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ANALYSIS OF DETERMINING PERMANENT EMPLOYEES USING OCRA (OPERATIONAL COMPETITIVENESS RATING ANALYSIS) METHODOLOGY

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Abstract
The determination of permanent employees is a crucial strategic decision for every organization. This decision affects productivity, efficiency, and work culture within the company. This study aims to analyze and determine permanent employees using the OCRA (Operational Competitiveness Rating Analysis) Method. OCRA is a method that assesses employee performance based on indicators of Length of Work, Work Loyalty, Age, Last Education, Work Performance, Communication Skills, and Teamwork Skills that are relevant to the operations of a company. In this study, employee performance data is collected and analyzed using a quantitative approach. Each employee is assessed based on a number of criteria that include productivity, quality of work, compliance with procedures, and contribution to the team and the company as a whole. The results of the OCRA analysis are then used to identify employees who have superior performance and deserve to be considered as permanent employees. The results of the study show that the OCRA Method is able to provide an objective and measurable assessment in determining permanent employees. A3-employees with the highest OCRA scores are proven to have consistent performance and a significant contribution to the achievement of company goals. This study concludes that the use of the OCRA Method in determining permanent employees can increase transparency and accuracy in human resource management decision-making.
Keywords: *OCRA, Employee Performance, Ranking, Preferences*

INTRODUCTION

Industrial collaborative robots will be used in unstructured scenarios and a large variety of tasks in the near future [1]. In the era of globalization and increasingly fierce business competition, the success of an organization no longer only depends on traditional factors such as capital and technology, but is also greatly influenced by human factors. Qualified employees who have competencies that match the demands of the job are the main key in achieving the company's goals. Therefore, the right employee selection and placement process is very important for the success of an organization.

Companies today often face various challenges in the employee selection process, especially in determining permanent employees who have competencies and qualifications that suit the company's needs. Selection methods that are still subjective and lack of effective use of operational data can lead to errors in decision-making, which can ultimately have a negative impact on organizational performance. In this context, the development of Decision Support Systems (SPK) has become an urgent need for the company. SPK can help companies make more objective and data-based decisions in the selection process for permanent employees. One of the methods that can be used in SPK is the Operational

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Competitiveness Rating Analysis (OCRA) method, which is able to measure employee operational competence based on certain criteria that have been set.

Some previous studies related to employee selection problems include the application of the Operational Competitiveness Rating Analysis (OCRA) method in the decision to recommend employee position mutations [2], where this research aims to provide solutions to the problems that occur in PT. Wira Agung's creation in carrying out the employee position mutation process. Furthermore, the application of the Operational Competitiveness Rating Analysis (OCRA) Method in the acceptance of employees with a fixed-time work agreement (PKWT)) [3], where this study aims to overcome the problems that occur in the acceptance of employees with a fixed-time work agreement (PKWT). Followed by a research by Lumban Batu [4] with the theme of the decision support system for independent labor recruitment applying the OCRA method), where this study aims to study the role of the Decision Support System (SPK) in overcoming the problem of independent labor recruitment (TKM) that fails to attract quality workers. Finally, the research on the decision support system for selecting the best mechanic using the Operational Competitiveness Rating Analysis (OCRA) method case study: auto2000) [5], where this study aims to overcome the problems in the process of selecting the best mechanic in Auto2000, which has difficulties in summarizing the results of evaluation and data processing and has an evaluation process that is not optimal and time-consuming.

In general, this study is illustrated through the conceptual outline image in Figure 1.

