



# Digital Literacy of Micro, Small, and Medium Enterprises in Disadvantaged, Outermost, and Frontier Areas of Sangihe Islands Regency

Youdy Luvry Livvron Kawengian<sup>1\*</sup>, Oldrie Chaterina Sorey<sup>2</sup>, Githa IIs Rumambi<sup>3</sup>

## ABSTRACT

This study identifies the digital understanding and capabilities of micro, small, and medium enterprises (MSMEs) in the Disadvantaged, Outermost, and Frontier (3T - *Tertinggal, Terluar, Terdepan*) regions of the Sangihe Islands Regency, which is crucial for the local government to make policies that are by the real needs of the community. Using a survey method with a quantitative descriptive approach, this study examined 60 MSME respondents using purposive sampling techniques and qualitative probing questions. The results show that the majority (61.66%) of the digital literacy level of MSMEs in the 3T Region of the Sangihe Islands Regency is at the basic level, while 35% are at the medium level and 3.33% are at the advanced level. Good mastery of digital tools and platforms can improve the ability of MSMEs to adapt quickly to changes in market dynamics. In addition, digital literacy helps MSMEs utilize online resources for market analysis, communication with customers, and developing competitive strategies. The obstacles and challenges that MSMEs still face include inadequate internet infrastructure, where the network is unstable, and even in some areas, the internet is still unavailable. These findings underscore the importance of addressing these challenges for the growth and sustainability of MSMEs in the 3T regions.

## Keywords

digital capability; digital skill; internet infrastructure; literacy level; MSMEs actor

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## INTRODUCTION

The development of digital transformation is visible in the digital economy era, which continues to grow rapidly. This creates increasingly fierce competition in the Micro, Small, and Medium Enterprises (MSMEs) sector. The growth of the digital economy has skyrocketed along with the impact of the COVID-19 pandemic. However, not all MSMEs in Indonesia have adopted the digital model due to a lack of understanding or limited facilities that support the digital economy (Bindarto,

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<sup>1 2 3</sup> Universitas Sariputra Indonesia Tomohon, Jl. Perlombaan No.2, Kota Tomohon, Sulawesi Utara, Indonesia

\* **Corresponding author:** youdykawengian@unsrittomohon.ac.id

2022). In addition, the lack of knowledge of MSMEs in utilizing digital media in marketing products is a challenge in increasing profits for MSME actors. Garzoni et al. (2020) revealed that the level of readiness in utilizing technology and digitizing various business processes could be measured through digital awareness, the ability to conduct digital investigations, digital collaboration, and the ability to carry out digital transformation.

In line with this, research by Tahir et al. (2021) states that understanding digital literacy along with Information and Communication Technology (ICT) positively impacts business actors because it reflects customer satisfaction. Service quality has a significant effect on this satisfaction. This shows that expectations of service quality are in line with consumer experience, which results in feelings of satisfaction with the services provided. In addition, research conducted by Bidasari et al. (2023) also shows that digital literacy has a positive and significant influence on the performance of MSMEs. This finding reveals that business actors are familiar with digital media and actively integrate digital literacy into their daily activities, especially to support business activities such as promotion and marketing through digital media, which ultimately benefits their business. This research aligns with Zahro's (2020) statement, which states that the more often business actors utilize social media for promotion, the greater the benefits they obtain. This finding is also consistent with the research of Amelia et al. (2022), which shows that digital literacy significantly influences the performance of MSMEs.

Furthermore, Setyaningsih et al. (2019) revealed that digital literacy is the ability to apply digital technology and communication media to access, manage, integrate, analyze, and evaluate information to develop new knowledge, create, and interact with various kinds of people. Then, according to Setiawan et al. (2021), to welcome the presence of Generation Z (Gen-Z), where the digital market is growing, the importance of digital literacy among MSMEs is increasing. In addition, increasing the digital literacy of MSMEs can encourage inclusive digital transformation, which in turn contributes positively to the country's macroeconomic support. Research by Husniyah et al. (2023) found that the digital literacy level of MSME entrepreneurs in West Java reached a high level, especially in the service sector. In addition, each generation also experienced an increase in their digital literacy levels in the region. However, MSME actors in West Java must improve several aspects of digital literacy, such as communication skills, critical thinking and evaluation, and collaboration. Meanwhile, the results of research conducted by Slamet et al. (2017) show the importance of developing digital strategies for SMEs, which include providing ICT infrastructure, production processes, and market expansion in the short, medium, and long term. This aims to enable SMEs to improve their competitiveness and performance.

