Jurnal E-KOMTEK (Elektro-Komputer-Teknik)
Vol. 5, No. 2 (2021) pp. 217-229
https://jurnal.politeknik-kebumen.ac.id/index.php/E-KOMTEK
p-ISSN : 2580-3719 e-ISSN : 2622-3066

Measurement of the Maturity Level of Micro, Small, and Medium Enterprises (MSMEs) Business Processes in East Kotawaringin Regency during the Covid-19 Pandemic

Lukman Bachtiar, **Slamet Riyadi**
Department of Information System, Universitas Darwan Ali, Indonesia, 74325

lukman.bachtiar@gmail.com

https://doi.org/10.37339/e-komtek.v5i2.767

Published by Politeknik Dharma Patria Kebumen

Artikel Info
Submitted:
13-11-2021
Revised:
17-11-2021
Accepted:
17-11-2021
Online first :
30-12-2021

Abstract

MSMEs (Micro, Small, and Medium Enterprises) have an important role in creating new jobs. Currently, MSMEs as one of the economic foundations are expected to be able to compete in the era of free trade, both in local and international. One of the strengths that are expected to be able to compete is by improving business processes and increasing information technology capabilities. The use of Information Technology (IT) changes the way in business processes in MSMEs. The current condition is that MSMEs are not ready to implement IT and its infrastructure. This study aimed to determine the quality of business process maturity and IT availability in small MSMEs. The method used in this research was the Business Process Orientation Maturity Model (BPOMM). The results of the analysis show that the maturity level is in the defined category with a final value of 5.36. The assessment of IT availability is 2.75 with the highest score is found in IT HR.
Keywords: MSMEs, Business process, Business process management, Business process orientation maturity model, IT readiness

Abstrak

UMKM (Usaha Mikro, Kecil, dan Menengah) memiliki peran penting dalam menciptakan lapangan kerja baru. Saat ini UMKM sebagai salah satu tumpuan perekonomian diharapkan mampu bersaing di era perdagangan bebas, baik lokal maupun internasional. Salah satu kekuatan yang diharapkan mampu bersaing adalah dengan memperbaiki proses bisnis dan meningkatkan kapabilitas teknologi informasi. Penggunaan Teknologi Informasi (TI) mengubah cara dalam proses bisnis di UMKM. Kondisi saat ini UMKM belum siap mengimplementasikan IT dan infrastrukturnya. Penelitian ini bertujuan untuk mengetahui kualitas kematangan proses bisnis dan ketersediaan TI pada UMKM kecil. Metode yang digunakan dalam penelitian ini adalah Business Process Orientation Maturity Model (BPOMM). Hasil analisis menunjukkan bahwa tingkat kematangan berada pada kategori yang ditentukan dengan nilai akhir sebesar 5,36. Penilaian ketersediaan TI sebesar 2,75 dengan skor tertinggi terdapat pada SDM TI.
***Kata-kata kunci**: MSMEs, Proses bisnis; Manajemen proses bisnis, Model kematangan orientasi proses bisnis, Kesiapan TI*

1. Introduction

The Covid-19 pandemic that has occurred caused an epidemic in the world and especially in our country, Indonesia. At this time, all community activities are carried out indoors which will directly affect the decrease in purchasing power and income of MSME actors. Based on the data in 2018 obtained from the Ministry of Cooperatives and Small and Medium Enterprises (SMEs), there were 64,194,057 SMEs and 116,978,631 workers. MSMEs in Indonesia, which have dominated the economy which have become the backbone of the national income, do not only have an impact on aspects of production and income, but on the workforce that must be reduced due to the current pandemic [1][2].

There are so many problems that occur in MSMEs, some of which are limited and lack of business capital, low human resources, and the capability in knowledge and technology [3]. The empowerment and competition of MSMEs in this era of high globalization forces MSMEs to compete to be able to face obstacles by increasing creativity, increasing human resources and technological knowledge, and expanding their marketing. This method must be done to be able to increase the selling value in order to make it easier to compete with products that are included in the industry and manufacturing in Indonesia, because MSMEs are an economic zone that is able to absorb the most labor needs in Indonesia [4]. Several ways to increase competition from MSMEs in the international market include increasing strength from the management side, utilizing information and communication technology and the need for information sources.

