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Evaluation of Salesperson Performance in the Sales Allowance Decision Support System Using the MARCOS and PIPRECIA Methods

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Abstract−Optimal salesperson performance is the main key to a company's success in achieving sales targets and business growth. A reliable salesperson is not only able to sell products or services, but also has the ability to build strong relationships with customers. The purpose of this study is to assess the performance of salesperson in providing sales allowances based on performance results carried out by applying a combination of MARCOS and PIPRECIA methods, so as to produce a recommendation for the final assessment of salesperson performance that will assist the company in providing sales benefits to salespersons. The combination of Pairwise Relative Criteria Importance Assessment (PIPRECIA) and Measurement of Alternatives and Ranking According to Compromise Solution (MARCOS) forms a powerful holistic approach to decision making. PRCIA facilitates the identification and assessment of the relative weights of each decision criterion, providing a solid foundation for assigning value to the relative importance between criteria. The results of the salesperson performance evaluation ranking above show the final results for rank 1 with a value of 4.3446 obtained by Rini, rank 2 with a value of 3.5369 obtained by Murniasih, rank 3 with a value of 3.1807 obtained by Hana Ferbi.

Keywords: Combination; Evaluation; MARCOS; Performance; PIPRECIA; Salesperson

1. INTRODUCTION

Optimal salesperson performance is the main key to a company's success in achieving sales targets and business growth. A reliable salesperson is not only able to sell products or services, but also has the ability to build strong relationships with customers. In carrying out their duties, a successful salesperson must have in-depth knowledge of the product or service offered, good communication skills, and sensitivity to customer needs and wants. In addition, the ability to identify new opportunities and adapt sales strategies to market changes is also an important factor in determining the performance of a successful salesperson. Through dedication, hard work, and adaptability, a superior salesperson can make a significant contribution to a company's growth and reputation. Mastery of modern technology and sales tools is also a crucial element in improving salesperson performance[1]. An effective salesperson must be able to utilize digital platforms, data analysis, and social media to understand customer behavior, identify market trends, and optimize marketing strategies. The use of this technology not only speeds up the sales process but also allows sales to provide solutions that are more personalized and according to the individual needs of customers. Monitoring of performance metrics, such as sales conversion, customer retention, and transaction value, is also an integral part of salesperson performance evaluation[2]. By understanding market dynamics, building strong relationships with customers, and utilizing technology wisely, a salesperson can create a significant positive impact on business growth and company reputation. Evaluation of salesperson performance becomes a vital aspect in measuring the effectiveness and contribution of individuals or sales teams to company goals. One technique in measuring salesperson performance is using a decision support system.

A decision support system (DSS) is an information technology infrastructure designed to assist leaders and decision makers in the complex process of analyzing and processing information[3]. DSS integrates data from multiple sources to provide a holistic view of a particular business situation or problem. Using algorithms and analytical models, DSS helps identify trends, patterns, and potential optimal solutions. The main advantages of DSS are its ability to present relevant and real-time information, speed up the decision-making process, and reduce the level of uncertainty[4]. Through a user-friendly interface, decision makers can access reports, graphs, and recommendations that guide their strategic steps. With a decision support system, organizations can improve operational efficiency, optimize strategy, and reduce the risk of errors in decision making. DSS can also provide flexibility in planning and simulation scenarios, allowing decision makers to test different strategies without having to implement them directly. By providing a deep understanding of data, DSS helps create a solid foundation for more accurate and informed decisions[5]. DSS implementation can also support collaboration between teams, facilitate information exchange, and ensure that all parties involved have equal access to relevant

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data. One method used in decision support systems is Measurement of Alternatives and Ranking According to Compromise Solution.

