



Model development of village financial management performance measurement by balanced scorecard based: A case study of Midang Village office

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Abstract

Research on the development of the village financial management performance measurement model aims to determine the importance of the performance used in financial management at the Midang Village Office based on the balanced scorecard. By using four perspectives, namely the financial perspective, the community perspective, the internal business process perspective and the growth and learning perspective as the basis for the criteria for measuring village financial management performance. The design in this research is descriptive qualitative with data collection techniques in the form of questionnaires, and documentation. The data collected was then processed using the AHP and TOPSIS models. Data processing using this model is useful in determining a decision with multiple criteria. The results of this study indicate that performance measurement using the AHP model results in a growth and learning perspective as the main priority in its performance in managing village finances with a priority value of 0.389. Then using TOPSIS ranking results that the growth and learning perspective gets the first rank with a preference value of 0.846. Related to this, it shows that the Midang Village Office as a public sector agency is not too focused on improving performance from a purely financial perspective.

Keywords: performance measurement, balanced scorecard, AHP, TOPSIS

Introduction

According to the Peraturan Undang-Undang Republik Indonesia Nomor 6 Tahun 2014 concerning Villages that Village Government is the village head who is assisted by village officials as an element of village administration, while the Village is a community unit that has territorial boundaries and has the authority to regulate and manage the interests of the local community. The village law regulations were issued because of the change in regional autonomy from a centralized system to a decentralized system or regional autonomy. Regional autonomy is carried out because of the consideration that the affairs or burdens of an area can be handled by the region itself (Sani, 2017) ^[20]. The authority given to the village government related to regional autonomy is expected to be able to improve village performance both in financial and non-financial terms (Elmiza & Arza, 2020) ^[4]. In terms of finance, the village government has the ability to manage village finances. Based on the Regulation of the Minister of Home Affairs of the Republic of Indonesia Number 113 of 2014 concerning Village Financial Management, all activities include planning, implementation, administration, reporting, and village financial accountability.

The breadth of tasks mandated to the village government at this time makes the village government need to have tools to ensure that the goals that have been set can be measured attainment. Therefore, performance measurement is a necessary factor for an organization in knowing the goals achieved, especially in public sector organizations such as village governments (Oja, 2016) ^[17]. With this performance measurement, it is possible to know and evaluate all activities owned by the village, so that the government can assist in determining various ways to maintain the efficiency and effectiveness of an activity program that will be presented to the public as a report on the achievement of the performance results obtained (Mursidin, 2017) ^[13].

According to Muhamad (2017) performance measurement which only focuses on measuring the financial aspect is a traditional strategic management system (Muhamad, 2017). What happens when performance is only focused on the financial aspect will result in another factor not seeing the source of its performance. Performance measurement with the traditional style is considered less able to direct the organization appropriately and competently (Ihza et al., 2020) [7].

To measure overall performance, a balanced concept is needed, one of which is using a balanced scorecard. In the balanced scorecard it is explained that performance measurement can not only be measured from a financial perspective but can also be measured through a non-financial perspective such as the customer perspective, internal business process perspective, and growth and learning perspective (Muhamad, 2017). The balanced scorecard stated by Kaplan and Norton (2000) is used to replace the previous traditional method.

However, at this time the thing that is still very confused is whether village financial management can be measured using a balanced scorecard or not. In this study, the author tries to develop a performance measurement that is measured by assessing the interests used in village financial management using the perspective aspects contained in the balanced scorecard. The author took the initiative to conduct this research by studying more about the performance used and analyzed using the Analytical Hierarchy Process (AHP) model and Technique for Order Preference by Similarity to Ideal Solution (TOPSIS).