Furthermore, Morgan (2019, as cited in Wibowo, 2021) states that although rapid digital development brings profound opportunities, it also presents significant risks. Those who fail to keep up with these developments will be left behind and out of business. At the same time, MSMEs that do not participate in digitalization will be in an increasingly vulnerable position. According to Febriyanto (2024), disadvantaged, outermost, and frontier (3T - *tertinggal, terluar, terdepan*) areas are regions in Indonesia with less developed geographical, social, economic, and cultural conditions compared to other regions. Meanwhile, Riyadi and Ghuzini's (2022) research revealed that Indonesia's 3T regions have gaps with other regions in every aspect.

The 3T regions are defined by Decree No. 20/2018 of the Director General of Post and Informatics on the Determination of Disadvantaged, Outermost, and Frontier Regions in the Broadcasting Operation for the Use of Radio Broadcast Frequency Modulation. There are 122 designated Disadvantaged Regions and 61 Frontier and Outermost Regions, including the Sangihe Islands Regency in North Sulawesi Province. 3T regions require unique and serious attention, especially for MSME actors in this area. There are 959 MSMEs with a Business Identity Number (NIB - *Nomor Induk Berusaha*) and 58 with a Home Industry Food (PIRT - *Pangan Industri Rumah Tangga*) license registered in Sangihe Islands Regency (Dinas Koperasi Usaha Kecil dan Menengah, 2024).

The Community and Government Services Director of the Agency for Telecommunication and Information Accessibility (BAKTI Kominfo - *Badan Aksesibilitas Telekomunikasi dan Informasi*), Danny Januar Ismawan (as cited in Raharjo, 2021), emphasized the importance of the potential of digitalization for MSMEs, especially in 3T areas (disadvantaged, outermost, frontier), which require more attention. MSME actors in these areas must be prepared through training and mentoring,

starting from basic material and gradually developing to a more advanced level. idEA's Head of Membership & Business Development, Mohamad Rosihan (as cited in Raharjo, 2021), stated that his team faced many challenges in the 3T areas, so they had to reconsider their training curriculum. Previously, many trainings were conducted in Java, which has more adequate facilities. Rosihan also emphasized that the location of MSME businesses plays a role in determining the strategy to go online, as location affects product competitiveness. The competitiveness of MSMEs in the regions depends on the digital competitiveness of their respective regions. "The solutions provided to participants also vary in each region because each location has different characteristics and problems," he explained.

Thus, the urgency of research related to the Level of Digital Literacy in MSME Actors in 3T Areas is certainly very relevant to identifying digital understanding and capabilities for MSME actors in 3T Areas so that all stakeholders can make policies in accordance with the needs to improve digital literacy skills in MSME actors which in turn can also have an impact on improving the welfare of MSME actors, especially those in 3T Areas. Furthermore, the Sangihe Islands Regency is a border area included in the 3T area, which requires attention, especially from MSME actors in this region.

Based on the background described above, researchers are very interested in doing research with the title Level of Digital Literacy in MSME Actors in 3T Areas Sangihe Islands Regency. This research is expected to contribute to solving problems related to Basic Research for Affirmation Beginner Lecturer Researchers in Social Humanities, Education, Arts, and Culture. In addition, this research supports Indonesia's National Digital Economy strategy related to creating a digitally literate society, as stated in the White Book of the Indonesian Digital Economy Development Strategy (Kementerian Koordinator Bidang Perekonomian, 2023). Based on the background of the problems described above, the problem formulation in this study is how the level of digital literacy in MSME actors in the 3T area of the Sangihe Islands Regency and what factors MSME actors face the obstacles and challenges in the 3T area related to digital literacy.

