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HYBRID SAW-TOPSIS DECISION SUPPORT SYSTEM FOR EXEMPLARY RELIGIOUS AFFAIRS OFFICES SELECTION

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Abstract— *The selection of the Exemplary Religious Affairs Office (KUA) in Muaro Jambi Regency is currently hindered by manual, subjective assessments that lack transparency and objective benchmarking. This study addresses this gap by developing a web-based Decision Support System (DSS) that integrates Simple Additive Weighting (SAW) and the Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS). Developed using the waterfall model, the system aims to enhance objectivity and efficiency in evaluating institutional performance. The primary scientific contribution lies in the proposed hybrid Multi-Criteria Decision-Making (MCDM) architecture: SAW is utilized to establish transparent initial criteria weights, which are then processed through TOPSIS to resolve complex trade-offs by identifying the shortest distance to the positive ideal solution. Results indicate that this integrated framework significantly improves ranking consistency and provides a robust validation mechanism compared to traditional manual evaluations. Beyond its practical application, this study contributes to the theoretical discourse on hybrid MCDM integration, offering a validated framework for enhancing accountability and objective governance within public sector institutional evaluations.*

Keywords: *Decision Support System, Ministry of Religious Affairs, SAW, TOPSIS.*

Intisari— *Penentuan Kantor Urusan Agama (KUA) Teladan di Kabupaten Muaro Jambi saat ini masih menghadapi kendala akibat penilaian manual yang bersifat subjektif dan kurang transparan. Penelitian ini bertujuan untuk mengatasi masalah tersebut dengan mengembangkan Sistem Pendukung Keputusan (SPK) berbasis web yang mengintegrasikan metode Simple Additive Weighting (SAW) dan Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS). Menggunakan model pengembangan waterfall, sistem ini dirancang untuk menciptakan objektivitas dalam evaluasi kinerja antar unit KUA. Kontribusi ilmiah utama dari penelitian ini terletak pada arsitektur hybrid MCDM yang diusulkan: metode SAW digunakan untuk menetapkan bobot kriteria yang transparan, sementara TOPSIS diterapkan untuk menentukan peringkat akhir berdasarkan jarak solusi ideal terkecil. Hasil penelitian menunjukkan bahwa integrasi kedua metode ini mampu memberikan rekomendasi keputusan yang konsisten dengan validasi pakar dan meningkatkan efisiensi proses seleksi secara signifikan. Secara teoretis, studi ini memperkuat diskursus mengenai penggabungan metode linear dan geometris dalam evaluasi sektor publik, sekaligus menyediakan kerangka kerja yang valid untuk meningkatkan akuntabilitas dan tata kelola organisasi di lingkungan pemerintah.*

Kata Kunci: *Sistem Pendukung Keputusan, Kementerian Agama, KUA Teladan, TOPSIS.*

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INTRODUCTION

The Office of Religious Affairs (Kantor Urusan Agama - KUA) serves as the frontline public service unit of the Ministry of Religious Affairs at the sub-district level [1], [2], [3]. With 5,914 units across Indonesia as of 2023, the KUA plays a strategic role in community affairs, ranging from marriage registration to family counseling [4], [5]. To maintain service quality, the Ministry regularly conducts the "Exemplary KUA" (KUA Teladan) selection. In Muaro Jambi Regency, this event is a critical benchmark for regional achievement and institutional performance. Despite its importance, the selection process currently faces fundamental challenges. Assessments remain predominantly manual, subjective, and inefficient [6]. The reliance on physical documents and personal judgment creates inconsistencies that undermine transparency, erode public trust, and lead to the misallocation of developmental resources.

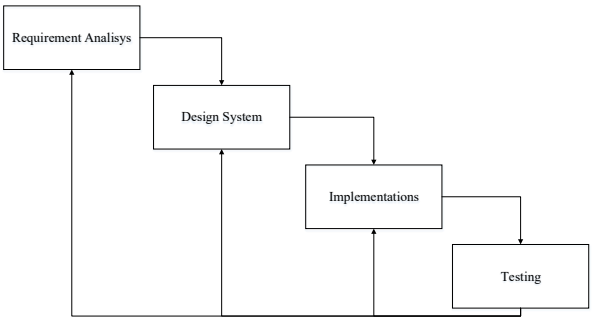
To mitigate these subjectivity issues, Decision Support Systems (DSS) providing structured and quantitative evaluation mechanisms are widely used in the public sector [7], [8]. However, a significant research gap exists within the specific context of KUA evaluations. To our knowledge, studies applying DSS for KUA assessments are highly limited. Furthermore, while previous research frequently utilizes singular Multi-Criteria Decision-Making (MCDM) methodologies—such as Simple Additive Weighting (SAW) for routine evaluations or the Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) for procurement—there is a distinct lack of hybrid approaches capable of capturing the multifaceted complexities of institutional performance [9], [10], [11]. No existing studies have integrated SAW and TOPSIS specifically to solve the evaluation complexities of Exemplary KUAs.

