

## Marketing Risk Management and Mapping Based on Geographic Information System in The Micro, Small, and Medium Enterprise in Tasikmalaya City

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### Abstract

The current COVID-19 pandemic has greatly impacted the economic sector, especially Micro, Small, and Medium Enterprises (MSMEs). Restrictions on physical mobility hinder the marketing of MSMEs' products, which are usually carried out directly. This is one of the important risks to be studied in depth. The purpose of this study is to determine the management system and mapping of marketing risks in MSMEs in Tasikmalaya City. The research method used in this study was descriptive quantitative. Data were collected through a closed questionnaire that was given to MSMEs. The obtained data were processed through a risk management system approach and then mapped using a Geographical Information System (GIS). The results showed that the highest marketing risks for MSMEs in Tasikmalaya City are increasingly fierce business competition, nonoptimal internet usage, and limited marketing coverage. Geographically, the level of marketing risks of MSMEs in Tasikmalaya City is in the medium category. Geographical marketing risk mapping can determine the most appropriate recommendations to deal with various risks faced according to regional characteristics..

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## INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) have a significant impact on the Indonesian economy (Maesaroh, 2020). Based on research, 99% of business actors in Indonesia are MSMEs and MSMEs contribute more than 60% to Gross Domestic Product (GDP) (Asian Bank, 2018). In addition to playing a role in economic growth, MSMEs are the main driver of innovation (Asia Pacific Economic Cooperation, 2021).

Nevertheless, the important roles of MSMEs have not been balanced with optimal management, including how to respond to current world development. The rapid development of internet technology is not only related to information and communication activities but also has an impact on economic

activities. In the economic field, advances in internet technology have made transactions made through e-commerce platforms become more developed (Statistics Indonesia, 2020). While this situation can be considered an opportunity for the development of the digital economy in Indonesia, the development of digital platforms can also become one of the risks faced by every MSME. MSMEs that can adapt to this situation will be able to keep up with these changes, while MSMEs that fail to adjust to the new situation will not survive in in the midst of competition.

The main problem faced by MSMEs in Tasikmalaya City is low competitiveness (Maesaroh, 2020). The increasingly fierce business competition in the current digital era is not balanced by the ability of MSMEs to respond to this situation (Septyanto & Dewanto, 2016). MSME actors have not optimally marketed their products through digital platforms. Marketing is carried out directly (offline) in certain areas, so that market share is getting more limited. In the midst of this pandemic, government policies such as PSBB (Large-Scale Social Restrictions), PPKM (Community Activities Restrictions Enforcement), regional quarantine, and so on are also making MSMEs experience an even more disadvantageous condition (Tambunan, 2020).

Marketing problems in MSMEs in Tasikmalaya City are one of the risks that must be taken into consideration. Risk management is needed so that business actors can survive during competition. The Risk Management System can be used through a comprehensive risk management process (Florio & Leoni, 2017). Implementation of risk management systems in organizations such as MSMEs can increase awareness of the risks that occur (Soltanizadeh et al., 2014). Proper risk management is considered to be one of the mechanisms that can manage risk effectively so as to improve organizational performance (Yakob et al., 2020). Risk management can be done by integrating risk assessment and mitigation into business processes so that potential risks can be minimized (Alifiana, 2020).

The risk management system in MSMEs has not been implemented optimally. Syrová's (2022) proves that the level of knowledge of risk management among entrepreneurs in MSMEs is still very low, even though risk management through the ERM system is not formalized in its business activities (Plessis & Linke, 2022). Business actors generally carry out strategic planning (Neneh & Van Zyl, 2022), such as risk management. Business actors do not have time to control risk (Florio, 2022). They tend to pay more attention to technical factors than strategic factors (Chiu et al., 2002).

This study aims to analyze the marketing risk management system through the process of assessing and mitigating MSMEs' risks. The risk assessment process will result in a marketing risk classification for each MSME. This risk classification can then be mapped spatially through mapping activities. One of the mapping activities is the use of GIS-based applications that map the distribution of MSMEs in various locations (Gustavianto et al., 2016). Besides being able to provide an overview of the risk assessment, this mapping can also provide recommendations for risk mitigation that can be carried out in a certain area.