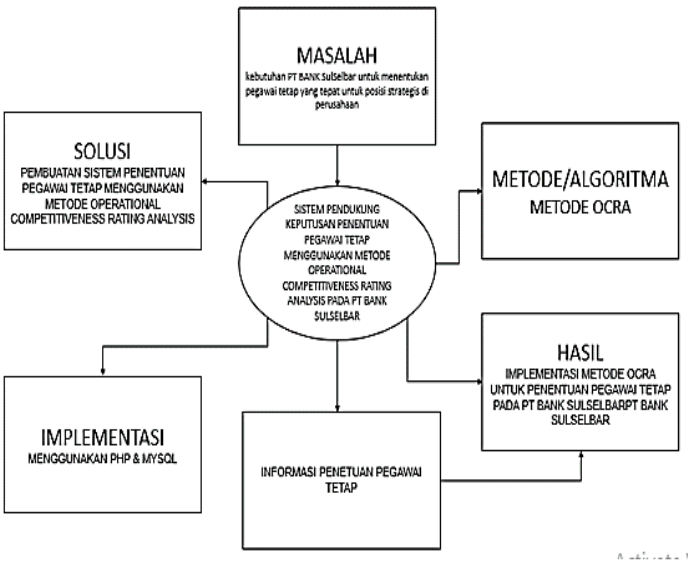

Figure 1. Conceptual Framework

This research aims to develop an OCRA-based SPK to help companies in the selection of permanent employees that are more effective and efficient. With this SPK, it is hoped that the company can reduce the risk of selecting employees who are not suitable dan meningkatkan quality of selected employees, so that they can make a positive contribution to the achievement of the company's goals.

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METHODOLOGY

This study uses the Operational Competitiveness Rating Analysis (OCRA) method as a framework to achieve the research objectives optimally. OCRA is a method used to implement plans that have been prepared in real activities. This method serves as a foundation and guide in the implementation of research so that it runs well, precisely, and smoothly. In this study, OCRA was used as a tool to select the best alternative from several available options based on certain criteria. By applying this method, it is hoped that the research results can make a significant contribution to the development of science and technology.

Data Collection Techniques

A data collection instrument is a document that contains a comprehensive and detailed description of the steps and procedures used to collect and collect data. In this proposal, the author adopts the Operational Competitiveness Rating Analysis (OCRA) method as an approach used through literature studies conducted by the author to identify, collect, and research various sources of literature and information that are relevant and directly related to the problems discussed in this study. In addition, the author also searches through internet sources to obtain important information relevant to the research.

Operational Competitiveness Rating Analysis (OCRA)

The OCRA (Operational Competitiveness Rating Analysis) method is a relative performance measurement approach that uses a nonparametric model as its basis. OCRA can be interpreted as a non-parametric efficiency measurement technique that was first proposed to address the problem of performance measurement and productivity analysis. Recently, the OCRA method has also been applied in the literature for other fields. (Mayadi et al., 2021)

Here are the steps in solving the problem by applying the OCRA (Operational Competitiveness Rating Analysis) method:

In the first step, create a matrix of results Xij that shows alternative i under criterion j.

$$X = [X_{ij}]_{mxn} = \begin{bmatrix} X_{11} & X_{12} & \dots & X_{1n} \\ X_{21} & X_{22} & \dots & X_{2n} \\ \dots & \dots & \dots & \dots \\ X_{m1} & X_{m2} & \dots & X_{mn} \end{bmatrix} \text{i} = 1, \dots \text{mj} = 1,2, \dots, \text{n}$$

(1)

Pada langkah kedua, peringkat preferensi yang berhubungan dengan kriteria biaya ditentukan. Nilai dari alternatif pada ktiteria dapat diperkecil dihitung melalui kriteria yang bermanfaat yang tidak di pertimbangkan. Total alternatif yang berhubungan dengan ktiteria yang tidak menguntungkan dapat dihitung dengan rumus berikut:

$$\bar{I}_i = \sum_{j=1}^{g} wj \frac{max(x_{ij})}{min(x_{ij})} (\text{i} = 1,2, \dots, \text{mj} = 1,2, \dots \text{g})$$

(2)

In the third step, the linear preference ranking in each alternative on the unfavorable criteria is calculated by the following formula:

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$$\bar{I}_i = \bar{I}_i min(\bar{I}_i)$$

(3)