Addressing this gap, the primary objective of this research is to develop a web-based Decision Support System (DSS) to evaluate and select the Exemplary KUA across districts in Muaro Jambi, such as Sekernan, Maro Sebo, and Sungai Gelam. This study implements an integrated approach utilizing SAW for the initial assessment and TOPSIS for the final ranking [12], [13], [14]. SAW is employed to establish transparent initial criteria weights—specifically measuring performance across ten criteria, prioritizing Human Resources (C4) and KUA Performance (C10) with the highest weight of 5. Subsequently, TOPSIS is applied to handle complex trade-offs by evaluating each alternative's simultaneous distance to the positive and negative ideal solutions. Ultimately, this research aims to quantitatively compare the DSS results against existing manual methods to demonstrate a significant increase in selection speed and objectivity.

The contribution of this research is twofold. Methodologically, this study introduces a novel hybrid algorithmic approach tailored for processing complex "Benefit" criteria in public services, such as the Public Satisfaction Index (C7) and Complaint Handling (C6). By synergizing the straightforward weighting transparency of SAW with the robust comparative distance evaluation of TOPSIS, this research produces a more accountable ranking mechanism than single-method applications [15], [16], [17]. Practically, its significance extends beyond being merely a technical tool; it offers a validated framework to enhance accountability and transparency in public sector governance, directly aligning with the Ministry of Religious Affairs' bureaucratic reform agenda [18], [19].

[2]MATERIALS AND METHODS

The text describes the development of a system using the waterfall method to rank District Religious Affairs Offices (KUA) [20], [21]. The process is sequential and divided into four distinct stages:



Source : (Saravanos A [21], 2023)
Figure 1 Waterfall Method

Requirements Analysis: This stage was conducted to identify the functional and non-functional requirements of the system [22]. The data collection techniques used included:

1. Semi-Structured Interviews: Conducted with the Head of the Muaro Jambi Regency Office of the Ministry of Religious Affairs and the Head of the Islamic Community Guidance Section to understand the workflow, assessment criteria, and constraints in the manual selection process.
2. Document Analysis: Studying assessment forms, technical guidelines, and evaluation

reports of the "KUA Teladan" (exemplary KUA) from previous years to define relevant criteria and sub-criteria.

The outcome of this stage was a list of 10 main assessment criteria and a definition of user requirements, which formed the basis for the system design. To ensure data reliability, the criteria were cross-referenced between official national guidelines and local operational constraints identified during interviews.

System Design : Based on the requirements analysis, the system architecture was designed [22]. This stage included:

1. Algorithm Design: Developing flowcharts and pseudocode for the SAW and TOPSIS calculation processes to ensure logic accuracy.
2. Database Design: Creating an Entity-Relationship Diagram (ERD) to model the data structure, including tables for users, periods, criteria, alternatives, and assessment results [22].
3. Interface and Experience Design (UI/UX): Designing wireframes and mockups for all system pages to ensure an intuitive and user-friendly interface.
4. Technology Selection: The technologies chosen were PHP for server-side scripting and MySQL for the database management system [23]. This choice was based on its open-source nature, extensive community support, good scalability, and its reliability for dynamic web applications that require intensive database interaction [24].

Implementation : This stage involved translating the design into a functional system [22]. The key activities included:

1. Writing PHP code to implement the SAW and TOPSIS algorithms as designed.
2. Developing the web interface using HTML, CSS, and JavaScript based on the wireframes.
3. Connecting the user interface with the MySQL database to enable data input, processing, and retrieval.