Literature Review

Performance Measurement

Measurement is a form of assessment related to how well the work is being done, such as the efficiency and effectiveness of the use of resources, the quality of resources and something produced by these resources, in activities or policies (Widjanarko, 2018) [26]. Performance measurement in non-profit public sector organizations is generally used only to assess accountability in serving the community (Nurudin, 2018) [16]. Performance measurement also has a relationship in terms of assessing the importance of performance indicators (Mas'idah, Khoiriyah, and Samudra 2018) [8]. Nudurupati, Garengo, and Bititci (2021) [14] also explained that performance measurement concepts that include deployment of organizational goals and objectives throughout the organization to achieve alignment, ensuring that the whole organization works towards common objectives.

Village Financial Management

According to the Peraturan Menteri Dalam Negeri Republik Indonesia Nomor 113 Tahun 2014 concerning Village Financial Management that village finances are all village rights and obligations that can be valued in money and everything in the form of money and goods related to the implementation of village rights and obligations. Village financial management is an entire activity that includes planning, implementation, administration, reporting, and village financial accountability. Village financial management is said to be an important instrument for accelerating village development as well as being one of the rights of regional autonomy (Siagian, Maryunani, Sakti, Santoso 2016).

Balanced Scorecard

The balanced scorecard can be used as a reference in seeing a performance in an agency using the perspective it has to determine the balance between financial and non-financial perspectives (Wiguna, Wati, and Marliza 2019) [27]. According to Kaplan & Norton (1996) [19] balanced scorecard consists of 2 (two) words, namely balanced is a balanced performance measured from financial and non-financial, short-term and long-term, as well as internal and external aspects. Scorecard is a card used to record the score of the performance results which will then be used as a comparison with the actual performance results. The understanding of the four perspectives of the balanced scorecard is as follows:

1. Financial Perspective

Organizational performance needs to be reviewed from a financial perspective to determine the rate of growth and to develop its business.

2. Customer Perspective

The customer perspective is the performance perspective of the non-financial section. This perspective explains about customers who affect organizational performance related to the services provided by an organization.

3. Internal Business Process Perspective

Perspective The internal business process perspective is the responsibility of the department or organization. This perspective explains that business owners are expected to have good innovation, facilities, and work processes.

4. Growth and Learning Perspective

Perspective The growth and learning perspective is a perspective that is useful as a form of support in supporting the three perspectives above. Such as the ability possessed by the organization to improve its performance.

Decision Support System (DSS)

In general, a decision support system (DSS) can be defined as a form of development of a management information system designed in such a way that it is interactive with its users. According to Suryana et al., (2017) [24] a decision support system is an information system that provides information in data modeling that is useful as a support for data analysis specifically and is oriented towards future planning. In simple terms, the definition of DSS is a system that is used as a tool for managers in solving problems regarding decision making, but that does not mean that it can replace the manager's position only as a giver of consideration. Decision support systems are useful for decision making that requires an assessment and or a decision that cannot be described subjectively.

Analytical Hierarchy Process (AHP)

AHP was developed by Thomas L. Saaty (2008) which is a form of decision support model that can describe a problem with complex multi-criteria into a hierarchy. Hierarchy is a model of a complex problem consisting of a multi-level structure with the first level being the goal, followed by the level of factors, criteria, sub-criteria and so on until the final level of the alternative that functions so that a complex problem model can be described based on groups (Nurdiyanto and Meilia 2016) [15]. AHP is a qualitative or quantitative decision-making analysis method. It is based on

the decomposition of elements related to decision making into levels of objectives, criteria, or attributes (Wang and Duan 2019) [25]. The steps of the AHP method are as follows (Lukmandono et al. 2019) [10]:

1. Determine criteria and sub-criteria
2. Create a description of the hierarchy of predetermined criteria and sub-criteria
3. Compile a pairwise comparison matrix. The value of pairwise comparisons is obtained from the judgments of the decision-making respondents
4. Calculate the geometric mean value of the pairwise comparison matrix with the formula:

$$GM_x = \sqrt[n]{x_1 \times x_2 \times x_3 \dots \times x_n} \quad (4)$$

5. Calculate the eigenvalues of the pairwise comparison matrix vectors using the formula:

$$\text{Find vector [A]} = \text{matrix} \times \text{priority weight} \quad (5a)$$

$$\text{Find vector [B]} = \frac{\text{vector [A]}}{\text{priority weight}} \quad (5b)$$

