



# Applying Simple Multi Attribute Rating Technique (SMART) Method for Employee Performance Assessment

Veti Apriana<sup>1</sup>, Sifa Fauziah<sup>2</sup>

<sup>1,2</sup>Teknik Dan Informatika, Universitas Bina Sarana Informatika, Indonesia

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## ABSTRACT

Employee performance appraisal is an absolute thing done by every company, in order to evaluate the performance results of the workers in the company. In addition, performance evaluation is also to determine the ability, progress and achievement or performance results of each employee. However, sometimes, in evaluating employee performance, things are often found that cause the assessment to be inaccurate, such as an assessment that is only based on employee behavior at a glance (not comprehensive) so that it is not optimal in its implementation. Based on these problems, it is necessary to have a decision support system that can help managers make decisions in evaluating employee performance, one of which is by applying the Simple Multi Attribute Rating Technique (SMART) method, a method for dealing with multi-criteria problems in a decision support system with the same criteria. used includes ten criteria including (Attendance, Conduit, neatness of dress, Ability, Improving the results achieved, Self-development, Quality, Attitude, Leadership, Teamwork), the final result of data processing using the SMART method is in the form of ranking of the results obtained by each -each employee. The results show that the Simple Multi Attribute Rating Technique (SMART) method can be used in a decision support system for evaluating employee performance.

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## Corresponding Author:

Veti Apriana, Sifa Fauziah,

Teknik Dan Informatika,

Universitas Bina Sarana Informatika,

Jl. Kramat Raya No.98 Senen, City, Jakarta Pusat, 10450, Indonesia.

Email: [veti.vta@bsi.ac.id](mailto:veti.vta@bsi.ac.id), [sifa.saz@bsi.ac.id](mailto:sifa.saz@bsi.ac.id)

## 1. INTRODUCTION

Employee Assessment is an absolute thing for every company to do to find out the potential of each employee (stika Paramita Sani, Yolla Komala, Feymi Damayanti, 2021). Performance appraisal is basically a human activity in achieving organizational goals (Saefullah, 2021), the method of evaluating employee performance in each company is of course different (Silaen et al., 2021). Based on the results of employee performance over a certain period of time (Shasena, 2021), every month or every quarter or even every year the company will assess it with the assessment indicators used in the assessment (Dzakwan, Pramono, & Rumita, 2020). Performance measurement can be carried out properly if the

company has set performance indicators that are relevant to the company's vision and mission, strategic plans (Risal, Alexander Parhusip, Nirmala Sari, Rayhan Adhitya, & Yani, 2021). The importance of measuring performance in an organization as an evaluation tool so that managers can identify processes that require improvement and carry out continuous improvement (Septiana Ningtyas, Usanto S, 2022). Performance indicators are quantitative and/or qualitative measures that describe the level of achievement of targets previously set by the company (Risal et al., 2021). Employee Assessment is carried out to measure, assess strengths and weaknesses related to work, behavior and results as well as evaluate the work of employees (Khairun Nisa Hasibuan, Fariaman Purba, & Taufik Parinduri, 2021) in carrying out the tasks that have been given by the company in accordance with the job each employee's desk. However, sometimes, in evaluating employee performance, things are often found that cause the assessment to be inaccurate, such as an assessment that is only based on employee behavior at a glance (not comprehensive) so that it is not optimal in its implementation (Lestari & Savitri Puspaningrum, 2021). A Manager makes many decisions that require prior exploration of the possible outcomes that can be obtained from different choices, as well as estimation (implicit or explicit) of how often different outcomes occur (Frey, 2020). In addition, decision makers must rely on the results of decisions to plan (Rodríguez-Gámez, Vázquez-Pérez, Torres-Pérez, & Nuñez-Alvarez, 2022).

Therefore, based on these problems a mechanism is needed that can make an equal contribution to each stakeholder (Febriana & Budiarto, 2021), there is a decision support system that can help Managers make decisions in evaluating employee performance (Wahyu, Nurbaya, Kurniawan, & Arjo, 2021), decision-making in the real world does not stop at the individual psychological level but usually takes place in complex social and political contexts (Schoppek, Fischer, Funke, Holt, & Wendt, 2021). In making decisions, a Manager may rely on their own information as well as information from external sources, such as family members, peers, or experts (Zadelaar et al., 2021).