In the fourth step, this preference ranking corresponds to the specified criteria. Where by favorable criteria can influence alternatives that have higher values to be better [6]. The ranking of total alternative I for all useful criteria is calculated by the following formula:

$$\bar{\bar{O}}_i = \sum_{j=g+1}^{n} wj \frac{x_{ij} - max(x_{ij})}{min(x_{ij})} (\mathrm{i} = 1,2, \ldots, \mathrm{mj} = \mathrm{g} + 1, \mathrm{g} + 2, \ldots \mathrm{n})$$

(4)

In the fifth step, a linear preference rating is calculated for the useful criteria calculated by the following formula:

$$\bar{\bar{O}}_i = \bar{O}_i - min(\bar{O}_i)$$

(5)

In the sixth step, the value of the total preference for each alternative is calculated using the following formula:

$$P_1 = \left(\bar{\bar{I}}_i + \bar{\bar{O}}_i\right) - min(\bar{\bar{I}} + \bar{\bar{O}}) \mathrm{i} = 1,2, \ldots \mathrm{m}$$

(6)

RESULTS AND DISCUSSIONS

The Operational Competitiveness Rating Analysis (OCRA) method is an approach used for decision-making in complex situations and involves several criteria [7].

Determination of Attributes/Criteria

The OCRA method has two types of criteria, namely Cost and Benefit Criteria. The following is a breakdown of the Cost Criteria and Benefit Criteria for the list of Criteria used.

Tabel 1. Criteria List Cost dan Benefit

NO	Criteria	Category
1	Length of Work	Benefit
2	Work Loyalty	Benefit
3	Age	Cost
4	Last Education	Cost
5	Work Performance	Benefit
6	Communication Skills	Benefit
7	Teamwork Skills	Benefit

Determination of Attributes/Criteria

After establishing the relevant criteria in determining permanent employees, the next step involves determining the right weight for each of those criteria. The following is a list of criteria and weights given.

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Tabel 2. Criterion weighting

NO	Criteria	Category	Weight
1	Length of Work	Benefit	0.109
2	Work Loyalty	Benefit	0.073
3	Age	Cost	0.02
4	Pendidikan Terakhir	Cost	0.044
5	Kinerja Kerja	Benefit	0.156
6	Kemampuan Komunikasi	Benefit	0.228
7	Kemampuan Kerja Tim	Benefit	0.37

Application of the OCRA Method

The following outlines the steps for applying the OCRA method to reach a decision. Step one: Determine the alternatives and their sub-criteria weights. In this program simulation, there are 5 alternatives, with an example calculation shown for Alternative A1.

Tabel 3. Alternative 1 (A1)

Alternative 1 (A1)			
No	Criteria	Sub Criteria	Value
1	Length of Work	Keep (4-6 tahun)	3
2	Work Loyalty	Disloyal (Disloyal to the company)	2
3	Age	Old (41-50 years)	2
4	Last Education	Doctor (S3)	1
5	Work Performance	Sufficient (Achieved part of the target and the quality of work is quite satisfactory)	3
6	Communication Skills	Very Bad (Unable to communicate well, difficult to understand)	1
7	Teamwork Skills	Poor (Limited teamwork skills, sometimes having difficulty coordinating and collaborating)	2

Based on Table 3, a list of alternative employees is displayed along with the values of the criteria assessed. The criteria evaluated include C1, C2, C3, C4, C5, C6, and C7 with the type of value that must be maximum (Max) or minimum (Min). Alternatives A1 to A5 are rated based on a specific scale on each criterion [8], and there are also relevant maximum and minimum values for each criterion assessed. The criteria evaluated include C1, C2, C3, C4, C5, C6, and C7 with the type of value that must be maximum (Max) or minimum (Min). Alternatives A1 to A5 are rated on a specific scale on each criterion, and there are also relevant maximum and minimum values for each criterion assessed [9]. This table illustrates the relative rating or assessment of each employee alternative based on the criteria given.

