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An Analysis of Digitalization Readiness among Traditional Micro, Small, and Medium Enterprises (MSMEs): A Study of Arab Melayu Urban Village, Seberang Jambi City

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ABSTRAK
Penelitian ini bertujuan untuk menganalisis tingkat kesiapan digitalisasi UMKM tradisional di Kelurahan Arab Melayu, Seberang Kota Jambi serta mengkaji keterkaitan antar aspek teknologi, inovasi, sumber daya manusia, dan pengembangan diri. Penelitian menggunakan pendekatan kuantitatif dengan desain deskriptif-korelasional. Data dikumpulkan melalui kuesioner terhadap 48 pelaku UMKM tradisional dan dianalisis menggunakan statistik deskriptif serta uji korelasi Spearman. Hasil penelitian menunjukkan bahwa UMKM tradisional berada pada kategori siap dalam mengadopsi digitalisasi, yang tercermin dari capaian relatif tinggi pada aspek teknologi, inovasi, sumber daya manusia, dan pengembangan diri. Uji korelasi Spearman menunjukkan adanya hubungan positif dan signifikan antara aspek teknologi dengan inovasi serta sumber daya manusia, sementara hubungan antara inovasi dan pengembangan diri bersifat positif namun belum signifikan. Temuan ini mengindikasikan bahwa kesiapan digitalisasi UMKM bersifat multidimensional, tidak hanya ditentukan oleh pemanfaatan teknologi, tetapi juga dipengaruhi oleh kapasitas sumber daya manusia dan dinamika inovasi pelaku usaha. Implikasi penelitian ini menekankan pentingnya program pendampingan dan penguatan kapasitas yang berkelanjutan, khususnya pada peningkatan keterampilan digital dan inovasi pelaku UMKM, guna mendukung proses digitalisasi yang lebih merata dan berkelanjutan.

Kata kunci: inovasi, kesiapan digital, pengembangan diri, sumber daya manusia, teknologi, UMKM tradisional

ABSTRACT
This study aims to analyze the level of readiness for digitization of traditional MSMEs in the Arab Melayu Urban Village, Seberang Jambi City, and to examine the relationship between technology, innovation, human resources, and self-development. The study uses a quantitative approach with a descriptive-correlational design. Data were collected through questionnaires administered to 48 traditional MSME actors and analyzed using descriptive statistics and Spearman's correlation test. The results show that traditional MSMEs are ready to adopt digitalization, as reflected in their relatively high scores in the aspects of technology, innovation, human resources, and self-development. Spearman's correlation test shows a positive and significant relationship between technology and innovation as well as human resources, while the relationship between innovation and self-development is positive but not yet significant. These findings indicate that the readiness of MSMEs for digitalization is multidimensional, not only determined by the use of technology, but also influenced by human resource capacity and the dynamics of business innovation. The implications of this study emphasize the importance of sustainable mentoring and capacity building programs, particularly in improving the digital and innovation skills of MSME actors, in order to support a more equitable and sustainable digitalization process.

Keywords: digital readines, human resources, innovation, self development, technolog, traditional MSMEs

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) are among the key drivers of Indonesia's economy, playing a crucial role in sustaining economic resilience and national development. They contribute significantly to job creation, income generation, and overall economic growth. According

to the Ministry of Cooperatives and MSMEs, the number of MSMEs in Indonesia has reached 64.2 million, contributing 61.07% to the Gross Domestic Product (GDP), equivalent to IDR 8,573.89 trillion. Moreover, MSMEs absorb approximately 117 million workers, or about 97% of the national labor force (Direktorat Jenderal Perbendaharaan Kementerian Keuangan Republik Indonesia, 2024). Despite their contribution, the rapid development of the Fourth Industrial Revolution (Industry 4.0) and Society 5.0 has presented MSMEs with major challenges, particularly the need for digital transformation. Digitalization is not limited to the adoption of technology; it also involves fundamental changes in how MSMEs operate, including production, marketing, and customer engagement.

