

Performance Analysis of Drinking Water Supply Companies Based on Balanced Scorecard in Makassar City

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Abstract. This research aims to describe and analyze the performance of the Local Drinking Water Company (Perusahaan Daerah Air Minum, PDAM) of Makassar using a Balanced Scorecard, which evaluated: financials, customer service, internal company operations, and Growth and Learning. The population of interest for this study was all PDAM customers and employees, with a sample of 100 customers and 50 employees of Makassar PDAM. Data was collected through a questionnaire, observation of respondents, and document review. Balanced scorecard results were positive overall; scores for the Makassar local government and PDAM still showed a necessity for improvement efforts in order to achieve maximal performance. Company financial performance evaluation showed fluctuation over the previous 5 years due to an increase in total assets which was not accompanied by a comparable increase in net profits. Company customer satisfaction was positive, with a significant portion of customer respondents satisfied with the treatment they received from employees. Scores for company internal operations performance were also positive, indicating effective and efficient operations. Company Learning and Growth evaluation scores returned by PDAM staff showed employees were satisfied overall with both their salaries and their daily workloads.

Keywords: Balanced Scorecard, Performance Analysis, local government.

1 Introduction

The Local Drinking Water Company (Perusahaan Daerah Air Minum or PDAM) of Makassar City was established for the purpose of managing the supply of drinking water to the people of Makassar. Considering the importance of its function as a supplier of a basic human need, effective and efficient management is a key aspect of company performance. The demand for safe drinking water continues to rise as the city's population grows and PDAM must take strategic steps to fulfill this need. Furthermore, the issue of customer rights being ignored has been brought up on several occasions, these rights being: the right to safe and drinkable water, the right to information about drinking water, the right to have their complaints heard, and the right to receive sufficient drinking water. Local government has made efforts to provide drinking water to the community and have also taken steps to ensure that access to these facilities is affordable, however there continues to be a significant segment of consumers who are unsatisfied with their drinking water service despite PDAM's full state monopoly.

Various highlights have emerged regarding the performance of the Makassar Regional Drinking Water Company, because customers in the Sub-District of Tamalanrea, East Manggala, Biringkanaya found that many customers did not enjoy drinking water despite the rainy season. The lack of water flowing into people's homes is caused by: (a) there is a pipe leak resulting in waste of water disposal that is not on target, (b) difficulty in getting raw water, (c) employees who are not yet competent, d) limited infrastructure, (e) weak monitoring and supervision in the field, (f) high operational costs. Based on the results of preliminary observations made that drinking water services are not maximized in Makassar City, it is important to analyze the performance of regional drinking water companies from a balanced scorecard perspective covering aspects: finance, customers, internal business operations and growth and learning. Based on the above phenomenon, the research aims to describe and analyze the performance of Regional Drinking Water Companies from the Balance Scorecard Perspective covering aspects of Finance, Customers, Internal Operations of the company; and Growth and learning.

If the management of the organization has employees who are competent, respect and treat it well it will influence attitudes and behaviors in performance shows. Through evaluation and monitoring performance periodically aims to determine the achievement of performance progress. The results of the assessment became feedback between superiors and subordinates to improve and maintain Wibowo's performance [1]. The results of individual performance evaluations are used to assess the ability of employees, the level of employee performance, payroll, rewards, transfers, and promotions in office. On the other hand as a basis for improving the ability and expertise of employees through education and training.

According to Nasucha [2], organizational performance is the overall effectiveness of the organization to meet the defined needs of each group with regard to systemic business ventures. The success of individual performance is very influential on organizational performance. The process of organizational performance is influenced by many factors. Hersey, Blanchaed, and Johnson in Wibowo [1] describe the relationship between performance and several influencing factors in the form of an integrated Satellite Model:

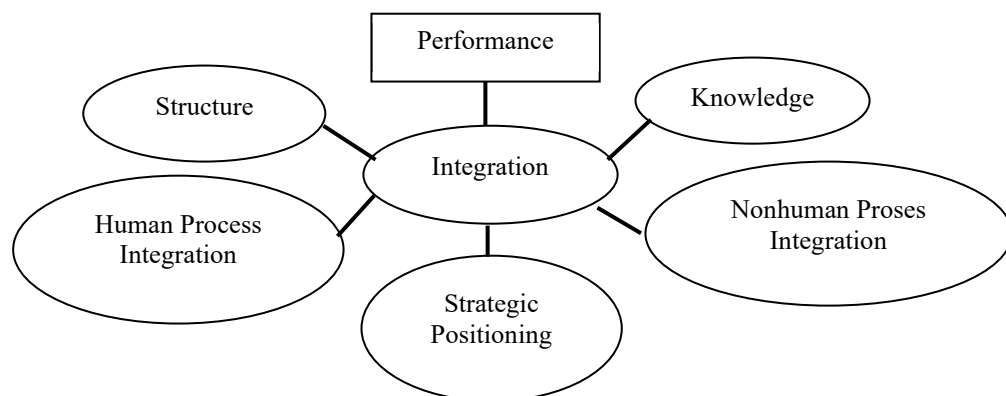


Fig 1. Satellite Model [1]

Assessment of the performance of organizations in the public sector as a government must be done as part of the accountability of the institution to the [3]. This is very necessary

considering that the financing used by public sector institutions comes from taxes, levies, and other state revenues. which is regulated by law. The existence of regional drinking water companies in Makassar City is a public good managed by the government in order to obtain profits as part of the regional income source. For this reason, the regional water company is controlled, monitored by the Makassar City Government. Periodically the Mayor of Makassar requests a report on the company's performance as part of the supervisory function.