6. Finding the maximum eigenvalue from the eigenvector calculation results with the formula:

$$MEV = \frac{\text{matrix vector B result}}{n} \quad (6)$$

7. Determine the Consistency Index and Random Index values according to n =number of criteria elements with the formula:

$$CI = \frac{MEV - n}{n - 1} \quad (7)$$

8. Testing the Consistency Ratio value, to determine the consistency of the answers. Answers are considered consistent if <0.10 or 10%.

$$\text{Consistency Ratio (CR)} = \frac{CI}{RI} \quad (8)$$

Technique for order by similarity to ideal solution (TOPSIS)

This method was first introduced by Yoon and Hwang (1981) and defined that it can be used in decision making for the development of a problem process model with multiple criteria. Based on Gunawan's research (2020) [5] that the TOPSIS method can provide convenience in understanding performance measurement methods that can automatically provide alternative answers in the form of simple mathematical calculations. Each criterion has a weight value that is clearly known, this is contained in the classical TOPSIS method. TOPSIS has a concept where an alternative is chosen from the best and is not seen from the shortest distance which has a positive ideal solution, but also has the longest distance which has a negative ideal solution (Aly, Attia, and Mohammed 2014) [3]. Thus, each criterion weight can be determined based on its level of importance by the decision maker. The steps of the TOPSIS method are as follows (Polii & Purnomo, 2022):

1. Determine the decision matrix
2. Make a normalized decision matrix with the formula:

$$|X_n| = \sqrt{\sum_{i=1}^m x_{ij}^2} \quad (2a)$$

$$r_{ij} = \frac{x_{ij}}{\sum_{i=1}^m x_{ij}^2} \quad (2b)$$

3. Create a weighted normalized matrix with the formula:

$$y_{ij} = w_i \cdot r_{ij} \quad (3)$$

4. Determine the positive ideal solution and the negative ideal solution
5. Determine the distance of the positive ideal solution and the distance of the negative ideal solution with the formula:

$$D_{i+} = \sqrt{\sum_{j=1}^m (y_{j+} - y_{ij})^2} \quad (5a)$$

$$D_{i-} = \sqrt{\sum_{j=1}^m (y_{j-} - y_{ij})^2} \quad (5b)$$

6. Determining the preference value as determining the ranking of criteria with the formula:

$$V_i = \frac{D_{i-}}{D_{i-} + D_{i+}} \quad (6)$$

Methodology

This research is used a descriptive qualitative research, which is to understand the phenomenon of the object of research in a description in the form of words and theoretically adapted to the results of relevant research in research (Afandi 2018) [1]. This study aims to determine the performance used in village financial management at the Midang Village Office based on a balanced scorecard by using a data processing model from the AHP and TOPSIS decision-making systems. Determination of the criteria or performance indicators of village financial management in this study using reference indicators from the 2021 Strategic Plan of Gunungsari District and 2021 West Lombok Regency LAKIP which were adjusted based on the balanced scorecard.

The location of this research was conducted at the Midang Village Office, Gunungsari District, West Lombok Regency. This research was conducted over a period of three months starting from January-March 2022. The informants in this study were financial managers at the Midang Village Government Office, totaling 5 informants. Methods of data collection using observation, questionnaires, and documentation. The validity of the data in this study used data validity tests, namely the credibility test, transferability test, reliability test, and confirmation test.

Techniques The analysis technique used is the model from Miles and Huberman namely reducing data by sorting complex data into simple ones, performing data displays, namely presenting data in the form of short narrative descriptions, charts, tables, and the like and performing drawing conclusions at the final stage of data analysis (Sugiyono 2017).

