# MSMEs and Local Economic Growth: A Feasibility Study of Metal Recycling Business in Mojokerto

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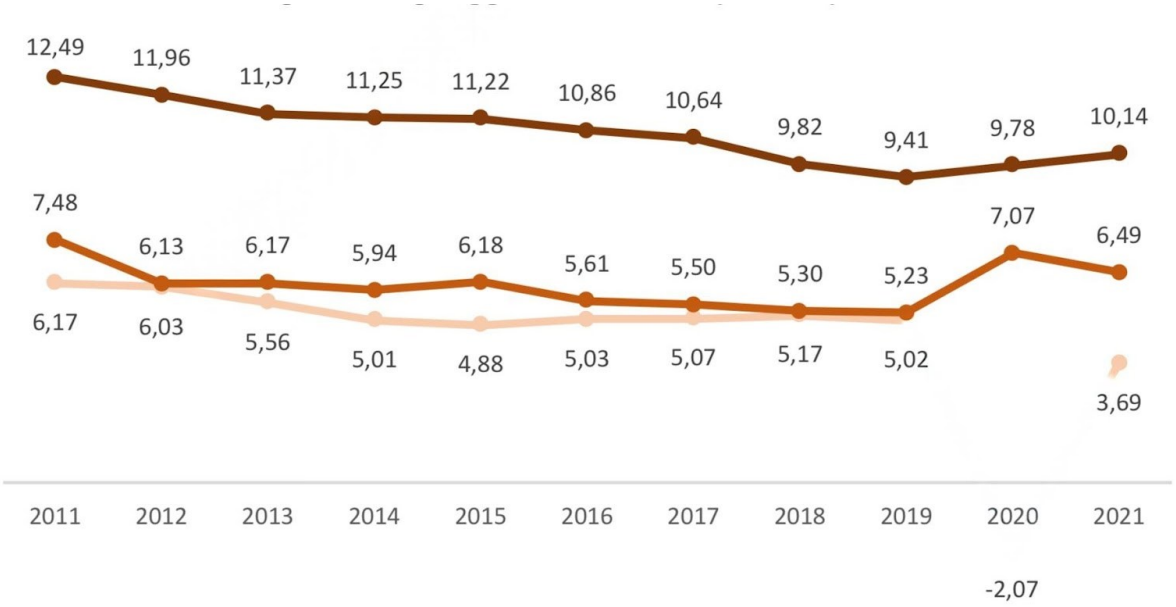
**Abstract.** This feasibility study examines the potential expansion of UD. Lukman Abadi, a microenterprise engaged in recycled tin casting. Employing an evaluative qualitative approach, the analysis covers six key dimensions: legal, marketing, financial, technical, environmental, and socio-economic. The findings indicate that UD. Lukman Abadi complies with legal requirements for business operations and adopts a demand-oriented marketing strategy. From a financial perspective, the enterprise is considered viable, with a Payback Period of 11.5 months and a Break-Even Point of 25 units. The business also benefits from adequate production facilities, an efficient management system, and a well-structured organizational framework that support operational effectiveness. Social and environmental contributions include local job creation and sustainable waste management practices. These indicators—combined with organizational readiness and environmental compliance—highlight the enterprise's financial and operational feasibility. Overall, this feasibility study contributes to the broader discourse on MSME development strategies in resource-based manufacturing sectors across Southeast Asia.

**Keywords :** Feasibility study, Manufacturing, MSME, Recycled, Tin

## Introduction

The impact of the COVID-19 pandemic was strongly felt in the MSME sector (Micro, Small, and Medium Enterprises) in Indonesia, including the metal industry sector. After the pandemic, MSMEs faced major challenges in recovering their businesses, especially in terms of declining revenue, reduced profits, and difficulties in sourcing raw materials. Many business actors were forced to reduce production and the number of employees (Edy Prayitno et al., 2022; Widiastuti et al., 2021). Indonesia's economic condition began to recover after the COVID-19 outbreak. This is evident from the economic growth of 3.69% in 2021, compared to a contraction of -2.07% in 2020, which then increased again to 5.31% in 2022 (BPS RI, 2022).




