

# Reviewing the implementation of the accounting information system (SIA) for Bank Indonesia Services to optimize MSME digitalization program in Tolitoli Regency as an Affirmation Area

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## ARTICLE INFO

### Article history:

Received Jul 15, 2025

Revised Aug 20, 2025

Accepted Sep 4, 2025

### Keywords:

Accounting Information System;  
Affirmation Areas;  
Bank Indonesia Services;  
Digitization;  
MSMEs.

## ABSTRACT

This study analyzes the effectiveness of the Financial Information Recording Application Information System (SIAPIK) in supporting environmentally friendly Micro, Small, and Medium Enterprises (MSMEs) in Tolitoli Regency, Central Sulawesi. The objective is to evaluate SIAPIK's role in improving financial records, operational efficiency, and business decision-making, as well as its impact on marketing, access to capital, and business growth. The research employed a mixed-method approach, combining quantitative surveys and qualitative in-depth interviews with 24 MSMEs actively using SIAPIK (out of 106 surveyed). The results indicate that 83% of respondents reported improved recording efficiency, 79% found financial statements easier to understand, 71% experienced sales growth of up to 15%, and 67% successfully accessed cooperative or banking financing using SIAPIK reports. Nevertheless, 58% still faced challenges such as limited internet access and low digital literacy. Overall, SIAPIK has made a positive contribution to the digital transformation of MSMEs in affirmation areas, particularly in the culinary sector, while emphasizing the need for infrastructure development, continuous training, and cross-sector collaboration. The novelty of this research lies in its focus on environmentally friendly MSMEs in rural 3T regions, which are still underrepresented in the literature on MSME digitization in Indonesia.

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## 1. INTRODUCTION

Indonesia's contribution to global economic growth reached 2.5% (Indonesia, 2018) Natural wealth, population and the number of MSMEs are factors that support the sustainable strengthening of the Indonesian economy (Aminullah et al., 2024; Gustika & Susena, 2022; Hernita et al., 2021; Nur et al., 2024; Yanto et al., 2025; Yanto & Fatima, Siti; Aqfir, 2023; Yanto & Syaputra, 2022). MSMEs in Indonesia contribute greatly to economic growth through GDP optimization of 61.07%, poverty alleviation, job creation in reducing the unemployment rate of 97% (Novitasari, 2022; Surya et al., 2021). The stronger the position of MSMEs in the Indonesian economy, the more policies and stimuli are always given, including from Bank Indonesia through the digitalization program (Bustari & Yanto, 2025; Yanto, E., Morad, A. M., Ismail, I., & Mallu, 2024; Yanto et al., 2023; Yanto & Maskur, 2025;

Yanto & Syahputra, 2023). Data shows that Indonesia's digital economy is predicted to reach gross merchandise value (GMV) of USD 82 billion in 2023 with a projected USD 110 billion in 2025 (IDN Times, 2023; Putri, 2023). Bank Indonesia assists MSME management through the digitalization program of financial transaction services. The digitalization program and financial transaction services are carried out through the implementation of the Indonesian Quick Response Code Standard. This simplifies and accelerates operations, expanding the network and reach of marketing/customer base (Manurung et al., 2024; Raharjo & Riyadi, 2022). In addition, a financial recording application based on mobile apps whose main features and functions are to help record and report MSME finances (Haryono, 2022; Smesta.kemenkopukm.go.id, 2021)

The Akuantsi-APIK information system is easily accessible to anyone, especially MSMEs, through mobile apps on smartphones. This application can be downloaded through the playstore/google play on android devices. Its use is also quite easy by registering a business identity and the owner will then be given account access through creating a username and password (Rahayu et al., 2022)

MSMEs in Tolitoli Regency have so far grown rapidly with the support and policies of the local government. Various events or activities are programmed by the Tolitoli local government in terms of advancing local products and MSME management. One of the events that is intensively carried out is the "Tolitoli Local Product Tenant Performance". Many local product innovations are marketed and based on information from the Deputy Regent of Tolitoli for the 2024-2029 period, the turnover of money is around hundreds of millions of rupiah and brings many benefits to the community because it causes a multiplier effect in terms of spending. There is a double effect when consumers purchase goods and services so as to increase the seller's income and have an impact on increasing production (Qadisyah et al., 2023)

The phenomenon is that many MSMEs do not take advantage of the BI service accounting information system, making it difficult to manage finances. Therefore, it needs to be studied in depth through a research entitled "Examining the Application of the Accounting Information System (SIA) of Bank Indonesia Services to Optimize the MSME Digitalization Program in Tolitoli Regency as an Affirmation-3T Area". The focus of the research is to answer the formulation of problems related to the implementation of SIA BI services for MSMEs in Tolitoli Regency as an affirmation-3T area in supporting the MSME digitalization program. This research is in line with the Asta Cita President's program in the 3rd mission "encouraging entrepreneurship" and the 4th mission "strengthening technology development", this is also relevant to the 2021-2026 Tolitoli RPJMD, related to the program to strengthen MSMEs as a pillar of economic development in the region.

