FORMAT: Jurnal Ilmiah Teknik Informatika
Vol. 15, No. 1, Januari 2026, pp. 52-64
Akreditasi Sinta 5 RISTEKBRIN No. 164/E/KPT/2021

DOI: 10.22441/format.2026.v15.i1.006
E-ISSN 2722-7162
P-ISSN 2089-5615

Decision Support System for Video Editing Staff Recruitment Using a Combination of Entropy and Simple Additive Weighting Methods

Junhai Wang[1], Very Hendra Saputra[2*], Ade Dwi Putra[3], M. Ghufroni An'ars[4], A. Ferico Octaviansyah Pasaribu[5], Temi Ardiansah[6]

[1] Department of Digital Business, Zhejiang Technical Institute of Economic, Xue Zheng Jie, Jianggan Qu, 310018 Hangzhou Shi, China.
[2,3,4,5,6] Faculty of Engineering and Computer Science, Universitas Teknokrat Indonesia, Street ZA Pagaralam Number 9-11 Labuhan Ratu, Bandar Lampung, Indonesia

[1]340017@zjtie.edu.cn, [2*]very_hendra@teknokrat.ac.id, [3]adedwiputra@teknokrat.ac.id, [4]m.ghufroni_anars@teknokrat.ac.id, [5]fericopasaribu@teknokrat.ac.id, [6]temi@teknokrat.ac.id

*Corresponding Author

ABSTRACT

The recruitment process for video editing staff plays a strategic role in ensuring professional and competitive content production quality. However, candidate evaluation often encounters issues of subjectivity and inconsistency when decisions rely solely on intuition without a measurable assessment framework. To address this problem, this study develops a Decision Support System based on Multi-Criteria Decision Making (MCDM) by integrating the Entropy method for objective weighting of evaluation criteria and the Simple Additive Weighting (SAW) method for ranking alternatives. A dataset consisting of nine candidates was assessed using five criteria: Editing, Creativity, Experience, Discipline, and Teamwork. The Entropy calculation produced objective weights of 0.2867, 0.2248, 0.2573, 0.0685, and 0.1626, which were subsequently utilized by the SAW method to generate final preference scores for each candidate. The ranking results show that Eko Firmansyah achieved the highest score (0.986), followed by Indra Mahendra (0.9699) and Candra Wijaya (0.9662). These findings indicate that the integration of Entropy and SAW effectively reduces bias, improves decision accuracy, and provides transparent and consistent candidate selection results. Therefore, this study concludes that the Entropy–SAW combination is highly suitable for recruitment decision-making due to its ability to calculate objective weighting and process candidate performance comprehensively in a structured and scientifically accountable manner.

Article Info

Keywords:
Decision Support System
MCDM
Entropy
Simple Additive Weighting
Video Editing Staff Recruitment

Article history:
Submit Nov 27, 2025
Revised Dec 3, 2025
Accepted Dec 10, 2025

1. INTRODUCING

Technology continues to advance rapidly, significantly changing the way we interact, work, and live[1]. Innovations such as artificial intelligence, the Internet of Things (IoT), and quantum computing have opened the door to a new era where electronic devices function not only as tools but also as partners that can think and learn. Technology increasingly permeates every aspect of life, from increasingly automated transportation to digitally connected healthcare services. Furthermore, the digital era also opens new opportunities in education, providing broader access to knowledge and enhancing the skills of the global community[2]. While we celebrate technological achievements, it is important to always consider how we can use these innovations to create a fairer, more inclusive, and sustainable world for all. As technology continues to evolve, collaboration between various sectors and awareness of its impact are key to shaping a bright and empowered future.

E-ISSN 2722-7162
P-ISSN 2089-5615

In the dynamic era of visual content, the role of a Video Editing Staff holds a key position in creating an immersive and captivating experience for the audience[3]. Along with technological advancements, the demand for professionals skilled in processing and presenting visual material has become increasingly important. Video Editing Staff will not only be experts in using the latest editing software, but will also play a role in crafting narratives that resonate in every production. However, the process of selecting Video Editing Staff often faces various challenges. The assessment criteria—which include technical skills, creativity, accuracy, and visual communication ability—are often difficult to measure objectively. Many companies still rely on subjective evaluations through interviews or portfolios that do not always fully reflect a candidate's abilities. Additionally, the imbalance in weight between technical and non-technical criteria can cause distortions in the selection process, so potentially qualified candidates may be overlooked. Limited time and resources for evaluation also become factors that can hinder an effective and accurate recruitment process. In the Video Editing Staff Recruitment process, implementing a structured recruitment system becomes very important for the creative industry, as the quality of visual production results highly depends on the abilities and competencies of the human resources involved. Planned recruitment allows companies to evaluate candidates objectively based on their portfolio, technical skills, creativity, and collaboration abilities, ensuring alignment with the dynamic needs of projects. On the other hand, staff selection processes carried out manually often face limitations, such as subjective assessments, lengthy evaluation times, and difficulties in consistently comparing candidates when the number of applicants increases. These limitations can lead to suboptimal recruitment decisions and potentially hinder productivity as well as the quality of video production in a competitive creative work environment.

Decision Support System (DSS) is an information system designed to assist decision-making by providing the necessary data, models, and analytical tools[4], [5]. Its aim is to improve decision quality by integrating relevant information and providing support in processing complex data. DSS uses various methods, including statistical analysis, mathematical models, and artificial intelligence techniques to present information that is easily understood by decision-makers. Decision Support Systems are also capable of managing uncertainty by providing alternative scenarios and sensitivity analysis[6]–[9]. This capability provides a better understanding of the potential consequences of each decision taken, allowing decision-makers to plan more effective strategies. The sustainability and development of DSS continue to progress along with technological advances, including the integration of artificial intelligence and machine learning. This allows the system to understand more complex patterns, predict future trends, and provide more accurate recommendations. In addition, increasingly user-friendly and intuitive interfaces make the use of DSS easier, even for those without a deep technical background.

