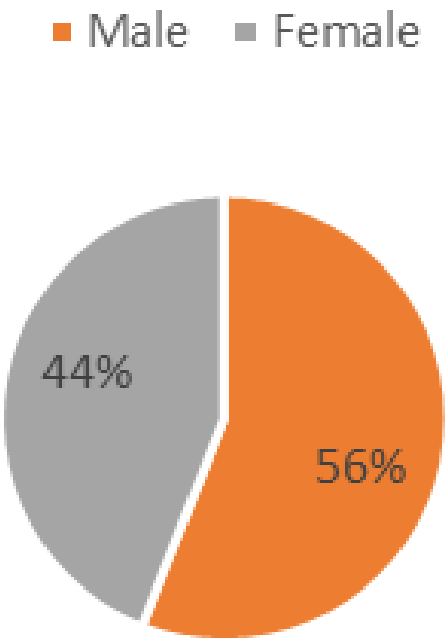
3.1. Respondent Characteristics and Findings

The first section addresses the demographics of the respondents. Figures 3, 4, and 5 illustrate the respondents' demographics based on their place of residence, gender, and age. Since the sample size is relatively small (n = 25), each location corresponds to a specific region or place of residence of the respondents. Consequently, respondents from each sub-district represent 20% of the sample, indicating an even distribution. Notably, regarding gender, MSME owners in Mahakam Ulu Regency are fairly balanced, with 56% male and 44% female.



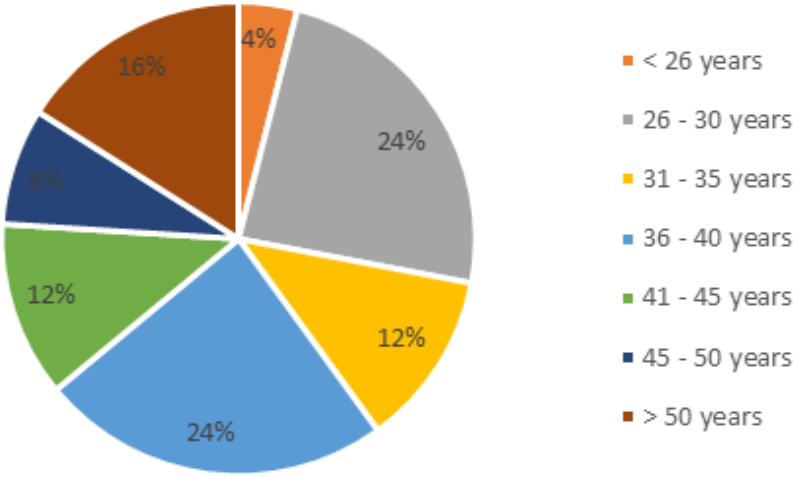
Source: field investigation (2026).

Fig 3: Respondent demographics by residence



Source: field investigation (2026).

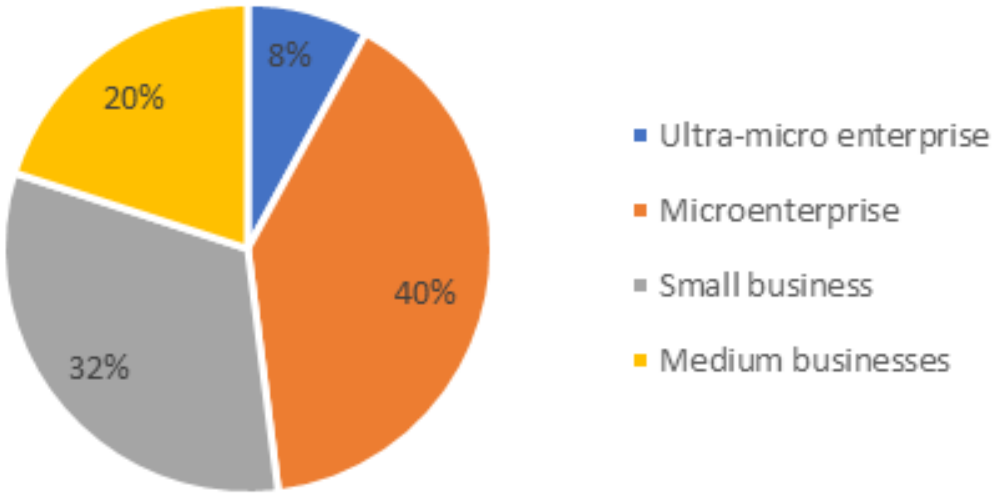
Fig 4: Respondent demographics by gender



Source: field investigation (2026).

Fig 5: Respondent demographics by age

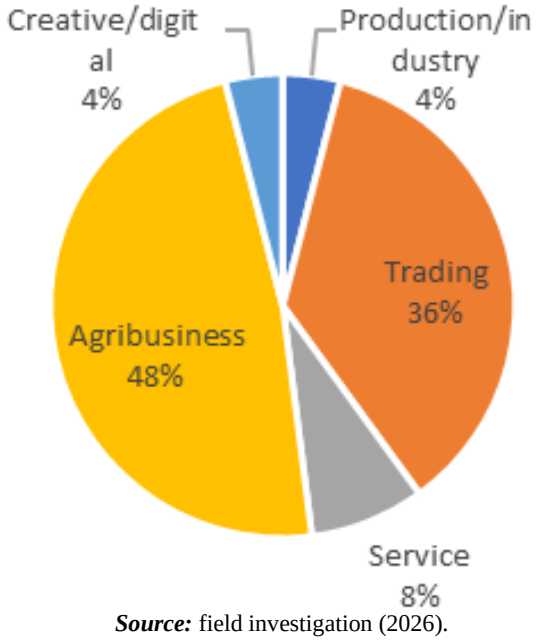
Regarding age distribution, MSME owners aged 26–30 and 36–40 each represent 24% of the sample. Similarly, the age groups 31–35 and 41–45 both account for 12% each. Respondents over 50 years old constitute 16%, while those aged 45–50 make up 8%. Only 8% of respondents are under 26 years old. The four generational cohorts are defined by birth years as follows: Baby Boomers (1946–1964), Generation X (1965–1980), Generation Y (1981–1996), and Generation Z (1997–2012). Overall, the data indicate that age is not a significant aspect, business owners across different age groups have relatively equal opportunities and prospects for business development (Samputra & Alfarizi, 2025; Sternberg & Breitenbach, 2023; Zuhroh *et al*., 2025) [24–26].



Source: field investigation (2026).