The following is a comparison between this study and several previous relevant studies related to the digitization of accounting systems in MSMEs. In general, research (Ratmono et al., 2023) dan (Kusumawardhani, F. K., Ratmono, D., Wibowo, S. T., Darsono, D., Widyatmoko, S., & Rokhman, 2024) emphasizing the role of digitizing the accounting system in improving information quality, cost efficiency, and decision-making for MSMEs in Indonesia. The two studies have similarities with this study in discussing the application of accounting information systems (SIA) in the MSME sector. However, the main difference lies in the geographical context: previous research focused more on urban MSMEs or Indonesia in general, while this study focused on environmentally friendly MSMEs in the affirmation (3T) area, Tolitoli Regency, which has rarely received attention in the literature.

The research (Lutfi et al., 2022) provides a different perspective by examining MSMEs in Jordan, especially the impact of the use of digital accounting systems in the context of the COVID-19 pandemic. This study focuses more on a quantitative approach through the distribution of questionnaires to 183 respondents. The difference in the context of the country and the method is a significant differentiator with this study, which uses mixed methods and places social aspects and digital infrastructure in disadvantaged areas as the main issue.

Meanwhile, (González-Varona et al., 2021) discusses more organizational competence in supporting the digital transformation of MSMEs, with a broader scope and conceptual. Likewise, research (Bettoni et al., 2021) developed a conceptual framework for the adoption of artificial intelligence (AI) in MSMEs based on literature studies and expert interviews. These two studies

emphasize the readiness of MSMEs in facing digitalization, but in a global context and not specific to Indonesia or SIAPIK-based accounting applications.

Thus, this research occupies a unique position because it combines a focus on the digitization of accounting information systems (SIAPIK) with the context of environmentally friendly MSMEs in 3T areas that are still rarely explored. In addition, the use of mixed methods (qualitative and quantitative) is an advantage in itself because it allows data validation through triangulation, while providing a more comprehensive explanation of the phenomena found. This strengthens the academic contribution of research in the literature on the digitization of MSMEs, while presenting practical value for the development of policies based on local contexts.

## 2. RESEARCH METHOD

Bank Indonesia's Accounting Information System with its criteria will be examined in a more in-depth and comprehensive manner through a mixed method approach (combination of qualitative and quantitative) in the affirmation-3T area, Tolitoli Regency. Model recommendations based on research results will have an impact/influence on strengthening MSMEs in terms of sales growth, customers, profits, improving the quality of human resources, capital and marketing (Lutfi Fida Lailia & Muhammad Alhada Fuadilah Habib, 2024) Regarding the stages of research implementation, here is a flow diagram/chart of the stages of research to be carried out. Regarding the need for research supporting data that is a research indicator, it can be seen in the following table:

Table 1. Research Data Needs

Dimension	Indicator	Method
Penerapan Sistem informasi Akuntansi (SIA) (Bodnar & Hopwood, 2019; Nadza et al., 2017; Permatasari & Sigalingging, 2022)	1. Quality of Information	Observations, Documentation, surveys, questionnaires and interviews
	2. Efficiency	
	3. Ease of use	
	4. System security	
	5. Components of an accounting information system	
	6. Kinerja system informasi akuntansi	
SIA BI Services (SURISTIA, 2023)	1. SIA Implementation	Observations, Documentation, surveys, questionnaires and interviews
	2. Utilization Rate	
	3. MSME Response and Perception	
	4. Technical/Social Constraints	
Strengthening MSMEs (Muallif, 2023; Rosmadi, 2019)	1. Sales Growth	
	2. Customer	
	3. Advantage	
	4. Improving the Quality of Human Resources	
	5. Capital	
	6. Marketing	

Source: Data processed, 2025

The main keywords of this study include the Implementation of Accounting Information System (SIA), SIA Bank Indonesia Services and Strengthening MSMEs. The SIA Implementation Dimension consists of 6 key indicators, including: 1) information quality; 2) Efficiency; 3) ease of use; 4) security system; 5) components of the accounting information system and; 6) Accounting Information System Performance. Then the SIA of Bank Indonesia services the indicators are: 1) SIA implementation; 2) utilization rate; 3) response and perception of MSMEs; 4) Technical/social constraints. The next dimension is the strengthening of MSMEs with the indicators: 1) sales growth; 2) customers; 3) profits; 4) improving the quality of human resources; 5) capital and; 6) Marketing.