Measurement of Alternatives and Ranking According to Compromise Solution (MARCOS) is a decision-making approach that aims to evaluate and rank alternatives based on compromise solutions[6]. In this method, decision criteria are carefully established, and each alternative is evaluated based on those criteria. MARCOS considers the tradeoffs and compromises involved in decision-making, recognizing that no alternative can fully meet all criteria simultaneously[7]. Compromise solutions involve identifying the optimal balance among conflicting factors, resulting in more realistic and feasible decisions. MARCOS uses quantitative measurement and analytical tools to give weight to criteria and objectively evaluate the performance of alternatives. By considering the advantages and disadvantages of each alternative in relation to a compromise solution, MARCOS provides a structured and systematic framework for decision makers to prioritize and rank alternatives, facilitating a more informed and rational decision-making process[8]. The MARCOS approach not only provides a quantitative assessment of alternatives, but also considers the compromise aspects required in the decision-making context. By identifying optimal balance points, MARCOS helps decision makers to understand and manage conflicts or trade-offs between different criteria. Although the MARCOS method has a number of advantages, such as providing structure to the decision-making process and considering aspects of compromise, there are some disadvantages that need to be noted Sensitivity to Weight. MARCOS uses weights to determine the importance of each criterion in decision making. Sensitivity to weight determination can be a drawback, as improper or subjective selection of weights can lead to inaccurate or non-objective results. One of the criteria weighting techniques used is the Pivot Pairwise Relative Criteria Importance Assessment.

MARCOS presents an innovative approach to decision making involving a variety of alternatives. A key advantage of MARCOS is its ability to evaluate and rank compromise solutions according to the changing preferences and priorities of stakeholders[6], [9]. This method makes it possible to adjust the relative weight of the criteria used in the decision-making process, creating space for flexible adjustments. Thus, MARCOS provides an adaptive and dynamic framework, enabling decision makers to consider critical aspects of each alternative and generate the most adequate solution to achieve organizational goals[10]. These advantages make MARCOS an effective tool in overcoming complexity and dynamics in decision-making situations. In addition, another advantage of the MARCOS method is its ability to integrate subjective preferences and judgments of various stakeholders[11]. By combining quantitative and qualitative approaches, MARCOS is able to create a balanced solution that is acceptable to all parties involved[12]. The MARCOS method is not only an efficient tool for evaluating alternatives, but also promotes better participation, full stakeholder engagement, and more accurate and informed decisions[13].

Pairwise Relative Criteria Importance Assessment (PIPRECIA) is a decision-making technique focused on the systematic evaluation and comparison of the relative importance of various criteria in a decision-making process[14], [15]. In PIPRECIA, decision makers assess each criterion in pairs and indicate their preference or priority between the two. This pairwise comparison allows decision makers to assign a rank or weight to each criterion based on its importance in achieving the overall goal. This technique uses mathematical models, such as the Analytic Hierarchy Process (AHP) or the Paired Comparison Method, to measure these preferences and obtain a consistent set of weighted criteria. PIPRECIA increases the transparency of decision-making by providing a structured approach to understanding the significance of each criterion in relation to others[16], [17]. Although PIPRECIA offers a valuable method of prioritizing decision criteria, it is important to manage potential bias carefully and ensure that decision makers are fully informed about the consequences of their paired comparisons to obtain meaningful and reliable results[18].

Research related to salesperson performance measurement conducted by Nainggolan (2022) The MOORA method can make decisions with the resulting model to solve problems in evaluating sales marketing performance[19]. Research conducted by Setiyanto (2021) Daily activity and product sales data collected can be used to provide an assessment of Sales who have the best performance with the Simple Additive Weighting (SAW) Method[20]. Research conducted by Siregar (2020) decision support system in selecting the best sales marketing using the COPRAS method to be able to solve problems in determining the best sales marketing based on predetermined criteria and weights[21]. Research conducted by Simanullang (2023) shows that the use of the WP Method in SPK provides more objective and consistent results in the selection of sales marketing receipts[22]. The difference between the research conducted is that this study uses the PIPRECIA method to determine the weight of criteria used in evaluating salesperson performance and the MARCOS method used in assessing the performance and final ranking of salespersons.

The combination of Pairwise Relative Criteria Importance Assessment (PIPRECIA) and Measurement of Alternatives and Ranking According to Compromise Solution (MARCOS) forms a powerful holistic approach to decision making[23]. PIPRECIA facilitates the identification and assessment of the relative weights of each decision criterion, providing a solid foundation for assigning value to the relative importance between criteria. After that, MARCOS is used to evaluate and rank alternative solutions based on preferences and priorities that have been measured by PIPRECIA. By combining the advantages of both, this approach allows stakeholders to accommodate levels of complexity and uncertainty in decision making. PIPRECIA provides a structural analytical foundation, while MARCOS provides flexibility and adaptability in handling compromises between