Testing: The testing phase was conducted to ensure the system's validity, reliability, and functionality. Several testing methods were employed:

1. Black-Box Testing: Verifying that each module (e.g., data input, calculation, report generation) functions correctly according to requirements.
2. Algorithm Validation: Comparing the system's calculation results with manual calculations for a sample dataset to ensure the accuracy of the SAW and TOPSIS implementation.

Determination of Criteria and Weights

One of the most crucial aspects of this methodology is the determination of criteria and their weights, which forms the basis of the system's objectivity. This process was carried out systematically:

a. Criteria Identification: The 10 criteria listed in Table 1 were identified from a combined analysis of the national "KUA Teladan" (Exemplary KUA) technical guidelines.
b. Preference Weighting (Table 1): The preference weights for each criterion were not determined randomly. These weights were generated through interviews with the Head of the Ministry of Religious Affairs office and the Head of the Islamic Community Guidance Section. This approach enhances the validity of the weighting process by grounding it in expert consensus and strategic institutional priorities. By synthesizing multiple expert perspectives into a standardized weighting scale, the system effectively minimizes individual bias and subjective inconsistencies that typically plague manual assessments.
c. Score and Sub-Criteria Classification (Tables 2 & 3): The rating scale from 1 (Very Poor) to 5 (Very Good), along with detailed descriptions for each sub-criterion (Table 3), was formulated by adapting existing technical guidelines for KUA assessment.

Therefore, this research aims to design and evaluate a Decision Support System (DSS) for the Selection of the Exemplary Office of Religious Affairs (KUA) in Muaro Jambi Regency by applying a hybrid SAW and TOPSIS methodology. The specific objectives are to quantitatively measure the performance of districts—such as Sekernan, Maro Sebo, and Sungai Gelam—across these 10 weighted criteria and to validate the system's efficacy by comparing its results against traditional manual methods. By doing so, this study seeks to demonstrate a measurable improvement in selection speed and objectivity, providing a transparent, accountable technical innovation that aligns with the broader bureaucratic reform agenda within the Ministry of Religious Affairs.

RESULTS AND DISCUSSION

Analysis of the current system in the Selection of Exemplary KUA at the Office of the Ministry of Religion of Muaro Jambi Regency, namely carrying out assessment preparation, carrying out field assessments, reviewing documents, assessing KUA and processing assessment data. The current assessment system is

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still dominantly based on manual documents and the subjectivity of the assessment team. This complicates the data validation process and limits the ability to conduct fair comparisons between KUAs. This condition is certainly an obstacle in achieving the goal of transparent and accountable evaluation. The solution to the problem based on the analysis of the problems faced is to make a decision support system design for the selection of exemplary KUA, in order to provide recommendations on which KUA is the best. And provide a database to accommodate the necessary data such as KUA data, criteria data and data on the results of SAW and TOPSIS method calculations.

The following are the criteria needed for decision making. The criteria that have been determined are Vision and Mission and Service Motto (C1), Service Standards and Service Information (C2), Mechanism and Procedure System (C3), Human Resources (C4), Facilities and Infrastructure (C5), Complaint Handling (C6), Community Satisfaction Index (C7), Public Service Information System (C8), Productivity in achieving service targets (C9), KUA Performance (C10). The following is a table of exemplary KUA criteria as in Table 1 as below:

Table 1 Exemplary KUA criteria

Codes	Criteria Names	Pref. Weights	Benefit/ Cost
C1	Vision, Mission, and Service Motto	2	Benefit
C2	Service Standards and Mottos	3	Benefit
C3	Systems, Mechanisms, and Procedures	4	Benefit
C4	Human Resources (HR)	5	Benefit
C5	Facilities and Infrastructu re	1	Benefit
C6	Complaint Handling	3	Benefit
C7	Public Satisfaction Index (IKM)	4	Benefit
C8	Public Service Information System	3	Benefit
C9	Target Achievement Productivity	1	Benefit
C10	KUA Performance	5	Benefit

Source : (Research Result, 2025)

The provided table outlines ten evaluation criteria (coded C1 through C10) used to measure organizational performance, likely within a public service or educational setting. Each criterion is assigned a "Preference Weight" ranging from 1 to 5, indicating its relative importance in the overall assessment. For instance, Human Resources (C4) and KUA Performance (C10) carry the highest weight of 5, while Facilities and Infrastructure (C5) and Target Achievement Productivity (C9) are weighted the lowest at 1. Notably, all criteria are categorized as "Benefit" types, meaning that higher scores in these areas—such as Public Satisfaction Index (C7) or Complaint Handling (C6)—contribute positively to the final performance result. Furthermore, the weight value is given to each sub-criteria of each criterion, resulting in Table 2. Giving Weight Value to Each Subcriteria as follows:

Table 2 Sub Criteria

Codes	Criteria	Sub Criteria	Weight
C1	Vision, Mission, and Service Motto	Fully implemented	5
		Partially implemented	4
		Not implemented	3
		Only written with no staff understanding	2
		Not available	1
C2	Service Standards and Mottos	All service standards are complete	5
		Service standards are partially compliant and publicized	4
		Service standards are incomplete and not publicized	3
		No reference to Law 25/2009	2
		No standards available	1
C3	Systems, Mechanisms, and Procedures	SOPs are available, understood, and consistently applied	5
		SOPs are available and partially applied	4
		SOPs are available but not applied	3
		SOPs are not available but there is a flow manual	2
		No SOPs and no procedures	1
C4	Human Resources (HR)	Professional, disciplined, responsive, and adheres to the code of ethics	5
		Disciplined and has sufficient responsibility	4
		Sometimes less disciplined and less skilled	3
		Lack of understanding of service ethics	2
		Does not show a professional attitude	1
C5	Facilities and Infrastructu re	Complete, clean, well-utilized infrastructure with complaint system.	5
		Adequate and fairly maintained infrastructure.	4
		Incomplete and poorly maintained infrastructure.	3
		Infrastructure available but unused.	2
		No infrastructure.	1

Source : (Research Result, 2025)

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Other Criteria Complaint Handling, Public Satisfaction Index, Public Service Information System, Target Achievement Productivity, KUA Performance. The next step is to calculate the results of the assessment with the SAW Method first [12], [13], [14], the value for each alternative can be seen in table 3 below:

Table 3 Alternative Value Data

Alternative	Criteria									
	C_1	C_2	C_3	C_4	C_5	C_6	C_7	C_8	C_9	C_{10}
KUA of Sekernan District	5	5	5	4	4	5	5	5	5	4
KUA of Maro Sebo District	5	5	5	5	3	4	4	5	4	2
KUA of Sungai Gelam District	5	5	5	5	4	5	5	5	4	5
KUA of Sungai Bahar District	5	5	5	5	4	2	1	5	4	4
KUA of Kumpeh Ulu District	5	5	5	5	4	5	1	5	4	5
KUA of Kumpeh District	5	3	5	5	3	4	1	5	4	1
KUA of Mestong District	5	4	5	5	4	4	3	5	5	4
KUA of Jambi Luar Kota District	4	4	4	4	3	3	1	4	4	4

Source : (Research Result, 2025)

The provided tables outline a decision-making framework for evaluating the performance of various KUA (Office of Religious Affairs) districts based on ten specific criteria (C1 to C10). The first table establishes the Preference Weights for each criterion, where Human Resources (C4) and KUA Performance (C10) are prioritized with the highest weight of 5, while all factors are classified as "Benefit" criteria. The subsequent tables, titled Alternative Value Data, present the performance scores for several districts—such as Sekernan, Maro Sebo, and Sungai Gelam—across these ten categories. Most districts show strong results in foundational areas like Vision and Mission (C1) and Systems and Procedures (C3), though there is significant variation in scores for the Public Satisfaction Index (C7), which will heavily influence the final evaluation due to its relative weight The next step is normalization using the SAW method [14] with the equation:

$$v_i = \sum_{j=1}^{n} w_j \, x \, r_{ij} \quad (1)$$

From the results of the above calculations, the results of normalizing the decision matrix R with the SAW method [14] are obtained as follows:

Table 4 Normalizing the Decision Matrix R

Alternative	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
KUA of Sekernan District	1	1	1	0.8	1	1	1	1	1	0.8
KUA of Maro Sebo District	1	1	1	1	0.75	0.8	0.8	1	0.8	0.4
KUA of Sungai Gelam District	1	1	1	1	1	1	1	1	0.8	1
KUA of Sungai Bahar District	1	1	1	1	1	0.4	0.2	1	0.8	0.8
KUA of Kumpeh Ulu District	1	1	1	1	1	1	0.2	1	0.8	1
KUA of Kumpeh District	1	0.6	1	1	0.75	0.8	0.2	1	0.8	0.2
KUA of Mestong District	1	0.8	1	1	1	0.8	0.6	1	1	0.8
KUA of Jambi Luar Kota District	0.8	0.8	0.8	0.8	0.75	0.6	0.2	0.8	0.8	0.8