The Entropy Method is an objective approach in weighting criteria that uses data variability to determine the level of importance of a criterion in decision-making. The greater the dispersion of a criterion's values, the higher the weight assigned, because this variability indicates that the information contained in the criterion plays an important role in distinguishing one alternative from another. Thus, the Entropy method provides a strong and measurable calculation basis for determining weights without being influenced by the assessor's subjectivity. This is particularly relevant in the recruitment process, including the selection of Video Editing Staff, where subjectivity often arises in determining which aspects are considered the most important, such as technical skills, creativity, or work experience. Through this approach, the decisions made become more accurate because the weight of each criterion is determined based on actual data, not merely opinions or personal preferences[10]–[12]. In addition, the Entropy method can enhance transparency and consistency in the evaluation process, so that all parties involved in decision-making have a shared understanding of the basis of assessment used. Therefore, the application of the Entropy method becomes an effective strategy to reduce bias in recruitment and ensure that each candidate is assessed objectively according to the contribution of criteria to the overall selection outcome.

The Simple Additive Weighting (SAW) method is a multi-criteria decision-making technique that operates by summing the weighted scores of each criterion to obtain the final score of each alternative[10], [13], [14]. In practical applications-including recruitment, product recommendation, and content personalization-SAW begins with defining the criteria and their respective weights, followed by normalizing the values of each criterion to ensure comparability across different measurement scales. Each normalized value is then multiplied by its corresponding criterion weight, and the weighted values are summed to produce the total score for each candidate or alternative, where the highest score indicates the best option. In recruitment, SAW allows objective comparison of applicants based on qualifications, skills, and experience aligned with job requirements, thus supporting a transparent and efficient selection process. In recommendation systems or user-personalized services, SAW can integrate user preferences, interaction history, and relevance metrics to rank products or content. The advantages of SAW include computational simplicity, easy interpretation of results, and flexibility in assessing both benefit and cost criteria[15], [16]. This enables organizations to save time and resources while supporting cultural and value alignment through criteria weighting that reflects organizational priorities.

E-ISSN 2722-7162
P-ISSN 2089-5615

Various recent studies from 2022 to 2025 demonstrate the application and development of the combination of Entropy weighting with ranking methods such as TOPSIS and its variations across different domains: research by [17] applied Entropy–TOPSIS to assess sustainable island development and found that this approach is effective in generating objective weights and priority rankings. Research by [18] developed a hybrid Structured Entropy Weight–TOPSIS model for subcontractor selection, showing that the entropy structure enhances weight stability when there are interdependencies among criteria. Further research by [19] introduces the Two-Step Entropy–TOPSIS for project site selection, adding a layer of clustering that facilitates initial screening of numerous alternatives. The overall literature reinforces the relevance of objective weighting based on Entropy combined with ranking techniques (particularly TOPSIS and its variants) and opens up opportunities for adapting similar methods—including Entropy–SAW—for specific domains such as video editor recruitment, where the characteristics of creative criteria require customized weight design and assessment instruments.

Various previous studies have applied Multi-Criteria Decision Making (MCDM) methods such as Entropy, SAW, TOPSIS, and AHP in decision-making processes for various cases, such as employee selection, supplier determination, and performance evaluation, but most have not focused on the specific needs of the creative industry. A research gap arises due to the lack of decision support systems specifically designed for the recruitment process of video editing staff, where criteria such as visual creativity, timeliness, storytelling ability, and proficiency in editing software are required to comprehensively assess candidate competencies. Furthermore, research that explicitly combines the Entropy method as objective weighting based on data variability with the SAW method for a simple yet effective ranking process is still very limited. Based on this gap, this study aims to develop a decision support system based on the Entropy–SAW combination to produce a more systematic, objective, and accurate selection process in determining the best video editor candidates; as well as to provide practical contributions in the form of an evaluation model that can be implemented in creative companies to improve recruitment efficiency and human resource quality.

This study aims to implement a Decision Support System in the recruitment process for Video Editing Staff at CV XYZ by combining the Entropy and SAW (Simple Additive Weighting) methods. The Entropy method is applied to determine the weight of each criterion objectively based on data variability, while the SAW method is used to calculate the final score of each candidate by normalizing evaluation values and multiplying them by the determined criterion weights. The computed scores are then summed to produce the final ranking of candidates. The final results, presented in the form of candidate rankings, are expected to provide accurate recommendations and assist the company in making recruitment decisions more effectively, efficiently, and free from subjective bias.

2. RESEARCH METHOD

The research framework plays a crucial role in guiding the research journey by providing a logical and conceptual structure. As a theoretical and conceptual foundation, the research framework helps researchers detail the main variables, the relationships between variables, and the theories relevant to the research topic. By establishing a research framework, researchers can identify knowledge gaps, formulate appropriate research questions, and guide the selection of the most suitable research methods. Its flexible nature allows researchers to adapt the framework as the research progresses, ensuring consistency and cohesion throughout the research approach. Thus, the research framework not only serves as a conceptual guide but also as a tool that supports the success of the research by providing a solid foundation for interpreting results and contributing new knowledge to a field. The research framework is shown in Figure 1 below.

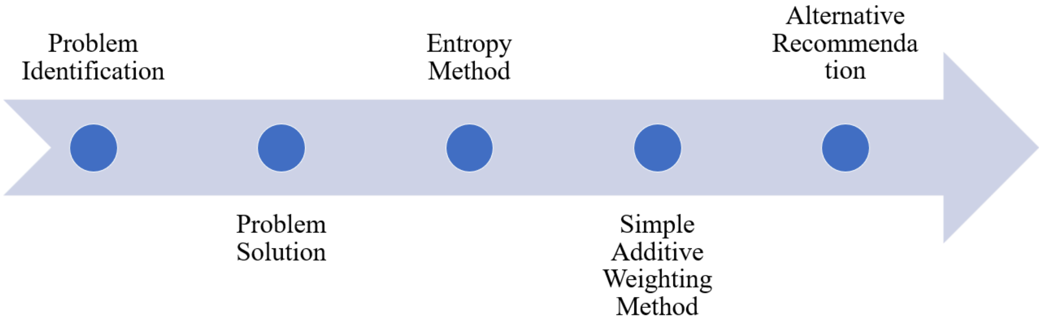

Figure 1. Research Framework.

The research framework above illustrates the systematic stages used in the decision-making process to determine the recruitment of video editing staff. Each step is designed to ensure that the selection of candidates is

E-ISSN 2722-7162
P-ISSN 2089-5615

carried out objectively, measurably, and in accordance with the company's needs. This research framework can provide a more effective, transparent, and data-driven approach to employee selection.