This study employed a mixed-methods approach, combining surveys and questionnaires for quantitative measurement with in-depth interviews, observation, and documentation for qualitative insights. The research population consisted of 106 environmentally friendly MSMEs in Tolitoli Regency, of which 24 actively using SIAPIK were purposively selected as respondents. Inclusion criteria required MSMEs to have operated for at least two years, consistently use SIAPIK, and belong

to the culinary, handicraft, or eco-friendly services sector, while exclusion criteria eliminated inconsistent users or those unwilling to participate.

Quantitative data were analyzed using descriptive statistics and simple correlation tests to evaluate the relationship between SIAPIK implementation and MSME strengthening indicators (sales growth, customers, profit, human resources, capital, and marketing). Qualitative data from interviews were examined thematically, involving transcription, coding, categorization, and theme extraction. Methodological triangulation was applied to enhance the validity of findings by integrating both data sources.

### 3. RESULTS AND DISCUSSIONS

This study aims to analyze the effectiveness of the use of the Financial Information Recording Application Information System (SIAPIK) on Micro, Small, and Medium Enterprises (MSMEs) in Tolitoli Regency, Central Sulawesi. The main focus of this study is to analyze the extent to which SIAPIK helps business actors in terms of financial records, operational efficiency, business decision-making, and its impact on marketing, capital, and business growth aspects. The respondents in this study are MSME actors who have been running their businesses for two years and are environmentally friendly MSMEs fostered by the Tolitoli Regional Environmental Office. The data collection process was carried out through in-depth interviews using instruments that have been designed based on 16 main aspects in the accounting and MSME management information system. Each question explores the direct experience of MSME actors in using the SIAPIK application, both from a technical and social perspective.

In general, the results of the interviews show that the SIAPIK application provides real benefits in helping the process of recording and managing MSME finances. The information provided is considered accurate and easy to understand, and can improve the efficiency and quality of business decision-making. However, there are several challenges, such as limited internet access and low digital literacy among some business actors, that need to be considered in the development and follow-up mentoring process. To make it easier to understand the data obtained, the following is presented an analysis table of interview results based on each aspect studied:

Table 2. Interview Results

No	Aspek yang Dianalisis	Pertanyaan Kunci	Jawaban (Ringkasan Informan)	Kesimpulan Awal
1	Kualitas Informasi	Apakah informasi SIAPIK akurat, relevan, mudah dipahami?	Data cukup akurat dan mudah dimengerti, terutama untuk pemasukan dan pengeluaran harian.	Informasi cukup berkualitas dan layak digunakan.
2	Efisiensi	Apakah SIAPIK menghemat waktu dan beban administrasi?	Sangat membantu, pencatatan lebih cepat dibanding manual.	SIAPIK meningkatkan efisiensi kerja.
3	Kemudahan Pengguna	Apakah SIAPIK mudah digunakan?	Awalnya bingung, tapi setelah belajar tutorial dan tatarannya di internet, menjadi lebih mudah. Bahkan telah dilakukan pelatihan dan pemberdayaan oleh akademisi	Penggunaan relatif mudah dengan dukungan edukasi/pembelajaran dan pelatihan serta pendampingan.
4	Keamanan Sistem	- Apakah data aman? - Apakah tahu cara SIAPIK melindungi data?	Merasa aman karena ada password, tapi belum paham detail perlindungan data.	Keamanan dirasa cukup, tapi pemahaman teknis masih kurang.
5	Komponen SIA	Apakah SIAPIK mencakup pencatatan, laporan, analisis?	Sudah cukup lengkap, tapi butuh fitur estimasi pajak.	Sudah memenuhi komponen dasar SIA.
6	Kinerja Sistem	Bagaimana performa SIAPIK (kecepatan, akurasi)?	Cepat dan akurat, tapi kadang lambat jika internet lemah.	Kinerja baik, tergantung kualitas jaringan.
7	Implementasi	Bagaimana proses implementasi SIAPIK di daerah?	Diterapkan melalui pelatihan bersama dan pendampingan BI.	Implementasi terstruktur dengan pendampingan.
8	Tingkat Pemanfaatan	Seberapa sering digunakan? Apakah	Digunakan harian, tapi beberapa fitur belum digunakan.	Pemanfaatan tinggi tapi belum optimal.