(Mulyantomo et al., 2021) define MSMEs digitalization as the transition from conventional to online business transactions. Meanwhile, (Wijoyo & Widiyanti, 2020) emphasizes that digitalization also encompasses the utilization of market intelligence to support product development and enhance technological growth within MSMEs. The primary objectives of digitalization are to increase operational efficiency and effectiveness. Several studies highlight its benefits, such as improved financial management, online access to raw materials, and enhanced monitoring of business cash flow (Naimah et al., 2020). Additional advantages include the development of entrepreneurial practices, improved product quality, cost efficiency, broader market reach, and reduced risk of losing market share (Solihin et al., 2021; Aditya & Rusdianto, 2023).

Jambi City is one of the rapidly developing urban centers in Jambi Province, recognized as an industrial hub with significant MSMEs growth. Data from the Central Statistics Agency (BPS) of Jambi Province reports that the city is home to 50,747 MSMEs, consisting of 46,912 micro enterprises and 3,835 small enterprises. Among its districts, Arab Melayu Urban Village stands out due to its strategic location and unique attractions (Badan Pusat Statistik, 2024). The presence of Gentala Arasy, a prominent tourism landmark, alongside strong infrastructure, has spurred continuous growth of MSMEs in the area. Currently, Arab Melayu hosts 55 MSMEs, most of which are micro-scale businesses, including traditional food vendors, small retail shops, handicraft producers, and other micro enterprises. However, many of these enterprises still rely on conventional business practices, such as offline procurement, sales, and transactions. Opportunities for digital transformation—such as digital marketing, e-payment systems, digital financial records, online customer services, and integrated business management—remain largely untapped.

Preliminary observations and interviews with local MSMEs actors indicate that a proportion of them are not yet prepared to adopt digital technologies. Challenges include limited digital literacy, insufficient access to training and infrastructure, and concerns over changes in business practices. According to (Anatan & Nur, 2023) Small businesses often face problems inside their companies. The first problem is human resource issues. They usually don't have enough knowledge, skills, or ability to do their jobs well. The second issue is with making and selling products. These businesses often can't come up with new ideas for their products or how they package them. They also don't use digital tools well for advertising. Plus, they don't understand how important it is to build a brand and take care of their customers. The third problem is that they don't have strong rights for their ideas and don't know much about using digital technology. Futhermore, Limited resources, restricted access to information, and lack of awareness often hinder changes in their business models (Koe et al., 2024). Therefore, the role of government and supporting institutions is also critical in facilitating the digital readiness of traditional MSMEs.

Previous research by (Octavina & Rita, 2021) demonstrated that digitalization has a positive impact on MSMEs performance. Furthermore, research (Panjaitan et al., 2021) shows that digital values play a role in digital readiness, digital capabilities, and digital competitiveness for MSMEs. Factors such as human resources, self-development, technology adoption, and innovation significantly influence the level of digital readiness (Aydin & Tasci, 2005). Furthermore, previous studies conducted by (Amalia & Budiman, 2024; Saputri et al., 2025; Zahra et al., 2024) overall shows that although the digitization of MSMEs has become a major focus of the government, the level of readiness and implementation of digitization varies greatly depending on geographical location, local culture, accessibility to digital infrastructure, and the focus of the research presented. Meanwhile, this study focuses on traditional MSMEs (not digital natives), specific local contexts, and quantitative analysis of digitalization readiness. This study contributes by examining the digital readiness of

traditional community-based SMEs, a topic that has received relatively little research attention, and is thus expected to provide a more contextual understanding of the dynamics of digital readiness at the grassroots level.

Therefore, this study aims to analyze the level of digital readiness among traditional MSMEs and to examine the relationships among aspects of technology, innovation, human resources, and self-development in Arab Melayu Urban Village, Seberang Jambi City. This analysis of digital readiness is crucial as a foundation for formulating MSMEs development strategies that are more targeted and grounded in local needs. Additionally, this study is expected to provide an empirical understanding of the extent to which MSMEs operators understand, accept, and are prepared to implement digital technologies in their business operations.