The dataset in this study consists of 9 candidates who participated in the selection process for the position of Video Editing Staff, with all data obtained directly from the company that is the subject of the study. Candidate assessment information was collected through two main methods, namely interviews with the Human Resource (HR) department to explore personal and professional competency aspects such as communication, discipline, and work experience, as well as portfolio reviews to evaluate technical editing skills, visual creativity, storytelling, and the quality of video production. The collected data was then processed as the basis for objective assessment and alternative ranking using the MCDM method established in this study.

2.1. Problem Identification

In the process of problem identification, direct interviews were conducted with the company to gain a deeper understanding of the challenges faced in the staff video editing recruitment process. Based on the results of these interviews, it was found that the current selection process still relies on reviewing application documents and evaluating sample video editing work submitted by applicants. This approach is considered not fully capable of providing an objective overview of the candidates' overall competencies, particularly in terms of technical skills, creativity in constructing visual narratives, and the suitability of candidates with the company's needs and quality standards. In addition, the limitations of the assessment methods used also have the potential to create subjectivity in decision-making, so the company needs a more structured and accurate decision support system that can improve the effectiveness of the video editing staff selection process.

2.2. Problem Solution

Based on the issues found in the video editing staff recruitment process, this study provides a solution by designing a Decision Support System model capable of assisting the company in evaluating candidates more objectively and systematically. This system is designed to integrate various assessment criteria relevant to the competency requirements in the field of video editing, thus being able to produce more accurate recommendations in selecting the best candidates. This study uses a combination of the Entropy and Profile Matching methods, where the Entropy method plays a role in determining the weight of criteria objectively based on the variability of assessment data, while the Profile Matching method is used to measure the level of suitability of each candidate's abilities to the competency standards set by the company. By combining these two methods, the resulting system is expected to improve decision-making quality, minimize subjective bias, and support the company in obtaining video editing staff who best match operational needs.

2.3. Entropy Method

The Entropy weighting method is an objective approach used in decision support systems to determine the importance level of each criterion based on the information contained in the evaluation data of alternatives. The basic concept of this method originates from Shannon's information theory, which states that the higher the level of uncertainty or variation in data for a criterion, the greater the information it carries. The Entropy method can minimize the influence of subjectivity in weighting and provide more objective results, based on the actual data characteristics used in the decision-making process. The process of calculating criteria weights using the Entropy method consists of the following stages:

In the initial stage, a decision matrix is prepared containing the assessment values of each alternative against each criterion. This data is obtained from actual evaluation results or candidate assessment questionnaires. The matrix serves as the basis for calculating weights using the following equation.

$$X\left[x_{11} \;\cdots\; x_{1n} \;\vdots\; \ddots \;\vdots\; x_{m1} \;\cdots\; x_{mn}\right] \qquad (1)$$

Each value in the decision matrix is then normalized to eliminate differences in units between criteria. This normalization is done by dividing the value of an alternative by the total value in the same criteria column. Normalization is necessary so that each value is within the same range and scale, using the following equation.

$$k_{ij} \frac{x_{ij}}{\sum_{j=1}^{n} x_{ij}} \qquad (2)$$

 E-ISSN 2722-7162
P-ISSN 2089-5615

Entropy values are calculated to determine the level of uncertainty or information contained in each criterion. If the values across alternatives tend to be uniform, the entropy is high, indicating that the criterion is less informative. Conversely, low entropy indicates that the criterion contributes significantly to differentiating the alternatives using the following equation.

$$E_j - \frac{1}{\ln ln\, m} \sum_{i=1}^{n} k_{ij} \ln ln\, (k_{ij}) \quad (3)$$

From the entropy values, the degree of information diversity is then calculated. The larger the degree of divergence, the more important the criterion is in the evaluation process. This stage serves as the basis for determining the final weights using the following equation.

$$D_j 1 - E_j \quad (4)$$

Weights are calculated based on the ratio of the contribution of each criterion's degree of divergence to the total diversity of all criteria. The result of the weight calculation is an objective representation that reflects the level of influence of a criterion in decision-making using the following equation.

$$w_j \frac{D_j}{\sum_{j=1}^{n} D_j} \quad (5)$$

The Entropy Method has become a superior alternative in decision support systems because it can enhance the accuracy, objectivity, and validity of assessment results, especially in cases involving multiple criteria and quantitative data.

2.4. Simple Additive Weighting Method

The Simple Additive Weighting (SAW) method is one of the most widely used techniques in Multi-Attribute Decision Making (MADM) because of its simplicity and ability to provide a clear ranking of alternatives. SAW works by evaluating alternatives based on a set of criteria that have been assigned specific weights according to their level of importance. To ensure that criteria with different measurement scales can be compared fairly, a normalization process is carried out to convert all values into a uniform scale. Each normalized value is then multiplied by the corresponding criterion weight, and the results are summed to obtain the final score for each alternative. The alternative with the highest total score is selected as the best option. This method is appreciated for its logical calculation process, transparency, and suitability for various decision-making scenarios such as selection, evaluation, and prioritization tasks.

The first stage in the SAW method is the preparation of the decision matrix, which involves collecting the values of each alternative against each criterion and arranging them in a table. This matrix serves as the basis for calculations to compare alternatives in a structured and objective manner. At this stage, each input value represents the performance of the alternative according to the established assessment indicators using equation (1).

The second stage is the normalization of the decision matrix, which aims to equalize the scale of values across criteria because each criterion may have different units or ranges of values. The normalization process is carried out using specific formulas for both benefit and cost criteria, so that all values are converted into a comparable form and can be treated proportionally. The result of normalization produces a new matrix that represents the relative performance of each alternative using the following equation.

$$r_{ij} \frac{x_{ij}}{x_{ij}} \quad (6)$$

$$r_{ij} \frac{min\, x_{ij}}{x_{ij}} \quad (7)$$

The final stage is the calculation of the preference value, which is the process of multiplying each normalized value by the criteria weights that have been previously determined, and then summing all of these multiplication results to obtain the final score for each alternative. This score reflects the overall feasibility of the alternatives based on all the evaluated criteria. The alternative with the highest score is then determined as the best choice in the decision-making process using the following equation.