In recent years, the strategy of using information technology (IT) is a very important method that must be used by companies. Although IT has been widely used, the use of IT projects is often not in accordance with the planned time and budget. MSMEs with large and small scales have different needs in the use and application of IT, this is because most MSMEs have different financial sources, the number of IT human resources is different or even less/zero, operational decision making by organizational leaders in decision making, as well as the role of employees with various skills to hold various roles [5].

Business Process Management (BPM) is a field of study of which goal is to increase the results obtained and increase opportunities for employment within the organization. In terms of increasing opportunities, it does not refer to the usual things, but reducing costs, reducing time for implementation and reducing the error rate. Business process management is not only the development of each individual but in the management of all collections of events, activities

and decisions that result in organizational value on the customer side. This is what is meant by a process consisted of a series of all activities, activities and decisions **[6]**.

One of the most important parts of Business Process Management (BPM) is recognizing the understanding that an organization has put into practice the known aspects of BPM which are popularly known as the Business Process Maturity Model. Some of the results from studies that discuss this topic by developing BPMM include the one by McCormack et al. and Skrinjar and Trkman, namely how large companies can be assessed for the maturity of business process management **[7]**. A research study was also carried out by Andelkovic which concluded that from each area of BPM in companies that had been implemented, the lowest level was an area of information system support **[8]**. This is a condition of companies that have not implemented information systems for special purposes, including SCM, CRM, and others. Consequently, differences in capabilities in terms of management and technology in terms of information system support cannot be carried out on MSMEs **[8]**.

Therefore, the measurement of the level of IT readiness is aimed at measuring the level of the IT aspect. In the conclusion of several studies on IT readiness, one of which is by Premkumar, it was concluded that an important role in determining IT decisions was carried out by business owners **[9]**. In line with the strategic vision of IT, in its ability to carry out that vision, it is necessary to benefit from IT investment **[10]**. Caldeira and Ward in their research claimed that despite having low informal processes within the company, it is better if management skills use IT compared to companies that do not have these skills **[11]**.

This research was focused on measuring the level of business process maturity for MSMEs which was hoped to later be able to provide an overview of how the maturity level of business processes running on MSMEs in East Kotawaringin. In addition to an overview of the maturity level of business processes, this study also provides an overview of the level of IT availability in SMEs. By knowing the profile of MSMEs resulting from this research, it is hoped that MSMEs can develop good and well-planned strategies for each profile in the organization, and can generate value for consumers **[12]**.

2. Method

In completing this research, the research methodology employed is described as follows:

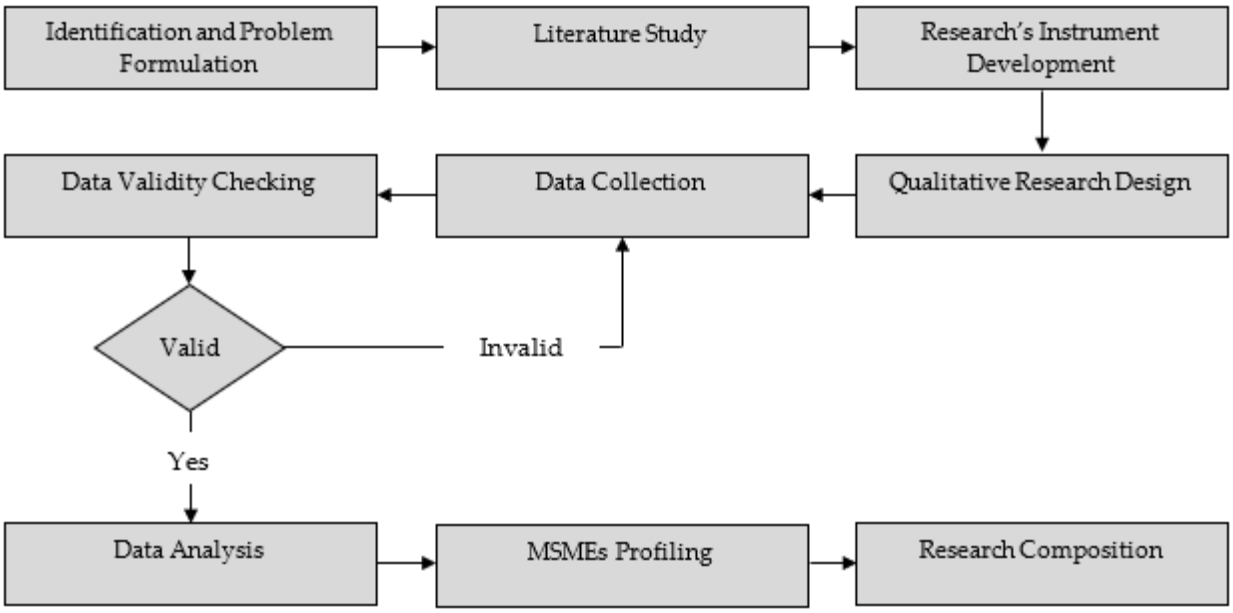

Figure 1. Research Methodology

a. Indentification and Formulation of the Problem

Starting from our observations, we then conducted discussions regarding a number of previous studies. Existing or previous research were used as a reference in this research, including the maturity of business processes and several other articles. Then, we concluded that the focus in this research was how the quality of business process maturity and IT availability in MSMEs in East Kotawaringin Regency.

b. Literature Study

The collection of information and data refers to collecting research journals and books about business process maturity and IT availability. This stage was carried out so that researchers got a deep understanding of the basic theory of problems and techniques on how to measure the level of business process maturity and how to know the willingness to implementing information technology in MSMEs.

c. Research Instrument Development

This stage was the research's finishing which was done qualitatively. The research instrument development was done by referring to an article written by Skrinjar dan Trkman on the measurement of BPM (Business Process Management) maturity level in an organization or company. The step of defining the variable was undergone based on the nine areas of focus as seen in **Table 1 [13]**:

Table 1. Question Area of Business Process Management Maturity

Code	Area
sv	Strategic View
ddp	Process Definition and Documentation
mmp	Process Measurement and Management
pos	Process Organizational Structure
uk	People Management
pok	Process Organizational Culture
tu	Market Orientation
vd	The Supplier View
pip	Information System Support

All questionnaires were obtained based on the development of the area which was translated into several questions. The Likert scale was then used in sub areas that have seven assessment areas **[10]**. The position of the order of the maturity level of the company obtained the average value of the area. According to McCormack and Johnson, there are 4 levels of maturity, as shown in **Table 2** below.

Table 2. Business Process Maturity Level

Average	Level
0 - 4	Level 1: Ad Hoc
4 – 5.5	Level 2: Defined
5.5 – 6.5	Level 3: Linked
6.5 - 7	Level 4: Integrated

In the support of information systems in the ninth area, this area uses the aspect of willingness to apply information technology. The assessment of the IT availability aspect refers to the research conducted by Spinelli **[14]** and Haug **[10]**, with three research areas as shown in **Table 3** below.

Table 3. IT Readiness Research Area

Research Area	Description
IT Infrastructure	Internet Availability
	Internet Accessibility
	Internet Speed and Quality
IT Application	The Available Hardware and Software
IT Resources	IT-related company owner innovation

d. Qualitatif Research Design

The next step was to collect the data, which in the case study method is used to obtain detailed information in real situations with current conditions by considering certain conditions **[15]**. This study employed qualitative research to determine the business processes that have

been implemented. All the information needed in this research was carried out by direct observation and also interviews with resource persons in the MSMEs.

e. Data Collection

Qualitative research was conducted by involving individuals with direct interaction **[16]**. To obtain information about the MSMEs, interviews were conducted including organizational structure, number of employees, general information on MSMEs, turnover, total assets, business processes, and whether the MSMEs use information technology. At the time the interview was conducted, it used a Likert scale value of one to seven.

f. Data Validity Checking

Checking on the validity of the information and data obtained from the questionnaire was carried out first prior to data analysis. Checking on the validity of the information was carried out by direct communication using the telephone to reconfirm the answers to the informants. Anything that is used in checking and comparing the data is a method, source, researcher, and theory **[17]**.

g. Data Analysis

Data analysis is an interactive data collection **[18]**. After checking the validity of the data, the valid data were analyzed according to the relationship to the Business Process Maturity Model. The data were processed systematically based on the variables needed to determine the level of maturity of the company's business processes and aspects of the willingness to apply information technology. This analysis provided a predetermined value scale based on the answers obtained from the questionnaire. By using this scale, all the answers obtained were summed first and then averaged to produce the value of the company's maturity level and willingness to apply information technology.

h. MSMEs Profiling

The conclusion of the maturity level of business processes and the willingness to apply information technology was obtained at the data analysis stage, then profiling MSMEs was carried out by mapping their characteristics. From this stage, the profile of MSMEs that have been mapped were known.