METHOD

This study uses a quantitative approach with a descriptive-correlational research design. This design is applied to describe the level of readiness for digitization of traditional MSMEs in Arab Melayu Urban Village, as well as to analyze the relationship between technology, innovation, human resources, and self-development factors. The target population consists of all individuals involved in traditional MSMEs in Arab Melayu Urban Village, Seberang Jambi City. The sample was selected using purposive sampling, which involves choosing MSMEs actors who still operate through traditional practices and are willing to participate in interviews or complete questionnaires.

The sample size was determined using Slovin's formula, based on a total population of 55 MSMEs with a 5% margin of error:

$$n = \frac{N}{1+N\,(e^2)} = \frac{55}{1+55\,(0.05^2)} = \frac{55}{1+0.1375} = \frac{55}{1.1375} = 48.37$$

Thus, the sample size used in this study was 48 MSMEs.

Data were collected through structured questionnaires consisting of close-ended questions designed to measure digital readiness across four indicators:

Table 1
Research Indicators

Indicator	Number of Questions
Technology	4
Innovation	4
Human Resources	4
Self-Development	4

Source: Aydin & Tasci (2005)

The collected data were analyzed using descriptive quantitative analysis. Descriptive statistics, including percentages, means, and frequency distributions, were employed to evaluate each indicator representing MSMEs digital readiness. Validity and reliability tests were conducted to ensure that the questionnaire items were appropriate and reliable as research instruments. Both tests were performed using the SPSS 25.0 software, with 30 respondents assigned to each indicator during the pilot testing stage.

Validity and reliability tests were conducted to ensure that the questionnaire items were appropriate and acceptable as research instruments. Both tests were performed with the assistance of SPSS version 25.0, using a sample of 30 respondents for each indicator. The validity test was employed to examine the extent to which the measurement instrument accurately reflects the concepts or phenomena being measured. A questionnaire is considered valid if its items can capture the intended constructs. The validity of each item was tested by correlating the score of each question item with the total score of its respective variable. If the calculated correlation coefficient $r_{calculate} > r_{table}$ and the result is positive, then the corresponding item or indicator is considered valid.

Table 2
Validity Test Results

Item	r-calculate	r-tabel	Decision
1	0,669	0,367	Valid
2	0,830	0,367	Valid
3	0,795	0,367	Valid
4	0,643	0,367	Valid
5	0,540	0,367	Valid
6	0,707	0,367	Valid
7	0,703	0,367	Valid
8	0,667	0,367	Valid
9	0,629	0,367	Valid
10	0,783	0,367	Valid
11	0,596	0,367	Valid
12	0,776	0,367	Valid
13	0,482	0,367	Valid
14	0,303	0,367	Not Valid
15	0,370	0,367	Valid
16	0,466	0,367	Valid

Source: processed data

Based on the results of the validity test presented in Table 2, 15 out of 16 items showed correlation coefficients *r*calculate greater than the critical value of *r*table (0,367) at the 5% significance level, indicating that these items are valid. Only item or number 14 did not meet the validity criteria, as its correlation coefficient was below the required threshold. Consequently, item 14 was excluded, and only 15 valid items were retained for use in this study.

Table 3
Reliability Test Results

Item	r-calculate	r-tabel	Decision
Technology	0,857	0,60	Reliabel
Innovation	0,782	0,60	Reliabel
Human Resources	0,788	0,60	Reliabel
Self-Developmnet	0,680	0,60	Reliabel

Source: processed data

RESULT

Table 4
Respondents' Responses to the Technology Indicator

Item	Respondens.Response					Total	Value Score					Total
	SA	A	N	D	SD		5	4	3	2	1	
1	16	24	5	3	0	48	80	96	15	6	0	197
2	11	28	9	0	0	48	55	112	27	0	0	194
3	21	21	4	2	0	48	105	84	12	4	0	205
4	15	19	7	6	1	48	75	76	21	12	1	185
Amount												781
Mean												16,27
Percentage												81,35
Category												H

Source: processed data

Based on the data analysis in Table 4, the technology indicators measured through four items obtained a total score of 781, with an average value of 16.27 and an achievement percentage of 81.35%. This percentage falls into the "high" category, which identifies that traditional MSMEs

players in the Arab Melayu Urban Village already have a good level of readiness in terms of technology.