E-ISSN 2722-7162
P-ISSN 2089-5615

$$V_i = \sum_{j=1}^{n} w_j . r_{ij} \quad (8)$$

The SAW method is an effective and easy-to-apply approach in the multi-criteria decision-making process because it offers clear, systematic, and transparent calculations. Through the stages of preparing the decision matrix, normalizing values, and calculating preference values based on criteria weights, this method is able to produce an objective and measurable ranking of alternatives. The main advantage of SAW lies in the simplicity of its concept and its ability to accommodate various types of criteria, both benefits and costs, making it highly suitable for a range of evaluation, selection, and decision-prioritization needs. Thus, the SAW method can be a reliable solution to support more effective, efficient, and minimally biased decision-making.

2.5. Alternative Recommendation

Alternative Recommendations are an important aspect of the decision-making process, where various options or solutions are proposed as alternatives to address a problem or achieve a specific goal. In this study, alternative recommendations are presented based on the final calculations of the entropy and profile matching methods. This process allows decision-makers to consider various options holistically before making a final decision. By providing alternative recommendations, an organization or individual can increase flexibility, anticipate environmental changes, and ensure that the decisions made can have a positive impact in achieving the desired goals.

3. RESULT AND DISCUSSION

The implementation of a DSS for web-based Video Editing staff recruitment using the SAW method serves as an innovative solution in screening and selecting candidates who best meet team needs. By utilizing the SAW method, this implementation will process various candidate evaluation criteria through normalization and calculation of preference values based on predetermined criterion weights. Users, whether management or the company, can quickly and efficiently assess the performance and eligibility of each candidate in the form of objective rankings, saving time and improving accuracy in the recruitment process. With a web-based interface, this implementation also allows for easy access and usage flexibility, providing a better experience in managing and optimizing the video editing staff selection process.

3.1. Data Collection

Data collection in this study was conducted to obtain accurate and relevant information regarding the staff video editing recruitment process at CV XYZ. Data was collected through assessment forms completed by management or the recruitment team, which covered various aspects of candidates' competencies according to the company's needs. The forms included evaluations of technical editing skills, creativity, work experience, discipline, as well as the ability to work in a team. In addition, direct observation and portfolio review were conducted to ensure that the skills matched the expected performance standards. In addition to filling out forms, data is also obtained through interviews and practical tests to evaluate the actual abilities of prospective applicants in real work situations. Interviews are conducted to assess the candidate’s character, motivation, and cultural fit with the company environment. The assessment results are then compiled and organized systematically, making them ready for use in analysis and decision-making processes. With structured and comprehensive data collection, the results obtained are expected to support the objective and accountable determination of the best candidates. Table 1 presents the assessment data of the available candidates.

Table 1. Candidate evaluation data

Candidate	**Criteria**				
	Editing	***Creativity***	***Experience***	***Discipline***	***Teamwork***
Andi Saputra	85	80	75	90	88
Budi Santoso	78	82	72	85	80
Candra Wijaya	92	88	80	87	86
Dimas Pratama	75	74	70	82	78
Eko Firmansyah	88	90	85	89	92
Fajar Hidayat	80	76	78	84	81
Galang Ramadhan	70	72	65	80	75
Heri Kurniawan	84	86	77	88	84

 E-ISSN 2722-7162
P-ISSN 2089-5615

Candidate	Criteria				
	Editing	***Creativity***	***Experience***	***Discipline***	***Teamwork***
Indra Mahendra	90	85	83	91	89

The assessment data compiled in the table provides a comprehensive overview of each candidate's performance based on the established criteria, enabling the evaluation process to be conducted in a more structured and objective manner. Through this data, management can easily compare the abilities, experience, and work attitude aspects of each candidate to determine the most outstanding candidate who best meets the company's needs. Systematic data compilation also plays an important role as a basis for analysis in the selection process, ensuring that the decisions made are more accurate, transparent, and accountable. Thus, this assessment data becomes a key element in supporting the success of the Staff Video Editing recruitment process at CV XYZ.

3.2. Calculation of Criteria Weights Using the Entropy Method

The calculation of criteria weights using the Entropy method is carried out to determine the importance level of each criterion objectively based on the variation in the available assessment data. This method is based on the concept that the higher the level of uncertainty or diversity in the data of a criterion, the greater its contribution to the decision-making process, resulting in a higher weight assigned. With this approach, the weights produced do not depend on the assessor's subjectivity but are purely based on the characteristics and variations of the actual data, thus providing a strong and rational basis for the evaluation and ranking of alternatives.

The calculation of criterion weights using the Entropy method is carried out through several stages of mathematical computation based on predetermined equations. Construct a decision matrix containing the evaluation values of each alternative against each criterion using equation (1).

$X[85\ 80\ 78\ 82\ 92\ 88\ \ 75\ 90\ 72\ 85\ 80\ 87\ \ 88\ 80\ 86\ \ 75\ 74\ 88\ 90\ 80\ 76\ \ 70\ 82\ 85\ 89\ 78\ 84\ \ 78\ 92\ 81\ \ 70\ 72\ 84\ 86\ 90\ 85\ \ 65\ 80$

The next step in the entropy method is to normalize the values in each criterion column using equation (2), and the results of the normalization calculations are presented in Table 2.

$k_{11} \frac{85}{742}\ 0.1146$

Table 2. Normalization results of the entropy method

Candidate	Criteria				
	Editing	***Creativity***	***Experience***	***Discipline***	***Teamwork***
Andi Saputra	0.1146	0.1091	0.1095	0.1160	0.1169
Budi Santoso	0.1051	0.1119	0.1051	0.1095	0.1062
Candra Wijaya	0.1240	0.1201	0.1168	0.1121	0.1142
Dimas Pratama	0.1011	0.1010	0.1022	0.1057	0.1036
Eko Firmansyah	0.1186	0.1228	0.1241	0.1147	0.1222
Fajar Hidayat	0.1078	0.1037	0.1139	0.1082	0.1076
Galang Ramadhan	0.0943	0.0982	0.0949	0.1031	0.0996
Heri Kurniawan	0.1132	0.1173	0.1124	0.1134	0.1116
Indra Mahendra	0.1213	0.1160	0.1212	0.1173	0.1182

The next stage in the entropy method is to calculate the entropy value for each criterion based on (3), and the results of the entropy value calculations are presented in Table 3.