A decision support system is an information-generating system aimed at a particular problem that must be solved by managers and can assist managers in making decisions (Sari, Windarto, Winanjaya, Hartama, & Damanik, 2020). Another benefit of the Decision Support System (DSS) research built in this research is how to set criteria and assessment scales (Ramadiani & Rahmah, 2019), which can provide solid and fast assessment results that can support the decision-making process (Hamoud, Hussein, Alhilfi, & Sabr, 2021).

The method used in this performance appraisal is the Simple Multi Attribute Rating Technique (SMART), with the criteria used covering ten criteria including (Absenteeism, behavior, neatness of dress, Ability, Improving the results achieved, Self-development, Quality, Attitude, Leadership, teamwork). The final result uses the Simple Multi Attribute Rating Technique (SMART) method, which is in the form of a ranking, the higher the ranking produced, the greater the opportunity to get a performance appraisal as the best employee (Paryanti, Sumarsid, & Oktaviani, 2021).

## 2. RESEARCH METHOD

The method used in this performance assessment is the Simple Multi Attribute Rating Technique (SMART). The Simple Multi Attribute Rating Technique (SMART) is a method for dealing with multi-criteria problems (Hutagalung, Siregar, & Lubis, 2021) in a decision support system developed in 1997 by Edward (Sibyan, 2020).

In the Simple Multi Attribute Rating Technique (SMART) method, attribute weighting is carried out in two steps (Tahir & Botutihe, 2022), namely:

1. Sort the importance of an attribute from the worst level to the best level.
2. Make a comparison of the ratio of the importance of each attribute with other attributes below it.

The steps of the Simple Multi Attribute Rating Technique (SMART) method (Supratman, 2021) are as follows:

a) Determine the number of criteria

b) Normalizing

$$\text{Normalisasi} = \frac{w_j}{\sum w_j} \dots\dots\dots \mathbf{1}$$

Information:

$w_j$  = Weight of a criteria

$\sum w_j$  = Total Weight of all criteria

c) Provide a criterion value for each alternative

d) Calculate the utility value for each of the respective criteria

$$u_i(\alpha_i) = 100 \frac{(C_{outi} - C_{min})}{(C_{max} - C_{min})} \dots\dots\dots \mathbf{2}$$

Information:

$u_i(\alpha_i)$  = The utility value of the 1st criterion for the i – th criterion

$C_{max}$  = Maximum criteria value

$C_{min}$  = Minimum criteria value

$C_{outi}$  = The value of the i criteria

e) Hitung nilai akhir masing-masing

$$u(\alpha_i) = \sum_{j=1}^m w_j u_i(\alpha_i) \dots\dots\dots \mathbf{3}$$

Information:

$w_j$  = The weighting value of the j and k criteria

$u(\alpha_i)$  = Utility value of criterion i for criterion i

This research is experimental, namely by applying the Simple Multi Attribute Rating Technique (SMART) to determine the best employees using the results of employee performance evaluations which are then processed using the Simple Multi Attribute Rating Technique (SMART) for decision making based on ten predetermined criteria are as follows:

1. Attendance,
2. Conduite,
3. Neatness of dress,
4. Ability,
5. Improve the results achieved,
6. Self development,
7. Quality,
8. Attitude,
9. Leadership,
10. Teamwork.

This research approach is qualitative in nature, namely understanding how the Simple Multi Attribute Rating Technique (SMART) algorithm works, then the steps in the algorithm are used in manual calculation analysis to produce output in the form of ranking the results of employee evaluations to determine the best employees.

### 3. RESULTS AND DISCUSSIONS

The method used in this performance assessment is the Simple Multi Attribute Rating Technique (SMART), here are the steps in applying the Simple Multi Attribute Rating Technique (SMART):

#### 3.1 Specify the number of criteria

In evaluating the performance of employees, the company has determined the criteria that are used as a measuring tool to assess the performance of each employee with the criteria used covering ten criteria including Attendance, Conduit, Tidiness of Dress, Ability, Improving the results achieved, Self-development, Quality, Atitude, Leadership, Teamwork, where the company has determined the weight of each criterion with a total value range of 100 points, as shown in Table 1.