The results of the study show that most traditional MSMEs in Arab Melayu Urban Village understand the benefits of using digital technology to support business operations, such as the use of digital devices (smartphones or laptops), the use of social media as a means of promotion, and the operation of digital applications to support business processes. High scores on several items reflect that the adoption of basic technology, particularly the use of smartphones and internet access, has been carried out quite well by MSMEs.

In line with these findings, (Loo et al., 2023) states that the use of digital technology can help small and medium-sized enterprises become more competitive and better able to compete with others. In addition, (Alfarizi et al., 2024) argues that the adoption of digital technology can expand the market share of MSMEs. Other findings also show that the use of appropriate technology not only has the potential to increase business efficiency, but can also open up opportunities for increased income and labor demand (Darma et al., 2020). Other research findings also show that the adoption of digital technology by business actors has an impact on the readiness of MSMEs in carrying out digital-based business activities (Alifudin et al., 2024).

However, the existence of one item with a relatively lower score indicates that there are still certain challenges in optimizing technology comprehensively. These obstacles are related to technical skill limitations, such as the provision of digital payment processes, including the use of QRIS or digital wallets (e.g., Dana). This shows that even though technological readiness is generally high, guidance or education on how to implement digital payment processes is still needed, with assistance or the presence of reliable parties in the field so that technology can be utilized more optimally and sustainably.

Overall, the results of this study underscore that the technological aspect is one of the main strengths related to the digitalization readiness of traditional MSMEs. Digital readiness is an important factor for small and medium-sized enterprises with limited resources to remain competitive amid changes in the business environment (Pingali et al., 2023). Therefore, strengthening technological aspects through continuous assistance and stakeholder support is a strategic step to encourage more inclusive and comprehensive MSMEs digitalization.

Table 5
Respondents' Responses to the Innovation Indicator

Item	Respondens.Response					Total	Value Score					Total
	SA	A	N	D	SD		5	4	3	2	1	
5	12	18	12	5	1	48	60	72	36	10	1	179
6	12	16	16	4	0	48	60	64	48	8	0	180
7	19	21	15	2	0	48	50	84	45	4	0	183
8	16	15	9	8	0	48	80	60	27	16	0	183
Amount												725
Mean												15,10
Percentage												75,52
Category												H

Source: processed data

Based on the data analysis in Table 5, the innovation indicator measured through four items obtained a total score of 725, with an average value of 15.10 and an achievement percentage of 75.52%. This percentage falls into the "high" category. Although the score is lower than the technology indicator, it still reflects a fairly good level of implementation.

The achievement of innovation indicators shows that most traditional MSMEs in the Arab Melayu are beginning to be open to change and are trying to apply new approaches in running their businesses. This is reflected in the practice of creating digital content in the form of photos and videos to attract customers, as well as efforts to explore various online platforms as marketing tools. These findings indicate that MSMEs players are beginning to realize the importance of innovation in supporting business continuity in the digital era.

The findings of this study are in line with (Kahveci, 2023), which states that innovation plays a role in driving the digital readiness of MSMEs. Meanwhile, according to (Sudrajad et al., 2023), innovation in digital practices greatly influences the readiness and direction of business digitalization strategies. The results show that innovation needs to be applied to SMEs because it strengthens the competitiveness of business actors (Miranda et al., 2024). Thus, the results of this study reinforce previous findings that place innovation as an important element in the digital transformation process of MSMEs.

However, the relatively lower score of the innovation indicator compared to the technology indicator shows that the level of innovation implementation is not yet fully evenly distributed among MSMEs actors. The neutral responses given by several respondents to statements related to innovation indicate uncertainty or hesitation in adopting new approaches. This condition has the potential to slow down the overall digital transformation process, even though innovation readiness is generally high.

Therefore, the results of this study emphasize the importance of more intensive and sustainable mentoring and training strategies to encourage more optimal implementation of innovation. Local governments, MSMEs support institutions, and other relevant parties need to provide encouragement so that MSMEs actors not only understand the concept of innovation but also have the skills and confidence to implement it in their daily operations. MSMEs actors also need access to resources, key capabilities, innovative skills, and specialized knowledge through partnerships or support from other parties (Hamel, 1989; Kogut & Zander, 1992). In line with this, (Miranda et al., 2024) recommends the need for support from the government and related institutions in the form of training and access to financing to facilitate a more comprehensive and sustainable digital transformation of MSMEs.