**METHODS**

This study used a quantitative method with a descriptive approach. Sample data were taken from 50 MSMEs spread across Tasikmalaya City. Kerlinger and Lee (2000) became the basis for determining the number of research sample sizes. In quantitative research, they said that the minimum number of samples should be as high as 30. Data were collected through questionnaires given to the sample, that is MSMEs in Tasikmalaya City. The sampling technique used was a regional sampling (area sampling). The sample was 50 MSMEs in all existing sub-districts without classifying the type. The sampling process was done by marking the location of MSMEs using GPS.

**Table 1.** Risk Frequency Parameter

| Score | Criteria  | Description                            |
|-------|-----------|--|
| 1     | very low  | almost never occurs                    |
| 2     | low       | rarely occurs                          |
| 3     | moderate  | likely to occur with a low probability |
| 4     | high      | often occurs                           |
| 5     | very high | frequency of occurrence is very high   |

Data was obtained through in-depth interviews. Ordinal scale (1 to 5) was used in the questionnaire containing questions related to marketing risks faced by MSMEs. The risk management system consists of several activities, namely risk identification, risk analysis, risk evaluation, and risk control. Several parameters in risk management are shown in Table 1. Risk Frequency Parameter, Table 2. Parameters of Risk Severity, and Table 3. Parameters Score and Total Score.

**Table 2.** Parameters of Risk Severity

| Score | Criteria      | Description   |
|-------|---------------|---|
| 1     | insignificant | very small impact (< 5%)                                      |
| 2     | minor         | minor impact (5-10%)  |
| 3     | moderate      | visible impact (10-15%)                                       |
| 4     | major         | big and visible impact (15-20%)                               |
| 5     | extreme       | the damage is huge and greatly affects business actors (>20%) |

**Table 3.** Parameters Score and Total Score

| Criteria  | Score per indicator | Total Score |
|-----------|---------------------|-------------|
| very low  | 1-3                 | 0-35        |
| low       | 4-6                 | 36-70       |
| moderate  | 7-9                 | 71-105      |
| high      | 10-12               | 106-140     |
| very high | >13                 | >140        |

Then the data that had been obtained was collected and processed using risk management system analysis. Risk mapping was carried out using GIS software, namely ArcGIS 10.5. The method used to map the distribution of MSMEs was the overlay method. The analysis technique used in this

MSMEs distribution mapping activity was the spatial analysis technique where the weighting of each selected variable was carried out to determine the level of risk of each MSME in the City of Tasikmalaya.

## RESULTS AND DISCUSSION

### *Risk Identification*

Risk identification is the initial stage to find out the real conditions of risks faced in the field (Sinulingga, 2019). The results of marketing risk identification in MSMEs in Tasikmalaya City are shown in Table 4. Parameters Score and Total Score.

#### 1. Loss of assets

MSMEs in Tasikmalaya City were part of the real sector of economy so that the loss of assets such as buildings, machinery, production equipment, and so on is one of the risks that must be faced. However, MSMEs' asset risk management in general has received less attention due to limited funding (Zoghi, 2017).

#### 2. Unstable market demands

The number of products demanded by consumers varied due to MSMEs' business processes that tended to be direct to consumers (B to C). Access to funding and technology had made the products produced were not ready stock. The use of digital platforms could not be maximized because the demand for products could not be matched with the speed and availability of ready-to-sell products.

**Table 4.** Parameters Score and Total Score

| No | Peril  | Hazard   | Loss  |
|----|--|--|---|
| 1  | Loss of assets                                 | SOP for process and product standardization had not been available<br>Low human resources skill level    | Low competitiveness<br>Production failure                           |
| 2  | Unstable market demands                        | The technology used was not sophisticated<br>Lack of raw materials<br>Lack of capital                    | Loss of customer  |
| 3  | Low quality of product packaging               | Low human resources knowledge level<br>Low innovation capability level                                   | Low competitiveness<br>Low sales                                    |
| 4  | Changes in demand trends                       | Lack of self-motivation<br>Poor Social Network   | Limited market share<br>Low competitiveness                         |
| 5  | Limited market coverage                        | Poor social network<br>Conventional marketing strategy   | Limited market share  |
| 6  | Fiercer business competition                   | Conventional marketing strategy<br>Characteristics of MSMEs' products<br>Low innovation capability level | Limited market share<br>Losing business to competitors<br>Low sales |
| 7  | Non-optimal use of the internet for promotions | Low human resources skill level<br>Inadequate infrastructure condition                                   | Limited market share  |

3. Low-quality of product packaging

The characteristics of the MSMEs' products, which were generally produced manually (handmade), posed the risk of the product being non-standardized. Simple packaging made the product less attractive to consumers. MSMEs' product packaging had not received serious attention even though attractive packaging can increase sales.