## METHOD

This research is descriptive quantitative research with a survey. The data analysis used in this study uses descriptive statistical analysis presented in frequency distribution tables. Furthermore, the sampling technique used was purposive (Kawengian, 2017) sampling, with a total of 60 respondents who were willing to fill out a questionnaire. The research instrument used in this study was a questionnaire prepared by modifying the previous research questionnaire by Kawengian (2017). It was adapted from the *Individual Competence Framework* compiled by the European Commission to measure media literacy. In addition, the individual competence framework also includes the ability of an individual to produce and communicate messages (European Commission, 2009, as cited in Waliulu, 2022).

Individual competence in this study is divided into two categories. First, *personal competence* is a person's ability to use and analyze media content. Personal competence is divided into two categories: technical skills, which is the technical ability to use digital media, where a person can operate and understand various operating instructions in digital media, and critical understanding, which is the cognitive ability to use media, including understanding, analyzing, and evaluating content produced on digital media.

The second is *social competence*, which is the ability or skill of individuals to communicate and build social relations through the media and produce media content. Social competence consists of communicative abilities, namely communicating and participating in the media. Communicative abilities include building social relationships and participating in the community environment through the media. *Social competence* is the ability of individuals to communicate and establish social relationships through the media, as well as the ability to create media content. Social competence includes communicative abilities, which is the ability to communicate and participate through the media. Communicative abilities include building social relationships and participating in society using the media.

According to the European Commission (2009, as cited in Waliulu, 2022), the *Individual Competence Framework* is organized and divided into three level categories, which in this study are generally three levels of digital media literacy as follows:

**Table 1.** Digital Media Literacy Level

No.	Tier Category	Description
1	Basic ( $\leq 60$ )	Individuals at this level have several skills that allow them to use digital media fundamentally. However, they still face limitations in internet utilization. Users understand the basic functions of the media, but their use tends to be for specific purposes without clear direction. Their capacity to think critically in analyzing the information received is also limited, as is their communication ability through the media.
2	Medium (61-120)	Individuals at this level are proficient in using the media, understand its functions, and can carry out certain functions more complexly. Internet users can customize media use as needed. They know how to search for and evaluate the necessary information and use specific strategies to search for information.
3	Advanced ( $>121$ )	Individuals at this level are very active in using media and are aware of and interested in the various regulations that affect their use. They deeply understand techniques and language and can analyze and change the conditions that affect them. In addition, they can communicate and create messages. In a social context, users can encourage group cooperation that allows them to solve problems.
Total		60

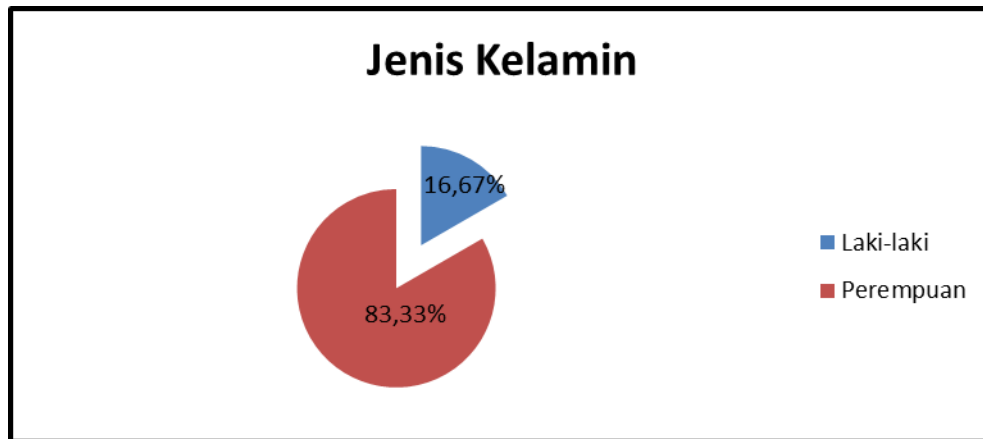
Source: European Commission (2009, as cited in Waliulu, 2022)

Four stages must be done to complete this research. The first stage is a preliminary study. At the preliminary study stage, observations were made, and information related to the research was sought. The second stage is data collection by distributing questionnaires to MSME actors in the 3T area of the Sangihe Islands Regency who are willing to fill in. Furthermore, the third stage is the processing stage. At this stage, the researcher will process the data using the SPSS program and analyze it using descriptive statistical techniques. Then the fourth stage is the conclusion stage.