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solutions. With this synergy, the combination of PIPRECIA and MARCOS creates a more comprehensive and contextual method of determining the best solution in complex and dynamic situations. This approach not only considers quantitative aspects through PIPRECIA, but also incorporates qualitative dimensions through MARCOS, creating space for subjective considerations and decision-making preferences. This combination allows decision makers to dynamically adjust weights and judgments based on changing conditions or priorities that may evolve over time. In addition, the integration of PIPRECIA and MARCOS increases transparency and accountability in the decision-making process, as stakeholders can see how criteria assessments are conducted and how solutions are ranked. Thus, the combination of PIPRECIA and MARCOS not only provides a solid and analytical foundation for evaluation, but also provides the ability to consider subjective factors that are often important in the context of complex organizational decisions. What's more, by using a combination of PIPRECIA and MARCOS in salesperson performance evaluations, organizations can develop more targeted employee development strategies. By knowing the most important criteria and ranking salesperson performance comprehensively, management can identify individual strengths and weaknesses and provide more focused feedback. This creates an opportunity to tailor training programs to suit the specific needs of each salesperson and foster more effective professional growth. In addition, this approach can help in setting realistic and achievable performance goals, in line with organizational policies and market expectations. By combining quantitative analysis and compromise evaluation, organizations can maximize salespersons' performance potential, build strong teams, and achieve long-term success in dynamic business environments.

The purpose of this study is to assess the performance of salesperson in providing sales allowances based on performance results carried out by applying a combination of MARCOS and PIPRECIA methods, so as to produce a recommendation for the final assessment of salesperson performance that will assist the company in providing sales benefits to salespersons.

2. RESEARCH METHODOLOGY

2.1 Research Stages

Research stages are a series of systematic steps carried out to achieve research objectives. First, formulate a research problem clearly and specifically. The next step is to devise a theoretical framework to provide a conceptual basis for the research. After that, the research methodology should be carefully designed, including the selection of appropriate data collection methods and analysis techniques. After the data is collected, researchers conduct analysis to produce findings that can answer the research question.

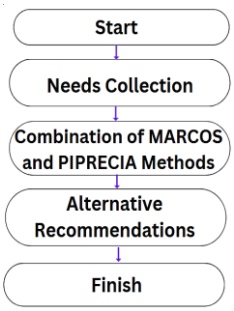

Figure 1. Research Stage

The research stage in figure 1 begins with collecting needs in this study by conducting interviews to find out the problems that occur in evaluating the performance of existing salespersons. Problems that occur in salesperson performance evaluation there is no decision model used in evaluating salesperson performance. Based on these problems, this study proposes to evaluate the performance of sales persons using a combination of MARCOS and PIPRECIA methods which will produce a salesperson performance appraisal recommendation based on the assessment that has been done. The criteria data used in this study are as in table 1.

Table 1. Salesperson Performance Evaluation Criteria Data

Criteria Name	Types of Criteria	Initial Weight Criteria
Net Sales	Benefit	1
Sales Volume	Benefit	1
Sales Target Achievement	Benefit	1
Product and Market Knowledge	Benefit	0.8
Sales Reporting and Analysis	Benefit	0.8

Table 1 criteria data is a criterion used in evaluating salesperson performance conducted within the company, the data is obtained from the company based on the results of the needs collection in this study.

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2.2 PIPRECIA Method

PIPRECIA is a method used to evaluate and determine the relative importance between criteria in decision making. PIPRECIA helps address the complexity of measuring and understanding stakeholder preferences for various criteria, making a significant contribution to more effective and informed decision-making processes. By utilizing PIPRECIA, decisions taken can be more targeted and based on a careful evaluation of the relative importance between the criteria involved. The stages of completion in determining weights using PIPRECIA are as follows.

a. Specifies the relative significance value of each criterion, except the first one using the following equation.

$$S_j = \begin{cases} 1 \; if \; c_j > c_1 \\ 1 \; if \; c_j = c_1 \\ 1 \; if \; c_j < c_1 \end{cases} \quad (1)$$

b. Set the value of the coefficient by using the following equation.

$$K_j = \begin{cases} 1 \; if \; j = 1 \\ 2 - S_j \; if \; j > 1 \end{cases} \quad (2)$$

c. Calculate the weight by using the following equation.

$$Q_j = \begin{cases} 1 \; if \; j = 1 \\ \frac{1}{K_j} \; if \; j > 1 \end{cases} \quad (3)$$

d. Calculates the relative final weight of criteria using the following equation.

$$W_j = \frac{Q_j}{\sum_{k=1}^{n} Q_k} \quad (4)$$

After obtaining the final value of the criteria weight using the PIPRECIA method, the weight will be used in the MARCOS method.