Economic growth. Open Unemployment Rate Percentage of poor population

Figure 1 : Economic growth rate

MSMEs are one of the key pillars of the Indonesian economy. They contribute significantly to economic growth, job creation, and financial development (Hadi et al., 2023). Java Island dominates the number of MSMEs in Indonesia, reaching 8.7 million units in 2022, with East Java being the second-largest contributor to Indonesia's economy after DKI Jakarta (Srimulyani et al., 2023). For example, Kediri Regency contributed IDR 19.584 billion in gross value added from MSMEs to East Java's Gross Regional Domestic Product (GRDP) in 2022 (BPS RI, 2022).

In Indonesia, MSMEs that have shown rapid growth include those in the manufacturing sector, including metal casting industries such as tin casting. This industry has high economic value and plays an important role in the supply chains of various industrial sectors (Harahap et al., 2023). One example of a tin-casting MSME in Mojokerto Regency is UD. Lukman Abadi. UD. Lukman Abadi is a company that produces various goods made from scrap materials. It was established in 2010 and is located in Ngoro Village, which serves as an industrial center in Mojokerto Regency.

Although the company has increased its product variety and quantity, this does not automatically enable it to compete effectively. Competition in the tin casting sector becomes tougher each year, both in terms of price and quality. One of the biggest challenges faced by UD. Lukman Abadi is the very small profit margin, which makes it difficult for the company to independently invest in development and compete with larger, better-funded producers.

Currently, the company is trying to explore development opportunities by modifying product composition and improving product quality. However, these efforts are still limited by minimal working capital and available production tools. Considering these conditions, a business feasibility study is needed to assess whether such business developments like modifying product composition or improving production outcomes can still be carried out profitably.

A feasibility study is used for various types of businesses, from MSMEs and startups to larger-scale enterprises (Dadang Krisdianto et al., 2023; Patmawati, 2023; Siddiqa, 2024). It involves identifying and analyzing each relevant aspect separately, then drawing conclusions on whether the business is viable. The results of the feasibility analysis become the basis for making investment decisions and for more structured business planning (Dadang Krisdianto et al., 2023; Kruteeva & Lepilina, 2022; Patmawati, 2023; Siddiqa, 2024).

## Method

This research applies an evaluative qualitative method, which describes the object of study in a structured manner based on field data. The evaluative qualitative approach is used to deeply understand the processes, meanings, and contexts of a phenomenon, especially in assessing or evaluating programs, policies, or practices.

The research was conducted at UD. Lukman Abadi, located in Mojokerto Regency, with the research focus on the owner and employees who are directly involved in the production process. The data used in this research consists of primary data, collected through direct observation, interviews, and the company's financial documents, as well as secondary data obtained from references such as social media, websites, and other sources.

Interviews, observations, and documentation were the main methods used to collect the data. The business feasibility study analyzed several aspects, including legal, market and marketing, technical and technological, financial, management and organizational, and environmental aspects.

The analysis was carried out based on theories and relevant indicators used to evaluate the feasibility of business development. These indicators are presented in more detail in Table 1 (Agustin et al., 2024)

Table 1. Aspects and Their Indicators

| No | Aspect | Indicators |
|---|---|---|
| 1 | Legal Aspect | Type of legal entity and business licensing |
| 2 | Market and Marketing Aspect | Marketing strategy and target market |
| 3 | Financial Aspect | Break Even Point and Payback Period |
| 4 | Technical/Operational Aspect | Site area, location analysis, facilities and infrastructure, building layout |
| 5 | Management & Organizational Aspect | Business type, organizational structure, responsibilities and tasks |
| 6 | Economic & Social Aspect | Demographics, economic environment, socio-cultural, geography, politics |
| 7 | Environmental Impact Aspect | Environmental effects |

## Results and Discussion

UD. Lukman Abadi is a Micro and Small Enterprise, or MSE operating in the metal manufacturing sector, specifically in tin casting. The business was established in 2010 in an industrial zone in Desa Ngoro, located in Mojokerto Regency. This enterprise produces raw materials with high market value. The products are made using a combination of manual and semi-modern casting techniques, with continuously updated designs and material compositions in accordance with customer demand.