Fig 6: MSMEs based on business scale

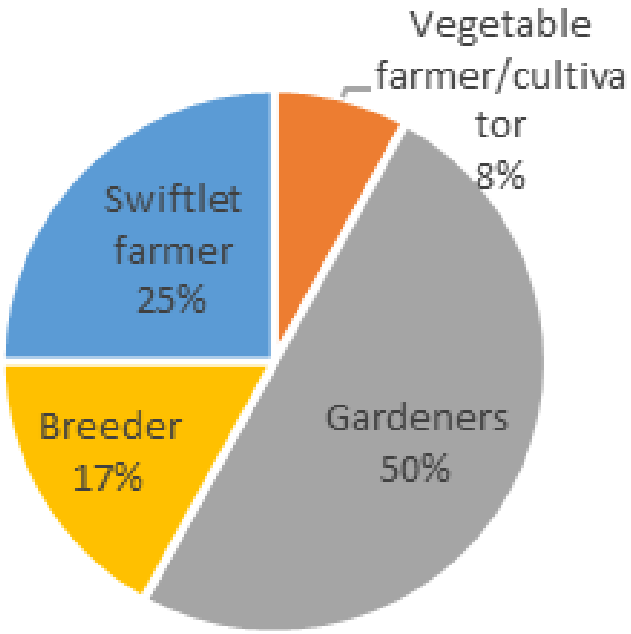
The second part focuses on the profile of the respondents' MSMEs, which includes business scale and type. First, regarding business scale (see Figure 6), MSMEs are categorized into four groups. Micro businesses dominate, comprising 40% of the units. On the other hand, 32% of respondents own small-scale businesses, 20% operate medium-scale businesses, and 8% run super micro businesses.



Source: field investigation (2026).

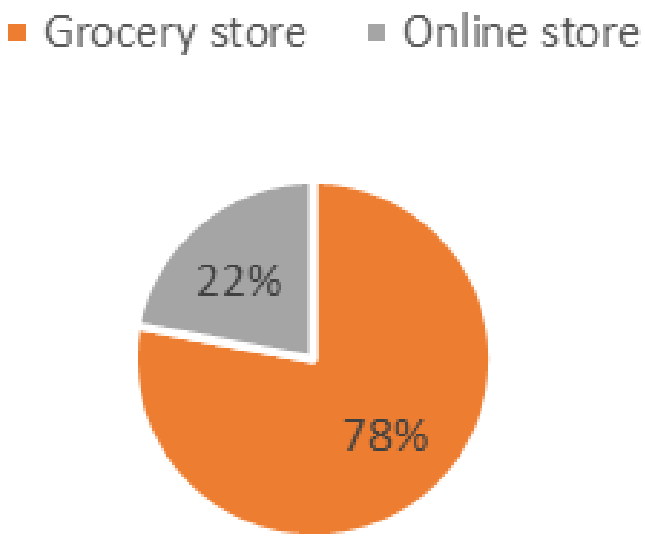
Fig 7: MSMEs by business type

As shown in Figure 7, the demographics of respondents based on the type of business they operate are quite diverse. A total of 48% of agribusiness MSMEs are located in Mahakam Ulu Regency, indicating that the agricultural sector remains the primary economic foundation in this region. What's more, 36% of respondents run MSMEs in the trade sector, 8% in the service sector, and 4% each in the production/industrial and creative/digital sectors. Specifically, MSMEs in the production/industrial sector engage in creative economic activities such as handicrafts (*e.g.*, Dayak-style souvenirs, wood carvings, and similar products). Creative/digital MSMEs focus on the creative economy as well, particularly content creation aimed at promoting the culture, traditions, tourism, and natural diversity of Mahakam Ulu Regency.



Source: field investigation (2026).

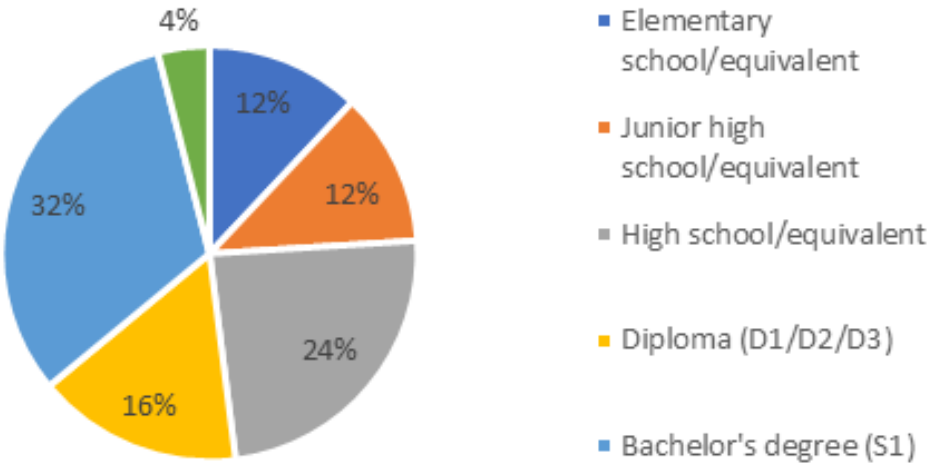
Fig 8: MSMEs in agribusiness by group



Source: field investigation (2026).

Fig 9: MSMEs in trade by group

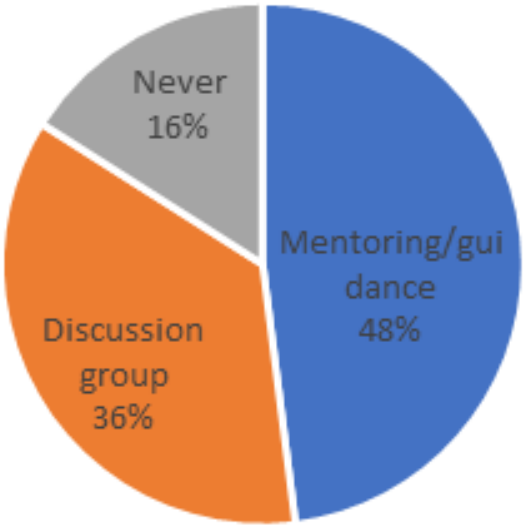
During data exploration, it was also found that MSME services were concentrated in the hospitality and barber shop sectors. In the agribusiness MSME sector, the data in Figure 8 indicates that half (50%) of respondents identified as entrepreneurs engaged in farming, specifically palm oil, cocoa, and rubber cultivation. Comparatively, a quarter (25%) of respondents are involved in swiftlet farming, 17% are poultry farmers raising chickens, ducks, and pigs, and 8% are vegetable farmers and smallholders. In the trade-based MSME sector, as illustrated in Figure 9, both types of businesses deal in various household goods and equipment. But, 78% are grocery stores that continue to rely on traditional methods for stocking, ordering, sales, and transactions. In contrast, 22% are online stores that primarily engage in modern trade practices.



Source: field investigation (2026).

