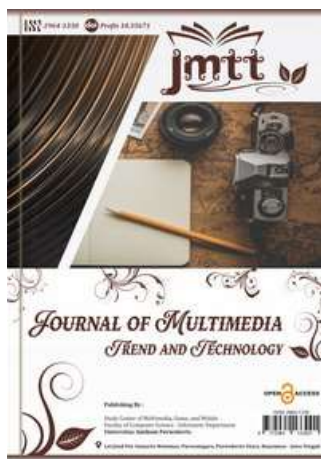


Review Model of Decision Support System (DSS) Methods in The Contextual of Multimedia Platform Selection

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ABSTRACT

Selecting the right management multimedia application is a crucial strategic decision for organizations to optimize operations and minimize implementation risks. However, the vast array of application alternatives with diverse evaluation criteria often creates complexity in the decision-making process. This study aims to map the trends in Decision Support System (DSS) methods and identify the key criteria influencing management application selection through a Systematic Literature Review (SLR) approach. Based on the analysis of primary literature published between 2021 and 2026, it was found that the Analytical Hierarchy Process (AHP) and Simple Additive Weighting (SAW) methods are the most dominant approaches used. The results indicate that usability and cost efficiency are the primary determining factors consistently appearing across all reviewed literature, outweighing mere technical sophistication. These findings provide a framework for management practitioners to develop more effective vendor evaluation instruments by prioritizing the balance between functional capabilities and human resource operational readiness.

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INTRODUCTION

Decision-making systems are important tools in business and corporate operational management. Using Decision Support Systems (DSS) enhances information platforms, helping to make decision-making processes faster, more accurate, and more efficient [1]. The use of SPK is not only limited to daily tactical issues, but is also crucial in long-term strategic decisions, including the selection of the right technology [2].

In today's digital age, management applications play a crucial role in helping companies optimize their operations and strategies [3]. This application provides a platform to simplify and automate various processes, ranging from accounting, resource planning, to customer management. However, the large number of applications available makes choosing the right one complicated and time-consuming. As a result, effective tools are needed to reduce the risk of failure due to functional complexity, high implementation costs, and integration with existing systems [4][5].

In recent years, various approaches to Decision Support Systems (DSS) methods have been implemented [6]. Some methods that have been applied include Profile Matching to determine the best e-wallet application, and Simple Additive Weighting (SAW), which is capable of producing the best option by adding up the performance ratings of the available alternatives [7][8], and Analytical Hierarchy Process (AHP) to determine the best ERP application [9][10]. Although there are many case studies that use the SPK method, there is a wide variation in the criteria used by researchers to assess the quality of an application [11]. There has been no systematic review that specifically maps and identifies the main criteria that are most crucial and frequently appear in the application selection process in various business sectors [12].

With this background, this literature review aims to systematically explore the implementation of Decision Support System (DSS) methods, specifically Analytical Hierarchy Process (AHP), Simple Additive Weighting (SAW), and Profile Matching, in order to identify the main criteria that form the basis for decision making in application selection through the Systematic Literature Review (SLR) method. It is hoped that this review can provide comprehensive insights into the taxonomy of the most relevant criteria in application selection, so that it can become a strong reference for researchers and practitioners to develop more comprehensive and objective decision models in a dynamic business environment.

A systematic literature search was conducted on the academic databases ScienceDirect, Google Scholar, and IEEE Xplore between 2021 and 2026. The search string was constructed using a combination of Boolean operators AND and OR to cover a wider variety of terminology related to research methods and objects. This Literature Review is focused on answering the following research questions:

- a. RQ1: What is the frequency distribution or trend of the use of the Analytical Hierarchy Process (AHP), Simple Additive Weighting (SAW), and Profile Matching methods in scientific literature published between 2021 and 2026 regarding application selection?
- b. RQ2: What are the main criteria most frequently used in Decision Support System models for application selection based on the literature of 2021-2026?

In an era of information explosion, audiences tend to ignore static, one-way content. Selecting a multimedia platform is crucial because modern information is often too complex to explain through text alone [13]. Multimedia simplifies abstract concepts through visualization and audio. Cognitively, the human brain processes visual content 60,000 times faster than text [14]. Without the right platform, your message risks being lost in the digital noise. Multimedia platforms enable the distribution of information across borders in formats that adapt to various devices (mobile, desktop, and IoT devices) [15].

Selecting a multimedia platform is not simply an aesthetic trend, but a strategic decision to ensure effective communication [16]. The right platform serves as a bridge between information providers and users, ensuring that information technology goes beyond storing data and generating actionable insights [5][9][17].