## FINDINGS AND DISCUSSION

This study shows that most MSME actors in the 3T Region of the Sangihe Islands Regency are female, with a percentage of 83.33%, as shown in Figure 1. This aligns with Nainggolan's (2016) research, which states that around 78.2% of MSME actors are women. According to Marthalina (2018), in general, when compared to men, women have several advantages when doing business. These advantages, among others, are 1) patience. Female MSME actors are more careful when running a business model, able to create more attractive products, and their products have higher purchasing power; 2) Approach aspect and vast network. Women are usually more sociable and have an approach that allows them to build a broader network than men. In addition, they are also sensitive to business opportunities that arise from these networks or closeness, and 3) resilience. When faced with termination of employment, women generally do not quickly feel discouraged and seek new business opportunities. They tend to see failure as an opportunity for entrepreneurship by utilizing their experience.

Juwairiyah et al. (2022) mentioned that the role of women in the business world is very significant, although it is still much smaller than that of men. However, the involvement of women today in MSMEs is increasing. This success is achieved due to female MSME actors' enthusiasm, perseverance, and high curiosity. This study also found that most MSME actors are housewives who carry out business activities to support family income. As housewives, MSME actors in this study have not been able to separate spending for household needs from spending on MSME operations. According to Kristanti (2020), financial separation is important for MSME actors and entrepreneurs who are just starting their business. The existence of financial separation between both business and family needs makes it easier for MSME actors to track cash flow, understand financial position, facilitate financial planning, and save time and costs. Financial management by implementing financial separation can positively impact earnings management.



**Figure 1.** Distribution of Respondents by Gender (Source: Primary Data Analysis (2024))

This study shows that most respondents have a junior high school education, with a percentage of 31.67%, as shown in Table 1. As for 5% of respondents' education is at the D II / III and D / SI levels. This aligns with research by Seran (2016), which states that 73% of MSME actors have an education below high school. According to Zahoor et al. (2023), the use of digital technology by MSME actors in higher education is related to digital technology. They can process information and adopt technology in building small and medium enterprises. In addition, education allows MSME actors to be ready to face challenges related to technological developments and develop the digital literacy needed to utilize digital technology. Highly educated MSME actors tend to identify opportunities better, absorb new information, and generate technological ideas more quickly. Thus, education can prepare MSME actors to improve their digital literacy and use complex technology in interaction, communication, and task completion.

**Table 2.** Distribution of Respondents Based on Education (N=60)

No	Education	Number (Person)	Percentage (%)
1	Not in School	0	0.00
2	SD	8	13.33
3	Junior High School/Equivalent	19	31.67
4	High School/Equivalent	27	45
5	D II/III	3	5
6	D/SI	3	5
7	S2	0	0
	Total	60	100

Source: Primary Data Analysis (2024)

In this study, most respondents were 40-49 years old, with a 50% percentage. As many as 10% of respondents were 50-59 years old, as shown in Table 2. This differs from the research of Zahoor et al. (2023), which shows that more respondents are in the age range of 26-35 years. Fasbender et al. (2021) state that physical and cognitive changes occur with age. These changes can affect an MSME actor's learning efforts and adaptation resource in utilizing digital technology, which has decreased in the older age group. Soluk et al. (2021) stated that older MSME actors sometimes become less competent and tend to feel hesitant to learn new technology, so they use digital technology less. However, younger MSME actors may have grown up in a more complex and diverse digital environment (Choi et al., 2020). As such, they tend to have better digital literacy and are more capable of utilizing digital technologies in performing job tasks (Nadkarni & Prüg, 2021; Oggero et al., 2020).