$E_1 - \frac{1}{\ln ln\, 9} (-\ 2.1937)\ 0.9984$

Table 3. Results of entropy values using the entropy method

Criteria				
Editing	***Creativity***	***Experience***	***Discipline***	***Teamwork***
0.9984	0.9987	0.9986	0.9996	0.9991

The next step in the entropy method is to calculate the degree of diversification using equation (4), and the results of the degree of diversification calculation are presented in Table 4.

$D_1 1\ -\ 0.9984\ 0.0016$

Table 4. Results of the entropy method's degree of diversification values

E-ISSN 2722-7162
P-ISSN 2089-5615

Criteria				
Editing	***Creativity***	***Experience***	***Discipline***	***Teamwork***
0.0016	0.0013	0.0014	0.0004	0.0009

The final stage in the entropy method involves calculating the objective weights of each criterion using (5), and the results of the weight calculations are shown in Table 5.

$w_1 \frac{0.0016}{0.0056}\ 0.2867$

Results of the entropy method weight values

Table 5. Results of the entropy method weight values

Criteria				
Editing	***Creativity***	***Experience***	***Discipline***	***Teamwork***
0.2867	0.2248	0.2573	0.0685	0.1626

The calculation of criteria weights using the Entropy method produced values that indicate the level of contribution of each criterion to the decision-making process. Based on the calculation results, the Editing criterion has the highest weight at 0.2867, followed by Experience with a weight of 0.2573, and Creativity with a weight of 0.2248, indicating that these three criteria have the greatest influence due to having higher data variation compared to the other criteria. Meanwhile, the Teamwork criterion has a weight of 0.1626, and Discipline has the lowest weight at 0.0685, indicating that these two criteria have the smallest level of data diversity in the evaluation process, so their informational contribution to the final decision is relatively lower. Thus, these weight results can serve as an objective basis for determining the priority of alternative assessments more accurately and measurably.

3.3. Candidate Selection Assessment Using the SAW Method

Candidate selection assessment using the SAW method is a systematic approach in the multi-criteria decision-making process aimed at evaluating and determining the best candidates based on a set of established evaluation indicators. The SAW method works by normalizing the scores of each alternative across all criteria and then accumulating them through weighted calculations to produce a final score that can be used to objectively rank the candidates. This approach provides a more measurable, transparent, and efficient evaluation solution, making it highly suitable for use in the human resource selection process that requires consideration of multiple competence aspects simultaneously. By using the SAW method, the decisions made become more accurate because each candidate is assessed fairly according to the level of fulfillment of the predetermined criteria.

The candidate selection assessment process using the SAW method begins by preparing a decision matrix that contains the values of each alternative against all evaluation criteria using equation (1); the SAW decision matrix is the same as the entropy method decision matrix. Once the decision matrix is formed, the next step is to perform normalization to adjust the values of the alternatives for each criterion into a uniform scale using equation (6). Since all criteria are of the benefit type, the results of the SAW normalization calculation are displayed in Table 6.

$r_{11} \frac{85}{92}\ 0.9239$

Table 6. Normalization results of the SAW method

Candidate	Criteria				
	Editing	***Creativity***	***Experience***	***Discipline***	***Teamwork***
Andi Saputra	0.9239	0.8889	0.8824	0.9890	0.9565
Budi Santoso	0.8478	0.9111	0.8471	0.9341	0.8696
Candra Wijaya	1.0000	0.9778	0.9412	0.9560	0.9348
Dimas Pratama	0.8152	0.8222	0.8235	0.9011	0.8478
Eko Firmansyah	0.9565	1.0000	1.0000	0.9780	1.0000
Fajar Hidayat	0.8696	0.8444	0.9176	0.9231	0.8804
Galang Ramadhan	0.7609	0.8000	0.7647	0.8791	0.8152
Heri Kurniawan	0.9130	0.9556	0.9059	0.9670	0.9130
Indra Mahendra	0.9783	0.9444	0.9765	1.0000	0.9674

E-ISSN 2722-7162
P-ISSN 2089-5615

The normalized results are then combined with the weights of each criterion in the process of calculating the final preference values using equation (7), and the calculated preference values are presented in Table 7.

$V_i (0.2649) + (0.1998) + (0.2271) + (0.0678) + (0.1556)\ 0.9151$

Table 7. Preference value results of the SAW method

Candidate	Preference Value
Andi Saputra	0.9151
Budi Santoso	0.8713
Candra Wijaya	0.9662
Dimas Pratama	0.8301
Eko Firmansyah	0.9860
Fajar Hidayat	0.8817
Galang Ramadhan	0.7876
Heri Kurniawan	0.9245
Indra Mahendra	0.9699

The calculation process using the SAW method has produced final preference values for each alternative based on a combination of normalization results and criteria weighting. This approach ensures that each assessment value is processed proportionally according to the importance level of each criterion, resulting in a more objective and measurable evaluation. Through systematic calculation stages and referring to mathematical equations, the SAW method provides a strong foundation to support the candidate selection process in a transparent and accountable manner, and can be relied upon to help decision-makers determine more accurate and consistent evaluation results.

3.4. Candidate Selection Ranking

The candidate selection ranking is a crucial final stage in the evaluation process to determine the priority order of candidates based on the assessment results conducted against several relevant competency criteria. In the context of Video Editing Staff Recruitment, the ranking process is carried out by combining each candidate's final scores based on the main criteria used in the assessment, namely Editing, Creativity, Experience, Discipline, and Teamwork, so that the scores obtained reflect both technical abilities and the quality of character required for the position. This ranking serves as a basis for making more rational and objective decisions, as it provides a clear picture of the relative strengths of candidates based on measurable calculations. With systematic ranking in place, the selection process can be carried out more efficiently and transparently, reducing subjective bias, and ensuring that the candidates chosen truly possess the best competencies and high potential to support content production quality and team work dynamics. Through this approach, the recruitment process for Video Editing Staff becomes more accountable and can be professionally justified.

This ranking result serves as a strong reference in determining the most qualified candidate for the Video Editing Staff position, and the final ranking results are shown in Figure 2.

Figure 2. Alternative ranking results.