Fig 10: Quality of HRM based on formal education

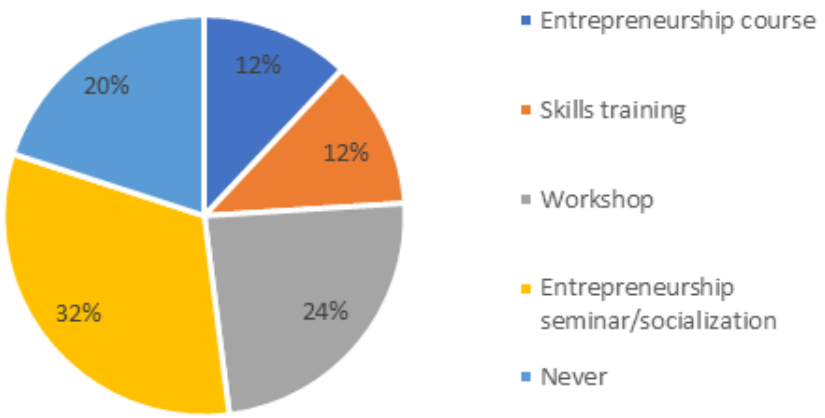
The third section concerns the quality of respondents in managing their MSMEs. In summary, MSME performance is strongly influenced by the educational background of MSME owners, as measured by their formal, informal, and non-formal education (Rijaldi *et al*., 2023; Ng'ora *et al*., 2022) [27, 28]. First, regarding formal education, Figure 10 shows that 32% of respondents hold a bachelor's degree, 24% have a master's degree, and 16% possess a diploma. As well, 24% of respondents have an educational background equivalent to elementary or junior high school. The data also indicate that 4% of respondents have a high school diploma or its equivalent as their highest level of education.



Source: field investigation (2026).

Fig 11: Quality of HRM based on informal education

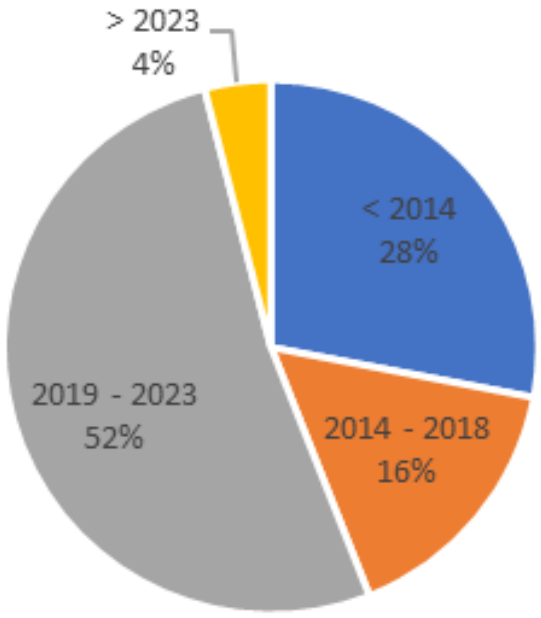
Meanwhile, support from informal education also plays a crucial role in the sustainability of MSME management (Pouratashi, 2021) [29]. Rather than relying solely on formal education, the majority of MSME operators in Mahakam Ulu Regency have benefited from informal education. As shown in Figure 11, nearly half of the respondents—specifically 48%—reported participating in business-related mentoring activities. In addition to providing inspiration, activities such as cross-MSME group discussions can open new opportunities and enhance participants' awareness of current business developments. Furthermore, 36% of respondents took part in MSME group discussions, while 16% indicated they had never engaged in any informal education activities.



Source: field investigation (2026).

Fig 12: Quality of HRM based on non-formal education

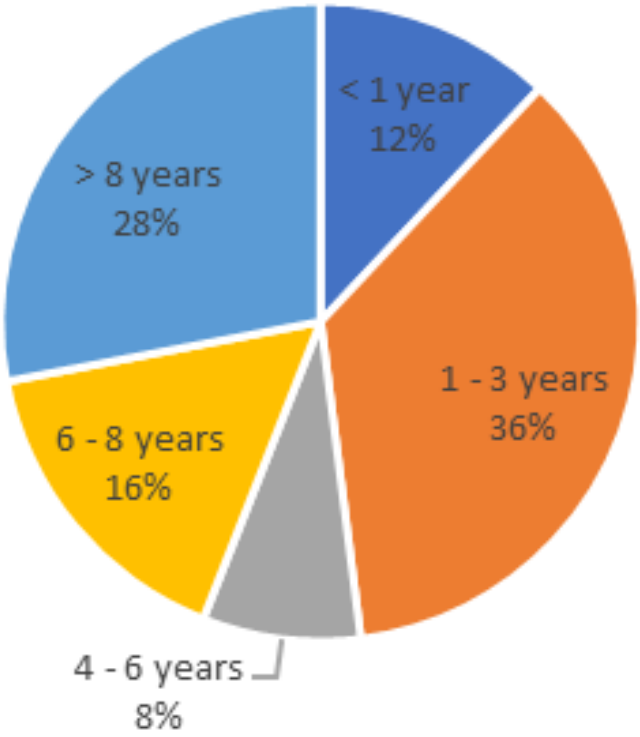
In essence, non-formal education refers to structured and planned learning activities conducted outside the formal education system, such as schools and universities. This form of education aims to provide individuals with knowledge, skills, and values to develop their potential and enhance their quality of life (see Figure 12). Similar to other sectors, including the business sector and MSMEs, non-formal education focuses on entrepreneurship courses, skills training, workshops, seminars, and entrepreneurship socialization. The findings indicate that 32% of respondents had attended entrepreneurship seminars or socialization events, 24% had participated in workshops, 12% had taken entrepreneurship courses, and another 12% had undergone skills training. Notably, one-fifth of respondents (20%) reported never having participated in any form of non-formal education.



Source: field investigation (2026).

Fig 13: Business experience by year of establishment

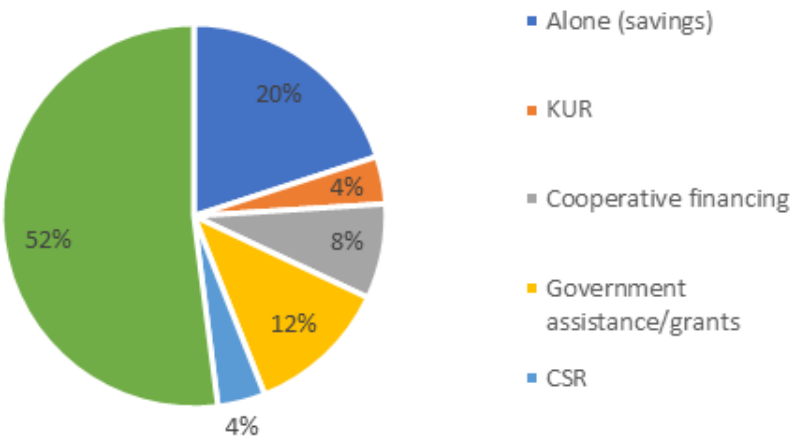
The fourth section discusses the experiences of respondents as MSME owners. As with most other business models, experience is a critical factor for the sustainability of MSMEs (Prasanna *et al*., 2019) [30]. Business experience is evaluated based on the year of establishment and the length of time spent developing the business, both of which contribute to business consistency. Figures 13 and 14 summarize business experience according to these two components. Regarding the year of establishment, among 25 MSME owners, 52% established their MSMEs between 2019 and 2023, 28% before 2014, 16% between 2014 and 2018, and 4% after 2023. In terms of the timeframe required to start, build, and achieve success, the majority (36%) needed at least 1–3 years. Also, 28% required more than 8 years, 16% needed approximately 6–8 years, 12% less than 1 year, and 8% between 4–6 years. This timeframe underscores that duration is a vital aspect for MSME owners in establishing and sustaining their businesses.