		semua fitur dimanfaatkan?		
9	Respon UMKM	Bagaimana persepsi UMKM lain?	Banyak merasa terbantu, tapi ada yang kesulitan karena gap digital.	Respon positif, kendala pada literasi digital.
10	Kendala Teknis/Sosial	Apakah ada hambatan teknis atau sosial?	Internet tidak stabil, beberapa pelaku UMKM kesulitan karena kurang familiar dengan aplikasi.	Kendala ada, tapi dapat diatasi dengan pendampingan.
11	Pertumbuhan Penjualan	Apakah ada peningkatan penjualan?	Ya, lebih mudah evaluasi produk laku. Penjualan naik $\pm 15\%$ .	SIAPIK berdampak positif pada penjualan.
12	Pelanggan	Apakah laporan membantu hubungan dengan pelanggan?	Ya, terlihat lebih profesional dan dipercaya pelanggan.	Meningkatkan kepercayaan pelanggan.
13	Keuntungan	Apakah keuntungan meningkat?	Ya, karena pengeluaran bisa dikontrol lebih baik.	SIAPIK membantu meningkatkan profitabilitas.
14	Peningkatan SDM	Apakah ada peningkatan kemampuan tim?	Ya, tim jadi lebih paham pencatatan digital.	SIAPIK mendorong literasi keuangan dan digital.
15	Modal	Apakah SIAPIK bantu dalam akses pinjaman/modal?	Ya, laporan dari SIAPIK dipakai saat ajukan pinjaman koperasi/perbankan	SIAPIK mendukung akses keuangan formal.
16	Pemasaran	Apakah data dari SIAPIK bantu strategi pemasaran?	Ya, tapi belum terintegrasi dengan platform digital.	Bantu analisis produk, tapi belum maksimal integrasi.

Source: Data processed, 2025

Based on the analysis table above, it can be concluded that the use of the SIAPIK application among MSME actors in Tolitoli Regency, especially in micro businesses in the form of shops, has a significant positive impact on business financial management. Some of the important points that emerged from the analysis include:

1. The quality of information produced by SIAPIK is considered accurate, relevant, and easy to understand by business actors. This makes it easier for MSME actors to understand the financial condition of their business in real-time.
2. The recording efficiency is significantly improved. Recording that was previously done manually is now faster and more systematic with the help of SIAPIK, which ultimately reduces the burden of daily administration.
3. The ease of use of applications in addition to learning from the internet is also supported by training and assistance from academics, which is very helpful for MSME actors who are not used to using digital systems.
4. In terms of data security, respondents feel quite safe in storing data, although there is still a need for further education related to digital data protection mechanisms.
5. The accounting information system components in SIAPIK have included basic functions such as transaction recording, report creation, and simple analysis, although there is still a need for the development of additional features such as tax estimation and digital payment integration.
6. The overall performance of the system is relatively stable and reliable, although the use of the application still depends on the stability of the internet network in the region.
7. In terms of application utilization, through the training and empowerment carried out, SIAPIK has been used, although not all features have been optimally utilized by MSME actors.
8. The economic and social impact can be seen from increased customer confidence, production efficiency, and sales growth and business profits. In addition, the existence of neat financial records also opens up easier access to business financing.
9. However, technical and social challenges remain, such as limited internet networks, devices, and uneven levels of digital literacy among MSME actors.
10. SIAPIK also encourages the increase in human resource capacity, both in terms of digital skills and financial understanding, which is an added value in long-term business development.