 E-ISSN 2722-7162
P-ISSN 2089-5615

The candidate ranking results in the Video Editing Staff Recruitment process are based on the final preference scores obtained through the SAW method calculation. Each candidate shows different final scores, reflecting varying levels of fulfillment of the Editing, Creativity, Experience, Discipline, and Teamwork criteria. Candidate A1 (Bagas Dwi Pratama) achieved the highest score of 0.986, followed by A2 (Rizky Ananda Putra) with a score of 0.9699, and A3 (Fajar Setyo Nugroho) with a score of 0.9662, indicating a more consistent competency achievement compared to the other candidates. Meanwhile, candidates A4 (Dimas Firmansyah), A5 (Yoga Pratama), A6 (Andi Saputra), A7 (Ferdian Maulana), A8 (Rama Aditya), and A9 (Rendi Kurniawan) scored between 0.9245 and 0.7876, indicating variations in meeting the assessment criteria. Overall, these results provide an objective picture of the differences in each candidate's capability to meet the requirements of the Video Editing Staff position, as well as the final ranking results. In general, the graph depicts the distribution of scores showing differences in the abilities and characteristics of each candidate in meeting the needs of the Video Editing Staff position, and serves as a basis for objective evaluation in the selection process.

3.5. Sensitivity Analysis

Sensitivity Analysis in the context of MCDM is the evaluation process used to test how changes in the weights of criteria or the values of alternatives can affect the final ranking results in decision making. This analysis is an important component because, in many cases, MCDM decisions heavily depend on the criteria weights, which are often determined through subjective, objective, or combined methods, so even small changes in weights or inputs can result in significant differences in alternative rankings. By conducting sensitivity analysis, researchers and decision-makers can assess the stability and reliability of the model, identify the most influential criteria, and evaluate potential risks of uncertainty in the assessment process. In addition, sensitivity analysis helps assess the consistency between the methods used and the actual data structure, ensuring that the decision outcomes are not biased toward a particular criterion or influenced by data imbalances. In modern MCDM research, sensitivity analysis also plays a role in comparing the performance of several ranking methods and proving the robustness of the model before it is implemented in real-world cases, thus producing a decision support system that is more transparent, accountable, and suitable for strategic decision-making.

Sensitivity analysis in the context of changes in criteria weights is carried out to evaluate the stability and consistency of ranking results when there are modifications in the relative importance between criteria. In this scenario, weight adjustments are made by adding a weight of 0.05 to one of the criteria, for example Creativity, and simultaneously reducing the weight by 0.05 from other criteria such as Editing, Experience, Discipline, or Teamwork alternately, so that the total weight remains at 1. This process allows researchers to observe whether small changes in the perceived importance of criteria can affect the ranking of alternatives produced by the MCDM model. If the final ranking remains stable despite fluctuations in weights, the model is considered to have high resilience to changes in decision-makers' preferences; conversely, if a weight change of 0.05 results in a significant shift in ranking, the ranking system is categorized as sensitive and requires a reevaluation regarding the weighting structure, the addition of objective weighting methods, or adjustments to the aggregation mechanism. This weight change scenario becomes an important component to ensure the reliability and validity of decisions in the multi-criteria decision-making process. The results of this sensitivity analysis provide a clearer picture of the robustness and reliability of the proposed decision support system. The results of the weight changes for the ten test scenarios are presented in the following table.

Table 8. Scenario of criteria weight changes

Scenario of Weight Change	Criteria				
	Editing	***Creativity***	***Experience***	***Discipline***	***Teamwork***
+0.05 Editing	0.3367	0.2248	0.2573	0.0685	0.1626
+0.05 Creativity	0.2867	0.2748	0.2573	0.0685	0.1626
+0.05 Experience	0.2867	0.2248	0.3073	0.0685	0.1626
+0.05 Discipline	0.2867	0.2248	0.2573	0.1185	0.1626
+0.05 Teamwork	0.2867	0.2248	0.2573	0.0685	0.2126
−0.05 Editing	0.2367	0.2248	0.2573	0.0685	0.1626
−0.05 Creativity	0.2867	0.1748	0.2573	0.0685	0.1626
−0.05 Experience	0.2867	0.2248	0.2073	0.0685	0.1626

 E-ISSN 2722-7162
P-ISSN 2089-5615

Scenario of Weight Change	Criteria				
	Editing	*Creativity*	*Experience*	*Discipline*	*Teamwork*
−0.05 Discipline	0.2867	0.2248	0.2573	0.0185	0.1626
−0.05 Teamwork	0.2867	0.2248	0.2573	0.0685	0.1126

To ensure that the selection process for Video Editor staff is conducted objectively and does not rely on a single weighting structure, a sensitivity analysis of the criteria weights is carried out to evaluate the stability of the alternative rankings in the SAW method. This analysis is performed by creating ten weight change scenarios, which involve increasing and decreasing the weights by 0.05 for each criterion separately (Editing, Creativity, Experience, Discipline, and Teamwork), while keeping the other weights constant. The aim is to see the extent to which changes in weights affect the final scores and the ranking positions of each candidate. This approach is important because it shows which candidates are stable against weight changes and which are sensitive to adjustments in certain criteria. Figure 3 is a graphical visualization of the SAW score changes for each candidate across the ten tested scenarios.

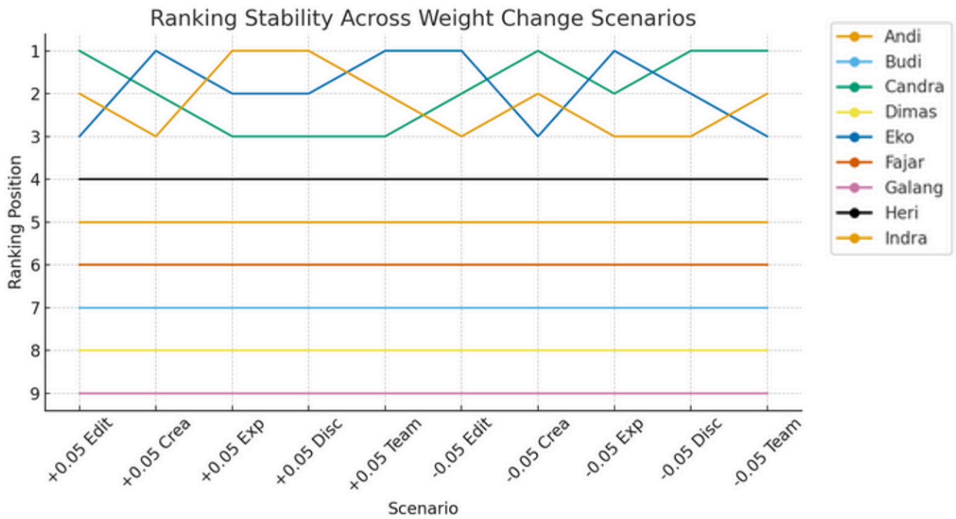

Figure 3. Alternative ranking results based on sensitivity analysis.