METHOD

A. Research Strategy

The search strategy was conducted systematically on major academic databases, namely ScienceDirect, Google Scholar, and IEEE Xplore, by limiting the publication period from 2021 to 2026 and focusing on articles written in Indonesian and English. To identify relevant articles, the search syntax was constructed using a combination of Boolean operators AND and OR from three main research domains: (1) Decision Support Systems (DSS) or Multi-Criteria Decision Making (MCDM), (2) Analytical Hierarchy Process (AHP), Simple Additive Weighting (SAW), and Profile Matching Methods, and (3) Application/Software Selection or Evaluation Context. The search strings applied to the Title, Abstract, or Keywords were: ("Decision Support Systems" OR "DSS") AND ("AHP" OR "SAW" OR "Profile Matching") AND ("Application Selection" OR "Software Selection"). This strategy ensured that each article captured was relevant to the focus of this literature review, which is to identify the implementation of DSS methods and the main criteria used in application selection decisions for management.

B. Data Selection.

To ensure that the reviewed articles have high relevance to the research objectives, the selection process is carried out through two main criteria stages: Table 1 below explains the Inclusion Criteria and Exclusion Criteria.

Table 1. Inclusion Criteria and Exclusion Criteria

Inclusion	Exclusion
Articles must discuss Decision Support Systems (DSS) or Multi-Criteria Decision Making (MCDM) for application selection.	The article only presents theoretical concepts or frameworks without any concrete implementation of the DSS method (SAW, AHP, Profile Matching) or without presenting clear test results/performance analysis.
Articles must be published between 2021 and 2026 to obtain the most up-to-date criteria data.	The article was published outside the relevant timeframe.
Articles must be written in Indonesian or English (the two primary languages used in scientific databases).	The article is in a language other than English.
Publication must be in a scientific journal article.	The document is a Thesis, Dissertation, Review Article (SLR/Meta-Analysis).
Articles must implement or specifically discuss relevant Multi-Criteria Decision Making (MCDM) methods, particularly SAW, AHP, or Profile Matching, in the context of DSS.	The article uses methods outside the scope of the MCDM/DSS focus, such as pure Machine Learning.
Articles must include a list of criteria and sub-criteria used in the application selection process.	The article does not explicitly state the assessment criteria.

C. Extraction Data.

After the search process was completed, all duplicate data and invalid items were removed from the list of findings. Article titles and abstracts were then screened by researchers based on inclusion and exclusion criteria to identify potentially relevant documents, followed by a thorough review and evaluation of the full text. If there was any doubt about the inclusion of an article, the decision was made through a process of consultation and discussion to ensure the relevance of each selected article. Articles that meet the final criteria are then processed for the data extraction and classification stage, where the study selection process will be presented in the form of a flowchart. The main data elements extracted from the selected articles include:

- a. Author's identity and year of publication of the article.
- b. The specific DSS method implemented (AHP, SAW, or Profile Matching).
- c. The management application field or context targeted by the research.
- d. A list of criteria and sub-criteria used in the application selection decision-making process.

Each article's content was analyzed in-depth to identify the frequency of criteria occurrence and to map emerging research subtopics. If new criteria were identified that did not fit into existing classifications, they were added as new categories. All findings regarding the criteria catalog from each study were progressively recorded to answer the established research questions (RQ1 and RQ2).

RESULT

A search of 500 records was conducted using the aforementioned databases. After removing duplicate articles, 477 articles remained. Based on title and abstract review, 31 articles met the initial selection criteria. After full-text review, 3 articles met the inclusion criteria and were included in the final review.