Source: field investigation (2026).

Fig 14: Business experience refers to the time span from starting up, building a business, to achieving success

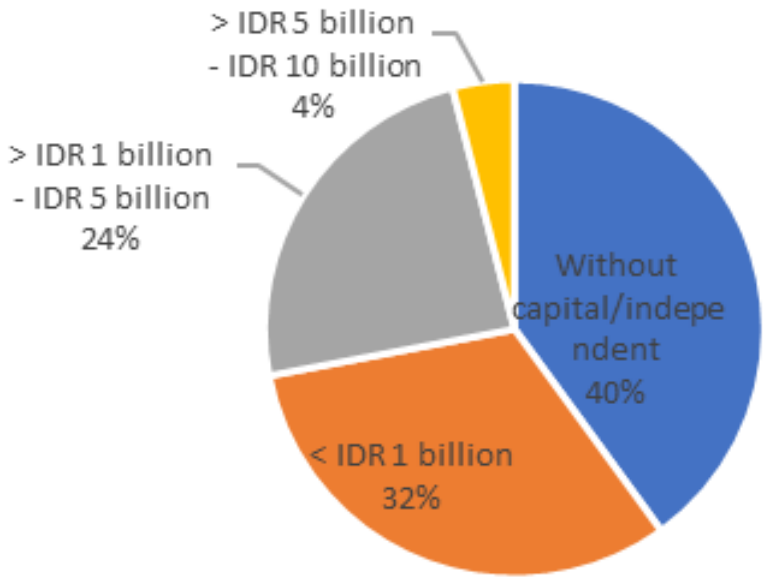
The fifth section addresses sources of business capital and their acquisition from annual sales (including net assets, credit, and other means). As shown in Figure 15 below, 52% of business capital primarily originates from financial institution credit. In Mahakam Ulu Regency, most MSME owners secure financial loan assistance from credit unions.



Source: field investigation (2026).

Fig 15: Business capital based on its origin

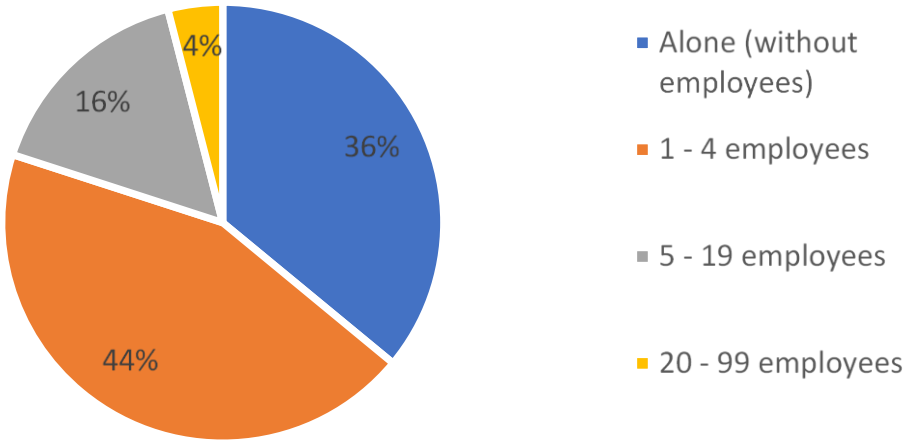
So far, Credit Unions, known as "koperasi kredit" in Indonesian, have primarily served as providers of business credit. Yet, these institutions are managed by private entities that are inherently profit-oriented. Before the establishment of formal business support institutions, Credit Unions first entered Mahakam Ulu Regency in the 2000s and quickly gained popularity among entrepreneurs. By offering easy access to services, Credit Unions ensure that capital can be disbursed more rapidly and with more flexible administrative procedures. Among respondents, 20% reported funding their businesses through personal savings; 12% of MSME capital originated from grants (non-repayable) provided as part of government programs; 8% came from Village Unit Cooperative/Koperasi Unit Desa (KUD) financing; and another 8% was sourced from KUR loans offered by government banks and corporate social responsibility (CSR) programs.



Source: field investigation (2026).

Fig 16: Business capital based on annual sales

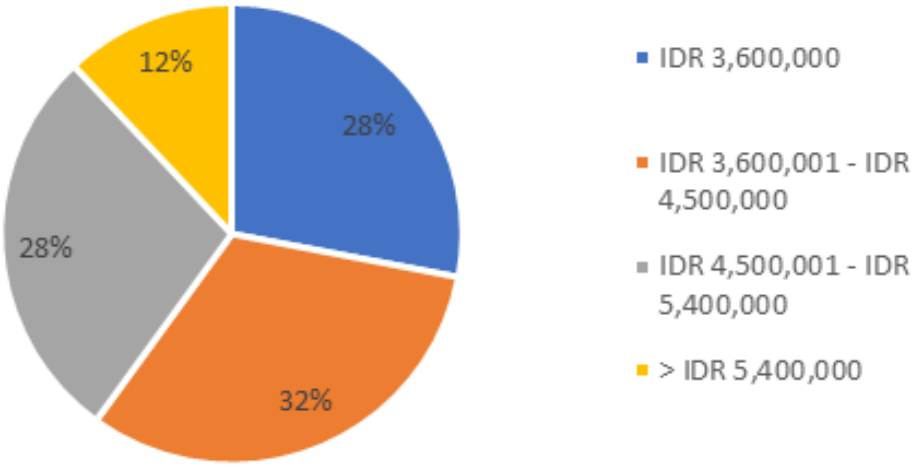
Business capital is commonly understood to refer to annual sales. Forty percent of respondents reported that the businesses they currently operate are self-funded or have no external capital. Most MSMEs are financed by the owners' personal funds, with 32% having business capital of less than Rp 1 billion, 24% supported by capital ranging from Rp 1 billion to Rp 5 billion, and 4% possessing business capital between Rp 5 billion to Rp 10 billion (see Figure 16).



Source: field investigation (2026).

Fig 17: Number of employees based on MSME scale

The sixth section addresses employment. Employment refers to the number of employees working in MSME operations and the average monthly wage (see Figures 17 and 18). Regarding employment scale, 44% of respondents reported employing 1–4 employees, classifying their businesses as micro-scale MSMEs. Then, 36% of respondents indicated that they do not employ any staff and operate their MSMEs independently, a practice common among super-micro-scale enterprises. Moreover, 16% of respondents employ 5–19 employees, categorizing their businesses as small MSMEs, while only 4% have 20–99 employees, indicating medium-sized MSMEs.