Currently, the production and marketing processes are still highly dependent on customer orders. Mr. Lukman, as the owner, has made serious efforts to develop his business so that it can compete more broadly, especially in the highly competitive metal market and amid the ever-changing consumer needs. The business development plan includes increasing capital, choosing a more strategic location, and obtaining proper legal protection. To support this plan, a business feasibility study is required to assess whether the proposed development is technically, financially, and commercially viable. The findings from this study will be an important consideration for the owner when making decisions regarding planned and sustainable expansion.

1. Legal Aspect Review

UD. Lukman Abadi is a registered Usaha Dagang (UD) or sole proprietorship business, which is directly led by its owner, Mr. Lukman. The company operates in the field of tin casting, producing various material-based products. Legally, the business has already been registered with a Nomor Induk Berusaha (NIB - Business Identification Number) and a Nomor Pokok Wajib Pajak (NPWP - Tax Identification Number). Additionally, the business premises and production building are legally owned and registered under the owner's name, in accordance with valid land ownership documents. This confirms that UD. Lukman Abadi has fulfilled the basic legal requirements to operate and develop its business.

2. Market and Marketing Aspect Review

Tin plays an important role in various industries, including manufacturing sectors such as automotive, electronics, and construction. The strength and characteristics of tin make it highly versatile in its applications, including for tin solder, tin chemicals, tin plates, batteries, alloys, and other uses (PT Timah Tbk, 2024).

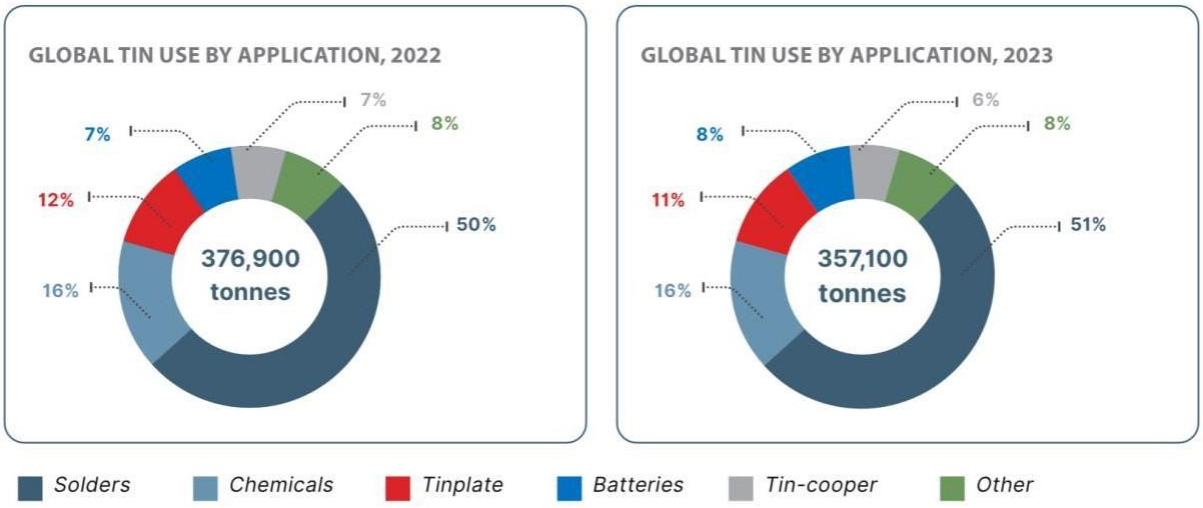



Figure 2 : Tin Absorption and Utilization Globally in 2022 – 2023

Driven by China and supported by technological development, global tin consumption is projected to grow by 3.0% YoY (Year-over-Year) in 2024 recovering from the slight decline in 2023 but still below 2022 levels. With inflation easing, the use of tin and digitalization technology is expected to increase, supporting moderate global growth, although uncertainty remains due to supply chain changes and geopolitical risks. The global demand for tin in 2024 is forecast to reach 372,725 metric tons, up by 1.66% from 366,654 metric tons the previous year (PT Timah Tbk, 2024).