**Table 3.** Distribution of Respondents by age (N=60)

No.	Age	Number (Person)	Percentage (%)
1	20-29	12	20
4	30-39	12	20
5	40-49	30	50
6	50-59	6	10
	Total	60	100

Source: Primary Data Analysis (2024)

This study shows that most respondents had a business length of 1-5 years, 68.33%. As many as 6.67% of respondents have a length of business < 1 year. This differs from the research of Zahoor et al. (2023), which states that more than half of the respondents have a length of business over 5 years. Length of business can influence innovation on competitive advantage. If MSME actors have been in business for under five years, innovation on competitive advantage becomes stronger. This means that the younger a business is, the more innovation greatly influences competitive advantage in an MSME. This finding aligns with Higón's (2011, as cited in Aziz & Samad, 2016) research, which shows that company age can substantially affect the relationship between innovation and competitive advantage.

**Table 4.** Distribution of Respondents based on length of business (N=60)

No.	Length of business (years)	Number (Person)	Percentage (%)
1	< 1	4	6.67
2	1-5	41	68.33
3	>5	15	25
	Total	60	100

Source: Primary Data Analysis (2024)

The data above shows that most (68.33%) MSME actors have been doing business for one year to five years. This is in line with research conducted by Bidasari et al. (2023), namely, the length of business carried out by MSME actors is dominated by MSME actors with a period of one to five years. In addition, in this study, 25% of MSME actors have been conducting business activities for over five years. Meanwhile, 6.67% have only been doing business activities for less than one year or can be categorized as just starting a business.

**Table 5.** Distribution of Respondents by Type of Business (N=60)

No.	Length of business (years)	Number (Person)	Percentage (%)
1	Culinary	49	81,66
2	Fashion	5	8,33
3	Beauty	1	1,66
4	Automotive	2	3,33
5	More	3	5
	Total	60	100

Source: Primary Data Analysis (2024)

Based on the table above, it can be seen that most (81.66%) types of businesses carried out by MSME actors in the 3T area of the Sangihe Islands Regency are engaged in the culinary sector. This is in line with research conducted by Bidasari et al. (2023), which revealed that the culinary business dominates business activities carried out by most MSME actors. Furthermore, this finding is also

supported by a statement from the Head of the Sangihe Islands Regency Regional Cooperative and SME Office, Sonny Kapal (as cited in Johanis, 2024), revealed that 80% of MSME actors in the Sangihe Islands Regency-run businesses in the culinary sector.

### Level of Digital Literacy in MSME actors in the 3T Region of the Sangihe Islands Regency.

In this study, the level of digital literacy in MSME actors is the ability of MSME actors in the 3T Region of the Sangihe Islands Regency to use, produce, analyze, and communicate messages through digital media. Furthermore, to measure and determine the level of digital literacy in this study, indicators in the *Individual Competence Framework* (individual competence) were used by the European Commission (as cited in Kawengian, 2016). The indicators used in the *Individual Competence Framework* include *technical skills, critical understanding, and communicative abilities*. The *Individual Competence Framework* in this study can be explained as follows:

**Table 6.** Distribution of Digital Literacy Level (N=60)

No.	Category (Score)	Number (Person)	%
1	Basic ( $\leq 60$ )	37	61.66
2	Medium (61-120)	21	35
3	Advanced ( $> 121$ )	2	3.33
	Total	60	100

Source: Primary Data Analysis (2024)

Table 6 shows that more than half of the respondents were in the *essential* literacy level category, at 61.66%. Meanwhile, 35% of respondents were at the *medium* literacy level and advanced 3.33%. This study's results align with those of (Kominfo, 2019, as cited in Erlanitasari et al, 2019), who show that most MSME actors' literacy level is in the basic category. For example, regarding access to computers and broadband internet addition, 18% of MSME actors have a level of digital literacy in the medium category in utilizing websites and social media. Furthermore, only 9% have a digital literacy level in the *advanced* category

This aligns with Husniyah et al.'s (2023) research, which states that the level of digital literacy of MSME actors in West Java is high. Furthermore, this is supported by data from the Ministry of Communication and Information of the Republic of Indonesia (Direktorat Jenderal Aplikasi Informatika, 2023), which states that the digital literacy index in Indonesia in 2022 was 3.54 and has increased by 0.11 points in 2023. This measurement is based on four main pillars: digital skills, digital security, digital ethics, and digital culture.

According to Fransiska et al. (2024), mastery of digital tools and platforms can increase the ability of MSME actors to adapt quickly to changes in market dynamics. In addition, digital literacy helps MSME actors utilize online resources for market analysis, communication with customers, and development of competitive strategies. Thus, business sustainability can be maintained despite the changing economic situation.