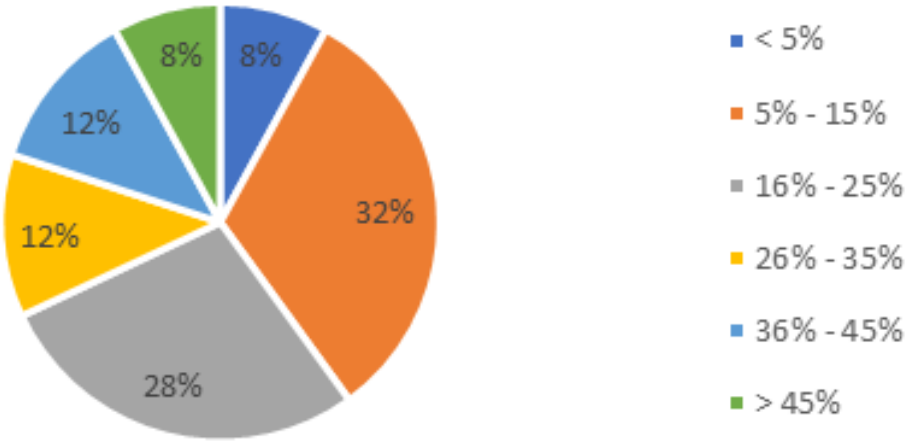


Source: field investigation (2026).

Fig 18: Average monthly wage costs

The wages paid by MSME owners in Mahakam Ulu Regency to their employees are based on the monthly minimum wage but vary according to the owners' capacity and production output. During the investigation, 32% of MSME owners paid their employees a monthly wage between Rp 3,600,001 and Rp 4,500,000, while 28% paid exactly Rp 3,600,000 per month. Besides, 28% of MSME owners paid wages ranging from Rp 4,500,001 to Rp 5,400,000 per month, and 12% paid more than Rp 5,400,000 monthly. As is known, the Mahakam Ulu Regency government has set the UMK standard for 2025 at Rp 3,953,233.

Section seven concerns business profits. One key indicator of the success of MSMEs is the Net Profit Margin (NPM). NPM is also crucial for assessing the financial health of an MSME (Steiner, 2025) [31]. Essentially, NPM represents the amount of net profit earned from each rupiah of sales after deducting all expenses, including operational costs, taxes, interest, and others.

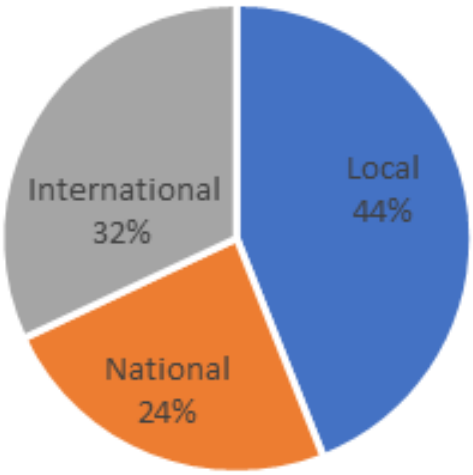


Source: field investigation (2026).

Fig 19: Average NPM for MSMEs, percent (%)

Statistically, Figure 19 displays that 32% of MSMEs in Mahakam Ulu Regency have an average NPM between 5% and 15%, 28% have an average NPM between 16% and 25%, 12% have an average NPM between 26% and 35% or between 36% and 45%, and 8% have an average NPM below 5% or above 45%. This indicates that some MSMEs with an NPM exceeding 45% achieve very high net profits relative to their revenue. While this is a positive sign, it also warrants further investigation.

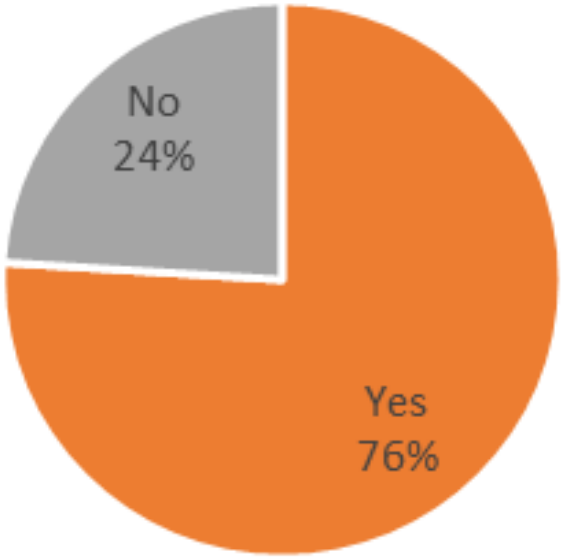
The eighth section discusses market share. Figure 20, which addresses market share, refers to sales and marketing segmentation that helps businesses focus on their target audience and assess the strength of their products or commodities in the market. MSMEs in Mahakam Ulu Regency certainly have commodities traded across various market segments. In practice, among the 25 MSMEs studied, 44% have sales and marketing segmentation at the local level, 32% target the international market, and 24% focus on the national level.



Source: field investigation (2026).

Fig 20: Sales and marketing segmentation

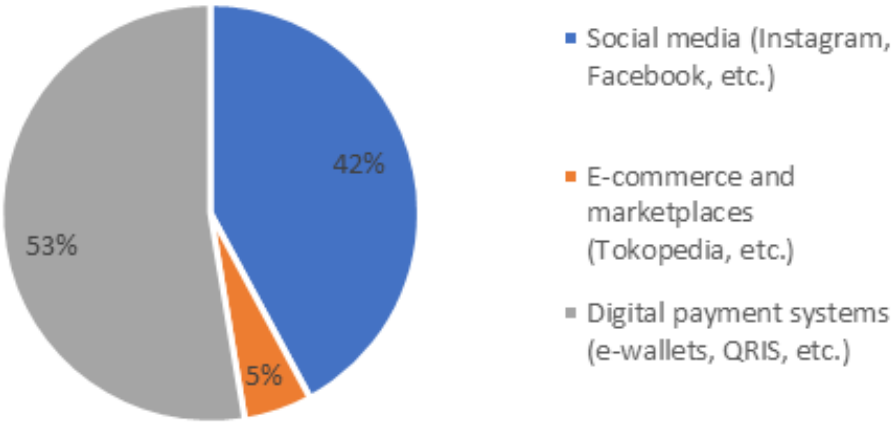
The ninth section provides a more detailed examination of the capital obtained by MSMEs from banks. This section continues the previous discussion, which focused on how banks in Mahakam Ulu Regency can encourage and support the performance of MSMEs in terms of capital access. Three key points are explored: (1) banks that provide capital, (2) types of loan credit, and (3) the amount of capital. In fact, as shown earlier in Figure 15, only one MSME accessed capital from banks, making it easy to identify. This MSME obtained capital from the Regional Development Bank/Bank Pembangunan Daerah (BPD) of East Kalimantan in the form of a super micro KUR loan ranging from Rp 10 million to Rp 100 million.