Result and Discussion

AHP Modeling

Table 1 shows that the criteria for measuring the performance of village financial management at the Midang Village

Government Office in this study use 4 balanced scorecard perspectives, including the financial perspective, community perspective, internal business process perspective, and growth and learning perspective. The perspective that is more prioritized in conducting financial management at the Midang Village Government Office is the growth and learning perspective which has a total of 1,558 with a priority

value of 0.389. The second priority is the internal business process perspective, which is 1.084 with a priority value of 0.271. The third priority is the community perspective, amounting to 0.822 with a priority value of 0.205. The financial perspective is the last priority because it shows a total of 0.529 with a priority value of 0.132.

Table 1: Priority Weight of Village Financial Management Performance Criteria

| Village Financial Management Performance | Financial | Public | Internal Process Business | Growth and Learning | Total | Priority Weight |
|--|-----------|--------|---------------------------|---------------------|-------|-----------------|
| Financial | 0,132 | 0,079 | 0,105 | 0,213 | 0,529 | 0,132 |
| Public | 0,312 | 0,186 | 0,128 | 0,196 | 0,822 | 0,205 |
| Internal Business Process | 0,304 | 0,352 | 0,242 | 0,186 | 1,084 | 0,271 |
| Growth and Learning | 0,250 | 0,381 | 0,524 | 0,403 | 1,558 | 0,389 |
| Total | 1 | 1 | 1 | 1 | 4 | 1 |

Source: Process Data (2022)

TOPSIS Ranking

Topsis method uses the consideration of the distance between the positive ideal solution and the negative ideal solution. In the TOPSIS method, performance ratings are obtained by calculating the weights to get the right ranking. The data that is processed using TOPSIS is the data from the answers to the

questionnaire distribution and by using the priority weight values that have been determined from the calculations on the AHP model. TOPSIS data processing in this study using Microsoft Excel. From processing using TOPSIS, the following results are obtained:

Table 2: TOPSIS Ranking Result

| Ranking | Performance | Preference (V) | Preference Value |
|---------|---------------------------------------|----------------|------------------|
| 1 | Growth and Learning Perspective | V_4 | 0,846 |
| 2 | Internal Business Process Perspective | V_3 | 0,554 |
| 3 | Public Perspective | V_2 | 0,358 |
| 4 | Financial Perspective | V_1 | 0,013 |

Source: Processed Data (2022)

It can be concluded that the results of the calculation of data processing using the TOPSIS method show the highest ranking results, namely the Growth and Learning Perspective with a preference value of 0.846. The second rank is the Internal Business Process Perspective with a preference total value of 0.554. Followed by Community Perspective as the third rank produces a preference value of 0.358. The fourth rank is Financial Perspective with a preference value of 0.013.

Comparison of AHP and TOPSIS Analysis Results

To find out which data processing method model is better or optimal in measuring village financial management performance criteria in this study, the AHP or TOPSIS method is needed, which requires a simple average calculation of the results of each criterion value to the AHP method and TOPSIS in table 3.

Table 3: Result of Comparative Analysis

| Performance Criteria | AHP | TOPSIS |
|---------------------------------------|-------|--------|
| Financial Perspective | 0,132 | 0,013 |
| Public Perspective | 0,205 | 0,358 |
| Internal Business Process Perspective | 0,271 | 0,554 |
| Growth and Learning Perspective | 0,389 | 0,846 |
| Total | 0,997 | 1,177 |
| Value (x) | 0,997 | 1,117 |
| Frequency (f) | 4 | 4 |
| (f . x) | 4,997 | 5,117 |
| \bar{x} | 1,264 | |

Source: Processed Data (2022)

The results show an average value (\bar{x}) is 1,264. Then the number that is close to the value of 1.264 is the sum of the calculation values of the TOPSIS method. So from the two methods it can be seen simply that the TOPSIS method is the best or optimal method because it provides an average value

of 1.117 or can be interpreted as a larger value. In addition to the comparison of the calculation results, descriptively to find out the comparison of the calculation process, an analysis can be carried out as in the table below (Himawan 2019) ^[6]:

Table 5: Comparison of the Calculation Process of the AHP and TOPSIS Methods

| No. | Description | AHP Methods | TOPSIS Methods |
|-----|---|--|---|
| 1. | Calculation Process | 8 Step | 6 Step |
| 2. | Data Processing | <ul style="list-style-type: none"> ▪ Pairwise Comparison ▪ Consistency Test | <ul style="list-style-type: none"> ▪ Value Normalization ▪ Weighting ▪ The distance between the positive ideal solution and the negative ideal solution ▪ Ranking |
| 3. | Calculation Characteristics | The flow of the calculation of length and the calculation formula is difficult to understand | The flow and the formula of the calculation of the length, but it is easy to understand |
| 4. | The Influence of the Number of Criteria The | Many of criteria used is very influential in this AHP model. Because each sum of each criterion is used in calculating the priority weight of the criteria and is used as a hierarchical consistency test. | Many of criteria can affect the TOPSIS method, because these criteria are used to calculate the distance of the positive ideal solution and the distance of the negative ideal solution as well as ranking. |

Source: Processed Data (2022).

Discussion

This research shows that by using a combination model of AHP and TOPSIS, we can find out the priority performance choices in financial management from the perspective of the balanced scorecard. It can be seen that the Midang Village Government Office has a balance, in which its performance is not only measured or focused on a financial perspective. As in general, we know that in doing good financial management, it means counting funds or only from a financial perspective. However, in this study, it can be seen that village financial management is not only assessed from the financial aspect. From the AHP and TOPSIS analysis, it can be seen objectively that the Midang Village Government Office prioritizes village financial management performance from a growth and learning perspective rather than a financial perspective. The results of the study are supported by the opinion Soetjipto (2018) which states that the growth and learning perspective also views the importance of human resources (Soetjipto, 2018). Human resources are a worker who is an employee in an agency and can give influence to achieve the goals of the agency. Increasing the quality of human resources will have an influence on the services provided in the form of quality services to the community and foster a good image for the agency in the eyes of the community.

The balanced scorecard in public sector organizations is very different from that of the private sector. The results of this study are supported by the statement in Sururi's research (2019) ^[22] that government sector organizations are not for-profit or non-profit, because they have a goal of providing good services to the community and improving regional welfare, but in practice it must be carried out in a balanced manner. This is very useful, because it will have a good impact in supporting other perspectives. Although the public sector is a non-profit organization, the services expected by customers or the community are things that must exist in the public (Mauludin et al. 2022) ^[9].

In developing a balanced scorecard-based village financial management performance measurement model using the AHP and TOPSIS methods, the performance criteria are based on the same perspective, namely the growth and learning perspective. However, even though they have the same criteria, the resulting values are different. The results of these different values illustrate that of the two combined methods used, the TOPSIS method is the better method, its use is assessed objectively by means of a simple average comparison and descriptively. Descriptively, the TOPSIS method is simpler to calculate than the AHP method. This is

also supported by the statement of Agung dan Ricky (2016) ^[2] that the TOPSIS method is widely used in solving multi-criteria decision problems, because it has a simple mathematical calculation concept.

Conclusion

By using a decision support system in the priority selection indicators of performance criteria used in carrying out financial management, it can be calculated using the Analytical Hierarchy Process (AHP) decision support model and the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), namely assessment data in determining performance priorities. Results that growth and learning perspectives are the main priorities in managing village finances with a priority value of 0.389 and a ranking value of 0.855. From this value, it can be concluded that the measurement of village financial management performance can be seen and assessed in a balanced manner based on the balanced scorecard, and the assessment process becomes more objective by using a combination model of AHP and TOPSIS. Among the two combination methods, the TOPSIS method is the better method to use based on the assessment that has been carried out using a simple average comparison assessment and a descriptive comparison. This is also supported by Çelikbilek and Tüysüz's (2020) statement that the topsis method is better because it is easy to understand. This study has several limitations, one of which is the limitation on the object of research because it only researches for one local government agency, and researchers have little difficulty in obtaining financial-related data and supporting evidence to strengthen data related to this village financial management performance strategy. Based on these limitations, it is hoped that further researchers will expand the scope of their research to get better research results.

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