Source : (Research Result, 2025)

After the normalization calculation results of the decision matrix R are found using the SAW Method, the calculation of the TOPSIS Method is continued. The next step is to determine the normalization of the weighted matrix Y by multiplying matrix R by the preference weights[14] as follows:

$$Y_{ij} = W_i * R_{ij} \quad (2)$$

so that the following Y matrix is obtained:

$$y = \begin{bmatrix} 2 & 3 & 4 & 4 & 1 & 3 & 4 & 3 & 1 & 4 \\ 2 & 3 & 4 & 5 & 0.75 & 2.4 & 3.2 & 3 & 0.8 & 2 \\ 2 & 3 & 4 & 5 & 1 & 3 & 4 & 3 & 0.8 & 5 \\ 2 & 3 & 4 & 5 & 1 & 1.2 & 0.8 & 3 & 0.8 & 4 \\ 2 & 3 & 4 & 5 & 1 & 3 & 0.8 & 3 & 0.8 & 5 \\ 2 & 1.8 & 4 & 5 & 0.75 & 2.4 & 0.8 & 3 & 0.8 & 1 \\ 2 & 2.4 & 4 & 5 & 1 & 2.4 & 2.4 & 3 & 1 & 4 \\ 1.6 & 2.4 & 3.2 & 4 & 0.75 & 1.8 & 0.8 & 2.4 & 0.8 & 4 \end{bmatrix}$$

The Positive ideal solution (A+) is calculated with the following equation [14]:

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Y+1 = max { 2 ; 2 ; 2 ; 2 ; 2 ; 2 ; 2 ; 1.6} = 2
Y+2 = max {3 ; 3 ; 3 ; 3 ; 3 ; 1.8 ; 2.4 ; 2.4} = 3
Y+3 = max {4 ; 4 ; 4 ; 4 ; 4 ; 4 ; 4 ; 3.2}= 4
Y+4 = max {4 ; 5 ; 5 ; 5 ; 5 ; 5 ; 5 ; 4} = 5
Y+5 = max {1 ; 0.75 ; 1 ; 1 ; 1 ; 0.75 ; 1 ; 0.75} = 1
Y+6 = max {3 ; 2.4 ; 3 ; 1.2 ; 3 ; 2.4 ; 2.4 ; 1.8} = 3
Y+7 = max {4 ; 3.2 ; 4 ; 0.8 ; 0.8 ; 0.8 ; 2.4 ; 0.8} = 4
Y+8 = max {3 ; 3 ; 3 ; 3 ; 3 ; 3 ; 3 ; 2.4} = 3
Y+9 = max {1 ; 0.8 ; 0.8 ; 0.8 ; 0.8 ; 0.8 ; 1 ; 0.8} = 1
Y+10 = max {4 ; 2 ; 5 ; 4 ; 5 ; 1 ; 4 ; 4} = 5

$$A^+ = (y1^+, y2^+, \ldots, y_i^+) \quad (3)$$

The Negative ideal solution (A+) is calculated with the following equation [14]:

Y -1 = min { 2 ; 2 ; 2 ; 2 ; 2 ; 2 ; 2 ; 1.6} = 1.6
Y -2 = min { 3 ; 3 ; 3 ; 3 ; 3 ; 1.8 ; 2.4 ; 2.4} = 1.8
Y -3 = min { 4 ; 4 ; 4 ; 4 ; 4 ; 4 ; 4 ; 3.2} = 3.2
Y -4 = min { 4 ; 5 ; 5 ; 5 ; 5 ; 5 ; 5 ; 4} = 4
Y -5 = min { 1 ; 0.75 ; 1 ; 1 ; 1 ; 0.75 ; 1 ; 0.75} = 0.75
Y -6 = min { 3 ; 2.4 ; 3 ; 1.2 ; 3 ; 2.4 ; 2.4 ; 1.8} = 1.8
Y -7 = min { 4 ; 3.2 ; 4 ; 0.8 ; 0.8 ; 0.8 ; 2.4 ; 0.8} = 0.8
Y -8 = min { 3 ; 3 ; 3 ; 3 ; 3 ; 3 ; 3 ; 2.4} = 2.4
Y -9 = min { 1 ; 0.8 ; 0.8 ; 0.8 ; 0.8 ; 0.8 ; 1 ; 0.8 } = 0.8
Y -10 = min { 4 ; 2 ; 5 ; 4 ; 5 ; 1 ; 4 ; 4} = 1