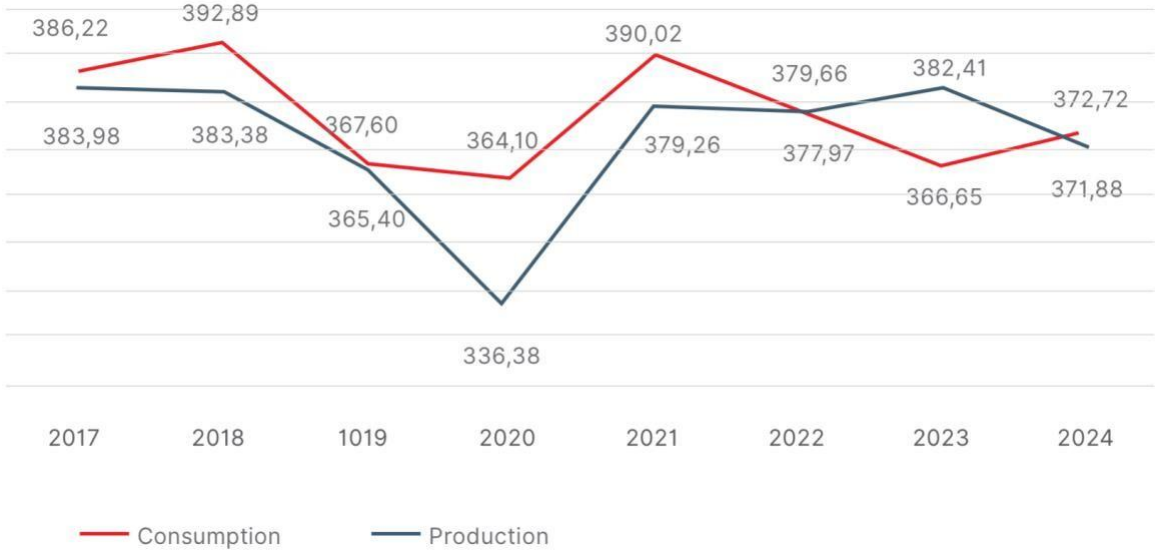



Figure 3 : Global Tin Production and Consumption

When developing marketing strategies, it is essential to analyze both industry conditions and competitors to ensure the strategies align with market needs (Sukier et al., 2024). UD. Lukman Abadi applies a marketing strategy focused on customer demand. The products are tailored to meet the specific preferences and requirements of the customers. Communication with clients is done directly both at the production site and through established business networks. The company also offers custom orders, based on model, size, or design specifications. This strategy aims to optimize customer satisfaction, build long-term relationships, and ensure that each product truly fits market demands.

3. Financial Aspect Review

Currently, the company has not yet established a complex financial reporting system, instead relying on simple bookkeeping to record daily income and expenses. The initial capital for UD. Lukman Abadi came from the owner's personal funds, totaling IDR 138,000,000. This capital was used to purchase raw scrap materials, basic casting equipment, and other operational needs.

Revenue is generated from customer orders and direct product sales at the production site. The following table presents a projection of the company's monthly income statement based on current estimates of income and operational expenses:

Table 2. Financial Projection

| Category | Estimated Amount (IDR) |
|---|---|
| Initial Capital | |
| Equipment (casting tools, molds) | 35,000,000 |
| Total Capital | 35,000,000 |
| Monthly Operational Costs | |
| Wages and Meals | 9,000,000 |
| Electricity | 1,000,000 |
| Total Operational Costs | 10,000,000 |
| Monthly Material Costs | |
| Copper Scrap | 60,000,000 |
| Brass Scrap | 25,000,000 |
| Black Sand | 8,000,000 |
| Total Material Costs | 93,000,000 |
| Monthly Revenue | |
| Copper and Brass Bars | 97,000,000 |
| Waste Material Sales | 8,000,000 |
| Total Revenue | 115,000,000 |

Based on Table 2 on the company's projected profit and loss, a business feasibility analysis was then carried out using two key indicators: Payback Period (PP) and Break Even Point (BEP). These tools are used to evaluate the viability of expanding the business.

a. Payback Period (PP)

The payback period is a metric used to determine how long it takes for the company to recover its initial investment based on the net income generated each month (Sinta Dewi et al., 2023). In this calculation, the PP is based on the difference between total income and total monthly expenses, as shown in Table 3 below. The results are important in assessing whether UD. Lukman Abadi has the potential to recover its investment in a reasonable time and whether the expansion plan is financially viable.