3. Result and Discussion

The initial results of this study were obtained from qualitative research data produced by observing and interviewing ten small-scale MSMEs in East Kotawaringin district. The following Results and Discussion sections present the data of one of the MSMEs, namely Ully Laundry (ULD).

a. Result

1) Business Process Maturity Results

The results of the analysis obtained present the results of research on ULD MSMEs for the level of business process maturity, ULD is an MSME engaged in laundry which has 14 employees with a total net worth of assets at ULD of 335 million, with an annual turnover of around Rp. 1.2 billion. ULD gets a value of 5.36 as shown in the table. Even if the owner was not directly involved, the ongoing business processes were well and clearly documented and defined and always communicated so that employee performance could be accounted for.

Table 4. Business Process Maturity

Area	SV	DDP	MMP	POS	UK	POK	TU	VD
Total	26	35	44	41	29	30	32	13
Average	5.20	5.83	6.29	5.86	5.80	5.00	4.57	4.33
							Overall average	5.36

There are varying results in each area, this can be seen from the results obtained. The highest average is in the MMP (Measurement and Management Process) area while the lowest average area is in the Supplier View (VD) area. These results are caused by various internal and external factors. Among internal factors originating from within that affect are all processes within the company, namely the running business processes are well and clearly defined and documented and always communicated, so that every employee's performance can always be accounted for.

However, in contrast to the Supplier View area, ULD gets the lowest score, this is because ULD does not always have a relationship with suppliers to obtain raw materials such as clothing perfume or clothing soap.

Another area that has a low value is Market Orientation (TU), this is because ULD does not conduct market studies by looking at other competitors, so it cannot be measured systematically to find out which part of the community will use ULD's services or see customer satisfaction.

2) Business Process Maturity Relationship with Availability (Readiness)

The relationship obtained based on the value resulting from the maturity of business processes with the availability of information technology at ULD can be seen in the **Table 5**.

Table 5. IT Availability (Readiness) Research Area

Area	Infrastructure	Application	HR
Average	2.88	2.38	3.00
		Overall average	2.75

In the maturity of the existing business processes at ULD, the owner is a lecturer in the field of computers, so technology and information systems were greatly utilized to improve their business. Applications made specifically for business processes are very helpful for owners in monitoring the state of their business wherever they are. Special software made in laundry management is very helpful for documentation needs and transactions made by consumers. From the employee side, the application used is very helpful in monitoring the activities of incoming and outgoing goods as well as financial transaction data.

Table 6. Comparison of BPOMM and IT Availability (Readiness)

Aspect	Average
BPOMM	5.36
IT Readiness	2.75

Based on the average value of the comparison of the maturity of the business process and the willingness to implement in the application of IT when viewed from the comparison results obtained, both have a high value.

b. Discussion

The discussion of the results obtained is an analysis of the business process maturity of each area in the form of the average final value in each area which is the level of business process maturity in each BPMM assessment area.

1) In the Strategic View area, ULD got an average score of 5.2, this is seen from the ability of the resulting business processes, all of which are related to organizational strategy and a clear map of the relationship. ULD MSME also made strategies and policies that are passed down and communicated to the organization very well.

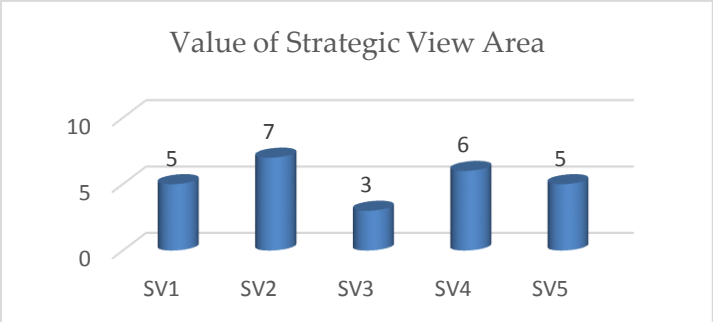

Figure 2. Value of Strategic View Area

2) In the category of Process Definition and Documentation, ULD got an average of 5.83, has a high average score on business processes in the organization, which is documented with clear inputs and outputs but is quite low in the process of utilizing standard methodologies to describe its business processes.