4. Changes in demand trends

Trends change according to the progress of the times. The lack of innovation in MSMEs makes it difficult for business actors to follow these developments. The level of involvement of the younger generation in managing MSMEs in Tasikmalaya City was very low. MSME actors are generally elderly people (Maesaroh, 2020). The younger generation tends to be less interested in running a business due to a lack of motivation and knowledge about entrepreneurship (Hutagaol & Tarmizi, 2020). This has an impact on the lack of innovation created.

5. Limited market coverage

The difficulty of market access had caused the scope of marketing for MSMEs' products to become limited. The products were only known in certain areas. The usage level of various e-commerce platforms by MSMEs that has not been optimal causes market access to be limited (Nurchahyo et al., 2020).

6. Fiercer business competition

Advances in information technology had made business competition is getting fiercer. The number of products on the market both from other cities and overseas made MSME actors experienced a fiercer competition. The development of e-marketing through competency improvement and social community is necessary according to needs (Septyanto & Dewanto, 2016).

7. Non-optimal use of internet for promotion

The use of various digital platforms such as Shopee, Bukalapak, Blibli, and so on had not been optimized. The lack of ability and willingness of business actors is a driving factor for the usage level of these various platforms. Tambunan (2020) states that MSMEs that produce final products by only relying on direct (offline) marketing generally cannot survive in the midst of competition.

### **Risk Measurement**

The stages of risk measurement done were:

1. The frequency and severity of the risks

The frequency measurement was taken to determine the possible frequency of the risks while the severity measurement was taken to determine the impact that occurs due to the risks that will occur.

2. Risk Measurement

Table 5. Measurement of MSMEs' Marketing Risks in Tasikmalaya City shows the measurement results of the marketing risks of MSMEs in Tasikmalaya City. The total score per each indicator is the product of the frequency and severity of the risks faced. Loss of assets was the rarest risk, while the risks that occur very often were the risk of increasingly fierce competition and the risk of using the internet in marketing. In terms of severity, in general, all indicators had the same level of severity. The total score generated for all these indicators was 97.

**Table 5.** Measurement of MSMEs' Marketing Risks in Tasikmalaya City

| No           | Risk   | Frequency | Severity | Score     |
|--------------|--|-----------|----------|-----------|
| 1            | Loss of assets                                 | 2         | 4        | 8         |
| 2            | Unstable market demands                        | 3         | 3        | 9         |
| 3            | Low quality of product packaging               | 3         | 4        | 12        |
| 4            | Changes in demand trends                       | 3         | 4        | 12        |
| 5            | Limited market coverage                        | 4         | 4        | 16        |
| 6            | Fiercer business competition                   | 5         | 4        | 20        |
| 7            | Non-optimal use of the internet for promotions | 5         | 4        | 20        |
| <b>Total</b> |  |           |          | <b>97</b> |

3. Risk Measurement Matrix

The categories of each indicator are outlined in the matrix shown in Figure 1. The categorization in the matrix was generated through the scores of each indicator.

|          |           |   |   |     |   |     |
|----------|-----------|---|---|-----|---|-----|
| Severity | 5         |   |   |     |   |     |
|          | 4         | 1 |   | 3,4 | 5 | 6,7 |
|          | 3         |   |   | 2   |   |     |
|          | 2         |   |   |     |   |     |
|          | 1         |   |   |     |   |     |
|          | 1         | 2 | 3 | 4   | 5 |     |
|          | Frequency |   |   |     |   |     |

**Figure 1.** Risk Measurement Matrix

Two indicators, namely, loss of assets and unstable market demands, were classified into the moderate risk category. Whereas, packaging quality and changes in demand trends were

classified into the high-risk category. As for marketing coverage, competition, and non-optimal internet usage were classified into the very high-risk category.

**Risk Evaluation**

The level of risk could be identified from the score of each indicator. Each indicator described the risk conditions that occurred in accordance with the criteria. The scores for each indicator were then added up to produce a total score. The total score described the general condition of marketing risk.

Based on the data presented in Table 6, the seven market risk indicators resulted in a total score of 97. The total score indicated that the level of marketing risk in MSMEs in Tasikmalaya City was in the medium category. The highest level of risk consisted of limited business coverage, fiercer business competition, and the non-optimal use of the internet by MSME actors.