Tabel 4. Employee Registration / Alternate

W	0,109	0,073	0,02	0,044	0,156	0,228	0,37
Criteria	C1	C2	C3	C4	C5	C6	C7
Kind	Max	Max	Min	Min	Max	Max	Max
A1	3	2	2	1	3	1	2
A2	1	2	2	2	3	1	4
A3	5	2	1	2	2	4	3
A4	2	3	3	1	2	2	5

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A5	4	3	3	3	2	4	2
Max	5	3	3	3	3	4	5
Min	1	2	1	1	2	1	2

Based on Table 4, the results of the assessment are explained based on the relevant criteria for each alternative, namely A1 to A5. Each alternative is given a numerical assessment in several different aspects [10], This table provides insight into how each alternative is assessed based on pre-established assessment factors. In addition, there is a total value of O (Occurrence) presented at the end of the table, indicating the accumulation of assessments based on the O criterion for all alternatives.

Tabel 5. Decision Matrix

Alternative	C1	C2	C3	C4	C5	C6	C7
A_1	0,218	0	0,02	0,088	0,078	0	0
A_2	0	0	0,02	0,044	0,078	0	0,37
A_3	0,436	0	0,04	0,044	0	0,684	0,185
A_4	0,109	0,0365	0	0,088	0	0,228	0,555
A_5	0,327	0,0365	0	0	0	0,684	0

Based on table 5, the results of the calculation of the decision matrix using formula 2 are displayed. Furthermore, for the decision matrix, the calculation of the value of the preference weight [11] is carried out, where the weight is determined based on the category of Benefit and Cost criteria using the formula 3.

Tabel 6. Preferensi Criteria Category Cost dan Benefit

Alternative	**I**	**O**
A_1	0,108	0,296
A_2	0,064	0,448
A_3	0,084	1,305
A_4	0,088	0,9285
A_5	0	1,0475
	0	4,025

Next, a linear preference calculation for each alternative is carried out based on the data in Table 6 using formula 4, as shown in Table 7.

Tabel 7. Preferensi Linear

Alternative	**I**	**O**
A_1	0,108	-3,729
A_2	0,064	-3,577
A_3	0,084	-2,72
A_4	0,088	-3,0965
A_5	0	-2,9775

Table 7 displays the ranking results based on the OCRA method in the context of alternative assessment, where alternative assessments labeled A1 to A5 are carried out by calculating the values of Ii and Oi which are then summed up into the values of Ii + Oi using the formula 5. Furthermore, the result value is used in the calculation of the Pi value formula 6.

Tabel 8. Ranking Results

Alternatif	**I_i**	**O_i**	**I_i+O_i**	**MIN(I_i+O_i)**	**P_i**	**RANK**
A_1	0,108	-3,729	-3,621	-3,621	0	5
A_2	0,064	-3,577	-3,513		0,108	4

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Alternatif	I_i	O_i	I_i+O_i	MIN(I_i+O_i)	P_i	RANK
A_3	0,084	-2,72	-2,636		0,985	1
A_4	0,088	-3,0965	-3,0085		0,6125	3
A_5	0	-2,9775	-2,9775		0,6435	2

Based on the results displayed in Table 8, it is known that through the application of the OCRA method, it is determined that alternative A3 obtained the highest Pi value of 0.985 so that it was determined as the most priority employee, followed by A2, A5, A4, and A1.

CONCLUSIONS & RECOMMENDATIONS

Based on the results of the analysis that has been carried out on employee data using the OCRA method, the conclusion obtained in this study is that the Operational Competitiveness Rating Analysis (OCRA) method has proven to be effective in supporting the decision-making process related to employee determination. Furthermore, this study produces a decision support system based on the analysis of key factors identified through the OCRA method. OCRA's approach in determining permanent employees provides a structured and objective framework, so that it is able to overcome the complexity of the employee selection process. Finally, the results of this research have the potential to increase efficiency and effectiveness in human resource management, and can be a strategic foundation for companies in human resource development and the achievement of corporate goals.

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