2.3 MARCOS Method

Measurement of Alternatives and Ranking According to Compromise Solution (MARCOS) is a method used in decision making to evaluate and rank existing alternatives. MARCOS produces compromise solutions that provide the best balance between existing criteria. This method is useful when there are conflicts or trade-offs between criteria. The stages in this method are making a decision matrix based on alternative assessment data, then determining the ideal solution and the ideal anti-ideal solution using the following equation.

$$AAI = min_{x_{ij}}; \; AI = max_{x_{ij}} \quad (5)$$

$$AAI = max_{x_{ij}}; \; AI = min_{x_{ij}} \quad (6)$$

The equation in determining the ideal solution and the anti-ideal solution has 2 equations, for equation (5) it is used for criteria with the type of benefit, and equation (6) is used for criteria with the type of cost.
The next process normalizes the matrix using the following equation.

$$n_{ij} = \frac{x_{ij}}{x_{ai}} \quad (7)$$

$$n_{ij} = \frac{x_{ai}}{x_{ij}} \quad (8)$$

The equation in normalizing the matrix has 2 equations, for equation (7) used for criteria with the type of benefit, and equation (8) is used for criteria with the type of cost.
Next, multiply the weight with the normalization results using the following equation.

$$v_{ij} = w_j * n_{ij} \quad (9)$$

The next stage determines the value of alternative utilities (K_i) obtained from (S_i) uses the following equation.

$$S_i = \sum_{i=1}^{n} v_{ij} \quad (10)$$

$$K_i^- = \frac{S_i}{S_{aai}} \quad (11)$$

$$K_i^+ = \frac{S_i}{S_{ai}} \quad (12)$$

The final stage calculates the ideal utility value, the anti-ideal utility value, and the final utility value using the following equation.

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$$f_{(k_i^-)} = \frac{K_i^-}{K_i^+ + K_i^-} \quad (13)$$

$$f_{(k_i^+)} = \frac{K_i^+}{K_i^+ + K_i^-} \quad (14)$$

$$f_{(k_i)} = \frac{K_i^+ + K_i^-}{1 + \frac{1-f_{(k_i^+)}}{f_{(k_i^+)}} + \frac{1-f_{(k_i^-)}}{f_{(k_i^-)}}} \quad (15)$$

The final value of the MARCOS method contributes to more holistic and efficient decision making, taking into account a large amount of information and preferences that may contradict each other. Therefore, MARCOS becomes a useful tool in situations where there is complexity and variation of criteria, and solutions that can accommodate various relevant aspects are needed to reach optimal decisions.

3. RESULT AND DISCUSSION

Application of a combination of Measurement of Alternatives and Ranking According to Compromise Solution (MARCOS) and Pairwise Relative Criteria Importance Assessment (PIPRECIA) methods in the assessment to evaluate salesperson performance through several stages ranging from determining the weight of criteria, applying the MARCOS method and alternative ranking. The combination of Pairwise Relative Criteria Importance Assessment (PIPRECIA) and Measurement of Alternatives and Ranking According to Compromise Solution (MARCOS) offers a sophisticated approach to salesperson performance evaluation. PIPRECIA provides an analytical foundation by identifying and assigning relative weight to salesperson performance evaluation criteria. Once the criteria are weighted, MARCOS is used to evaluate and rank the performance of salespersons holistically, considering preferences and priorities that may change over time. By combining the advantages of these two methods, the performance evaluation of the salesperson becomes more contextual and adaptive. This approach not only provides a clear picture of individual performance based on identified criteria, but also allows management to adjust assessments based on evolving market dynamics and corporate strategies. Thus, the combination of PIPRECIA and MARCOS creates a comprehensive salesperson performance evaluation framework, ensuring more informed and sustainable management decisions.

This approach allows management to understand the possible trade-offs in salesperson performance, which often involve various aspects such as sales volume, customer satisfaction, and adaptability to market changes. With PIPRECIA, evaluation criteria can be weighted according to their importance, while MARCOS helps in ranking the results of the evaluation thoroughly, creating a balanced compromise solution. The advantage of this combination lies in its ability to consider complexity and dynamics in the performance of the salesperson, providing a more precise and relevant evaluation foundation. Overall, the integration of PIPRECIA and MARCOS in salesperson performance evaluation not only improves objectivity and accuracy, but also ensures the flexibility needed to meet the ever-changing challenges of the world of sales and marketing.