Table 3. Net Income Statement

| Category | Estimated Amount (IDR) |
|---|---|
| Revenue: Product Sales | 115,000,000 |
| Expenses: | |
| Monthly Operational Cost | 10,000,000 |
| Raw Material Cost | 93,000,000 |
| Total Expenses | 103,000,000 |
| Net Income | 12,000,000 |

Based on the table above, the company has an initial capital or investment of IDR 138,000,000, and an estimated monthly net income of IDR 12,000,000. Assuming this net income remains constant, the payback period is calculated as follows:

Payback Period (PP) Formula:

PP = Investment / Net Income

PP = 138,000,000 / 12,000,000

PP = 11.5 months

Therefore, the payback period for UD. Lukman Abadi is 11.5 months. This result indicates that the return on investment is considered reasonable, especially because the initial investment includes durable assets such as casting tools, production equipment, and infrastructure. This proves that the business has a fast return potential, making the expansion plan efficient and financially beneficial.

Furthermore, since the company has operated continuously since 2010, it has already reached its break-even point, making the business development plan justifiable and successful from the PP perspective.

b. Break Even Point (BEP)

The company's fixed costs amount to IDR 2,916,667 per month from IDR 35,000,000/12 months (including tools), while the variable costs are IDR 94,000,000 per month (including electricity and raw materials), according to the profit and loss projection table. In this BEP analysis, one of the most frequently ordered metal products is used, as prices vary depending on design and size. This product is sold at IDR 1,150,000 per unit, while the estimated variable cost per unit is IDR 1,030,000 (103,,000,000 / 100 units). The BEP is calculated using the following formula (Wijana et al., 2023):

BEP = FC / (P - VC)

BEP = 2,916,667 / (1,150,000 – 1,030,000)

BEP = 24,31 units ≈ 25 units

From this calculation, it can be concluded that the break-even point for UD. Lukman Abadi is reached at the sale of 25 product units. This means the company must sell at least 25 units per month to cover all fixed and variable costs to avoid losses. Based on recent monthly performance, UD. Lukman Abadi has averaged around 100 product units sold, indicating that the business is viable from the BEP standpoint and can continue its operations.

4. Technical and Operational Aspects

This analysis includes the facilities, equipment, location, and land used in the production and distribution processes. The available infrastructure is considered sufficient to support daily operations. It includes casting tools, measuring equipment, production areas, and storage space. Additionally, the business is equipped with supporting tools such as administrative computers, CCTV security systems, and employee rest areas. The business is located in Desa Ngoro, Kabupaten Mojokerto, with a land area of approximately 1,875 m², which is privately owned by the business owner. The presence of these facilities and a strategic location supports smooth production and operational efficiency.

Figure 4 : Operational aspects

5. Management and Organizational Aspects

UD. Lukman Abadi is a local metal business operating in Kabupaten Mojokerto, focusing on tin casting. The company envisions becoming a leading and competitive local metal manufacturer, with a mission to consistently produce high-quality metal products while maintaining production sustainability over the years. To realize this vision and mission, the company has implemented a clear division of tasks based on each team member's expertise and role. The organizational structure is designed to ensure operational efficiency and effectiveness. Below is the organizational structure of UD. Lukman Abadi:

Table 4. Organizational Structure and Roles

| Position | Number of Members |
|---|---|
| Owner | 1 person |
| Supervisor | 1 person |
| Employees | 3 people |

Each role has specific duties and responsibilities:

1. Owner: Responsible for calculating capital and expected profits. Once goals are achieved, the owner delegates production tasks to the supervisor.
2. Supervisor: Responsible for receiving instructions from the owner and recording all needs for the production process. The supervisor then directs the employees and oversees the entire production flow.
3. Employees: Responsible for following instructions from the supervisor and carrying out tasks as per procedures until the production process is complete.