Almi and Rahmi (2020) revealed that MSMEs adopting digital tools to run their businesses tend to achieve better financial performance. This is due to more informed decision-making and more efficient business processes. Using digital analytics tools allows MSME actors to analyze customer data and market trends. In addition, it allows their businesses to adjust strategies to suit market demand better and optimize operational efficiency. Sutrisno et al. (2024) state that Micro, Small, and Medium Enterprises (MSMEs) play an important role in today's global economy. Despite their small size, MSMEs continue to be faced with various complex and often difficult challenges.

These challenges can include intense competition with larger companies, limited access to critical resources, and the need to adapt to rapid changes in consumer behavior. In the context of this increasingly competitive market, the application of digital literacy is essential for MSME actors. This is useful in increasing competitiveness and ensuring the sustainability of operations in the ever-changing digital era. Micro, Small, and Medium Enterprises (MSMEs) that successfully implement

digital business strategies have the opportunity to improve their business performance and make a significant contribution to local economic growth.

In this context, developing digital skills among MSME human resources has become increasingly important and key to driving innovation, competitiveness, and adaptability in a changing business environment. Investing in developing these skills enables MSMEs to make the most of the potential of digital technology. It also helps them expand their market reach, improve operational efficiency, and open new opportunities. As such, the enhancement of HR digital skills not only impacts the individual performance of MSMEs but also contributes to overall economic growth, providing a significant boost to the local business ecosystem and driving broader economic progress (Athia et al., 2023; Sopianah et al., 2023).

Furthermore, digital literacy can help build entrepreneurial literacy for MSME actors. Digital literacy in the advanced category will help MSME actors quickly access information about business opportunities that suit their goals. Thus, this can support their business development. In addition, MSME actors can innovate in creating product designs, advertisements, and others. They can also utilize social media such as Facebook, Google Ads, TikTok, and Instagram. However, many MSME actors must be more courageous in accepting payments through digital or cashless mechanisms. In addition, digital literacy also impacts business performance in the small business sector. Implementing digital literacy for MSME actors can improve their innovation capabilities and enable them to create unique products compared to competitors who have not yet gone digital. In addition, digital literacy allows them to have an interest in entrepreneurship. It also enables MSMEs to utilize Internet search facilities efficiently, understand information in hypertext format, and better evaluate and analyze online information content (Wardoyo et al., 2024).

Digital development has brought the current generation into the world of digital literacy. One important element of digital literacy is the implementation of e-commerce by MSMEs. However, many challenges are faced by MSMEs in utilizing e-commerce, such as a lack of understanding of information technology. Therefore, digital literacy becomes very important for MSMEs in developing their business. Digital literacy includes a set of competencies needed to participate effectively in a knowledge-based society, including skills, knowledge, and habits or behaviors in using digital devices such as smartphones, tablets, laptops, and desktop PCs to communicate, express themselves, collaborate, and advocate. Digital literacy is the ability of entrepreneurs to adapt to technological developments to utilize and optimize media as a means of communication, marketing, trend analysis, and demand for goods and services. In addition, digital literacy is the ability to understand and utilize information from various forms and sources that can be accessed through computer devices (Patria et al., 2023).

In this study, in the *technical skills* category, it was still found that most respondents could not use a computer. In addition, internet use is only in social media such as Facebook. Respondents have not actively used the internet, namely only once a week with a maximum duration of 1 hour daily. According to Ahmad et al. (2024), *technical skills* play a role in encouraging innovation in product development and strategic planning. The style of MSME actors is the most important factor in carrying out performance and innovation. They play a central role in formulating strategies and setting goals. The *technical skills* need to be owned by MSME actors to help them in strategic planning, implementation, and achievement of goals at the product production level.

This study also found that respondents generally did not have *critical understanding* and *communicative abilities*. This is indicated by their ability to access social media only through Facebook. However, they have not been able to create content to promote their businesses or build social interactions through social media. According to Waliulu (2022), the ability to understand, analyze, and evaluate media content is an ability that needs to be possessed by individuals, especially MSME actors. In addition, they need to know about media regulations and how to behave as good media users. Communicative skills refer to individuals' ability to communicate and establish social relationships through the media and to produce media content. These skills include an individual's ability to build social relationships and participate in the community environment through the use of media.