Table 1. Table of criteria for Employee Performance Assessment

No.	Criteria Code	Criteria	Weight
1	C1	Attendance	10
2	C2	Conduite	10
3	C3	Neatness of dress	5
4	C4	Ability	15
5	C5	Improve the results achieved	10
6	C6	Self development	15
7	C7	Quality	10
8	C8	Attitude	10
9	C9	Leadership	5
10	C10	<i>Teamwork</i>	10
Total			100

Source: (Apriana & Fauziah, 2022)

#### 3.2 Normalization

Based on the predetermined weights as shown in table 1, the next step is to normalize each criterion weight, with the following formula:

**Calculating the normalized weight C1:**

$$\text{Normalization} = \frac{w_j}{\sum w_j} \dots\dots\dots 4$$

$$\text{Normalization} = \frac{10}{100}$$

$$\text{Normalization} = 0.1$$

Based on the results of these calculations, the weight of the C1 criteria obtained is 0.1. The data from the calculation of weight normalization for each criterion C1 to criteria C10 as shown in table 2.

Table 2. Table of weight normalization for each criterion

No.	Criteria Code	Criteria	Weight	Weight Normalization
1	C1	Attendance	10	0.1
2	C2	Conduite	10	0.1
3	C3	Neatness of dress	5	0.05

4	C4	Ability	15	0.15
5	C5	Improve the results achieved	10	0.1
6	C6	Self development	15	0.15
7	C7	Quality	10	0.1
8	C8	Attitude	10	0.1
9	C9	Leadership	5	0.05
10	C10	Teamwork	10	0.1
Total			100	

Source: (Apriana & Fauziah, 2022)

### 3.3 Provide a criterion value for each alternative

Based on the criteria that have been determined, the next step is to determine the category of assessment, the categories that are determined on each of the existing criteria include the Excellent category with a value of 5, the Good category with a value of 4, the Fair category with a value of 3, the Average category with a value of 2 and the Less category with a value of 1, as shown in Table 3.

Table 3. Table of weight determination on each criterion

No.	Criteria	Category	Score
1	Attendance (C1)	Excellent	5
		Good	4
		Fair	3
		Average	2
		Less	1
2	Conduite (C2)	Excellent	5
		Good	4
		Fair	3
		Average	2
		Less	1
3	Neatness of dress (C3)	Excellent	5
		Good	4
		Fair	3
		Average	2
		Less	1
4	Ability (C4)	Excellent	5
		Good	4
		Fair	3
		Average	2
		Less	1
5	Improve the results achieved (C5)	Excellent	5
		Good	4
		Fair	3
		Average	2
		Less	1

6	Self development (C6)	Excellent	5
		Good	4
		Fair	3
		Average	2
		Less	1
7	Quality (C7)	Excellent	5
		Good	4
		Fair	3
		Average	2
8	Attitude C8)	Less	1
		Excellent	5
		Good	4
		Fair	3
9	Leadership(C9)	Average	2
		Less	1
		Excellent	5
		Good	4
10	Teamwork(C10)	Fair	3
		Average	2
		Less	1
		Excellent	5

Source: (Apriana & Fauziah, 2022)

After determining the category of assessment, then the company evaluates employee performance by conducting employee performance evaluations, the data on the results of employee performance evaluations are as shown in Table 4.

Table 4. Employee Performance Evaluation Data

No	Employee	Attendance (C1)	Conduct (C2)	Neatness of dress (C3)	Ability (C4)	Improve the results achieved (C5)	Self development (C6)	Quality (C7)	Attitude (C8)	Leadership (C9)	Teamwork (C10)
1	Employee 1	5	4	4	5	4	4	4	5	4	4
2	Employee 2	5	4	4	3	4	3	4	5	4	4
3	Employee 3	4	3	4	4	4	4	3	4	4	2
4	Employee 4	5	4	4	3	3	4	4	4	3	3
5	Employee 5	4	4	4	4	3	5	4	4	2	4
6	Employee 6	4	4	4	4	4	4	3	3	3	4
7	Employee 7	5	4	3	3	3	3	4	4	3	4
8	Employee 8	4	3	5	4	3	4	3	4	3	2

9	Employee 9	5	5	4	3	3	2	4	4	4	3
10	Employee 10	4	2	3	2	3	4	4	4	4	4

Source: (Apriana & Fauziah, 2022)

The next step is to determine the maximum value and minimum value of each criterion in the employee performance evaluation data, the maximum value and minimum value of each criterion as shown in table 5.