Table 6
Respondents' Responses to the Human Resources Indicator

Item	Respondens.Response					Total	Value Score					Total
	SA	A	N	D	SD		5	4	3	2	1	
9	3	25	17	2	1	48	15	100	51	4	1	171
10	12	26	9	1	0	48	60	104	27	2	0	193
11	10	28	10	0	0	48	50	112	30	0	0	192
12	13	22	10	3	0	48	65	88	30	6	0	189
Amount												745
Mean												15,52
Percentage												27,60
Category												H

Source: processed data

Based on the data analysis in Table 6, the human resource indicator, which is measured through four items, obtained a total score of 745, with an average value of 15.52 and an achievement percentage of 77.60%. This percentage falls into the "high" category, which indicates that, in general, traditional MSMEs actors in Arab Melayu Urban Village have sufficient human resource capacity in terms of their readiness for business digitalization.

The findings show that most traditional MSMEs players in the Arab Melayu already have the basic knowledge and skills to start adapting to digital technology. This is reflected in the ability of MSMEs actors to search for and utilize relevant digital information for business development, as well as their confidence in using technology to manage their businesses in a simple manner. The relatively high achievement on this indicator also reflects the increasing awareness of MSMEs actors of the importance of human resource quality as part of their strategy to survive and thrive in the digital era.

These results are in line with (Efendi, 2023), who states that human resources are related to business performance. In addition, (Kusuma & Pradhanawati, 2024) emphasizes that human resources play an important role in the digital readiness of MSMEs players. Human resource development is not limited to large-scale industrial environments but is also important for small and local businesses (Saucedo et al., 2025).

However, there is one item in the human resources indicator that received a relatively low score compared to the others. This identifies that there are still some MSMEs players who experience

obstacles, especially in terms of their knowledge of business terms such as e-commerce, digital marketing, and others, as well as how to apply them in business activities. MSMEs players who are still heavily dependent on conventional methods or are not yet accustomed to actively using digital devices are the group most vulnerable to being left behind in the digitization process. This condition is in line with the findings (Anatan & Nur, 2023) which state that MSMEs in Indonesia still face problems of low digital skills and limited resources.

This skills gap is a challenge that needs to be addressed immediately so as not to widen the digital divide among MSMEs players. Therefore, the results of this study emphasize the importance of strengthening human resource capacity through more structured, sustainable, and locally tailored training programs. Efforts to improve the quality of human resources are expected to encourage more equitable and sustainable digital readiness among MSMEs.

Table 7
Respondents' Responses to the Self-Development Indicator

Item	Respondens.Response					Total	Value Score					Total
	SA	A	N	D	SD		5	4	3	2	1	
13	21	22	4	1	0	48	105	88	12	2	0	207
14	16	20	10	2	0	48	80	80	30	4	0	194
15	13	24	8	3	0	48	65	96	24	6	0	191
Amount												592
Mean												12,33
Percentage												82,22
Category												H

Source: processed data

Based on the data analysis in Table 7, the self-development indicator, which was measured through three items, obtained a total score of 592, with an average value of 12.33 and an achievement percentage of 82.22%. This percentage falls into the "high" category. These results show that MSMEs players have a strong desire to continue learning, developing skills, and adapting to change, including advances in digital technology.

The high score on item 13 reflects the enthusiasm of traditional MSMEs players in Arab Melayu Urban Village in taking advantage of various self-development opportunities, particularly related to learning technologies that can be used to support business activities. These findings show that in terms of attitude and mental readiness, MSMEs actors have demonstrated a willingness to continue learning and adapting to change, rather than relying solely on traditional business models. This condition confirms that self-development is an important foundation in the MSMEs digital transformation process.

Digital readiness itself reflects the extent to which individuals or groups are able to utilize digital tools to achieve their goals more effectively (Pirola et al., 2020). This readiness does not only depend on access to technology, but also on the ability to use it and the willingness to continue learning new technologies as part of the self-development process. In a business context, digital readiness indicates the extent to which business actors are ready to utilize technology to improve operational efficiency and service quality to customers (Pingali et al., 2023).

