

Prioritization of the Best Online Platform for MSMEs Using Simple Additive Weighting Method

Sutrisno¹, Wulandari², Vivid Violin³, Agung Supriyadi⁴, Muhammad Risal Tawil⁵

¹Universitas PGRI Semarang, Jl. Sidodadi Timur No.24, Karangtempel, Kec. Semarang Tim., Kota Semarang, Jawa Tengah

²Institut Bakti Nusantara, Kab. Pringsewu, Lampung

³Politeknik Maritim AMI Makassar, Jl. Nuri Baru No.1, Sambung Jawa, Kec. Mamajang, Kota Makassar, Sulawesi Selatan

⁴Universitas Catur Insan Cendekia, Jl. Kesambi No.202, Drajat, Kec. Kesambi, Kota Cirebon, Jawa Barat

⁵Politeknik Baubau, Jl. Lakarambau, Lipu, Kec. Betoambari, Kota Bau-Bau, Sulawesi Tenggara

sutrisno@upgris.ac.id

Abstract

Many MSMEs have begun embracing online marketing platforms to sell their products and services in the current digital era. This is because online platforms facilitate MSMEs' access to a larger market and streamline the transaction process. With so many online platforms accessible today, it is tough to determine which is the best for MSMEs. Hence, a decision-making method is required to aid micro, small, and medium-sized enterprises (MSMEs) in identifying the online promotion platform that best meets the evaluation criteria. Using the Simple Additive Weighting (SAW) method, the primary purpose of this study is to aid micro, small, and medium-sized enterprises (MSMEs) in selecting the online platform that best meets their business objectives. The ranking results demonstrate that decision-making processes can be utilized to rank the most effective internet promotion platforms for MSMEs. From the final results, it is determined that the criteria for segmenting consumer reach and ease of use of applications are important in determining online promotion platforms, with the results of platform prioritization indicating that Instagram and Whatsapp chat media continue to dominate as an alternative online promotion platform for MSMEs.

Keywords: Prioritization of The Best Online Platform, MSMEs, SAW Method, Manajemen Decision Support

Abstrak

Dalam era digital saat ini, banyak UMKM yang mulai menggunakan platform promosi online untuk memasarkan produk atau jasa mereka. Hal ini dikarenakan platform online dapat mempermudah UMKM untuk menjangkau pasar yang lebih luas dan mempermudah proses transaksi. Namun, dengan banyaknya platform online yang tersedia saat ini, menentukan platform online terbaik untuk UMKM menjadi hal yang sulit. Oleh karena itu, diperlukan suatu teknik pengambilan keputusan yang dapat membantu UMKM dalam menentukan platform promosi online yang paling sesuai dengan kriteria penilaian. Tujuan utama dari penelitian ini adalah untuk membantu UMKM dalam memilih platform online yang paling sesuai dengan kebutuhan bisnis mereka menggunakan metode Simple Additive Weighting (SAW). Hasil perankingan membuktikan bahwa teknik pengambilan keputusan dapat diterapkan pada penentuan prioritas platform promosi online terbaik bagi UMKM. dari hasil akhir diperoleh analisa bahwa kriteria segmentasi jangkauan konsumen dan kemudahan penggunaan aplikasi menjadi kriteria penting dalam menentukan platform promosi online sehingga dari hasil penentuan prioritas platform menunjukkan penggunaan media sosial Instagram dan media chat Whatsapp masih mendominasi dalam menjadi alternatif platform promosi online bagi UMKM.

Kata Kunci: Penentuan Prioritas Platform Online Terbaik, UMKM, Metode SAW, Pendukung Keputusan Manajemen

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Corresponding author: Sutrisno

Email Address: sutrisno@upgris.ac.id (Jl. Sidodadi Timur No.24, Karangtempel, Kota Semarang, Jawa Tengah)

Received 16 February 2023, Accepted 22 February 2023, Published 22 February 2023

INTRODUCTION

MSMEs (Micro, Small, and Medium-Sized Businesses) are an essential economic resource for many nations, including Indonesia. In the current digital era, many SMBs have begun marketing their products or services using online channels. This is due to the fact that online platforms facilitate MSMEs' access to a larger market and streamline the transaction procedure (Fauzi et al., 2023;

Martoyo et al., 2022; Muhammad Wali et al., 2023). With so many online platforms accessible today, it is tough to determine which is the best for MSMEs. Thus, a strategy is required to assist MSMEs in identifying the online platform that best meets their requirements.

Several variables must be considered while ranking internet platforms for MSMEs. Market Reach: In terms of promoting their products or services, MSMEs will be better off using online platforms with a broad market reach. Price: Small and medium-sized enterprises must evaluate the cost of the internet platform, particularly if they are just starting out (Sutrisno, 2022; Sutrisno, Karyono, et al., 2023). Usability: A user-friendly online platform would make it simpler for MSMEs to sell their products or services. Transaction Security: Transaction security is crucial for small and medium-sized enterprises conducting business via online platforms. In prioritizing online platforms, additional services such as online payments (Rahayu et al., 2022; Supatmin et al., 2022), delivery of goods, etc., must also be considered.