Table 5. Maximum and minimum values of each criterion

No	Employee	Attendance (C1)	Conduct (C2)	Neatness of dress (C3)	Ability (C4)	Improve the results achieved (C5)	Self development (C6)	Quality (C7)	Attitude (C8)	Leadership (C9)	Team work (C10)
1	Employee 1	5	4	4	5	4	4	4	5	4	4
2	Employee 2	5	4	4	3	4	3	4	5	4	4
3	Employee 3	4	3	4	4	4	4	3	4	4	2
4	Employee 4	5	4	4	3	3	4	4	4	3	3
5	Employee 5	4	4	4	4	3	5	4	4	2	4
6	Employee 6	4	4	4	4	4	4	3	3	3	4
7	Employee 7	5	4	3	3	3	3	4	4	3	4
8	Employee 8	4	3	5	4	3	4	3	4	3	2
9	Employee 9	5	5	4	3	3	2	4	4	4	3
10	Employee 10	4	2	3	2	3	4	4	4	4	4
	Maximum Value	5	5	5	5	4	5	4	5	4	4
	Minimum Value	4	2	3	2	3	2	3	3	2	2

Source: (Apriana & Fauziah, 2022)

### 3.4 Calculate utility value for each criterion respectively

The next step is to calculate the utility value for each criterion based on the maximum and minimum values contained in table 5.

**Calculating the utility value of employees 1 from each value obtained on each criterion:**

$$u_i(\alpha_i) = 100 \frac{(C_{outi} - C_{min})}{(C_{max} - C_{min})} \dots \dots \dots \mathbf{5}$$

$$C1 \text{ Employee 1} = 100 \frac{(C1 \text{ Employee 1} - \text{min value C1})}{(\text{max value C1} - \text{min value C1})}$$

$$C1 \text{ Employee 1} = 100 \frac{(5 - 4)}{(5 - 4)} = 100$$

$$C2 \text{ Employee 1} = 100 \frac{(C2 \text{ Employee 1} - \text{min value C2})}{(\text{max value C2} - \text{min value C2})}$$

$$C2 \text{ Employee 1} = 100 \frac{(4 - 2)}{(5 - 2)} = 67$$

$$C3 \text{ Employee 1} = 100 \frac{(C3 \text{ Employee 1} - \text{min value C3})}{(\text{max value C3} - \text{min value C3})}$$

$$C3 \text{ Employee 1} = 100 \frac{(4 - 3)}{(5 - 3)} = 50$$

$$C4 \text{ Employee 1} = 100 \frac{(C4 \text{ Employee 1} - \text{min value C4})}{(\text{max value C4} - \text{min value C4})}$$

$$C4 \text{ Employee 1} = 100 \frac{(5 - 2)}{(5 - 2)} = 100$$

$$C5 \text{ Employee 1} = 100 \frac{(C5 \text{ Employee 1} - \text{min value } C5)}{(\text{max value } C5 - \text{min value } C5)}$$

$$C5 \text{ Employee 1} = 100 \frac{(4 - 3)}{(4 - 3)} = 100$$

$$C6 \text{ Employee 1} = 100 \frac{(C6 \text{ Employee 1} - \text{min value } C6)}{(\text{max value } C6 - \text{min value } C6)}$$

$$C6 \text{ Employee 1} = 100 \frac{(4 - 2)}{(5 - 2)} = 67$$

$$C7 \text{ Employee 1} = 100 \frac{(C7 \text{ Employee 1} - \text{min value } C7)}{(\text{max value } C7 - \text{min value } C7)}$$

$$C7 \text{ Employee 1} = 100 \frac{(4 - 3)}{(4 - 3)} = 100$$

$$C8 \text{ Employee 1} = 100 \frac{(C8 \text{ Employee 1} - \text{min value } C8)}{(\text{max value } C8 - \text{min value } C8)}$$