Source: field investigation (2026).

Fig 21: The involvement of technology devices in business

The tenth section highlights MSMEs that depend on digital access through the integration of technological devices in their business operations, the variety of technologies employed, and the changes resulting from adopting these technologies. First, regarding the use of technological devices, Figure 21 indicates that 76% of respondents reported their MSMEs had adopted such devices, while the remaining 24% had not yet implemented them and continued to operate traditionally. It is important to note that technological devices contribute to the expansion of social networks (Kuleh *et al*., 2023) [32]. Second, concerning the application of technological devices to enhance business performance, 53% of MSME owners who use these devices revealed that they have implemented digital payment systems, such as e-wallets, the Quick Response Code Indonesian Standard (QRIS), and others, to facilitate smooth transactions while ensuring transaction security.

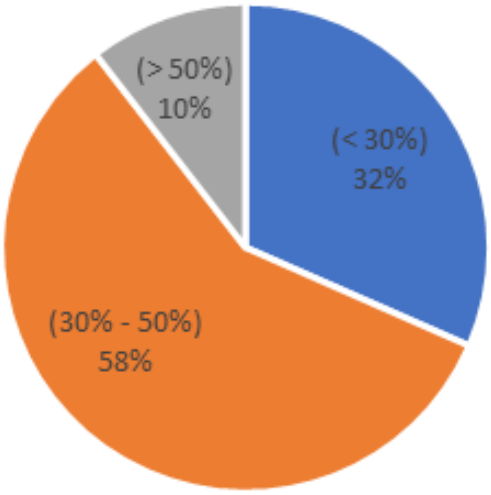


Source: field investigation (2026).

Fig 22: Types of technology in business operations

Figure 22 also provides valuable insights indicating that among MSME owners in Mahakam Ulu Regency who rely on technological support, 42% use marketing channels such as Instagram (IG), Facebook (FB), and similar platforms for product promotion, distribution, and sales. Similarly, 5% of MSME owners who adopt technology tend to leverage e-commerce platforms, marketplaces, and other digital channels. Beyond introducing, tracking, controlling, and delivering products, social media can also facilitate electronic branding for customers (Islam & Sheikh, 2024; Nadeem *et al*., 2020) [33, 34].

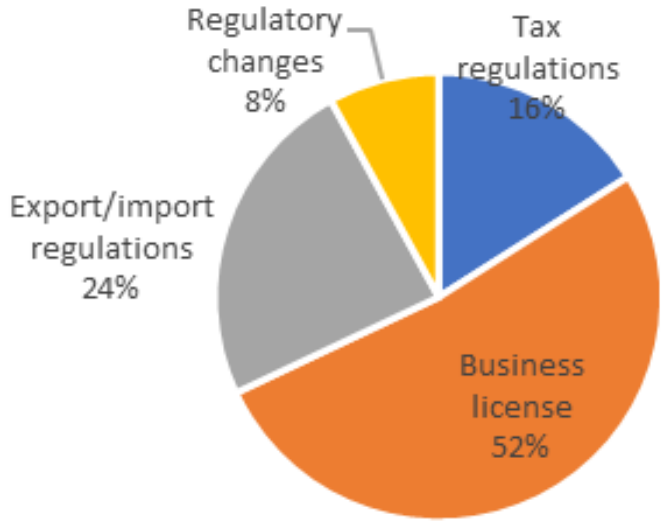
Third, progress following the introduction of technology. MSME owners who have adopted the aforementioned technologies report significant advancements. Technology has generated positive trends, with 58% indicating that MSME performance has improved moderately by 30%–50%, and 11% experiencing substantial improvements exceeding 50%. Figure 23 shows that 32% of MSMEs in Mahakam Ulu Regency exhibited limited progress due to their insufficient understanding and implementation of technological tools.



Source: field investigation (2026).

Fig 23: Progress following the advent of technology

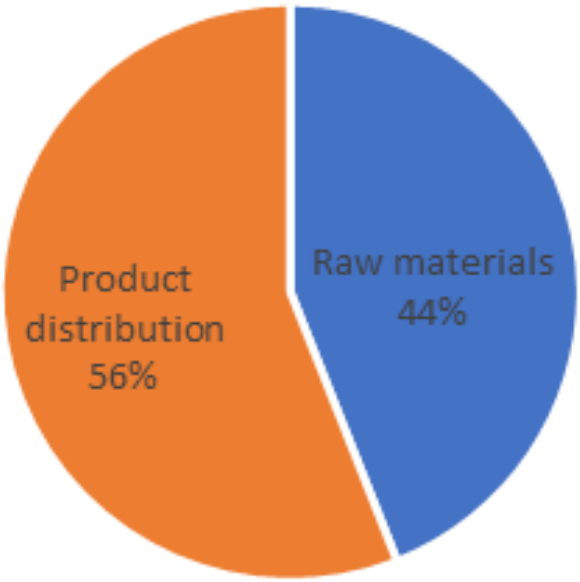
The eleventh section aims to explore factors beyond those discussed in the previous subsection, focusing on policymakers' preferences for the upcoming agenda. The research team identified four key factors: (1) government regulations and policies, (2) supply chain and distribution, (3) infrastructure and geographical conditions, and (4) local consumer culture and preferences. These factors are closely interconnected and significantly influence the success or failure of MSME performance in Mahakam Ulu Regency. Figures 24, 25, 26, and 27 illustrate factors beyond HRM support, business experience, capital, turnover, employment, profit, market share, banking, and digital aspects that contribute to the success or failure of MSMEs.



Source: field investigation (2026).

Fig 24: Government regulations and policies

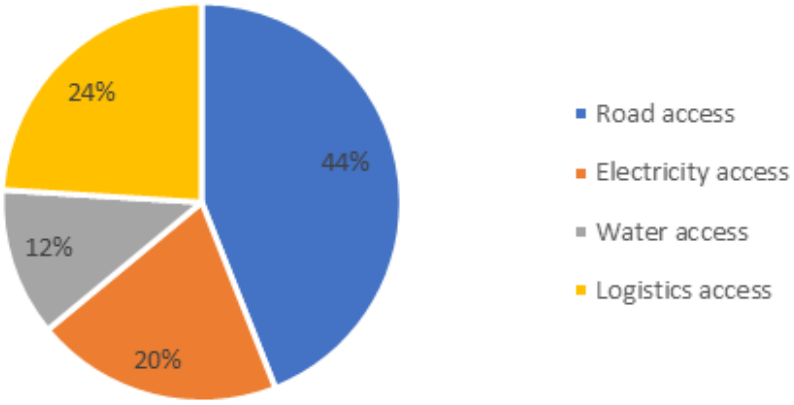
First, government regulations and policies. Tax regulations, business licenses, import/export policies, and regulatory changes often impact the sustainability of MSMEs. Policies that are unfriendly to small businesses can pose significant obstacles. Figure 24 supports the argument that institutional support, such as government regulations and policies, can determine the success or failure of MSMEs. Field investigations revealed that more than half of the respondents (52%) viewed permits as both a hindrance and a facilitator to the sustainability of their businesses. To boot, 24% of respondents considered regulations governing export-import activities to be quite significant, 16% stated that tax regulations need to be revitalized, and the remaining 8% claimed that regulatory changes affecting MSMEs should be thoroughly prepared.