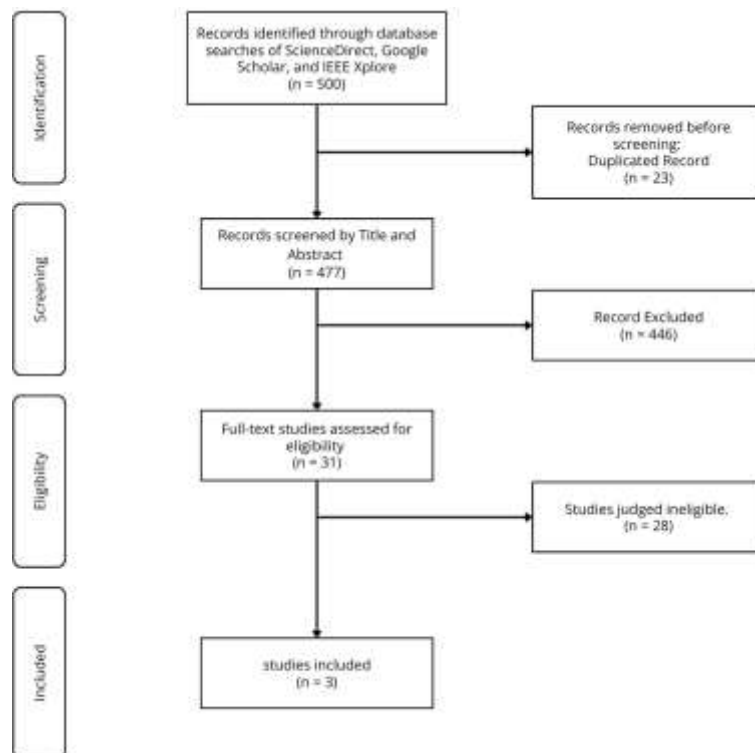


Figure 1. Systematic process used in this literature review

This section presents the results of a literature synthesis to answer research questions regarding method trends (RQ1) and criteria mapping (RQ2) in the selection of management applications. Summary data from the primary literature analyzed are presented in Table 2.

Table 2. Summary data from the primary literature analysed

Reference	Method SPK	Object Application	Main Criteria
[11][13][14]	AHP	Digital Library	Functionality, Reliability, Efficiency, Maintainability, Portability
[13][16]	AHP	Accounting	Easy to use, Investment Protection, Technology, Vendor, Price
[4][7][10]	SAW	Business & Finance	Price, Flexibility, Facilities, Efficiency

RQ1 : What is the frequency distribution or trend of the use of the Analytical Hierarchy Process (AHP), Simple Additive Weighting (SAW), and Profile Matching methods in scientific literature published between 2021 and 2026 regarding application selection?

The implementation of the Multi-Criteria Decision Making (MCDM) method in the selection of management applications shows usage patterns tailored to the characteristics of problem complexity. Based on the literature review in Table 2, the Analytical Hierarchy Process (AHP) and Simple Additive Weighting (SAW) methods emerge as the most dominant approaches.

The AHP method has become a significant approach for addressing decision problems with complex and hierarchical criteria structures. As shown in [4][7][11], the AHP technique is effective in evaluating digital library software through the integration of Software Quality Model (SQM) criteria. AHP's primary advantage lies in its ability to validate the consistency of decision-making logic through the consistency ratio, which is crucial in technology selection that requires high precision. This is reinforced by research in [10][13], where AHP was used to prioritize accounting software selection based on weighted, measurable criteria, providing more objective results than intuitive judgment.



Figure 2. Multimedia Platform Selection

On the other hand, the use of the SAW method offers computational efficiency for more practical and straightforward decision-making. Research in [7][10] shows that SAW is capable of providing a fast ranking solution for selecting business and financial management software. Unlike AHP, which focuses on pairwise comparisons, SAW works by summing the performance ratings of each alternative

against normalized criteria. This solution has proven effective in the context of operational management, which requires speed without compromising the accuracy of the final results.

RQ2: What are the most frequently used primary criteria in Decision Support System models for application selection based on the literature from 2021-2026?

Identifying primary criteria is fundamental to ensuring the selected technology aligns with the organization's strategy.