$$C8 \text{ Employee 1} = 100 \frac{(5 - 3)}{(5 - 3)} = 100$$

$$C9 \text{ Employee 1} = 100 \frac{(C9 \text{ Employee 1} - \text{min value } C9)}{(\text{max value } C9 - \text{min value } C9)}$$

$$C9 \text{ Employee 1} = 100 \frac{(4 - 2)}{(4 - 2)} = 100$$

$$C10 \text{ Employee 1} = 100 \frac{(C10 \text{ Employee 1} - \text{min value } C10)}{(\text{max value } C10 - \text{min value } C10)}$$

$$C10 \text{ Employee 1} = 100 \frac{(4 - 2)}{(4 - 2)} = 100$$

The utility calculation for each criterion will be carried out until employee data is 10. The utility calculation data results from Employee 1 to Employee 10 as shown in table 6.

Table 6. Utility Calculation result data in each criterion on Employee 1 to Employee 10

No	Employee	Attendance (C1)	Conduite (C2)	Neatness of dress (C3)	Ability (C4)	Improve the results achieved (C5)	Self development (C6)	Quality (C7)	Attitude (C8)	Leadership (C9)	Team work (C10)
1	Employee 1	100	67	50	100	100	67	100	100	100	100
2	Employee 2	100	67	50	33	100	33	100	100	100	100
3	Employee 3	0	33	50	67	100	67	0	50	100	0
4	Employee 4	100	67	50	33	0	67	100	50	50	50
5	Employee 5	0	67	50	67	0	100	100	50	0	100
6	Employee 6	0	67	50	67	100	67	0	0	50	100
7	Employee 7	100	67	0	33	0	33	100	50	50	100
8	Employee 8	0	33	100	67	0	67	0	50	50	0
9	Employee 9	100	100	50	33	0	0	100	50	100	50

10	Employee 10	0	0	0	0	0	67	100	50	100	100
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Source: (Apriana & Fauziah, 2022)

### 3.5 Calculate the final value of each

The last step of the Simple Multi Attribute Rating Technique (SMART) method is to calculate the final score for each employee.

$$u(a_i) = \sum_{j=1}^m w_j u_i(a_i) \dots\dots\dots \mathbf{6}$$

**Calculating the final score obtained by Employee 1:**

$$\text{Employee 1} = (100 \times 0.1) + (67 \times 0.1) + (50 \times 0.05) + (100 \times 0.15) + (100 \times 0.1) + (67 \times 0.15) \\ + (100 \times 0.1) + (100 \times 0.1) + (100 \times 0.05) + (100 \times 0.1)$$

$$\text{Employee 1} = 89$$

Based on the calculation of the final value of Employee 1, the final score obtained is 89 points. The results of calculating the final value from Employee 1 to Employee 10 are as shown in Table 7.

Table 7. Final Score for each Employee

No.	Employee	Att end anc e (C1 )	Con duit e (C2)	Neat ness of dress (C3)	Abilit y (C4)	Improv e the results achiev ed (C5)	Self develo pment (C6)	Qual ity (C7)	Attit ude (C8)	Lead ershi p (C9)	Tea mwo rk (C10)	Fina l Scor e
1	Employee 1	100	67	50	100	100	67	100	100	100	100	89
2	Employee 2	100	67	50	33	100	33	100	100	100	100	74
3	Employee 3	0	33	50	67	100	67	0	50	100	0	46
4	Employee 4	100	67	50	33	0	67	100	50	50	50	57
5	Employee 5	0	67	50	67	0	100	100	50	0	100	59
6	Employee 6	0	67	50	67	100	67	0	0	50	100	52
7	Employee 7	100	67	0	33	0	33	100	50	50	100	54
8	Employee 8	0	33	100	67	0	67	0	50	50	0	36
9	Employee 9	100	100	50	33	0	0	100	50	100	50	53
10	Employee 10	0	0	0	0	0	67	100	50	100	100	40

Source: (Apriana & Fauziah, 2022)

Based on the final score obtained by each employee, the next step in this last stage is to rank, with the ranking, the best value obtained by the employee will be seen, with ranking data as shown in table 8.

