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SMART IMPLEMENTATION IN DETERMINING EXAMPLE EMPLOYEES PDAM TIRTA SILAUPIASA ASAHAN REGENCY

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Abstract: PDAM Tirta Silaupiasa is currently the only Regional Owned Enterprise in Asahan Regency; this requires PDAM Tirta Silaupiasa to continue to make improvements to realize optimal service to customers. The services provided to customers are closely related to human resources and employee performance. Employee performance has a very important role in the company's success so that we can see the strengths, weaknesses, and potential managerial gaps in the organization. The problem faced by PDAM Tirta Silaupiasa is the lack of motivation experienced by employees. One of the efforts to increase employee motivation is to select role models/exemplary employees who will later become examples for other employees. Based on this, it is necessary to use technology, namely the design of a decision support system in determining exemplary employees by applying the Simple Multi-Attribute Rating Technique (SMART) method. The SMART method has advantages, namely in deciding with many alternatives and criteria. It is more complex to make a decision, and the decision results are better. The results of this study get Alfiansyah's alternative with a value of 74.85202777 to be a role model for PDAM Tirta Silaupiasa.

Keywords: Decision Support System; SMART; Exemplary Employee; Role Models; PDAM Tirta Silaupiasa

Abstrak: PDAM Tirta Silaupiasa saat ini merupakan satu-satunya Badan Usaha Milik Daerah yang ada di kabupaten Asahan, hal ini menuntut PDAM Tirta Silaupiasa untuk terus melakukan pembenahan guna mewujudkan pelayanan yang optimal kepada pelanggan. Pelayanan yang diberikan kepada pelanggan tentunya erat kaitannya dengan sumber daya manusia dan kinerja karyawan. Kinerja karyawan memiliki peran yang sangat penting bagi keberhasilan perusahaan sehingga dapat dilihat kekuatan, kelemahan, dan potensi kesenjangan manajerial dalam organisasi. Permasalahan yang dihadapi PDAM Tirta Silaupiasa adalah kurangnya motivasi yang dialami oleh pegawai. Salah satu upaya untuk meningkatkan motivasi pegawai adalah dengan memilih role model/pegawai teladan yang nantinya akan menjadi contoh bagi pegawai lainnya. Berdasarkan hal tersebut maka perlu digunakan teknologi yaitu perancangan sistem pendukung keputusan dalam menentukan pegawai teladan dengan menerapkan metode Simple Multi Attribute Rating Technique (SMART). Metode SMART memiliki kelebihan yaitu dalam keadaan pengambilan keputusan dengan banyak alternatif dan kriteria sehingga lebih kompleks dalam pengambilan keputusan dan akurasi hasil keputusan yang lebih baik. Hasil penelitian ini mendapatkan alternatif Alfiansyah dengan nilai 74,85202777 untuk menjadi role model bagi PDAM Tirta Silaupiasa.

Keywords: Decision Support System; SMART; Exemplary Employee; Role Models; PDAM Tirta Silaupiasa

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INTRODUCTION

The Regional Drinking Water Company (PDAM) Tirta Silaupiasa, Asahan Regency, is the only Regional Owned Enterprise in Asahan Regency that plays a role in implementing a good water supply system supported by the availability of adequate infrastructure facilities and services. This requires PDAM Tirta Silaupiasa to continue to make improvements to realize optimal service to customers. The realization of optimal service to customers cannot be separated from human resources, namely employees. Employees are one of the most important assets the company owns in running its business to develop or maintain the company's survival and get a profit, as in the drinking water company in North Sumatra, namely PDAM Tirta Silaupiasa, Asahan Regency. Therefore, companies need to pay attention to and measure employee performance in achieving company targets.

Employee performance has a very important role in the company's success as a whole. By knowing the performance of our employees, we can see and determine the strengths, weaknesses, and potential managerial gaps in the organization [1]. In addition, employee performance is a tangible form of an employee's ability to achieve work requirements, which can be completed on time and provide quality contributions to the company's vision and mission [2].

The obstacle faced by PDAM Tirta Silaupiasa, Asahan Regency, is the absence of a process to improve the performance and motivation of employees in the PDAM to achieve the company's vision and mission [3]. One of them is determining exemplary employees based on employees' performance, who make them Role Models and get rewards from the company. A role model is to determine someone to be a role model for other employees in behavior and certain roles in the company[4][5] so that the determination of exemplary employees based on employee performance is expected to be able to motivate employees to improve their performance. In addition, another challenge is how to produce an objective decision from the selection of the exemplary employee.

Decision Support System is a solution to solving problems faced by PDAM Tirta Silaupiasa office, Asahan Regency. The application of a computer-based decision support system has the effect of producing the right decision. The decision support system performs data processing by placing available alternatives to obtain a model or settlement rule where the decision model is semi-structured or unstructured to achieve the desired goal [6]-[9].

The Simple Multi-Attribute Rating Technique (SMART) method has advantages compared to other decision-making methods. This occurs in the state of deciding with many alternatives and criteria so that it is increasingly complex to make a decision [10]. The advantage of the SMART method is that the method is implemented in determining exemplary employees at the PDAM Asahan Regency office.