The sensitivity analysis results indicate that a change in criteria weights of ±0.05 has varied effects on the ranking positions of candidates in the SAW method. In general, most candidates such as Andi Saputra, Budi Santoso, Dimas Pratama, Fajar Hidayat, Galang Ramadhan, and Heri Kurniawan show stable ranking positions in each scenario, indicating that their total score contributions are not sensitive to fluctuations in relative weights among the criteria. Conversely, candidates who experienced significant changes are Candra Wijaya, Eko Firmansyah, and Indra Mahendra, who shift between ranks 1 to 3 across various weight change scenarios. This indicates that these three candidates have relatively balanced performance, so small shifts in weights for certain criteria greatly affect their competitive advantages. Increasing the weight of Creativity or Teamwork increases Eko Firmansyah's chances of ranking first, whereas decreasing the weight of Editing or increasing the weight of Discipline strengthens Candra Wijaya's position at the top. This variation shows that in the case of staff performance evaluation, the final decision is greatly influenced by the organization's preference for certain criteria priorities, making sensitivity analysis important to ensure results that are objective, transparent, and able to reflect different policy scenarios before strategic decisions are made.

3.6. Discussion

The research applying the SAW method in the Video Editing Staff Recruitment process shows that using a quantitative approach in decision-making can enhance the objectivity of candidate evaluations. In this study, five criteria considered most relevant to the position's requirements, namely Editing, Creativity, Experience, Discipline, and Teamwork, were used as the basis for assessment through objective weighting generated by the Entropy method. The use of Entropy allows for the identification of the variation level of information for each criterion, so that the weights assigned reflect their actual contribution in differentiating candidates' abilities. Thus, the evaluation process not only relies on the subjectivity of the assessors but also integrates quantitative data to achieve more rational and scientifically accountable evaluation results.

E-ISSN 2722-7162
P-ISSN 2089-5615

In the SAW calculation process, the normalization stage becomes a crucial element because it converts candidate evaluation scores into an equivalent scale, allowing the weighting aggregation process to be carried out correctly. The calculation results produce a final preference score for each candidate, indicating their relative suitability based on the specified evaluation criteria. These findings show that candidates with higher final scores have more consistent abilities in meeting the competency standards of the position. Furthermore, the combination of Entropy and SAW provides clarity in understanding the contribution of each criterion to the final decision, such as the dominance of the Editing and Experience criteria, which received high weights compared to Discipline and Teamwork, which tend to have lower score variations.

Interpretation of the ranking results shows that candidates who achieve the highest scores in the selection process appear to excel comprehensively across most of the evaluated criteria, not just in a specific aspect. This confirms that a multi-criteria approach is more effective compared to a single assessment that relies solely on technical expertise. Furthermore, the results of this study demonstrate that the SAW model can be a flexible and easily implementable selection tool in various recruitment contexts, especially in creative fields such as Video Editing Staff, which require a combination of technical skills and soft skills. Thus, the evaluation model applied not only helps decision-makers in selecting the best candidates but also reduces the risk of bias and inconsistency in the employee selection process.

The sensitivity analysis results of the rankings indicate that changes in the criterion weights by ±0.05 have varying impacts on the candidates' ranking positions in the SAW method. In general, candidate Eko Firmansyah consistently occupies the first rank in almost all scenarios, confirming the stability of his performance and insensitivity to shifts in criteria priorities. Other candidates such as Candra Wijaya, Heri Kurniawan, and Indra Mahendra also show a high level of stability, with relatively minor score changes and remaining in the top three positions in most scenarios. In contrast, candidates Galang Ramadhan, Dimas Pratama, and Fajar Hidayat experience more noticeable ranking fluctuations when certain criterion weights are adjusted, particularly when the Editing weight is decreased or the Creativity weight is increased. These findings indicate that high-weight criteria have the greatest influence on the final ranking structure, and organizations can consider different policy scenarios according to the need to emphasize certain competencies, such as focusing on technical quality (Editing) or team collaboration (Teamwork). Overall, this sensitivity analysis demonstrates that the model used is fairly stable, but it is still important to assess the impact of weighting changes to ensure the transparency, fairness, and robustness of decision recommendations.

4. CONCLUSION

The research results and data processing using the SAW method with criteria weights determined objectively through the Entropy method conclude that a quantitative approach in Video Editing Staff Recruitment selection can produce candidate evaluations that are accurate, transparent, and free from assessor subjectivity. The Entropy method successfully generated final weights for each criterion, namely Editing (0.2867), Creativity (0.2248), Experience (0.2573), Discipline (0.0685), and Teamwork (0.1626), which were then used as the basis for calculating preference scores using the SAW method. The selection results show that Eko Firmansyah achieved the highest score of 0.986 and ranked first, followed by Indra Mahendra with a score of 0.9699 in second place, and Candra Wijaya with a score of 0.9662 in third place, indicating superior competency quality compared to the other candidates. Practically, the results of this study imply that Multi-Criteria Decision Making (MCDM)-based decision-making methods, such as the Entropy–SAW integration, can be used as a strategic tool for companies to enhance the effectiveness of the recruitment process, accelerate the selection process without reducing the accuracy of assessments, and ensure that the selected candidates are individuals with the best competency fit based on measurable objective indicators. The integration of this method also has the potential to be applied to the selection process for other positions or human resource decision-making on a larger organizational scale.

As a direction for future development, the decision support system for recruiting Video Editing Staff has the potential to be integrated with a Human Resource Information System (HRIS) so that the processes of candidate data management, scheduling, and performance tracking can be carried out automatically and more efficiently. In addition, further research can compare the results of the MCDM approach with machine learning methods such as Random Forest, SVM, or Artificial Neural Networks to evaluate the accuracy level and predict selection outcomes based on historical data. Adding more comprehensive assessment criteria, such as artistic creativity, teamwork skills, editing style, and adaptability to content trends, is also recommended to improve evaluation quality and reflect the dynamic and competitive needs of the creative industry.