Table 8. Ranking of Final Scores

No.	Employee	Final Score
1	Employee 1	89
2	Employee 2	74
3	Employee 5	59
4	Employee 4	57

5	Employee 7	54
6	Employee 9	53
7	Employee 6	52
8	Employee 3	46
9	Employee 10	40
10	Employee 8	36

Source: (Apriana & Fauziah, 2022)

After the ranking stage is completed, the best employee performance appraisal ranking is obtained by Employee 1 with a final score of 89 points.

#### 4. CONCLUSION

The results of processing employee evaluation data to determine the best employees using the Simple Multi Attribute Rating Technique (SMART) method were achieved by Employee 1 with 89 points. This shows that the Simple Multi Attribute Rating Technique (SMART) method can be implemented in a decision support system to determine the best employees, so that it can assist the authorities in making decisions according to existing criteria. For further research, it is expected to be able to implement the Simple Multi Attribute Rating Technique (SMART) method in a Decision Support System by adding other determining variables that can strengthen the assessment in determining the best employees.

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#### REFERENCES

- Dzakwan, B. R., Pramono, S. N. W., & Rumita, R. (2020). Perancangan Sistem Penilaian Kinerja Karyawan pada Operator Divisi Corrugated Carton Box Berbasis Human Resources Scorecard dan Kompetensi Spencer. *Industrial Engineering Online Journal*, 9(3). Retrieved from <https://ejournal3.undip.ac.id/index.php/ieoj/article/view/33016> <https://ejournal3.undip.ac.id/index.php/ieoj/article/download/33016/26380>
- Febriana, T., & Budiarto, A. (2021). Decision Support System Design Model for Choosing Effective Learning Method in Higher Education Institution. *CommIT Journal*, 15(2), 105–112. <https://doi.org/10.21512/commit.v15i2.6668>
- Frey, R. (2020). Decisions from experience: Competitive search and choice in kind and wicked environments. *Judgment and Decision Making*, 15(2), 282–303.
- Hamoud, A. K., Hussein, M. K., Alhilfi, Z., & Sabr, R. H. (2021). Implementing data-driven decision support system based on independent educational data mart. *International Journal of Electrical and Computer Engineering*, 11(6), 5301–5314. <https://doi.org/10.11591/ijece.v11i6.pp5301-5314>
- Hutagalung, B. T., Siregar, E. T., & Lubis, J. H. (2021). Penerapan Metode SMART dalam Seleksi Penerima Bantuan Sosial Warga Masyarakat Terdampak COVID-19. *Jurnal Media Informatika Budidarma*, 5(1), 170–185. <https://doi.org/10.30865/mib.v5i1.2618>
- Khairun Nisa Hasibuan, Fariaman Purba, & Taufik Parinduri. (2021). Pengaruh Penilaian Prestasi Kerja Dan Kompetensi Pegawai Terhadap Promosi Jabatan Pada Kantor Pelayanan Perbendaharaan Negara (Kppn) Pematangsiantar. *Manajemen: Jurnal Ekonomi*, 3(1), 75–87. <https://doi.org/10.36985/manajemen.v3i1.94>
- Lestari, G., & Savitri Puspaningrum, A. (2021). Sistem Pendukung Keputusan Pemberian Tunjangan