Based on the identification of the risks, the three aspects discussed had caused a disadvantage in the form of limited market share. The three of them are interconnected units. The use of the internet in marketing helps MSMEs’ performance processes, including the ability to provide information and interact with consumers, increase market share, and increase awareness and sales of MSMEs’ products (Budiharjo Sulistyarso et al., 2021). In addition to an increase in sales, the global adoption of digital marketing has an effect on cost efficiency, better service processes, and better product quality (Wirdiyanti, 2019).

The use of the internet among MSMEs in Tasikmalaya City is not optimal due to the lack of ability and willingness of business actors (Maesaroh, 2020). This is in line with the research conducted by Hendriadi et al., (2019) which found that MSMEs have not been able to use the internet optimally in business processes. The marketing process which is generally carried out directly causes MSMEs to be unable to compete in the current competition (Maesaroh, 2020).

**Table 6.** Identification of Risk Level

| No    | Risk   | Frequency | Severity | Score | Criteria  | Rank |
|-------|--|-----------|----------|-------|-----------|------|
| 1     | Loss of assets                                 | 2         | 4        | 8     | moderate  | 5    |
| 2     | Unstable market demands                        | 3         | 3        | 9     | moderate  | 4    |
| 3     | Low quality of product packaging               | 3         | 4        | 12    | high      | 3    |
| 4     | Changes in demand trends                       | 3         | 4        | 12    | high      | 3    |
| 5     | Limited market coverage                        | 4         | 4        | 16    | very high | 2    |
| 6     | Fiercer business competition                   | 5         | 4        | 20    | very high | 1    |
| 7     | Non-optimal use of the internet for promotions | 5         | 4        | 20    | very high | 1    |
| Total |  |           |          | 97    |           |      |

**Risk Control**

Market risk evaluation produces strategic priorities that can be used to reduce losses. The priorities are ordered based on the total score of each indicator. The order of priority, management, and mitigation strategies for each risk is presented in Table 7. Identification of Risk Level.

Several risk management techniques that can be done include reducing risks, accepting risks, and sharing risks (Wiryo & Suharto, 2008). Reducing risks is an effort to reduce losses by reducing the possibility of a risk occurring or reducing its impact. Accepting risks, that is if MSMEs do not make significant efforts to deal with these risks. Meanwhile, risk sharing is an effort to transfer risks to a third party (insurance company) through an agreement.

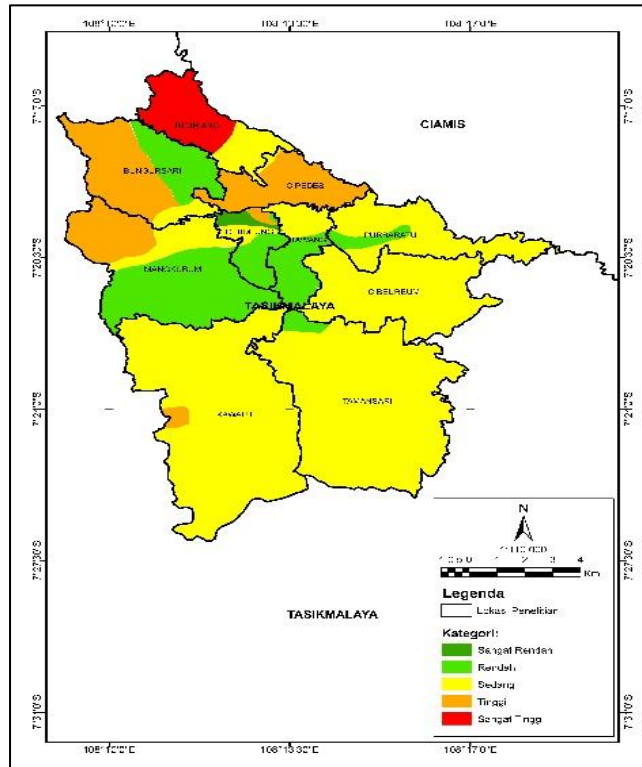
**Table 7.** Priority of the MSMEs' Risk Management System in Tasikmalaya City