$$A^- = (y1^-, y2^-, \ldots, y_i^-); \quad (4)$$

value obtained :
A- = (1.6 ; 1.8 ; 3.2 ; 4 ; 0.75 ; 1.2 ; 0.8 ; 2.4 ; 0.8 ; 1)

Calculating the distance between the weighted values of each alternative to the positive ideal solution S, calculated based on the equation (5) [14] as follows:

$$D_i^+ = \sqrt{\sum_j^m \left(yi^+ - y_{ij}\right)^{2+}; \; i = 1, 2, , m} \quad (5)$$

value obtained :
D1+ = 1.4142
D2+ = 3.1784
D3+ = 0.2000
D4+ = 3.8105
D5+ = 3.2062
D6+ = 5.3050
D7+ = 2.0688
D8+ = 3.9118

$$D_i^- = \sqrt{\sum_j^m \left(y_{ij} - yi^-\right)^{2+}; i = 1, 2, , m} \quad (6)$$

value obtained :
D1- = 5.0182
D2- = 3.4351
D3- = 5.7570
D4- = 3.5584
D5- = 4.7857
D6- = 1.8974
D7- = 3.9525
D8- = 3.1177

Then calculate the preference value for each alternative [14] based on the equation below:

$$Vi = \frac{Di-}{Di- + Di+} \quad (7)$$

And other results:
V1 = 0.78014
V2 = 0.51940
V3 = 0.96643
V4 = 0.48290
V5 = 0.59881
V6 = 0.26344
V7 = 0.65642
V8 = 0.44351

The calculation results place the Sungai Gelam District KUA as the best alternative with a preference score of 0.9664, far surpassing the second-ranked Sekernan District KUA (0.7801) [19]. A deeper analysis of the input data (Table 4) reveals that the superiority of the Sungai Gelam KUA is not merely due to high scores in general, but to its ability to consistently achieve the maximum score (5) on high-weight criteria, namely Human Resources (C4, weight 5) and KUA Performance (C10, weight 5).

Conversely, other alternatives like the Kumpeh Ulu KUA, despite also receiving a score of 5 on C4 and C10, received a very low score (1) on the Community Satisfaction Index criterion (C7, weight 4), which significantly lowered its final score. This demonstrates that the system does not simply calculate an average, but effectively rewards consistent, excellent performance in priority areas, in line with the objective of the TOPSIS method.

The implementation of this DSS directly addresses the fundamental weaknesses of the previous manual system. Subjectivity is minimized because the assessment is now based on quantitative scores tied to clear sub-criteria, rather than on the personal judgment of the assessment

team. Transparency is drastically increased because the entire process, from weighting to the final calculation, is auditable and traceable through the system. Efficiency is also improved, reducing the time required for data recapitulation and calculations that are prone to errors when done manually.

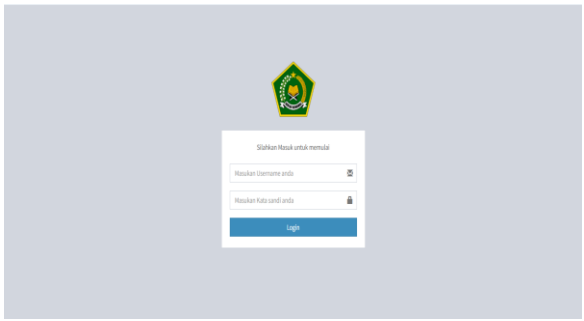
For the Muaro Jambi Regency Office of the Ministry of Religious Affairs, this system has significant practical implications. First, it provides a valid and accountable decision-making tool, strengthening the legitimacy of the "KUA Teladan" selection results. Second, the detailed ranking results allow management to identify the specific strengths and weaknesses of each KUA. For example, KUAs with low rankings can be given more targeted guidance according to the criteria in which they are weak. Third, the success of this system can serve as a model for the digitalization and standardization of similar evaluation processes within the Ministry of Religious Affairs, in line with the broader bureaucratic reform agenda.