3.1 Determination of Criteria Weights using PIPRECIA Method

Determination of criteria weighting using PIPRECIA is one of the commonly used methods in multi-criteria decision analysis. This method involves a comparison between existing criteria to determine the relative importance of each criterion. The stages of completion in determining weights using PIPRECIA are as follows.

a. Specifies the relative significance value of each criterion using the following equation (1), Set the value of the coefficient by using the equation (2), Calculate the weight by using the equation (3). The results of the calculation of the relative significance value, the value of the coefficient, and calculate the weight as in Table 2.

Table 2. Salesperson Performance Evaluation Criteria Data

Criteria Name	S_j	K_j	Q_j
Net Sales	1	1	1
Sales Volume	1	1	1
Sales Target Achievement	1	1	1
Product and Market Knowledge	0.8	1.2	0.833
Sales Reporting and Analysis	0.8	1.2	0.833

b. Calculates the relative final weight of criteria using the equation (4), The results of the calculation of the final value of the criterion weight are as follows.

$$W_1 = \frac{Q_1}{\sum_{k=1}^{n} Q_{1;5}} = \frac{1}{4.666} = 0.214$$

$$W_2 = \frac{Q_2}{\sum_{k=1}^{n} Q_{1;5}} = \frac{1}{4.666} = 0.214$$

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$$W_3 = \frac{Q_3}{\sum_{k=1}^{n} Q_{1;5}} = \frac{1}{4.666} = 0.214$$

$$W_4 = \frac{Q_4}{\sum_{k=1}^{n} Q_{1;5}} = \frac{0.833}{4.666} = 0.179$$

$$W_5 = \frac{Q_5}{\sum_{k=1}^{n} Q_{1;5}} = \frac{0.833}{4.666} = 0.179$$

Based on the results of the calculation of the weight of the criteria using the PIPRECIA method, the weight for the Net Sales criterion is 0.214, for the Sales Volume criterion is 0.214, for the Sales Target Achievement criterion is 0.214, for the Product and Market Knowledge criterion is 0.179, and for the Sales Reporting and Analysis criterion is 0.179. The final weight value of each criterion will be used in the MARCOS method in evaluating salesperson performance.

3.2 Evaluation of Salesperson Performance Using MARCOS Method

The Measurement of Alternatives and Ranking According to Compromise Solution (MARCOS) method is an innovative approach to salesperson performance evaluation that utilizes alternative measurements and ratings based on compromise solutions. By using this method, companies can make more informed and balanced decisions in managing and improving salesperson performance to achieve optimal business goals. Salesperson performance appraisal data as shown in table 3.

Table 3. Salesperson Performance Appraisal

Salesperson	Net Sales	Sales Volume	Sales Target Achievement	Product and Market Knowledge	Sales Reporting and Analysis
Rini	175	78	5	4	3
Susanti	156	79	4	5	3
Hilda Yanti	145	80	5	4	3
Hana Ferbi	183	86	4	3	4
Yulistia	165	75	3	5	3
Murniasih	149	88	4	4	4
Cinthya	166	79	5	4	5
Helen	153	68	4	4	4

The next stage we will determine the ideal solution and anti-ideal solution from the salesperson assessment data using equation (5) because the existing criteria are benefit types, ideal and anti-ideal solution results as follows.

$$AAI_1 = min_{x_{11;19}} = 153;\ AI_1 = max_{x_{11;19}} = 183$$

$$AAI_2 = min_{x_{21;29}} = 68;\ AI_2 = max_{x_{21;29}} = 88$$

$$AAI_3 = min_{x_{31;39}} = 3;\ AI_3 = max_{x_{31;39}} = 5$$

$$AAI_4 = min_{x_{41;49}} = 3;\ AI_4 = max_{x_{41;49}} = 5$$

$$AAI_5 = min_{x_{51;59}} = 3;\ AI_5 = max_{x_{51;59}} = 5$$

The next stage performs matrix normalization using equations (7), the calculation of matrix normalization as follows.

$$n_{10} = \frac{AAI_1}{AI_1} = \frac{145}{183} = 0.792$$

$$n_{11} = \frac{x_{11}}{AI_1} = \frac{175}{183} = 0.956$$

The overall results of matrix normalization are shown in table 4.