Source: field investigation (2026).

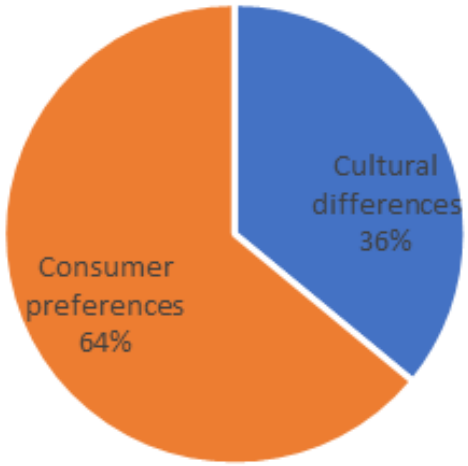
Fig 25: Supply chain and distribution network

Second, supply chain and distribution channels. The difficulty of obtaining quality raw materials at affordable prices, along with limitations in product distribution, can hinder the growth of MSMEs in Mahakam Ulu Regency. Among the respondents, 56% of MSME owners indicated that issues with product distribution could both disrupt and simultaneously foster a resilient MSME ecosystem, while the remaining 44% emphasized the importance of raw material supply chains for the sustainability of MSMEs.



Source: field investigation (2026).

Fig 26: Infrastructure and geographic aspects



Source: field investigation (2026).

Fig 27: Culture and consumer preferences

Third, infrastructure and geographical conditions significantly impact MSMEs. Those located in remote areas, such as Mahakam Ulu Regency, often face challenges in accessing roads, electricity, water, and logistics, which can hinder production and distribution. Road access is a particularly critical issue. This is confirmed by 44% of respondents, who indicated that road difficulties have the potential to affect MSME performance. To enhance MSME performance, 24% of respondents recommended improving logistics access, 20% emphasized the need for better electricity availability, and 12% called for increased government attention to ensure adequate water supply.

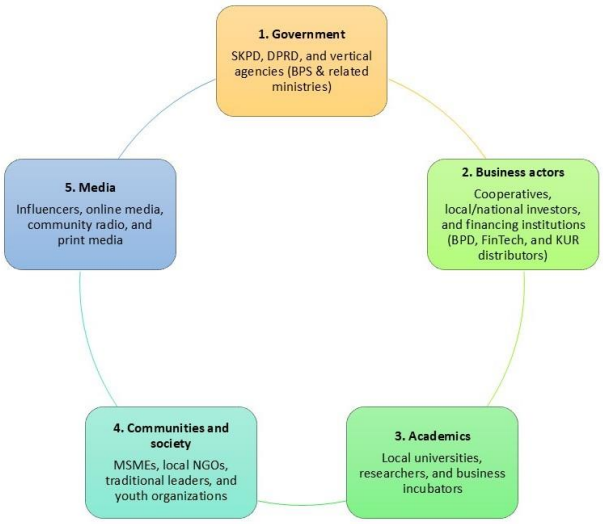
Fourth, local culture and consumer preferences. Cultural differences and consumption habits among the people of Mahakam Ulu Regency can influence the market acceptance of MSME products. This region is characterized by unique cultural traits and distinct local consumer preferences for MSME products. Both culture and consumer preferences are critical factors that must be considered, as they directly impact the performance of MSMEs (Hamzani & Achmad, 2016; Suherna & Nasiatin, 2024) [35, 36]. Field research revealed that 64% of respondents believe consumer preferences can either facilitate or hinder MSME performance, while 36% confirmed that cultural differences also play a role. By incorporating these four additional factors beyond the existing ones, this study provides a comprehensive description of the state of MSMEs in Mahakam Ulu Regency.

3.2. Pilot project for MSME empowerment

Mahakam Ulu Regency, as a developing region, holds significant potential in sectors such as local resource-based MSMEs, the creative economy, and culture-based tourism. To accelerate the systematic and sustainable empowerment of MSMEs, a pentahelix-based strategy involving cross-sectoral collaboration is essential. Once the database is established and planning is finalized, a pilot project for MSME empowerment will be implemented as a practical application on the ground. This pilot project is grounded in the pentahelix approach, beginning at the local level with partnerships among Local Government Performance Units/Satuan Kerja Perangkat Daerah (SKPDs), business actors (including cooperatives, investors, and financing institutions), vertical agencies from the central government (notably the BPS and relevant ministries), as well as the four other actors in the pentahelix model: social media, communities/society, academia/universities, and the MSMEs themselves. The project was subsequently reviewed, and technical regulations were established by the Regional People's Representative Council/Dewan Perwakilan Rakyat Daerah (DPRD) of Mahakam Ulu Regency. Each component within the pentahelix has a distinct role. The systematic objectives of this pilot project are: (1) to build an integrated, productive, and highly competitive MSME ecosystem; (2) to strengthen multi-stakeholder collaboration in supporting MSMEs to upgrade digitally, financially, and legally; and (3) to position MSMEs as resilient, inclusive, and sustainable

drivers of the local economy. In essence, alongside intervention efforts, the pentahelix model will strive to catch up while working to maximize the performance of MSMEs in Mahakam Ulu Regency. Figure 28 below visualizes the pillars of the pentahelix and the key actors involved in MSME empowerment.

Pillar one: The government is responsible for providing regulations, incentive policies, and budgets; organizing training, certification, equipment assistance, and MSME digitization; and collecting and monitoring MSME data.
Pillar two: Business actors serve as providers of financing, business partnerships, product curation, and distribution for MSMEs. They also act as supply chain aggregators and marketing channels, and offer incubation spaces and CSR initiatives.
Pillar three: Academics contribute by conducting market research, delivering data-driven training and management consulting, developing roadmaps for the development of MSME flagship commodities, and partnering in the evaluation of policy impacts.
Pillar four: Communities and society empower MSMEs based on culture and locality, promote local participation and mentoring, and conduct social oversight and advocacy to address MSME needs.
Pillar five: Media plays a vital role in promoting local products, sharing MSME success stories, and educating the public about the role of and support for MSMEs.



Source: the Authors' idea.

Fig 28: Pentahelix pillars and key actors in the pilot project

With the full support of the DPRD of Mahakam Ulu Regency, the pentahelix approach is expected to serve as a strong foundation for transforming MSMEs from micro-scale to small- and medium-scale industries that are resilient, modern, and sustainable. The anticipated outcomes include: (1) the establishment of a collaborative MSME ecosystem based on regional and cluster-oriented approaches; (2) increased formalization, productivity, and market access for Mahakam Ulu MSMEs; (3) the availability of real-time MSME data through a regional dashboard; and (4) the realization of an inclusive and participatory local economic self-reliance.