This study refers to several previous studies, namely research conducted by determining the selection of doctoral scholarships for lecturers using the SMART method. This research aims to get alternative lecturers who are entitled to a doctoral education scholarship [11]. Almost the same results from the study of the application of SMART in scholarship decision-making.

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The SMART method can make multi-attribute decisions and produces an alternative, Abdullah Ahmad, with a final score of 82 in position 1 to receive a Foundation scholarship [7]. The research results on the selection of extracurricular activities for high school students by implementing SMART. The results of this study have an accuracy rate of 84.39%, and respondents can accept the results of the respondent's assessment with an accuracy rate of 83.089 [12].

Research on the feasibility of selecting recipients for assistance in community food businesses by applying the SMART method can produce an assessment with 2 categories: farmer groups that are very eligible to receive food business development assistance and farmer groups recommended/considered [14]. Research on the selection of basic food assistance programs using the SMART method states that the SMART method of computing systems is simple and easy to understand. The results of these studies rank recipients who deserve to receive non-cash assistance [13][15]. Another study in determining outstanding lecturers at STIKOM Muhammadiyah Batam with the SMART method obtained a very high accuracy, namely 79%, in producing outstanding lecturer decisions [16].

Based on previous research, which is a reference for researchers, the results are good, and the advantages of the SMART method in making decisions. Besides the high accuracy produced by the SMART method, this study implements the same method on the research object to get exemplary employees as role models at the PDAM Tirta Silaupiasa office, Asahan Regency, so that this role model becomes a reference in increasing employee performance motivation.

METHOD

This research refers to the Borg and Gall cycle/model, which can be developed or adapted to the conditions that may be encountered[17].

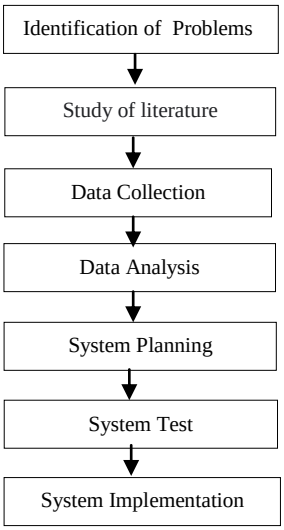

Image 1. SPK Research Framework for Determining Exemplary Employees at the PDAM Tirta Silaupiasa Office, Asahan Regency

Determining Exemplary Employees at the PDAM Tirta Silaupiasa Office, Asahan Regency The description of the research framework is explained from the stages.

1. Problem Identification
   The process begins with designing a problem formulation based on the background of the problem, namely producing the selection of role models / exemplary employees to increase employee performance motivation at PDAM Tirta Silaupiasa, Asahan Regency.

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2. Literature Study
   At this stage, what is done is looking for references related to the need to solve existing problems by a series of processed data. So that the results to be achieved will produce a decision support system to provide decisions to determine the assessment of the selection of exemplary employees and data based on data obtained from the PDAM Tirta Silaupiasa agency, Asahan Regency.
3. Data Collection
   At this stage, the data collection in the study was carried out in 2 ways, namely observation, and interviews with the PDAM Tirta Silaupiasa agency, Asahan Regency.
4. System Analysis
   The system analysis developed is based on a literature study that has been studied and understood to encourage system design in determining the selection of exemplary employees of PDAM Tirta Silaupiasa, Asahan Regency, based on predetermined criteria using the SMART method. Edward developed the Simple Multi-Attribute Rating Technique (SMART) method. This multi-criteria decision-making technique describes how important the alternatives and criteria are by assigning a weighted value to each criterion. SMART is a linear additive model to predict the value of each alternative so that it depicts simplicity in responding to the needs of decision-makers [18]. This analysis is carried out quantitatively by collecting data and analyzing results to get the desired goal.
5. System Design
   The exemplary employee selection system of PDAM Tirta Silaupiasa, Asahan Regency is designed using Visual Basic Net and database using Microsoft Access by implementing the Simple Multi-Attribute Rating Technique (SMART) method.
6. System Design
   The exemplary employee selection system of PDAM Tirta Silaupiasa, Asahan Regency is designed using Visual Basic Net and database using Microsoft Access by implementing the Simple Multi-Attribute Rating Technique (SMART) method.
7. System Implementation
   At the stage of the system that has been tested, it is implemented at the PDAM Tirta Silaupiasa office, Asahan Regency.

RESULT AND DISCUSSION

Criteria, Criteria Weighting and Weighting Normalization

The criteria used in this study in determining exemplary employees at the PDAM Tirta Silaupiasa office, Asahan Regency, include discipline, responsibility, cooperation, and personality.

Table 1. SPK Criteria for Exemplary Employee Assessment

Code Criteria	Information
K1	Discipline
K2	Responsibility
K3	Cooperation
K4	Personality

Determining the criteria and weighting is done through interviews. The system design is to the agency's needs later, where the maximum award is 40 for the most important criteria to the last criteria with a weight value of 10.