- Karyawan Menggunakan Metode Analytical Hierarchy Process (Ahp) Studi Kasus: Pt Mutiara Ferindo Internusa. *Jurnal Teknologi Dan Sistem Informasi (JTSI)*, 2(3), 38–48. Retrieved from <http://jim.teknokrat.ac.id/index.php/JTSI>
- Paryanti, A. B., Sumarsid, & Oktaviani, R. (2021). Implikasi Pemberian Reward Karyawan Dengan Metode Profile Matching, 11(1), 73–82.
- Ramadiani, R., & Rahmah, A. (2019). Sistem pendukung keputusan pemilihan tenaga kesehatan teladan menggunakan metode multi-attribute utility theory. *Register: Jurnal Ilmiah Teknologi Sistem Informasi*, 5(1), 1–12. <https://doi.org/10.26594/register.v5i1.1273>
- Risal, T., Alexander Parhusip, A., Nirmala Sari, T., Rayhan Adhitya, W., & Yani, F. (2021). Pelatihan Penerapan Key Performance Indicator Bagi Para Peternakan Sapi Di Desa Nagori Bahjoga. *Judimas*, 2(2), 148–157.
- Rodríguez-Gámez, M., Vázquez-Pérez, A., Torres-Pérez, M., & Nuñez-Alvarez, J. R. (2022). Local development applied to the energy scheme using the geographic information system for decision making. *International Journal of Electrical and Computer Engineering*, 12(4), 3343–3351. <https://doi.org/10.11591/ijece.v12i4.pp3343-3351>
- Saefullah, U. A. (2021). Dampak Penilaian Kinerja dan Pengembangan Karir terhadap Kepuasan Kerja Karyawan Perbankan. *Technomedia Journal*, 6(2), 223–235. <https://doi.org/10.33050/tmj.v6i2.1761>
- Sari, H., Windarto, A., Winanjaya, R., Hartama, D., & Damanik, I. (2020). Analisa metode profile matching pada pemilihan susu rendah lemak berdasarkan konsumen. *Konferensi Nasional Teknologi Informasi Dan Komputer*, 4(1), 73–77. <https://doi.org/10.30865/komik.v4i1.2590>
- Schoppek, W., Fischer, A., Funke, J., Holt, D. V., & Wendt, A. N. (2021). Supporting open access publishing in the field of dynamic decision making, 7, 2–4.
- Septiana Ningtyas, Usanto S, N. A. P. (2022). Swadharma (jris). *Jurnal Rekayasa Informasi*, 02(01), 41–47.
- Shasena, D. R. (2021). Pengaruh Servant Leadership, Talent Management, dan Knowledge Management Terhadap Kinerja Karyawan PT DIARA Kediri. *Seminar Nasional Manajemen, Ekonomi Dan Akuntansi*, 6(1), 1042–1051.
- Sibyan, H. (2020). Implementasi Metode SMART pada Sistem Pendukung Keputusan Penerima Beasiswa Sekolah. *Jurnal Penelitian Dan Pengabdian Kepada Masyarakat UNSIQ*, 7(1), 78–83. <https://doi.org/10.32699/ppkm.v7i1.1055>
- Silaen, N. R., Syamsuriansyah, Chairunnisah, R., Sari, M. R., Mahriani, E., Tanjung, R., ... Putra, S. (2021). *Teori Kinerja Karyawan* (Vol. 4). Bandung: Widina Bhakti Persada. Retrieved from <https://repository.penerbitwidina.com/media/publications/344479-kinerja-karyawan-2edaa31b.pdf>
- stika Paramita Sani, Yolla Komala, Feymi Damayanti, D. H. S. (2021). Pengaruh Gaya Kepemimpinan Transformatif Dan Kompetensi Finansial Terhadap Kinerja Karyawan PT. Traya Tirta Cisadane. *Transekonomika*, 1(4 Juli).
- Supratman, E. (2021). Penggunaan Metode Simple Multi Attribut Rating Technique (Smart) Pada Sistem Penunjang Keputusan Rekomendasi Jurusan Studi Kasus : Siswa Smk N 5 Palembang. *Jurnal Informanika*, 7(2), 105–112.
- Tahir, Y., & Botutihe, M. H. (2022). Metode Smart Untuk Sistem Pendukung Keputusan Penerima Bantuan Program Pembinaan dan Pengembangan Kelistrikan. *Jurnal Nasional Komputasi Dan Teknologi Informasi (JNKTI)*, 5(2), 193–204. <https://doi.org/10.32672/jnkti.v5i2.4159>
- Wahyu, E. E., Nurbaya, S., Kurniawan, C. N., & Arjo, T. R. (2021). Pendekatan Performance Management Sebagai Langkah Antisipatif Pendekatan Performance Management Sebagai Langkah, 6(9 September), D.11-D.18.
- Zadelaar, J. N., Agelink van Rentergem, J. A., Schaaf, J. V., Dekkers, T. J., de Vent, N., Dekkers, L. M. S., ... Huizenga, H. M. (2021). Development of decision making based on internal and external information: A hierarchical bayesian approach. *Judgment and Decision Making*, 16(6), 1413–1438.