The importance of determining the right online marketing platform for MSMEs has been explained in several previous studies, namely by (Ahlamiyah et al., 2022) who explained that with an online platform, MSMEs can choose a wider range of consumer segmentation, MSMEs can reach a wider market and increase opportunities to market their products or services. Other research (Syamila et al., 2021) explained that using online platforms to market MSME products or services requires less costs compared to traditional marketing methods, and also requires less time (Ardiati et al., 2023; Violin, 2019; Wulandari et al., 2023). One of the advantages of online platforms is that they simplify the transaction process for MSMEs, so that MSMEs can focus on their business and don't have to bother with complicated administrative processes. Online platforms provide a variety of features to help MSMEs market their products or services, such as online payment features, goods delivery, and others. As well as the online platform allows MSMEs to carry out data analysis to find out market trends, conversion rates, etc., so that MSMEs can make better business decisions (Pudjiarti et al., 2023; Wulandari et al., 2022).

To make it easier to select online platforms for MSMEs, decision-making techniques can be used (Lukita et al., 2022; Sudipa, Wiguna, et al., 2021; Waas et al., 2022) multicriteria. One of the decision-making techniques that can be applied in the selection of online sales platforms is the Simple Additive Weighting (SAW) method. In the SAW method, every factor is relevant in choosing a platform (Arifin et al., 2022). Online sales are given weight based on their level of importance. Decision-making techniques have the advantage of calculating the final result based on parameters or assessment criteria (Sudipa, Putra, et al., 2021) so that it can support MSMEs in choosing an online platform both in terms of promotion and sales that can support business operations.

Based on the explanation above, this study aims to apply decision-making techniques in determining the priority of the best online platforms for MSMEs (Micro, Small and Medium Enterprises). The main objective of this research is to assist MSMEs in choosing the online platform that best suits the business needs of MSMEs (Wijaya et al., 2022) using the Simple Additive Weighting

(SAW) method. This method was chosen because it can make it easier for MSMEs to determine the best ranking from the appropriate online platform.

METHOD

Management Decision Making

Management decision-making in micro, small, and medium-sized enterprises (MSMEs) is the process through which MSME owners or executives select the activities necessary to achieve business objectives. It entails identifying problems, analyzing various solutions, and selecting the most appropriate path of action (Sudipa et al., 2023). Managerial decision-making in micro, small, and medium-sized enterprises is crucial since it affects business performance and success. Hence, MSME owners or leaders must guarantee that they make sound judgments by taking into account aspects such as resources, markets, and competitors, among others (Asana et al., 2020; Violin et al., 2022). Typically, the management decision-making process in MSMEs consists of the following stages: The owner or leader of a micro, small, or medium-sized enterprise (MSME) must first identify the issues facing the organization. After identifying the issue, the owner or leader of the SME must establish the business objectives to be attained (Sutrisno, Leuhery, et al., 2023; Tawil, 2022). Alternative solutions must be determined by the owners or leaders of micro, small, and medium-sized enterprises (MSMEs) in order to address the difficulties at hand. Assessment of alternative solutions: Owners or leaders of micro, small, and medium-sized enterprises (MSMEs) must examine each alternative solution and choose the one that best achieves business objectives (Sutrisno, Panggalo, et al., 2023). Once a solution has been found, the owner or leader of a micro, small, or medium-sized enterprise (MSME) must implement the essential measures to solve the issue. Assessment of results: Owners or leaders of micro, small, and medium-sized enterprises (MSMEs) must analyze the results of the actions taken to ensure that business objectives are met (Arsyad & Violin, 2021). Consequently, managerial decision-making in micro, small, and medium-sized enterprises (MSMEs) is a crucial process that guarantees MSMEs reach their business objectives and achieve success (Tawil et al., 2022).

Simple Additive Weighting (SAW) Method

SAW is a technique used in SAW Multi Attribute Decision Making to rank selected options (Roszkowska, 2013; Sudipa & Aryati, 2019). The SAW technique utilizes the concept of the sum of alternative performance rating values on weighted criteria. One of the benefits of the SAW approach is the normalization of the decision matrix based on the nature of the criteria, namely cost or benefit (Kadek et al., 2022). The SAW technique calculation yields a value on a scale between 0 and 1 (Wang, 2015). The process includes the following stages, among others:

1. Determination of Alternative Performance Rating Value on Each Criterion

Shown in the following equation:

$$NK = \sum (SK * X) \quad (1)$$

Information :

NK : The total value of each criterion

SK : Sub-criteria value

X : The preference weight

2. Create a decision matrix

The decision matrix is made based on the number of elements (n) criteria and the number of alternatives.