6. Economic and Social Aspects

In conducting a feasibility study, it is important to consider not only the internal operational aspects but also external factors that may influence the business. These include economic, social, cultural, political, geographic, and demographic conditions. The purpose of this analysis is to provide a comprehensive overview of potential opportunities and challenges, and to evaluate how the business impacts the surrounding community. Table 5 summarizes these external factors and their impacts.

Table 4. External Factors and Their Impacts

| No | Factor | Impact |
|---|---|---|
| 1 | Economic Environment | Hiring local residents increases the per capita income in the community. |
| 2 | Socio-cultural Environment | The business contributes to local welfare by employing residents and donating to village development projects. |
| 3 | Political Environment | The business complies with government policies, including tax payments and labor regulations. |
| 4 | Geographic Environment | The location is close to a provincial highway, providing strategic access. |
| 5 | Demographic Environment | The area is densely populated, but the products are not for daily household use. Most customers are private companies, government offices, and industrial sectors. |

7. Environmental Impact Analysis

The Environmental Impact Assessment (AMDAL) is essential in evaluating the potential environmental consequences of business activities. Since its founding, UD. Lukman Abadi has not faced any rejection or conflict from the surrounding community, indicating that environmental concerns have been well managed. Tin casting processes produce solid, liquid, and gas waste, which may contain heavy metal dust, chemically contaminated wastewater, and toxic gas emissions.

However, the business has implemented an integrated waste management system through the following stages:

1. Physical Process: Separation of solid materials from liquid waste and filtering of heavy metal particles.
2. Chemical Process: Neutralizing hazardous content in liquid waste using specialized filtration.
3. Biological or Eco-friendly Alternatives: Applying environmentally friendly methods such as activated carbon filters for air pollution and recycling casting residues.

With these methods in place, the environmental impact from the tin casting process is considered manageable and does not pose a threat to the ecosystem around the company's operational site.

## Conclusion

UD Lukman Abadi is a micro, small, and medium enterprise (MSME) engaged in the field of tin casting and the production of various metal components for industrial and household needs. The company currently plans to expand its business by increasing production capacity, extending its distribution network beyond the local area, and collaborating with local governments and the private sector. Based on the results of the business feasibility study conducted for this expansion plan, it can be concluded that the business development plan is feasible and worth pursuing.

- From the legal aspect, the company has obtained complete and valid legal permits, making it eligible to expand its operations in accordance with government regulations.
- From the financial aspect, based on the analysis using Payback Period and Break Even Point indicators, the business shows profitable results and is financially viable.
- From the technical/operational aspect, the production facilities, casting equipment, and working systems are considered efficient and capable of supporting business development.
- From the management and organizational aspect, the company has a clear organizational structure, run by competent workers according to their respective fields, which supports the business feasibility.
- From the economic and social aspect, the presence of UD Lukman Abadi has positively contributed through job creation and increased income for the surrounding community.
- From the environmental aspect (AMDAL), the company has been able to manage waste from the tin casting process through physical, chemical, and air filtration processes, thus minimizing its impact on the environment.

Overall, the business expansion plan of UD Lukman Abadi is declared feasible to be implemented.

## Reference

Agustin, R., Aini, S. N., Romaisyah, L., & Lestari, S. R. M. (2024). Analisis Studi Kelayakan Pengembangan Bisnis dalam Keputusan Ekspansi. *Jurnal Maneksi*, *13*(1), 119–127. https://doi.org/10.31959/jm.v13i1.2110

BPS RI. (2022). *LAPORAN PEREKONOMIAN INDONESIA 2022*. Badan Pusat Statistik.