The results of the interview with the Head of the Tolitoli Cooperatives and MSMEs Office also encouraged the use of applications for business management efficiency and supported the

digitalization of MSMEs in the 3T-Tolitoli Regency area. Based on a direct survey, as many as 24 out of 106 environmentally friendly micro enterprises have used the SIAPIK application and can be said to play a positive role in the digital transformation of MSMEs in Tolimoli Regency. The average micro business that uses the SIAPIK application is MSMEs in the culinary sector. In the future, the successful implementation of this application will depend heavily on digital infrastructure support, continuous training, and partnerships between MSMEs, the government, and financial institutions. The following is an analysis table and visual graph based on the results of interviews with 24 who have used the SIAPIK application from 106 MSMEs in Tolitoli Regency. The following data is compiled to illustrate the perception and impact of the use of SIAPIK based on the main aspects in the financial information system and MSME management:

Tabel 3. Analisis Penggunaan SIAPIK oleh 24 UMKM Ramah Lingkungan

No	Aspek yang Dianalisis	Indikator Pengukuran	Jumlah Responden	Persentase (%)	Kesimpulan Utama
1	Efisiensi Pencatatan	Pencatatan lebih cepat dan sistematis	20	83%	SIAPIK mempercepat proses pencatatan
2	Kualitas Informasi	Data keuangan mudah dipahami dan akurat	19	79%	Informasi keuangan lebih jelas
3	Peningkatan Penjualan	Terjadi peningkatan penjualan usaha	17	71%	Rata-rata penjualan naik hingga 15%
4	Akses Permodalan	Laporan SIAPIK digunakan untuk ajukan pinjaman	16	67%	Mempermudah akses ke pembiayaan formal
5	Kepercayaan Pelanggan	Usaha tampak lebih profesional di mata pelanggan	18	75%	Meningkatkan kredibilitas usaha
6	Kendala Akses Internet & Digital	Mengalami keterbatasan jaringan atau pemahaman teknis	14	58%	Tantangan infrastruktur dan literasi masih ada
7	Kemudahan Penggunaan Aplikasi	Bisa digunakan setelah pelatihan atau bimbingan	21	88%	Mudah digunakan dengan edukasi
8	Peningkatan Literasi Digital/Keuangan	Lebih memahami pencatatan dan teknologi digital	20	83%	SIAPIK mendorong peningkatan kapasitas pelaku usaha

Source: data processed, 2025

## Analysis of the use of SIAPIK

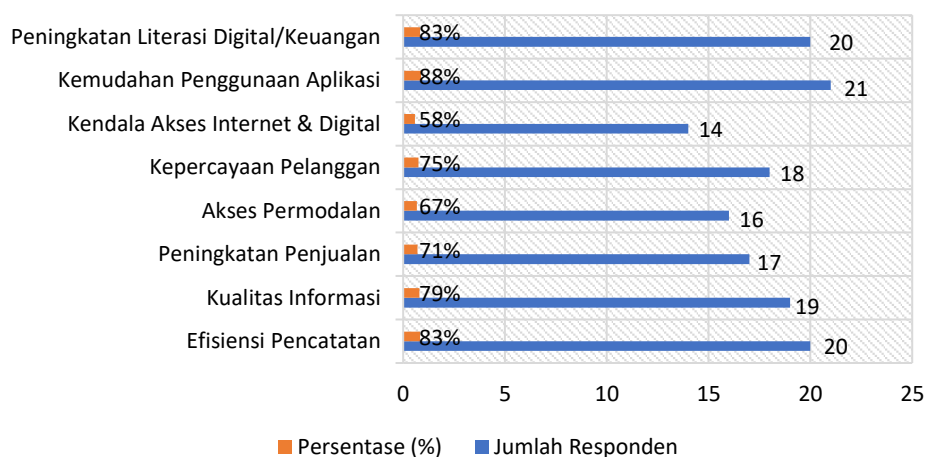


Figure 2. Graph of Analysis of the Use of SIAPIK MSMEs in the Culinary Sector

Figure 2 shows that the SIAPIK application has had a significant positive impact on the financial management of environmentally friendly MSMEs in Tolitoli Regency. Ease of use was the most dominant impact (88%), followed by recording efficiency and increased financial and digital literacy (83%). Increased customer trust (75%) and access to financing (67%) were also recorded as tangible benefits. Despite this, 58% of respondents still face challenges related to connectivity and digital capabilities.

The findings indicate that the SIAPIK application has provided significant benefits for environmentally friendly MSMEs in Tolitoli Regency. Out of 24 respondents, 83% reported increased efficiency in financial recording, 79% acknowledged clearer and more understandable financial reports, and 71% experienced sales growth of up to 15%. In addition, 67% successfully used SIAPIK-based reports to obtain cooperative or banking loans, while 88% found the application relatively easy to use after training and assistance. Nevertheless, 58% of respondents still faced obstacles such as unstable internet access and limited digital literacy.