3. Matrix Normalization

The matrix normalization process is intended to change the alternative suitability rating value to a value scale of 0 to 1 according to the nature of the attribute. The calculation for normalizing the matrix is shown in the following equation.

$$\frac{X_{ij}}{\max X_{ij}}, \text{ rij = if the nature of the attribute includes profit} \quad (2)$$

$$\frac{\min X_{ij}}{X_{ij}}, \text{ rij = if the nature of the attribute includes costs}$$

Information :

rij = alternative performance rating on each normalized attribute

MaxXi_j = maximum value of elements in each attribute

MinXij = minimum element value in each attribute

Benefits = if the attribute properties include profit and the greatest value is the best

cost = if the attribute properties include cost and the smallest value is the best

4. Calculation of final grades and ranking

Calculation of the final value using a normalized performance rating (rij) of each alternative Ai on the attribute where Cj, starting from i = 1.2, up to the m and j = 1.2, up to the nth. The calculation of the preference value for each alternative (Vi) is shown in equation.

$$V_i = \sum_{j=1}^n w_j r_{ij} \quad (3)$$

Information :

Vi = final value or alternative preference ranking

wj = attribute weight value

rij = normalized performance rating value

The result of the most optimal value of Vi indicates that alternative Ai is selected.

Research Stages

There are several stages of research to make it easier to formulate from problem analysis to produce research solutions. In this research, there is an analysis of the problem, namely determining the priority of the best online platforms for MSMEs, so that they can produce the best alternative online platforms for MSMEs. the research stages can be seen in Figure 1 below.

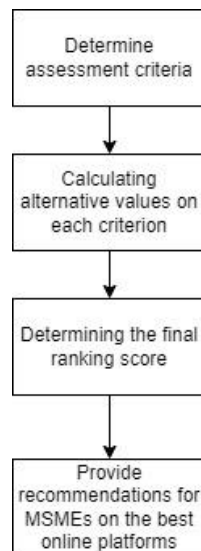


Figure 1. Research Stages

Based on Figure 1, the initial stages can be explained, namely determining important criteria for choosing an online platform for MSMEs, criteria obtained from questionnaire data by random sampling for MSMEs in determining criteria that influence determining online promotion platforms for MSMEs, so that in this study using range segmentation criteria consumers (C1), Ease of Use of Applications (C2), Ease of Communication (C3), and Completeness of application features (C4). The next stage assesses several available online platforms based on predetermined criteria. Then determine the priority of the best online platform for MSMEs by using the Simple Additive Weighting (SAW) method so that the final step is to provide recommendations for MSMEs about the best online platforms that suit the business needs of MSMEs.

RESULTS AND DISCUSSION

Analysis of Assessment Criteria and Attributes

In the application of determining the best online promotion platform decisions for MSMEs using the SAW method it is intended to be able to produce the best online platform alternative priorities so that the assessment criteria data consists of four criteria, namely Consumer reach segmentation (C1), Ease of Use of Applications (C2), Ease of Communication (C3) , and Completeness of application features (C4). The criterion weight value is determined by the percentage of decision makers. Criteria data can be seen in table 1 below.

Table 1. Assessment Criteria Data

Criteria symbol	Criteria Name	Weight	Nature of Criteria
C1	Consumer reach segmentation	30%	benefits
C2	Ease of Use of the Application	35%	benefits
C3	Ease of Chat Platforms	15%	benefits
C4	Complete application features	20%	benefits

For each criterion, the attribute value is then determined. Criteria value attribute Consumer reach segmentation (C1) can be seen in Table 2 below.

Table 2. Attribute Value of Criteria Consumer reach segmentation (C1)

Consumer Segmentation	Scoring Value
Very wide	5
Broad enough	3
Limited	1

Ease of Use Application (C2) criterion attribute value. Can be seen in Table 3 below.

Table 3. Attribute Value of Application Ease of Use Criteria (C2)

Ease of Use of the Application	Scoring Value
Very easy	5
Quite easy	3
Difficult	1

Chat Platform Ease criteria attribute value (C3). Can be seen in Table 4 below.

Table 4. Attribute Value of Criteria for Ease of Chat Platforms (C3)

Ease of Chat Platforms	Scoring Value
Very easy	5
Quite easy	3
Difficult	1

Criteria attribute value Completeness of application features (C4). Can be seen in Table 4 below.