| No | Risk   | Criteria  | Rank | Management     | Risk Mitigation Strategy  |
|----|--|-----------|------|----------------|---|
| 1  | Fiercer business competition                   | very high | 1    | reducing risk  | Using online marketing<br>Increasing product innovation   |
| 2  | Non-optimal use of the internet for promotions | very high | 1    | reducing risk  | Participating in training on the use of various online marketing platforms<br>Using providers that are suitable for regional conditions |
| 3  | Limited market coverage                        | very high | 2    | reducing risk  | Improving social network<br>Using online marketing  |
| 4  | Low quality of product packaging               | high      | 3    | reducing risk  | Improving product packaging skills<br>Increasing product innovation   |
| 5  | Changes in demand trends                       | high      | 3    | reducing risk  | Adapting with the current development<br>Increasing innovation  |
| 6  | Unstable market demands                        | moderate  | 4    | accepting risk | Providing stock properly  |
| 7  | Loss of assets                                 | moderate  | 5    | reducing risk  | Getting business insurance  |

**Risk Mapping**

The results of the spatial analysis showed that there were 5 levels of risk, namely very low, low, moderate, high, and very high. Among the 50 samples of MSMEs, there were 2 MSMEs that faced a very low risk, 11 MSMEs that faced a low risk, 27 MSMEs that faced a moderate risk, 9 MSMEs that faced a high risk, and 1 MSME that had a very high risk. The distribution of these risks is shown in Figure 2. Distribution of MSME Risks in Tasikmalaya City.





**Figure 1.** Distribution of MSME Risks in Tasikmalaya City

Distribution of MSME Risks in Tasikmalaya City, it can be seen that, in general, the level of risk for MSMEs in Tasikmalaya City was moderate. The level of risk was moderate in all districts in the City of Tasikmalaya. The district which was completely at moderate risk was the District of Cibereum and Cihideung districts had the same risk pattern. The three districts had 3 levels of risk, namely low, moderate, and high.

Some other sub-districts only had 2 patterns of risk. Tawang, Purbaratu, and Tamansari districts had low and moderate risk types. These three sub-districts had the same pattern because the locations of these three districts are close together. This condition had caused the types and work systems of MSMEs in these adjacent locations to be identical. Cipeles and Kawalu sub-districts also had 2 types of risk, namely, moderate, and high risk. However, judging from the level of risk, the District of Cipeles had a number of MSMEs that had a high level of risk when compared to the District of Kawalu. Cipeles District was dominated by MSMEs with high risk, while Kawalu District was dominated by MSMEs with moderate risk. This could be caused by the level of competition and the difference in distance between these 2 districts from the center of Tasikmalaya City. Cipeles District is closer to the city center when compared to Kawalu District, so it is possible that this will lead to the lower number of competitors in Kawalu District.

The district that had the lowest level of risk was Cihideung District with the MSMEs producing textile, namely Batik Solo and Gressida Tailor. MSMEs in that area had already used the internet for

marketing their products so the risk that occurred was very low. The district that had a very high level of risk was Indihiang District (northern part). This very high level of risk could occur because MSMEs made products that were less desirable and their locations were far from the city center.

The results of this study show that in general, the management technique that is suitable for MSMEs in Tasikmalaya City is to reduce risks. MSMEs are required to be able to minimize risks with various efforts. In terms of marketing, MSMEs are expected to optimize the use of the internet in marketing their products. Several e-commerce platforms can be used by MSMEs to reduce the marketing risks. Tokopedia, Shopee, Bukalapak, Lazada, and Blibli are the largest platforms used by many people (Putri and Zakaria, 2020). Training on the use of these various platforms needs to be carried out to improve the ability of MSMEs. By increasing the competence and motivation of MSME actors, it is expected to be one of the solutions in marketing management. From the research that has been discussed previously, the implications of this research for the Tasikmalaya City government are as follows: 1) The existence of a mapping of risk categories based on these areas could be used by the government as a reference in reducing marketing risks that occur in MSMEs in Tasikmalaya City according to the risk categories that occur in the respective district. 2). The government can reduce the risk that occurs and increase competitiveness for MSME actors in Tasikmalaya City through capacity training and competition in the field of digital marketing to optimize the use of the internet to expand marketing reach.

## **CONCLUSION**

The highest marketing risks faced by MSMEs in Tasikmalaya City were fiercer business competition, non-optimal internet usage, and limited marketing coverage. These risks had greatly affected the competitiveness of MSME actors. Each district had certain risk categories that were different from other districts. Mapping of risk categories based on these areas could be used as a basis in the preparation of location-specific government programs. Risk management can be done by reducing the risk that will occur. Improving abilities and competencies in the field of digital marketing through training is considered a priority program that can be carried out to reduce risks that occur.

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