Dadang Krisdianto, Afham Gulwani, Arif Rahman, Azhar Ahmad, Muhamad Rafly, Mochammad Ferdian Maulana, & Reyzales Setiawan. (2023). THE FEASIBILITY STUDY ANALYSIS OF FOOD BUSINESS DEVELOPMENT. *International Journal of Entrepreneur and Business Administration*, *1*(1), 29–41. https://doi.org/10.33474/ijeba.v1i1.20744

Edy Prayitno, Nerys Lourensius Tarigan, Wahyu Eka Priana Sukmawaty, Uyuunul Mauidzoh, & Deborah Kurniawati. (2022). THE IMPACT OF THE COVID-19 PANDEMIC AND THE EFFORT OF MSME RESURRECTION IN INDONESIA. *International Journal of Social Science*, *1*(4), 533–538. https://doi.org/10.53625/ijss.v1i4.1137

Hadi, N., Mimiasri, Fitri, A., & Saputra, A. (2023). Driving Prosperity: Assessing Empowerment, MSME Performance and Welfare. *JBMP (Jurnal Bisnis, Manajemen Dan Perbankan)*, *9*(2), 172–189. https://doi.org/10.21070/jbmp.v9i2.1780

Harahap, N. A. P., Al Qadri, F., Harahap, D. I. Y., Situmorang, M., & Wulandari, S. (2023). Analisis Perkkembangan Industri Manufaktur Indonesia. *El-Mal: Jurnal Kajian Ekonomi & Bisnis Islam*, *4*(5), 1444–1450. https://doi.org/10.47467/elmal.v4i5.2918

Kruteeva, O. V., & Lepilina, V. V. (2022). Feasibility study of the creation of a new business. *Interexpo GEO-Siberia*, *5*, 138–144. https://doi.org/10.33764/2618-981X-2022-5-138-144

Patmawati, E. R. (2023). ANALISIS STUDI KELAYAKAN BISNIS PUDDING LAMOTA DITINJAU DARI ASPEK PEMASARAN DAN KEUANGAN. *MANAJEMEN DEWANTARA*, *8*(1), 67–74. https://doi.org/10.30738/md.v8i1.16540

PT Timah Tbk. (2024). *Laporan Tahunan 2024*. PT Timah Tbk.

Siddiqa, H. (2024). Analisis Kelayakan Bisnis Pengembangan Usaha Startup. *Journal of Economic, Bussines and Accounting (COSTING)*, *7*(2), 3205–3211. https://doi.org/10.31539/costing.v7i2.8021

Sinta Dewi, Rozalina, & Kiagus M. Zain Basriwijaya. (2023). ANALISIS KELAYAKAN USAHA PETERNAKAN PUYUH PETELUR (Coturnix coturnix japonica) DI DESA ASAM PEUTIK KECAMATAN LANGSA LAMA (STUDI KASUS : USAHA PETERNAKAN PUYUH PETELUR IBU JUMIANI). *Jurnal Cakrawala Ilmiah*, *2*(9), 3489–3496. https://doi.org/10.53625/jcijurnalcakrawalailmiah.v2i9.5664

Srimulyani, V. A., Hermanto, Y. B., Rustiyaningsih, S., & Setiyo Waloyo, L. A. (2023). Internal factors of entrepreneurial and business performance of small and medium enterprises (SMEs) in East Java, Indonesia. *Heliyon*, *9*(11), e21637. https://doi.org/10.1016/j.heliyon.2023.e21637

Sukier, H. B., Samper, M. G., Molina, R. I. R., Karam, M. S., Palencia, D. B., Ibanez, N. P., & Ruiz, M. J. S. (2024). Analysis of Strategic Marketing in Small and Medium-sized Enterprises: Case of the Bakery Industry in Colombia. *Procedia Computer Science*, *231*, 601–606. https://doi.org/10.1016/j.procs.2023.12.178

Widiastuti, W., Handayani, A., & Hermawan, A. (2021). Spatial Distribution on Recovery Strategy Due to The Impact of The Covid-19 Pandemic on The Conditions of Micro Small Medium Enterprises (MSME's) in Central Java Province, Indonesia. *IOP Conference Series: Earth and Environmental Science*, *887*(1), 012026. https://doi.org/10.1088/1755-1315/887/1/012026

Wijana, M., Wirya A., I. G. A. K. C. A., & Boli, B. V. S. (2023). ANALISA USAHA LAUNDRY (HOOP LAUNDRY) DI KOTA MATARAM DENGAN METODE BREAK EVEN POINT (BEP). *Energy, Materials and Product Design*, *2*(1), 84–88. https://doi.org/10.29303/empd.v2i1.2274