Table 5. Attribute Value of Criteria Completeness of application features (C4)

Complete application features	Scoring Value
Very complete	5
Quite complete	3
Incomplete	1

Best Online Platform Alternative Value Analysis

Alternative MSME online promotion platforms were determined based on a comparison with the platforms used by MSME respondents. there are 4 alternative online sales platforms namely Instagram (A1), Marketplace (A2), Whatsapp (A3), and Online Shop Website (A4). This alternative will be used for problem solving and decision making in the process of recommending the best online promotion platform for MSMEs. Alternative rating values on the criteria can be seen in Table 6 below.

Table 6. Alternative values for each criterion

Alternatives	Alternative Name	Criteria			
		C1	C2	C3	C4
A1	Instagram	Very wide	Very easy	Very easy	Quite complete
A2	Marketplaces	Very wide	Quite easy	Quite easy	Very complete
A3	Whatsapp	Very wide	Very easy	Very easy	Incomplete
A4	Online Shop Website	Broad enough	Difficult	Difficult	Very complete

Normalization of the Best Online Platform Alternative Decision Matrix

The process of normalizing the decision matrix begins with changing the value of the attribute criteria to a scale value, making it easier in the calculation process. The alternative values for each criterion attribute are in Table 6, then changed based on the attribute scale values in tables 2, 3, 4 and 5. The alternative performance rating values for each criterion can be seen in table 7 below.

Table 7. Alternative Performance Rating Values

Alternatives	Alternative Name	Criteria			
		C1	C2	C3	C4
A1	Instagram	5	5	5	3
A2	Marketplaces	5	3	3	5
A3	Whatsapp	5	5	5	1
A4	Online Shop Website	3	1	1	5

Then carry out the matrix normalization process based on the nature of the criteria which can be seen in Table 1. The normalization value of the matrix (X) is calculated using equation (2) based on the characteristics of the benefit and cost criteria. The decision matrix can be seen in the following matrix.

$$X = \begin{bmatrix} 1 & 1 & 1 & 0.6 \\ 1 & 0.6 & 0.6 & 1 \\ 1 & 1 & 1 & 0.2 \\ 0.6 & 0.2 & 0.2 & 1 \end{bmatrix}$$

Calculation of the Final Value of the Best Online Platform

To determine the final value of the alternative online platform, it is obtained from the value of the X matrix, which is then multiplied by the weight of the criteria in table 1. The calculation is as follows.

$$V1 = (1 * 0.3) + (1 * 0.35) + (1 * 0.15) + (0.6 * 0.2) = 0.92$$

$$V2 = (1 * 0.3) + (0.6 * 0.35) + (0.6 * 0.15) + (1 * 0.2) = 0.80$$

$$V3 = (1 * 0.3) + (1 * 0.35) + (1 * 0.15) + (0.2 * 0.2) = 0.84$$

$$V4 = (0.6 * 0.3) + (0.2 * 0.35) + (0.2 * 0.15) + (1 * 0.2) = 0.48$$

Based on the results of calculating the total alternative value (V), the final ranking results are obtained which can be seen in Table 8 below.

Table 8. Final Value of the Best Online Platform

Alternatives	Alternative Name	Mark	ranking
A1	Instagram	0.92	1
A3	Whatsapp	0.84	2
A2	Marketplaces	0.80	3
A4	Online Shop Website	0.48	4

The results in Table 8 explain that the results of calculating the final value of the best online promotion platform for MSMEs using the SAW method, namely alternative A1, namely Instagram as the best alternative online sales platform with 0.92, followed by alternative A3, namely Whatsapp as

the 2nd ranking alternative with a value of 0.84, followed by alternative A2, namely Marketplace as the 3rd ranking alternative with a value of 0.80, and alternative A4, namely the online store Webbite as the 4th rank with a value of 0.48. The ranking results prove that decision-making techniques can be applied to prioritizing the best online promotion platforms for MSMEs. From the final results, an analysis shows that the segmentation criteria for consumer reach and ease of use of applications are important criteria in determining online promotion platforms so that the results of determining platform priorities show that the use of social media and chat media still dominates in becoming an alternative online promotion platform for MSMEs.

CONCLUSION

The conclusion of the study is that the application of management decision-making techniques by applying the SAW method can be a deep technique determining the priority of the best online promotion platforms for MSMEs. Based on 4 assessment criteria, namely consumer reach segmentation (C1), ease of use of applications (C2), ease of communication (C3), and completeness of application features (C4) as well as 4 alternative online sales platforms, namely Instagram (A1), Marketplace (A2), Whatsapp (A3), and the Online Shop Website (A4) shows that alternative A1 namely Instagram as an alternative to the best online sales platform with value 0.92, followed by alternative A3, namely Whatsapp as the 2nd ranking alternative with a value of 0.84, followed by alternative A2, namely Marketplace as the 3rd ranking alternative with a value of 0.80, and alternative A4, namely the online store Webbite as the 4th rank with a value of 0.48. There is an analysis of consumer reach segmentation criteria and the ease of use of applications are important criteria in determining online promotion platforms.

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