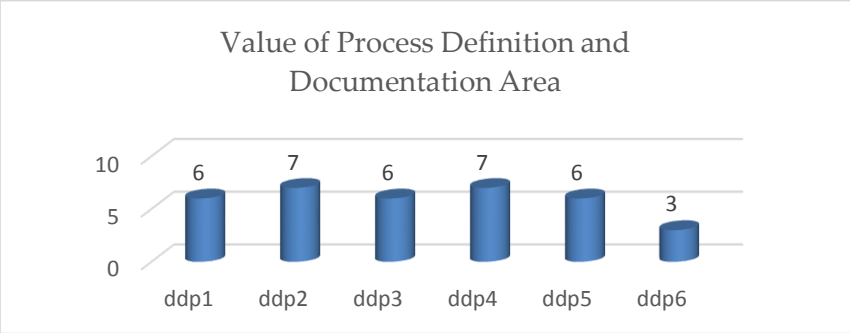

Figure 3. Value of Process Definition and Documentation Area

3) The ULD Process Measurement and Management Category section has an average of 6.29 which is one of the factors in getting this value where the ULD MSME considers that a small number of changes that occur in business processes should be carried out formally.

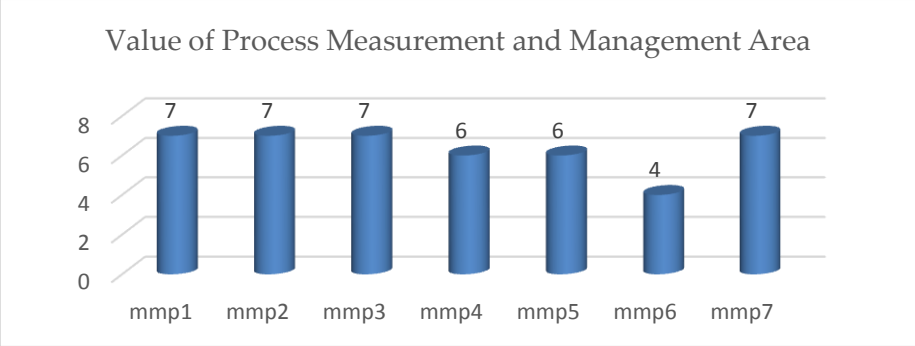

Figure 4. Value of Process Measurement and Management Area

4) An average of 5.86 was obtained in the Process Organizational Structure category based on the highest score in the process. All organizational structures support and

are carried out between divisions to carry out business processes and employees can work in different divisional areas.

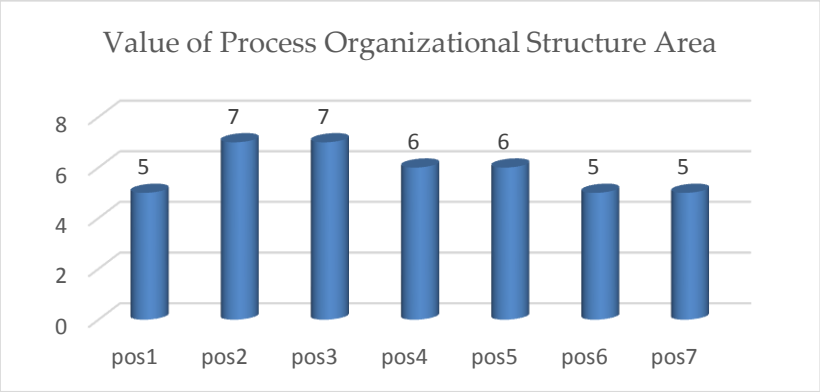

Figure 5. Value of Process Organizational Structure Area

5) The average value of 5.80 was obtained in the People Management category, the highest score was found in employees who always received training and were responsible for running new business processes on the company's business process achievements. While the lowest value is found in the creative talent of employees which is sometimes improved.