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Table 2. Criteria Weighting

Code Crite-ria	Information	Weight
K1	Discipline	40
K2	Responsibility	30
K3	Cooperation	20
K4	Personality	10

After weighing the criteria, the next step is to look for the normalization of the weights in Table 3.

Table 3. Normalization of Weighting Criteria

Code Criteria	Information	Weight	Relative weight (wji)
K1	Discipline	40/100	0,4
K2	Responsibility	30/100	0,3
K3	Cooperation	20/100	0,2
K4	Personality	10/100	0,2

Alternative

The alternative to this system is the PDAM Tirta Silaupiasa, Asahan Regency employee. After the average weight is obtained from normalization, it is then given weight to each alternative based on each criterion. Alternative weights on a scale of 0 – 100.

The next step is to use the benefit criteria; if the value we get is greater, it is a better choice.

Formula benefit $U_i(A_i)=\frac{(C_{max}-C_{out\ i})x\ 100}{(C_{max}-C_{min})}$ (1)

Table 4. Alternative Value of Each criterion

Code	Employee Name	C1	C2	C3	C4
A1	Kaswardi	75	80	80	75
A2	Sri Muliani	70	85	85	64
A3	M.Asmin	81	72	85	80
A4	Alfiansyah	63	60	80	85

Table 5. Utility Results on Alternatives 1

No	Criteria	Score	Relative weight (wji)
1	Discipline	75	(95-75)/(95-61)*100 = 58,82352941
2	Responsibility	80	(90-80)/(90-60)*100 = 33,33333333
3	Cooperation	80	(85-80)/(85-62)*100 = 21,73913043
4	Personality	75	(95-75)/(95-60)*100 = 57,14285714

After obtaining the alternative weight values, a linear utility function model was used to find the overall results.

Total = $U_i(A_i) * W_j$ (2)

Table 6. Total Alternative Value 1

Code	Criteria	C1	U_iA_i	Weight (W_j)	Total (U)
A1	Discipline	75	95-75)/(95-61)*100= 58,82352941	0,4	23,52941
A2	Responsibility	80	(90-80)/(90-60)*100= 33,33333333	0,3	10
A3	Cooperation	80	(85-80)/(85-62)*100= 21,73913043	0,2	4,347826
A4	Personality	75	(95-75)/(95-60)*100= 57,14285714	0,1	5,714286
			Total		43,59152357

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All alternatives are calculated as the overall weight value as done in Table 6 to get the ranking value of all alternatives in Table 7.

Table 7. Normalization of Weighting Criteria

No	Alternative	Total Value	Rank
1	A1	43,59152357	4
2	A2	43,26890756	3
3	A3	38,75630252	2
4	A4	74,85202777	1

Based on the priority value from table 7, the highest value is obtained as a determination of exemplary employees who become role models at the PDAM Tirta Silaupiasa office, Asahan Regency; alternative A4 is Alfiansyah with a value of 74.85202777 ranks 1.

System Implementation

Home

The home page is the initial interface that the user/user encounters using the system in the PDAM Tirta Silaupiasa Exemplary Employee Assessment, Asahan Regency with the SMART Method.

Image 2. Home Decision Support System PDAM Tirta Piasa Ulu Kab. Asahan

Criteria Data Page

The page inputs criteria data, value weights, and criteria updates.

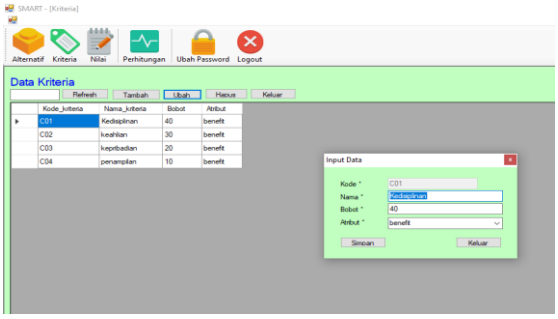

Image 3. Criteria Addition and Update Page

Alternative Page

On this page is a page for adding and updating alternative data.

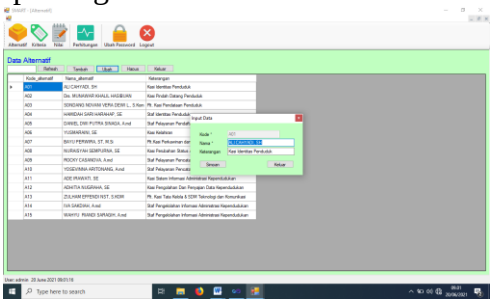

Image 4. Alternative Additions and Updates Page

Output/Report Page

The output/report page results from the selection containing the data from the analysis, which is in the form of a report on the results of the selection of exemplary employees using the SMART method at the PDAM Tirta Piasa Ulu Office, Asahan Regency and ranking information.

CONCLUSION

Based on the results of the tests carried out, the SMART implementation of the assessment of exemplary employees at the PDAM Tirta Silaupiasa office, Asahan Regency was able to meet the

needs of the PDAM office in conducting an assessment of 153 employees so that the selection of role models / exemplary employees could be used as an effort to increase employee performance motivation to achieve. This SPK resulted in Alfiansyah with a score of 74.85202777 as the 1st rank in the selection of exemplary employees.

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