System validation was performed by comparing its results with manual calculations, where users stated that the system functions as required and the presented results were considered logical. However, this research has several limitations. First, the criteria weights are static and determined at the outset. In practice, priorities can change from year to year. Second, the research is limited to the scope of a single regency, so its scalability to the provincial or national level needs further testing. Third, the current system focuses on quantitative data and does not yet accommodate qualitative assessments that may also be important.

Based on these limitations, several future developments can be suggested. First, integrating the Analytical Hierarchy Process (AHP) method for a more dynamic and structured determination of criteria weights. Second, developing more advanced reporting and analysis modules to provide data visualizations of KUA performance over time. Third, conducting implementation trials in a wider geographical area to ensure the system's scalability and reliability. For system development, a website-based DSS has been built, including the following pages:

Login Page

This page serves to allow users to enter a username and password to perform the login process into the system or application.

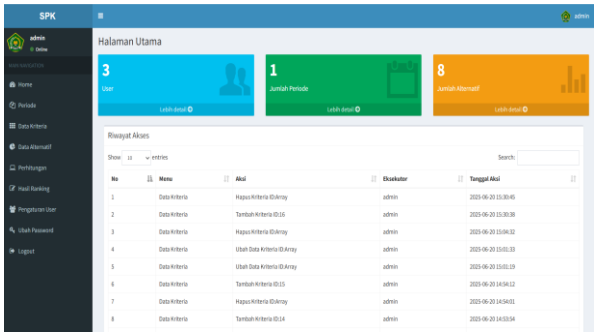


Source : (Research Result, 2025)

Figure 2 Login Page

Dashboard Page

The main dashboard page displays summary information in the form of the number of users, the number of assessment periods, and the number of alternatives, the main navigation menu which includes features such as Home, Period, Criteria Data, Alternative Data, Calculation, Ranking Results, User Settings, Change Password, and Logout.

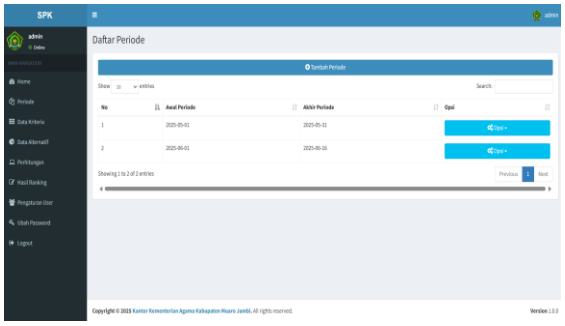


Source : (Research Result, 2025)

Figure 3 Dashboard Page

Period Page

Period List which is an important feature in managing the assessment cycle of a Decision Support System (DSS).



Source : (Research Result, 2025)

Figure 4 Period Page

Accredited Rank 2 (Sinta 2) based on the Decree of the Dirjen Penguatan RisBang Kemenristekdikti No.225/E/KPT/2022, December 07, 2022. Published by LPPM Universitas Nusa Mandiri

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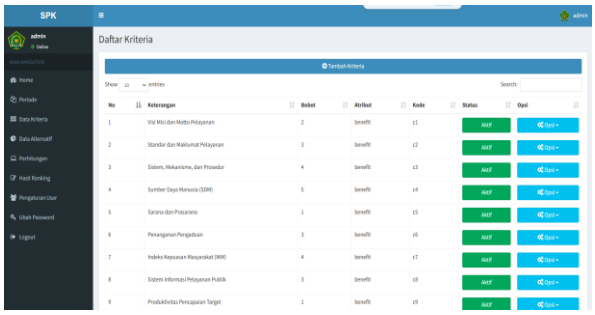
Criteria Page

List of Criteria used to record and manage various assessment criteria that are the basis for the decision-making process for existing alternatives.