Meanwhile, Krajčák (2023) states there are more digital literacy activities in service MSMEs than manufacturing MSMEs. This highlights the limited digital literacy activities in manufacturing MSMEs.

The high focus on digital literacy in service MSMEs may be related to more intense and higher frequency customer interactions. In this context, service MSME executives may pay more attention to employees' digital literacy to meet customer needs. In addition, close interactions between employees and customers may increase their awareness and understanding of the digital literacy activities required for the business. As a result, employees can also encourage and motivate companies to take steps in digital literacy. Therefore, service MSMEs, in this case, are likely to show greater attention to employee digital literacy and digital literacy activities in their organizations.

According to Krajčik (2023), SMEs with higher education have better professional and scientific information to integrate digital technology in operations. In addition, they can make effective transformation decisions when running their businesses. The level of education may have contributed to the similar development of digital transformation in their businesses despite operating in different business sectors.

Furthermore, according to Panjaitan et al. (2023), along with the changes and developments that occur over time, digital technology has become an important step for MSME actors to survive and develop their businesses. Therefore, leaders and employees of MSMEs need to have a good understanding of technology to utilize existing resources. Technologically literate individuals can use technology for organization, communication, research, and problem-solving. Thus, MSME actors who understand technology not only know what technology can do but can also use it effectively. In addition, MSME actors can make wise decisions regarding the choice of technology and the time to use it and utilize technology to create entrepreneurial and business development opportunities. Five factors influencing the adoption of information and communication technology, among others, are perceived benefits, perceived adoption costs, knowledge of information and communication technology, employee skills, digital literacy and external pressure, and government support.

### **Constraints and challenges faced by MSME actors in 3T areas related to digital literacy.**

As for the constraints and challenges that are still quite often faced by MSME actors in the 3T Region of the Sangihe Islands Regency as a whole (97%) revealed that the internet infrastructure is inadequate where the network is less stable and even in some areas the internet is still not reached. This is in line with Juditha's (2014) research, which found that the infrastructure of information and communication technology in border areas can be minimal, and the internet network is still very slow. Thus, it is understandable if people in border areas still use the internet less than cellular phones. Adequate infrastructure support certainly needs to be a serious concern to support the success and performance of MSMEs, especially those in the 3T Region of the Sangihe Islands Regency.

The latest survey by the Indonesian Internet Service Providers Association (APJII - *Asosiasi Penyelenggara Jasa Internet Indonesia*) found some interesting things about internet usage in the 3T (Disadvantaged, outermost, frontier) areas. The survey, conducted in collaboration with BAKTI Kominfo between July and September 2024, revealed that 82.6 percent of the population in the 3T areas, or around 8,114,273 people out of 9,823,575, already use the internet. In other words, 17.4 percent (around 1.7 million people) still do not have internet access for various reasons (APJII, 2024). However, it also revealed that 21% percent of residents in 3T areas do not know how to use devices to connect to the internet. Although most people in the 3T areas already use the internet, issues related to connection, infrastructure, and access are still challenges residents face. Furthermore, this research found that there is still a lack of knowledge in the application of digital technology in MSME actors in the 3T Region of the Sangihe Islands Regency. Sangihe Islands Regency is a challenge faced.

Meanwhile, digital literacy is essential in supporting and increasing the success of MSME actors in running a business, as revealed in the research of Bidasari et al. (2023), which proves that digital literacy has a positive and significant effect on the performance of MSMEs. The study shows that business actors are not just familiar with digital media. Furthermore, business actors also involve digital literacy in their daily activities, especially in supporting their business activities, including promotional and marketing activities using digital media, thus increasing profits in the business being carried out.

Therefore, there is a need for more intensive and sustainable training and mentoring to improve the ability and digital literacy skills of MSME actors in the 3T Region of the Sangihe Islands

Regency. This is in line with Juditha's (2014) research, which provides several recommendations, including the importance of holding training for people in border areas related to media literacy. This aims to make people more aware of information and able to sort out what is important for themselves and the surrounding environment. In addition, ICT utilization training is needed so that local communities are more technology literate, which can be used to support their economic development and welfare.