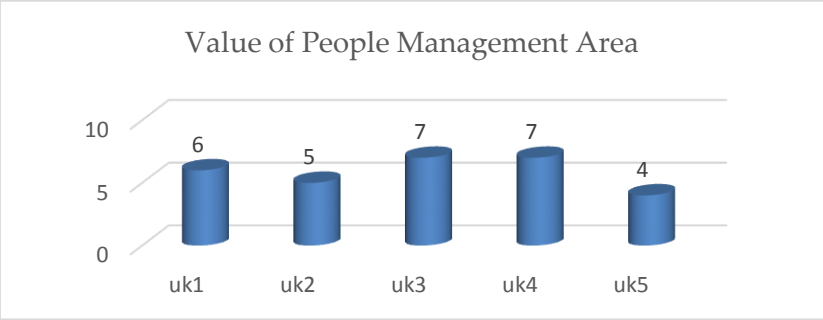

Figure 6. Value of People Management Area

6) The average value of the Process Organizational Culture got a score of 5.00, which was obtained from the highest score from the employee's perspective in viewing the running business process as a link between processes and employees from other divisions having a sense of having a common goal.

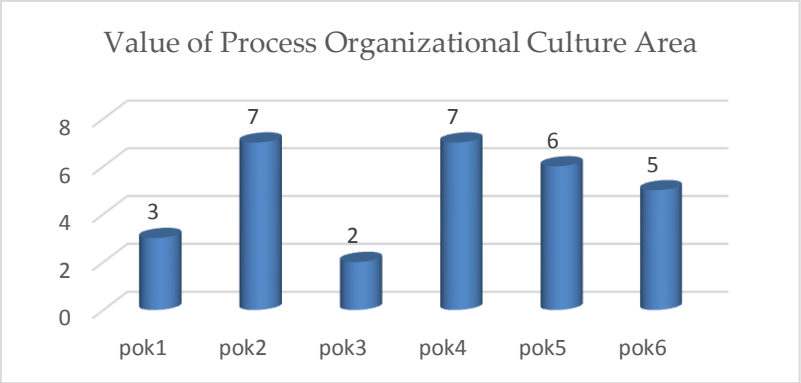

Figure 7. Value of Process Organizational Culture Area

7) The average value of the Market Orientation area is 4.57 obtained from the high level of employees in understanding the characteristics of consumer desires and making suggestions from consumers to be systematically used to improve existing business processes at ULD.

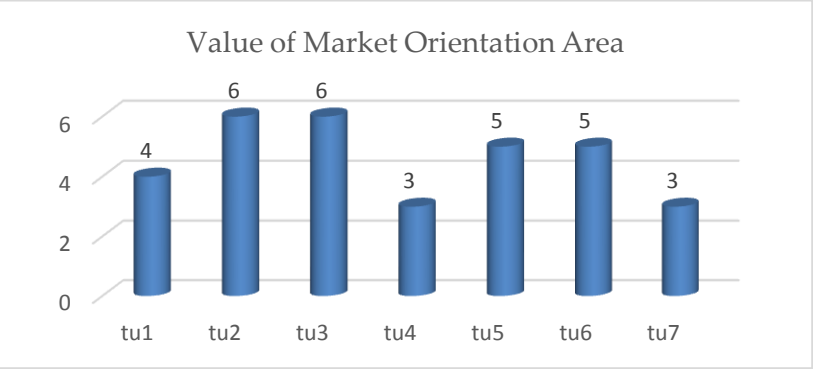

Figure 8. Value of Market Orientation Area

8) The average score for the Supplier View category is 4.33 obtained from ULD partnering (building long-term relationships) and relationships with suppliers in managing business processes in the form of providing perfume for clothes and laundry soap.