However, there are still several items that indicate that some MSMEs players do not yet have sufficient opportunities or strong incentives to develop themselves optimally. This can be seen from the low interest of some respondents in discussing, asking questions, or sharing experiences related to the use of technology in business. (Eller et al., 2020) state that the limited scale of businesses often hinders the ability of MSMEs to take full advantage of the digital economy, including in terms of adopting new technologies, learning through experimentation, and developing ideas and production processes.

Therefore, the results of this study emphasize the importance of continuous support from local governments, training institutions, and MSMEs assistance organizations to expand access to relevant and accessible self-development programs. Such support is particularly important for micro-businesses with limited knowledge and educational backgrounds. Overall, the aspect of self-

development demonstrates a spirit of learning and a desire for continuous improvement, which are strategic assets in preparing and strengthening the readiness of traditional MSMEs for sustainable digitalization.

Table 8
Sperman Test

Correlated Variables	Correlation Coefficient	Sig. (2-tailed)	Decision
Technology → Innovation	.595	.000	positive, significant, moderate
Technology → Human Resources	.664	.000	positive, significant, strong
Innovation → Self-Developmnet	.206	.160	positive, insignificant, weak

Source: processed data

Based on the results of the Spearman correlation test in Table 8, the relationships among the aspects of digital readiness for traditional MSMEs vary in terms of both strength and significance. The relationship between the technology and innovation aspects shows a positive correlation with a coefficient value of 0.595 ($p = 0.000$), indicating that the more optimal the use of digital technology by SME actors, the higher their tendency to innovate in business activities. Meanwhile, the relationship between technology and human resources shows a strong and significant positive correlation with a coefficient value of 0.664 ($p = 0.000$), confirming that technological readiness goes hand in hand with human resource capacity in understanding, operating, and effectively utilizing digital technology.

On the other hand, the relationship between innovation and self-development shows a positive but weak and statistically insignificant correlation with a coefficient value of 0.206 ($p = 0.160$). This finding indicates that the innovation activities carried out by MSMEs actors have not been fully accompanied by continuous self-development efforts, such as participation in training or the enhancement of digital skills. This situation highlights a gap between innovation practices and individual capacity building, which has the potential to hinder the long-term sustainability of the MSMEs digitalization process.

CONCLUSION

This study shows that traditional MSMEs in the Arab Melayu Urban Village, Seberang Jambi City, are ready to adopt digitalization. This is reflected in their relatively high scores in the areas of technology, innovation, human resources, and self-development, which generally indicate the readiness of MSMEs players to utilize digital technology to support their business activities. The Spearman correlation test results show that there is a significant positive relationship between technology and innovation as well as human resources, while the relationship between innovation and self-development shows a positive but not yet significant relationship. These findings confirm that the readiness for MSMEs digitalization is multidimensional, not only determined by the availability and utilization of technology, but also influenced by human resource capacity and the dynamics of innovation carried out by business actors. Although the level of digitalization readiness is relatively high, limitations are still found in terms of advanced digital skills and the optimization of technology utilization. Therefore, continuous assistance and capacity building efforts are needed from local governments, supporting institutions, and related parties so that the MSME digitalization process can take place more evenly and sustainably.

This study makes a theoretical contribution by enriching the literature on the digital readiness of MSMEs, particularly in the context of traditional, locally-based SMEs. In practical terms, the findings of this study can serve as a foundation for the government and stakeholders in designing more equitable and sustainable digital capacity-building and support programs.

This study has several limitations. First, the study was conducted only among MSMEs in the Arab Melayu neighborhood, so its scope remains limited and cannot yet be generalized to other areas. Second, the number of respondents involved is still limited, so the full range of characteristics among MSME operators has not been fully captured. Third, the quantitative approach used was not able to delve deeply into the motivations and behaviors of MSME actors in the digitalization process.

Therefore, future research is advised to use a more comprehensive approach, such as a mixed-methods or qualitative approach, with a broader geographical scope.

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