The private sector is also expected to continue developing infrastructure in remote and border areas so that people can experience technological advances and immediately fulfill their needs for information and communication. In addition, according to Trisninawati and Sartika (2024), operational challenges relate to digital security. This aspect becomes an important component of digital literacy, reflecting the need to improve understanding of online business data protection. The increasing reliance on digital platforms for various business functions emphasizes the importance of equipping MSME actors with the necessary knowledge and tools to protect their online presence effectively.

Furthermore, according to Trisninawati and Sartika (2024), respondents experienced difficulties utilizing digital technology, especially in adapting and understanding complex features. They also have concerns about digital security issues, and most respondents feel the need to improve their knowledge about online usage. This shows that digital literacy is still a big challenge for MSME actors. Most respondents acknowledged limitations in using digital technology for business operations and marketing. Some feel awkward and need to adapt to new platforms or features. Regarding digital security, the concerns raised by respondents reflect the need to improve their understanding of online business data protection measures, emphasizing the importance of security and technological understanding in digital literacy.

Low digital literacy among MSMEs is due to limited access to adequate infrastructure, insufficient education and training, and high financial challenges in adopting technology. This hinders their ability to integrate digital technologies into their business strategies effectively. Therefore, the concrete strategies proposed include practical and accessible training programs specifically designed to improve digital literacy among women MSMEs. In addition, expanding access to necessary digital infrastructure, such as affordable internet connectivity and supporting hardware, is crucial. Cooperation between the business community, government, and educational institutions is crucial to creating an environment that improves digital literacy, including facilitating knowledge and experience exchange among business stakeholders.

In addition to the two things mentioned above, it was also revealed that power outages are pretty frequent and make WiFi die so that the internet connection is also cut off, which is quite disruptive to the business being run and is a challenge for MSME actors in the 3T area of the Sangihe Islands Regency. This is in line with the revelation by General Secretary of APJII, Zulfady Syam (as cited in Insyani, 2024), that one of the causes of internet disruption is power outages. As many as 36.2 percent of residents reported that they experienced power outages around 2 to 5 times a month. Meanwhile, 31.8 percent of citizens experienced over five power outages a month. On the other hand, 22.1 percent only experienced a blackout once, and 9.8 percent did not experience a blackout at all.

## CONCLUSION

Based on the discussion previously described, it can be concluded that the level of digital literacy of MSME actors in the 3T Region of the Sangihe Islands Regency was identified at the *basic* level, namely 61.66%, which means that the digital literacy skills of most MSMEs in the 3T Region of the Sangihe Islands Regency are still relatively low. Meanwhile, 35% of respondents were at the *medium* literacy level, and only 3.33% of MSME actors had digital literacy levels at the *advanced* level. Thus, special attention needs to be given to the local government through related agencies to make various efforts, such as continuous training and mentoring, to improve digital literacy skills in the 3T Region of the Sangihe Islands Regency. In addition, this research found various challenges and obstacles, such as inadequate infrastructure, unstable networks, and even in some areas still not covered by internet signals. This is enough to contribute to the low level of digital literacy in MSME actors in the 3T Region of the Sangihe Islands Regency.

Meanwhile, knowledge in the application of digital technology in MSME actors in the 3T Region of the Sangihe Islands Regency still needs to be continuously improved because the results of this study reveal that there are still MSME actors in the 3T Region of the Sangihe Islands Regency who have difficulty in applying digital technology in their business activities. In addition, the high level of power outages is also a challenge for MSME actors in the 3T area of the Sangihe Islands Regency. This, of course, needs serious and continuous attention from all relevant parties to provide adequate infrastructure in the 3T area of the Sangihe Islands Regency to support MSME actors in running their businesses digitally.

Future research is expected to explore the influence of digital literacy on the success of MSMEs in the 3T Region of the Sangihe Islands Regency. In addition, it is necessary to explore the roles and efforts that have been, are being, and will be carried out by the government and all stakeholders related to efforts to improve digital literacy in the 3T Region.

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