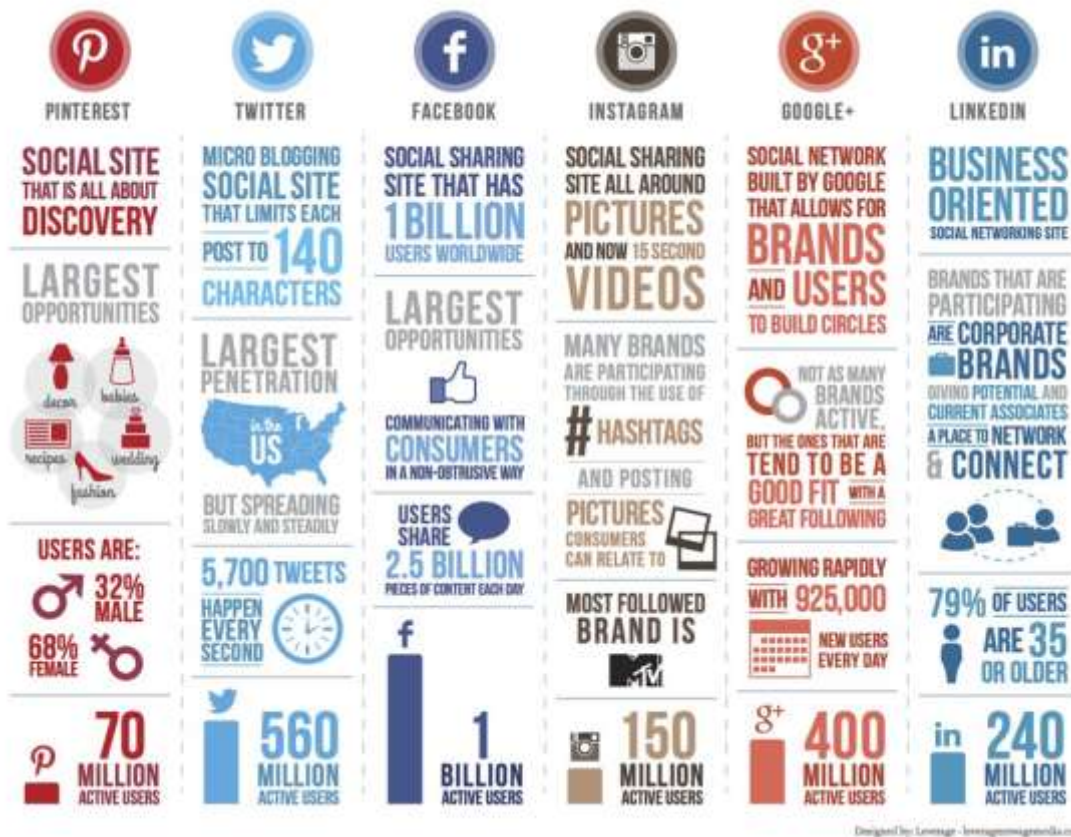


Figure 3. Taxonomy Model Selection

Based on an analysis of the selected literature, a taxonomy of criteria can be classified into three main dimensions:

- Usability and Functionality Dimension: The aspect of ease of use emerged as the most crucial consideration. In [11][13], the Easy to Use criterion was given first priority with a significant weight of 34%. This indicates that the adoption of management applications is greatly influenced by the level of operational ease for end users. In line with this, the functionality and flexibility criteria are important indicators in ensuring the effectiveness of the system [11][8].
- Economic Dimension and Investment Protection: Cost considerations remain the limiting variable in every decision model. Price and investment protection criteria are found consistently throughout the literature. Studies in [4][13] placed investment protection as the second priority (22%), indicating that management considers not only the initial purchase price, but also the sustainability and long-term value of the application to the company. Price is also a significant determining factor in selecting business applications [7].

- c. Technical Dimension and Reliability: Data security and system reliability are mandatory standards, especially for applications that manage sensitive data. The use of SQM standards in [11] which includes efficiency and reliability as evaluation metrics aims to minimize the risk of post-implementation system failure.

DISCUSSION

An analysis of the selected literature shows that selecting a management application is a multi-criteria decision process that prioritizes operational ease and cost efficiency over merely sophisticated technical features. The finding that the Easy to Use criterion [13] and functional flexibility [8] occupying the highest weight indicates that the organization tends to minimize the risk of user resistance by choosing a system that has a low learning curve.

From a methodological perspective, the use of AHP in [11] and [13] reflects the need for consistency validation in complex strategic decisions, while the implementation of SAW in [8] offers practical solutions for business environments that require time efficiency. Overall, the taxonomy of criteria found—covering functional, economic, and technical dimensions—confirms that successful technology adoption depends heavily on the balance between system capabilities and the readiness of human resources to operate them.

CONCLUSIONS

This study successfully maps the methodological trends and crucial criteria in the selection of management applications through a systematic review of primary literature. Based on the analysis, the AHP and SAW methods remain the main choices in decision support systems due to their ability to handle multi-criteria weights, where AHP is superior in ensuring the consistency of strategic decisions, while SAW provides efficiency at the operational scale. The main findings on the criteria dimension indicate that usability and cost efficiency are the most significant determinants in technology adoption, surpassing the purely technical sophistication aspect. The implications of this study emphasize that for management practitioners, the success of information system implementation is highly dependent on the balance between the functional capabilities of the application and the operational readiness of human resources. As a suggestion for future research, further exploration of after-sales support criteria (vendor support) and the integration of hybrid methods are needed to improve selection accuracy in the increasingly dynamic era of digital transformation.

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Z.M, N.K, Concept Idea, Writing, M.Z. N.K, Anlisy, Data Collecting.

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