4. Conclusions

This study was conducted as an initiative and part of the local government program to map the presence of MSMEs in Mahakam Ulu Regency. In addition, the study aims to empower MSMEs through careful and comprehensive planning, aligning with the targets set by the government. From the MSMEs examined using a series of methods, the following eleven valuable points were identified:

1. Demographically, with 20% of respondents representing each sub-district, MSME owners in Mahakam Ulu Regency are fairly balanced by gender, comprising 56% male and 44% female. Regarding age distribution, MSME owners aged 26–30 years and those aged 36–40 years are equally predominant, each accounting for 24%.
2. Based on their profiles, MSMEs are categorized into four groups: micro businesses account for 40% of units, small-scale businesses represent 32% of respondents, medium-scale businesses comprise 20%, and super micro businesses make up 8%. A total of 48% of agribusiness MSMEs operate in Mahakam Ulu Regency. Too, 36% of respondents run MSMEs in the trade sector, 8% operate service-based MSMEs, and 4% each are engaged in production/industry or creative/digital sectors.
3. The performance of MSMEs is strongly influenced by the educational background of their owners, encompassing formal, informal, and non-formal education. The majority of respondents are university graduates. Nearly half of the respondents (48%) reported participating in business-related mentoring or coaching activities. In terms of non-formal education, one-third of the respondents had attended entrepreneurship seminars or workshops.
4. Business experience, measured by the year of establishment and the duration of time spent developing the business, enhances consistency in operations. Regarding the year of establishment, 52% of respondents founded their MSMEs between 2019 and 2023. In terms of business experience based on the length of time spent pioneering, building, and achieving success, the majority required at least 1 to 3 years (36%).
5. Besides that, regarding sources of business capital and their acquisition from annual sales, field surveys found that 52% of business capital primarily originated from

loans provided by financial institutions. Business capital is defined in terms of annual sales, with 40% of respondents indicating that their current businesses were established independently or without external capital. Most MSMEs are financed primarily by the owners' personal funds.

6. Regarding employment, 44% of respondents reported employing 1–4 people, classifying their businesses as micro-scale MSMEs. Meanwhile, 36% indicated that they do not employ any employees and operate their MSMEs independently, which is typical for super-micro MSMEs. Also, the survey found that one-third of MSME owners pay their employees a monthly wage ranging from Rp 3,600,001 to Rp 4,500,000.
7. One benchmark for the success of MSMEs can be observed through their NPM. Quantitatively, one-third of MSMEs in Mahakam Ulu Regency have an average NPM between 5% and 15%, 28% have an average NPM between 16% and 25%, 12% have an average NPM ranging from 26% to 35% or 36% to 45%, and 8% have an average NPM either below 5% or above 45%.
8. MSMEs in Mahakam Ulu Regency certainly have commodities traded across various market segments. In fact, 44% of them focus their sales and marketing efforts at the local level. There are 32% of MSMEs target the international market, while 24% operate with sales and marketing segmentation at the national level.
9. The capital provided by banks to MSMEs was examined to understand how banks in Mahakam Ulu Regency could support and enhance MSME performance in terms of financing. In reality, only one MSME had accessed capital from banks, making it straightforward to identify. This MSME received funding from the BPD of East Kalimantan through super micro KUR loans, ranging from IDR 10 million to IDR 100 million.
10. Intensively, 76% of respondents stated that their MSMEs have adopted technological devices, while 24% have not yet used them and remain traditional. Among MSME owners who use technological devices, 53% reported that they have already implemented digital payment systems. Also, 42% of MSME owners in Mahakam Ulu Regency who rely on technological support use marketing channels such as IG, FB, and similar platforms. Technology is driving positive trends, as 44% of respondents indicated that their MSMEs' performance has improved moderately by 30%–50%. Notably, 24% of MSMEs in Mahakam Ulu Regency have made limited progress in adopting technological tools.
11. This study identified four additional factors beyond the ten previously mentioned that can influence the success or failure of MSME performance: government regulations and policies, supply chains and distribution, infrastructure and geographical conditions, and local consumer culture and preferences. More than half of the respondents (52%) considered permits to be a factor that both hinders and facilitates the continuity of their businesses. Similarly, over half of the MSME owners indicated that product distribution issues can disrupt operations while simultaneously fostering a resilient MSME ecosystem. Most MSMEs in remote areas, such as Mahakam Ulu Regency, often face infrastructure and geographical barriers—particularly limited road access—that slow down production and distribution.

This is supported by 44% of respondents who stated that road infrastructure challenges caused by difficult-to-reach geographical areas have the potential to worsen MSME performance. Field research also revealed that 64% of respondents believe consumer preferences can either facilitate or hinder MSME performance. Additionally, differences in consumer behavior were noted by 36% of respondents as a significant factor.

5. Limitations and Future Directions

Existing studies exhibit several weaknesses, particularly in terms of data and analytical methods. Future research can address data limitations by expanding the sample size and survey scope—for example, increasing the number of samples or units and extending the geographic coverage beyond the sub-district level to include the village level. This expansion would enable more comprehensive and nuanced comparisons. Methodologically, the analysis should be enhanced by incorporating quantitative approaches. Such methods would effectively complement qualitative findings by providing a broader range of empirically validated interpretations.

Four priority policy recommendations for the government, as stakeholders and decision-makers in empowering MSMEs, are as follows:

1. Distribution of tax incentives and regulatory easing for formal MSMEs aims to encourage legality, compliance, and the growth of small businesses. To enhance the performance of professional MSMEs, local governments can offer tax exemptions or reductions for the first two to three years to newly formalized MSMEs. Additionally, the government should implement an automatic micro final tax system based on turnover, utilizing QRIS or a digital Point of Sale (POS) system. As well, permit processes should be streamlined by integrating the Online Single Submission (OSS) service at the village level.
2. A regionally based MSME digitization program aims to accelerate technology adoption and enhance local competitiveness. Ideally, each sub-district should have at least one MSME digitization service center (digital corner). The program offers hands-on training in online marketing, digital payments, and digital product catalogs. Other initiatives can assist MSME owners in creating marketplace accounts and collectively managing social media.
3. Providing market certainty for MSMEs is essential to strengthening the local economy. To enable MSMEs to accelerate growth in a developing market, government intervention is necessary through the involvement of authorized organizations. For example, all SKPDs are required to allocate at least 30% of their goods and services procurement budget to local MSMEs via e-catalogues. Then, MSMEs should be supported to meet procurement specifications and documentation standards, and provided with procurement training, including e-catalogue pre-qualification.
4. Accommodating partnership-based microfinance schemes and mentoring aims to improve MSMEs' access

to financing without burdening them with high interest rates. In practice, the government can provide ultra-micro regional revolving funds with low interest rates (≤ 3% per year), supported by mentoring that integrates financing with basic financial training, business management, and business mentorship. Cooperatives or BUMKam can serve as distribution institutions to enhance efficiency.

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