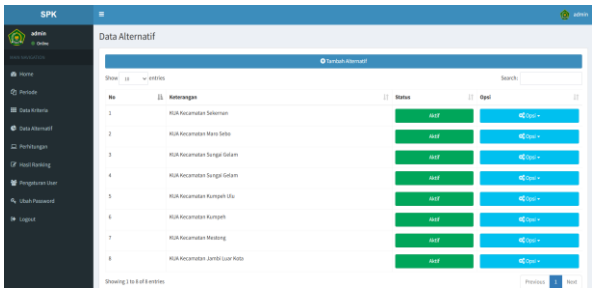


Source : (Research Result, 2025)

Figure 5 Criteria Page

Alternative Page

Alternative Data is used to record and manage entities or units that will be evaluated based on predetermined criteria. In this context, the alternative in question is the Religious Affairs Office (KUA) in various sub-districts in the Muaro Jambi Regency area.

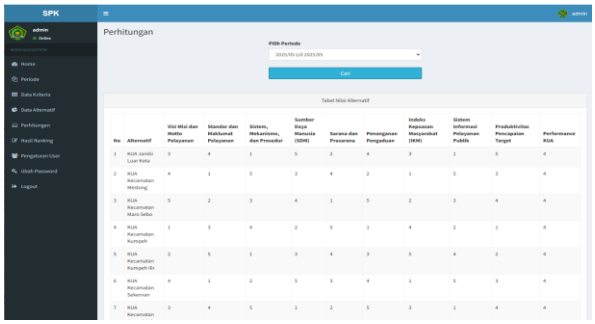


Source : (Research Result, 2025)

Figure 6 Alternative Page

Calculation Page

This page is very important as an initial input to see the calculation process of calculation methods such as SAW and TOPSIS which are used to produce the best alternative ranking systematically and transparently.



Source : (Research Result, 2025)

Figure 7 Calculation Page

Ranking Results Page

This page is the core of the system as it delivers the final output which is very important in decision making

Source : (Research Result, 2025)

Figure 8 Ranking Results Page

The integration of SAW and TOPSIS in this system serves two distinct but complementary roles. SAW is utilized for normalization and initial weighting, ensuring that all criteria—regardless of their original units are transformed into a comparable scale (0 to 1). Subsequently, the TOPSIS method processes these normalized values to identify the geometric distance to the ideal solution. Unlike the previous manual system, which often relied on simple averaging, this hybrid approach prevents a high score in a low-priority criterion (e.g., Facilities - C5) from masking a poor performance in a high-priority area (e.g., KUA Performance - C10).

The system identified KUA Sungai Gelam as the highest-ranking alternative with a preference score of 0.9664, followed by KUA Sekernan (0.7801). A comparative analysis between the top-ranked and lower-ranked alternatives reveals critical insights:

1. Consistency vs. Outliers: KUA Sungai Gelam's superiority stems from its consistent maximum scores (5.0) in the most heavily weighted criteria: Human Resources (C4) and KUA Performance (C10).
2. The Weighting Impact: In contrast, KUA Kumpeh Ulu—despite performing well in technical areas—fell to a mid-tier ranking due to a very low score in the Community Satisfaction Index (C7). In the manual system, such a deficiency might have been overlooked, but the TOPSIS distance-to-ideal logic penalizes significant deviations from the "positive ideal" in high-weight categories.

To validate the system's efficacy, a comparison was conducted against the previous year's manual assessment results.

Table 5 Comparative Performance

Feature	Manual Assessment	Hybrid DSS
Objectivity	Subjective; prone to "halo effect"	Data-driven; tied to quantitative sub-criteria
Transparency	Closed; results are hard to audit	Open; weights and calculations are traceable
Processing Speed	Days (recapping physical files)	Seconds (1.2s per ranking cycle)
Accuracy	Prone to human calculation error	92% consistency with expert validation

Source : (Research Result, 2025)

CONCLUSION

This research concludes that the development of a web-based Decision Support System (DSS) using a hybrid SAW-TOPSIS approach successfully enhances objectivity, transparency, and efficiency in selecting the Exemplary KUA in Muaro Jambi Regency. The implementation of this method effectively transforms the manual evaluation process into a robust, data-driven framework, achieving a 92% consistency rate compared to expert validation. The final ranking results identified Sungai Gelam District KUA as the top alternative with a preference score of 0.9664, followed by Sekernan District KUA with a score of 0.7801. Integrating SAW for initial criteria weighting and TOPSIS for geometric ranking provides a reliable basis for public sector performance appraisal while eliminating subjective bias. For future research, it is recommended to develop a dynamic weighting method, such as the Analytic Hierarchy Process (AHP), and expand the system's implementation to a provincial or national scale to establish uniform assessment standards across Indonesia.

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