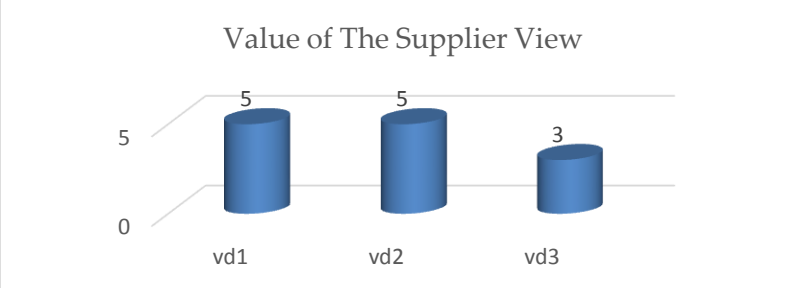

Figure 9. Value of The Supplier View

4. Conclusion

The ULD maturity level, Defined, is at number 2 at the BPOMM level with a final value of 5.36. The background factor is that the MSME owners really understood how the entire process documentation and performance measurement could be well organized. The Process Measurement and Management at ULD gets the highest average value based on eight BPMM areas, because the indicators in each process were described with good documentation, every process that is in performance was always measured, giving performance targets in the form of targets to achieve the purpose of each process, and communication was always carried out if there was a change in the process to all related parties. The result obtained by ULD was 2.75 which indicates that it is an MSME with a high IT readiness category. Of the three aspects carried out in research, ULD's information technology readiness gets the highest average score from IT HR. The factor that causes this is the owner is a teaching staff in the field of computer science and information technology, so that every activity in supporting the company's operational activities has been planned in terms of anything required in the readiness of information technology in the form of equipment and good IT infrastructure, such as the use of the internet, telephone, computer, or software in the form of applications used. In this study, there is a relationship between BPMM and IT readiness based on the average value, because the results obtained on the value of high business process maturity are also followed by the position of IT readiness to get a high score.

References

[1] Aknolt Kristian Pakpahan, "Covid-19 Dan Implikasi Bagi Usaha Mikro, Kecil, Dan Menengah," J. Ilm. Hub. Int., pp. 59–64, 2020, doi: 10.26593/jihi.v0i0.3870.59-64.

[2] W. laura Hardilawati, "Strategi Bertahan UMKM di Tengah Pandemi Covid-19," J. Akunt. dan Ekon., vol. 10, no. 1, pp. 89–98, 2020, doi: 10.37859/jae.v10i1.1934.

[3] Sudaryanto, "Evaluasi kesiapan UKM Menyongsong Pasar Bebas ASEAN (AFTA): Analisis Perspektif dan Tinjauan Teoritis," Ekon. Akunt. dan Manajamenen, vol. 1, 2002.

[4] Sudaryanto, "The need for ICT education for managers or agri-businessmen for increasing farm income: Study of factor influences on computer adoption in East Java farm agribusiness.," Int. J. Educ. Dev. using Inf. Commun. Technol., vol. 7, no. 1, pp. 56–67, 2011.

[5] D. Fink, "Guidelines for the successful adoption of information technology in small and medium enterprises," Int. J. Inf. Manag., vol. 18, 1998.

[6] J. M. and H. A. R. M. Dumas, M. L. Rosa, Fundamentals of Business process management. 2013.

[7] K. P. McCormack, Business Process Orientation - Gaining the E-Business Competitive Advantage. CRC Press, 2001.

[8] A. Andelkovic, "Business Process Management Maturity Factors and Effects on Business

Results," Int. Sci. Conf., 2012.
[9] G. Premkumar, "A Meta-Analysis of Research on Information Technology Implementation in Small Business," J. Organ. Comput. Electron. Commer., vol. 13, no. 2, 2003.
[10] A. Haug, "IT readiness in small and medium-sized enterprises," Ind. Manag. Data Syst., vol. 11, no. 4, 2011.
[11] M. Caldeira, "Using resource based theory to interpret the successful adoption and use of information systems and technology in manufacturing small and medium-sized enterprises," Eur. J. Inf. Syst., vol. 12, no. 2, 2003.
[12] S. Systems, "The Business Process Model," 2020. https://sparxsystems.com/downloads/whitepapers/The_Business_Process_Model.pdf.
[13] R. Skrinjar and P. Trkman, "Increasing process orientation with business process management: Critical practices'," Int. J. Inf. Manage., vol. 33, no. 1, pp. 48–60, 2013, doi: 10.1016/j.ijinfomgt.2012.05.011.
[14] and G. H. R. Spinelli, R. Dyerson, "IT Readiness in Small Firms," J. Small Bus. Enterp. Dev., vol. 20, no. 4, 2013.
[15] R. K. Yin, "Case Study Reserach - Design and Methods," Clin. Res., vol. 2, pp. 8–13, 2006.
[16] B. Hancock, "Introduction to qualitative research," Qual. Res. Illness, Wellbeing Self-Growth Contemp. Indian Perspect., pp. 1–22, 1998, doi: 10.4324/9781315539829-7.
[17] S. Hadi, "Pemeriksaan Keabsahan Data Penelitian Kualitatif Pada Skripsi," J. Ilmu Pendidik. Univ. Negeri Malang, vol. 22, no. 1, p. 109874, 2017, doi: 10.17977/jip.v22i1.8721.
[18] A. Rijali, "Analisis Data Kualitatif [Qualitative Data Analysis]," Alhadharah J. Ilmu Dakwah, vol. 17, no. 33, p. 81, 2019.