These results confirm that SIAPIK improves financial management, strengthens business credibility, and facilitates access to external financing. The findings are consistent with (Kusumawardhani, F. K., Ratmono, D., Wibowo, S. T., Darsono, D., Widyatmoko, S., & Rokhman, 2024; Ratmono et al., 2023), who showed that the digitalization of management accounting systems enhances accuracy, timeliness, and efficiency in SMEs. However, this study adds novelty by highlighting the context of 3T areas, where infrastructural and digital literacy challenges remain significant. Thus, SIAPIK's effectiveness is not limited to urban MSMEs but also extends to remote regions when supported by training and mentoring. From a practical perspective, SIAPIK helps MSMEs achieve more professional financial records, builds customer trust, and strengthens financial literacy. The system also promotes resilience and competitiveness in the Industry 4.0 era by enabling better decision-making and access to formal financing.

Policy recommendations emerging from this study include: (1) strengthening digital infrastructure, especially internet connectivity in rural areas; (2) providing continuous training and user-friendly learning modules by Bank Indonesia and academic institutions; (3) integrating SIAPIK with additional features such as tax estimation, digital payment systems, and marketplace platforms; and (4) encouraging financial institutions to recognize SIAPIK-based reports as valid documents for creditworthiness assessment. In summary, SIAPIK contributes not only to the digital transformation of MSMEs in Tolitoli but also provides a replicable model for supporting MSMEs in other 3T regions in Indonesia.

#### **4. CONCLUSION**

This study aims to analyze the effectiveness of the implementation of the Financial Information Recording Application Information System (SIAPIK) on environmentally friendly MSMEs in Tolitoli Regency. The results of the study show that SIAPIK makes a real contribution in making financial recording easier, improving operational efficiency, and supporting business decision-making through the provision of accurate, relevant, and easy-to-understand information. Practically, this application also helps MSME actors improve business professionalism, expand access to formal financing, and build customer trust. In terms of business actors' capacity, SIAPIK has been proven to encourage financial and digital literacy, although challenges in the form of limited internet infrastructure and digital literacy gaps are still obstacles in the 3T area. Thus, the success of SIAPIK implementation is highly dependent on digital infrastructure support, ongoing training, and cross-sectoral collaboration between local governments, educational institutions, financial institutions, and the private sector. Academically, this research contributes by enriching the literature on the digitization of accounting information systems, especially in the context of MSMEs in 3T areas which have received relatively little attention. Practically, the results of the study offer policy recommendations for the government and stakeholders to strengthen the digital transformation of MSMEs through expanding internet access, providing easily accessible training modules, and integrating SIAPIK features with other digital services (such as tax estimation, payment systems, and marketplaces). Overall, of the 106 MSMEs targeted for assistance, 24 micro businesses have actively used SIAPIK, with the dominance of the culinary sector. This indicates that the digital transformation of MSMEs in Tolitoli Regency has begun, and in the future, the success of SIAPIK implementation is highly dependent on strategic

partnerships between local governments, educational institutions, and the private sector. With a collaborative and inclusive approach, SIAPIK has great potential to become a digital transformation tool that strengthens the competitiveness and sustainability of MSMEs in disadvantaged areas. For further research, it is recommended to conduct a comparative study between MSMEs using and non-using SIAPIK, quantitative analysis with a larger sample, and longitudinal studies to see the long-term impact of SIAPIK on the growth and sustainability of MSMEs.

#### ACKNOWLEDGEMENTS

The author expressed his gratitude to the Tolitoli Regency Regional Environment Office and the Tolitoli Regency Cooperatives and MSMEs Office for data support and access to fostered MSME actors who were respondents in this study. Awards were also presented to MSME actors who were willing to take the time to provide valuable information and experience during the interview process. Gratitude was also conveyed to academics and field assistants who have facilitated training on the use of the SIAPIK application and also provided input in the formulation of research instruments. The author also thanks his fellow researchers and reviewers for their contributions and corrections that have enriched the quality of this article. Without the support of these various parties, this research would not have been carried out properly. Thank you to the Ministry of Higher Education, Science and Technology of the Republic of Indonesia (KEMDIKTISAINTEK RI) for the support and funding, the management study program of the Mujahidin College of Economics and also the IJAFIBS journal for their great contribution in the publication of this scientific article.

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