REFERENCES

[1] M. Hatami, Q. Qu, Y. Chen, H. Kholidy, E. Blasch, and E. Ardiles-Cruz, “A Survey of the Real-Time

Metaverse: Challenges and Opportunities," *Future Internet*, vol. 16, no. 10. p. 379, 2024. doi: 10.3390/fi16100379.

[2] R. Chataut, M. Nankya, and R. Akl, "6G Networks and the AI Revolution—Exploring Technologies, Applications, and Emerging Challenges," *Sensors*, vol. 24, no. 6. p. 1888, 2024. doi: 10.3390/s24061888.

[3] O. Bar-Tal *et al.*, "Lumiere: A Space-Time Diffusion Model for Video Generation," in *SIGGRAPH Asia 2024 Conference Papers*, 2024. doi: 10.1145/3680528.3687614.

[4] M. Wang, X. Li, M. Lei, L. Duan, and H. Chen, "Human health risk identification of petrochemical sites based on extreme gradient boosting," *Ecotoxicol. Environ. Saf.*, vol. 233, p. 113332, 2022, doi: https://doi.org/10.1016/j.ecoenv.2022.113332.

[5] J. Zhang, J. Liu, S. Hirdaris, M. Zhang, and W. Tian, "An interpretable knowledge-based decision support method for ship collision avoidance using AIS data," *Reliab. Eng. Syst. Saf.*, vol. 230, p. 108919, 2023.

[6] R. R. Oprasto, J. Wang, A. F. O. Pasaribu, S. Setiawansyah, R. Aryanti, and Sumanto, "An Entropy-Assisted COBRA Framework to Support Complex Bounded Rationality in Employee Recruitment," *Bull. Comput. Sci. Res.*, vol. 5, no. 3 SE-, pp. 207–218, Apr. 2025, doi: 10.47065/bulletincsr.v5i3.505.

[7] R. Rosati *et al.*, "From knowledge-based to big data analytic model: a novel IoT and machine learning based decision support system for predictive maintenance in Industry 4.0," *J. Intell. Manuf.*, vol. 34, no. 1, pp. 107–121, Jan. 2023, doi: 10.1007/s10845-022-01960-x.

[8] J. Więckowski, B. Kizielewicz, B. Paradowski, A. Shekhovtsov, and W. Sałabun, "Application of Multi-Criteria Decision Analysis to Identify Global and Local Importance Weights of Decision Criteria," *Int. J. Inf. Technol. Decis. Mak.*, vol. 22, no. 06, pp. 1867–1892, Nov. 2023, doi: 10.1142/S0219622022500948.

[9] C. Kelly *et al.*, "Capturing big fisheries data: Integrating fishers' knowledge in a web-based decision support tool," *Front. Mar. Sci.*, vol. Volume 9-, 2022, [Online]. Available: https://www.frontiersin.org/journals/marine-science/articles/10.3389/fmars.2022.1051879

[10] M. O. Esangbedo and J. Wei, "Grey hybrid normalization with period based entropy weighting and relational analysis for cities rankings," *Sci. Rep.*, vol. 13, no. 1, p. 13797, 2023, doi: 10.1038/s41598-023-40954-4.

[11] F. Ulum, J. Wang, S. Setiawansyah, and R. Aryanti, "Selection of the Best E-Commerce Platform Based on User Ratings using a Combination Entropy and SAW Methods," *Bull. Informatics Data Sci.*, vol. 3, no. 2, pp. 44–53, 2024.

[12] B. Kizielewicz and W. Sałabun, "SITW Method: A New Approach to Re-identifying Multi-criteria Weights in Complex Decision Analysis," *Spectr. Mech. Eng. Oper. Res.*, vol. 1, no. 1 SE-Articles, pp. 215–226, Sep. 2024, doi: 10.31181/smeor11202419.

[13] R. Trisudarmo, E. Sediyono, and J. E. Suseno, "Combination of Fuzzy C-Means Clustering Methods and Simple Additive Weighting in Scholarship of Decision Support Systems," in *1st Annual International Conference on Natural and Social Science Education (ICNSSE 2020)*, 2021, pp. 161–169. doi: 10.2991/assehr.k.210430.025.

[14] K. Aliyeva, A. Aliyeva, R. Aliyev, and M. Özdeşer, "Application of Fuzzy Simple Additive Weighting Method in Group Decision-Making for Capital Investment," *Axioms*, vol. 12, no. 8. 2023. doi: 10.3390/axioms12080797.

[15] M. Adiputra and Y. H. Putra, "Comparison of SAW and MABAC Methods in Determining Strategic Tourism Destinations with Entropy Weighting Integration," in *2024 International Conference on Informatics Engineering, Science & Technology (INCITEST)*, 2024, pp. 1–9. doi: 10.1109/INCITEST64888.2024.11121470.

[16] D. D. Trung, N. T. P. Giang, D. Van Duc, T. Van Dua, and H. X. Thinh, "The Use of SAW, RAM and PIV Decision Methods in Determining the Optimal Choice of Materials for the Manufacture of Screw Gearbox Acceleration Boxes," *Int. J. Mech. Eng. Robot. Res.*, vol. 13, no. 3, pp. 338–347, 2024, doi: 10.18178/ijmerr.13.3.338-347.

[17] D.-Y. Zhao, Y.-Y. Ma, and H.-L. Lin, "Using the Entropy and TOPSIS Models to Evaluate Sustainable Development of Islands: A Case in China," *Sustainability*, vol. 14, no. 6. 2022. doi: 10.3390/su14063707.

[18] C. Gao, H. Elzarka, H. Yan, D. Chakraborty, and C. Zhou, "A Hybrid TOPSIS-Structure Entropy Weight Group Subcontractor Selection Model for Large Construction Companies," *Buildings*, vol. 13, no. 6. 2023. doi: 10.3390/buildings13061535.

[19] S. Klongboonjit and T. Kiatcharoenpol, "Application of Two-Step Entropy–TOPSIS Method and Complete Linkage Clustering for Water-Pumping Windmill Investment on Thailand Peninsula," *Sustainability*, vol. 16, no. 23. p. 10616, 2024. doi: 10.3390/su162310616.