Table 4. Matrix Normalization

Salesperson	Net Sales	Sales Volume	Sales Target Achievement	Product and Market Knowledge	Sales Reporting and Analysis
AAI	1.26	1.29	1.67	1.67	1.67
Rini	1.05	1.13	1.00	1.25	1.67
Susanti	1.17	1.11	1.25	1.00	1.67
Hilda Yanti	1.26	1.10	1.00	1.25	1.67
Hana Ferbi	1.00	1.02	1.25	1.67	1.25
Yulistia	1.11	1.17	1.67	1.00	1.67

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Salesperson	Net Sales	Sales Volume	Sales Target Achievement	Product and Market Knowledge	Sales Reporting and Analysis
Murniasih	1.23	1.00	1.25	1.25	1.25
Cinthya	1.10	1.11	1.00	1.25	1.00
Helen	1.20	1.29	1.25	1.25	1.25
AI	1.00	1.00	1.00	1.00	1.00

Furthermore, multiplying the weight with the normalization results using equation (9), for the weight of Net Sales criterion is 0.214, for the Sales Volume criterion is 0.214, for the Sales Target Achievement criterion is 0.214, for the Product and Market Knowledge criterion is 0.179, and for the Sales Reporting and Analysis criterion is 0.179.

$v_{10} = w_1 * n_{10} = 0.214 * 1.26 = 0.270$

The overall result of weight multiplication is as presented in the following table 5.

Table 5. Weight Multiplication

Salesperson	Net Sales	Sales Volume	Sales Target Achievement	Product and Market Knowledge	Sales Reporting and Analysis
AAI	0.270	0.277	0.357	0.357	0.357
Rini	0.224	0.241	0.214	0.268	0.357
Susanti	0.251	0.238	0.268	0.214	0.357
Hilda Yanti	0.270	0.235	0.214	0.268	0.357
Hana Ferbi	0.214	0.219	0.268	0.357	0.268
Yulistia	0.237	0.251	0.357	0.214	0.357
Murniasih	0.263	0.214	0.268	0.268	0.268
Cinthya	0.236	0.238	0.214	0.268	0.214
Helen	0.256	0.277	0.268	0.268	0.268
AI	0.214	0.214	0.214	0.214	0.214

The next stage determines the value S_i using equation (10), the result of calculating the value S_i follows,

$S_{aai} = v_{10} + v_{20} + v_{30} + v_{40} + v_{50}$

$S_{aai} = 0.270 + 0.277 + 0.357 + 0.357 + 0.357 = 1.617$

The result of calculating the overall S_i value as in Table 6.

Table 6. S_i Value

Salesperson	S_i
AAI	1.500
Rini	1.201
Susanti	1.234
Hilda Yanti	1.242
Hana Ferbi	1.223
Yulistia	1.322
Murniasih	1.192
Cinthya	1.091
Helen	1.248
AI	1.201

The next step determines the alternative utility value (Ki) obtained from (Si) using equations (11) and (12).

$K_1^- = \frac{S_1}{S_{aai}} = \frac{1.201}{1.500} = 0.806$

$K_1^+ = \frac{S_1}{S_{ai}} = \frac{1.201}{1.500} = 1.511$

the calculation nilai utilitas alternatif (Ki) results are as in Table 7.

Table 7. S_i Value

Salesperson	K_i^-	K_i^+
Rini	0.806	1.511
Susanti	0.821	1.218
Hilda Yanti	0.831	1.241
Hana Ferbi	0.819	1.256

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Salesperson	K_i^-	K_i^+
Yulistia	0.876	1.238
Murniasih	0.791	1.323
Cinthya	0.723	1.196
Helen	0.826	1.093

The last stage calculates the ideal utility value using equation (13), the anti-ideal utility value using equation (14), The result of calculating the ideal utility value and anti-ideal utility value is as follows.

$$f_{(k_1^-)} = \frac{K_1^-}{K_1^+ + K_1^-} = \frac{0.806}{0.806+1.511} = 0.652$$

$$f_{(k_1^+)} = \frac{K_1^+}{K_1^+ + K_1^-} = \frac{1.511}{0.511+0.806} = 0.348$$

The overall calculation results of the ideal utility value are as shown in table 8.

Table 8. f_k Value

Salesperson	$f_{(k_1^-)}$	$f_{(k_1^+)}$
Rini	0.652	0.348
Susanti	0.597	0.403
Hilda Yanti	0.599	0.401
Hana Ferbi	0.605	0.395
Yulistia	0.586	0.414
Murniasih	0.626	0.374
Cinthya	0.623	0.377
Helen	0.570	0.430

The result of calculating the final utility value uses equation (15) as follows.

$$f_{(k_1)} = \frac{K_1^+ + K_1^-}{1 + \frac{1-f_{(k_1^+)}}{f_{(k_1^+)}} + \frac{1-f_{(k_1^-)}}{f_{(k_1^-)}}} = \frac{0.348+0.652}{1 + \frac{1-0.348}{0.348} + \frac{1-0.652}{0.652}} = 4.3446$$

The overall calculation results of the final utility value are as shown in table 9.

Table 9. Final Utility Value

Salesperson	Final Utility Value
Rini	4.3446
Susanti	3.0254
Hilda Yanti	3.0934
Hana Ferbi	3.1807
Yulistia	2.9884
Murniasih	3.5360
Cinthya	3.1717
Helen	2.5406

The final result of the utility value of table 7 is the final calculation of the value of the results of the salesperson performance evaluation using the MARCOS method.

3.3 Ranking of Salesperson Performance Evaluation Results

Ranking the results of salesperson performance evaluation is an important process in assessing and comparing the contributions of individuals working in the sales team. Salesperson performance evaluation involves assessing the achievement of sales targets, communication skills, negotiation skills, customer service, and initiative in achieving company goals. These rankings help organizations to identify outstanding performance, reward high-achieving salespersons, and simultaneously identify areas where improvement or training may be needed. Thus, ranking the results of salesperson performance evaluations is not only a tool for awarding, but also as a guide for the development and improvement of overall performance in the sales team. Ranking can be done taking into account the various criteria used. The results of the salesperson performance evaluation ranking are as shown in table 10.

Table 10. Ranking of Salesperson Performance Evaluation Results

Salesperson	Final Utility Value	Rangking
Rini	4.3446	1
Murniasih	3.5360	2

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Salesperson	Final Utility Value	Rangking
Hana Ferbi	3.1807	3
Cinthya	3.1717	4
Hilda Yanti	3.0934	5
Susanti	3.0254	6
Yulistia	2.9884	7
Helen	2.5406	8

The results of the salesperson performance evaluation ranking above show the final results for rank 1 with a value of 4.3446 obtained by Rini, rank 2 with a value of 3.5369 obtained by Murniasih, rank 3 with a value of 3.1807 obtained by Hana Ferbi, rank 4 with a value of 3.1717 obtained by Cinthya, rank 5 with a value of 3.0934 obtained by Hilda Yanti, rank 6 with a value of 3.0254 was obtained by Susanti, rank 7 with a value of 2.9884 was obtained by Yulistia, and rank 8 with a value of 2.5406 was obtained by Helen.
Based on these results, it is recommended that recipients of performance allowances be obtained on behalf of Rini's salesperson, then Murniasih, and Hana Febri based on the results of the final value calculation by applying a combination of the MARCOS and PIPRECIA methods.

4. CONCLUSION

The purpose of this study is to assess the performance of salesperson in providing sales allowances based on performance results carried out by applying a combination of MARCOS and PIPRECIA methods, so as to produce a recommendation for the final assessment of salesperson performance that will assist the company in providing sales benefits to salespersons. The combination of PIPRECIA and MARCOS forms a powerful holistic approach to decision making, PIPRECIA facilitates the identification and assessment of the relative weights of each decision criterion, providing a solid foundation for assigning value to the relative importance between criteria. After that, MARCOS is used to evaluate and rank alternative solutions based on preferences and priorities that have been measured by PIPRECIA. Combination of PIPRECIA and MARCOS not only provides a solid and analytical foundation for evaluation, but also provides the ability to consider subjective factors that are often important in the context of complex organizational decisions. This combination allows decision makers to dynamically adjust weights and judgments based on changing conditions or priorities that may evolve over time. In addition, the integration of PIPRECIA and MARCOS increases transparency and accountability in the decision-making process, as stakeholders can see how criteria assessments are conducted and how solutions are ranked. The results of the salesperson performance evaluation ranking above show the final results for rank 1 with a value of 4.3446 obtained by Rini, rank 2 with a value of 3.5369 obtained by Murniasih, rank 3 with a value of 3.1807 obtained by Hana Ferbi.

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