According to Sinambela [4], the main aspects of the important aspects of obtaining considerations in measuring organizational performance include: (1) resources; (2) output, seen profit and Return On Investment (ROI); (3) provision of time to serve customers; and (4) flexibility, management responds to changes and the ability to serve various types of requests. Performance of public sector organizations is divided into 6 aspects, namely: (1) input groups; (2) process groups; (3) output groups; (4) result groups; (5) benefit groups; (6) impact groups [3]. An indicator of bureaucratic performance is productivity [5]. Productivity in general is understood as the ratio between input and output. Performance measurement is related to results that can be quantified and seek data after the event. Meanwhile, performance indicators are used for activities that can only be determined more qualitatively on the basis of observable behavior [1]. Performance indicators also suggest a prospective perspective (future expectations) rather than retrospectively (looking back). Furthermore Hersey, Blanchard, and Johnson in Wibowo [1] suggested that the main indicators of performance measurement were goal and motives.

Financial performance can be seen in the organization's ability to produce products that can increase company profits. The company still exists if it is able to provide customer satisfaction. The internal performance of the organization is characterized by the ability to increase productivity and employee satisfaction which has an impact on increasing company profits. For high productivity and quality products must be supported by the formation of good performance management, namely employees must be given training as appropriate learning and development so as to encourage increased organizational performance.

Measurements to Perspectives Based on the Balanced Scorecard (BS) are long-term, as follows:

Table 1. Measurements to Perspectives Based on the Balanced Scorecard (BS) are long-term

Measured Factor	Generic Measure of State-owned Enterprises
Internal company operations	1. Effectiveness and time efficiency in carrying out main duties and functions
	2. Operations include: service quality, service time, ordering and billing costs, and the use of information technology.
Financials	1. Increasing PDAM revenue
	2. Survey potential revenue sources
Customers	1. Increasing total customers
	2. Customer satisfaction
Learning and Growth	1. Employee satisfaction
	2. Employee productivity

2 Research Method

Using a balanced scorecard, the Local Drink Water Company of Makassar City's performance was measured with the hope that the data gained could be descriptive-quantitatively analyzed to describe the company's overall performance. The population in this study consisted of 100 customers and 50 respondents. Data was collected through the use of a questionnaire, observation, and document review.

Financial performance analysis was conducted using ratio analysis of Return on Investment (ROI) and Total Assets Turnover (TATO). The formula used for calculating Return on Investment is [6]:

$$\text{Return On Investment (ROI)} = \frac{\text{Earnings after Interest \& Tax}}{\text{Total Assets}} \quad (1)$$

Total Assets Turnover was measured by calculating sales per asset (in Indonesian Rupiah) using the following formula:

$$\text{Total Asset Turn Over (TATO)} = \frac{\text{Sales}}{\text{Total Assets}} \quad (2)$$

Analysis of the "Customer" aspect of the balanced scorecard was done by distributing a questionnaire to 100 customers. The researcher measured customer satisfaction using the customer satisfaction index method which consists of 4 indicators. Each questionnaire used the following Likert scale: 1) very bad; 2) bad; 3) fairly good; 4) good; 5) very good [7]. Data was then tabulated and a frequency table was constructed using SPSS.

By totaling all scores, we get the customer satisfaction index score per the formula:

$$IKC = PP \quad (3)$$

Where IKC is customer satisfaction and PP is perceived performance (the number of questions).

To determine the scale, the range between the maximum and minimum scores was calculated using the following formulae:

$$IK \text{ maximal} = R \times PP \times EX_{\text{maximal}}$$

$$IK \text{ minimal} = R \times PP \times EX_{\text{minimal}} \quad (4)$$

Internal Company Operations performance was measured by looking at time efficiency in the installation of pipes. The formula used was [8]:

$$\text{Effective margin ratio (EMR)} = \frac{\text{process time}}{\text{time to completion}} \quad (5)$$

$$\text{Time to completion} = \text{time for data processing} + \text{time for pipe installation} + \text{waiting time} \quad (6)$$

Growth and Learning was measured using: (1) employee satisfaction based on the following criteria: salary, promotions, workload; (2) employee productivity measured using the formula:

$$\text{Employee productivity} = \frac{\text{company profits}}{\text{number of employees}} \quad (7)$$

3 Result And Discussion

3.1 Financial Performance

Performance measurement of the Regional Water Supply Company from a financial perspective on the balanced scorecard to determine the company's ability to generate profit and loss over the past five years. Besides work analysis aims to measure the level of effectiveness of company management in carrying out company operations. The methods used to analyze financial performance are Return On Investment (ROI) and Total Assets Turn Over (TATO).

To conduct an analysis of financial performance, the following five years Income Statement has been presented:

Table 2. Profit reports, PDAM Makassar for the past 5 years [9]

Description Year	Financial Data				
	2014 (Rp)	2015 (Rp)	2016 (Rp)	2017 (Rp)	2018 (Rp)
Company revenue	124.222.699.900	130.600.977.562	154.764.848.618	137.529.684.469	125.008.486.099
Company expenses	91.386.443.088	66.178.252.440	69.429.619.181	70.263.808.960	71.132.880.651
Net profit after tax	24.020.184.562	47.622.973.849	64.043.873.437	75.620.119.370	40.490.733.785
Total assets	286.019.495.664	317.078.695.924	377.825.129.281	431.244.514.860	417.526.451.681

Based on the calculation of the ROI formula, it can be explained that the financial performance of PDAM Kota Makassar has fluctuated. The lowest ROI value occurred in 2014 and 2018, namely only 8.40% and 9.70%. The decline occurred because the increase in total assets was not proportional to the increase in the company's net profit. Another thing is caused by: (1) the large amount of arrears in payment of water levies, (2) many pipes are leaking so that water distribution is not optimal. (3) inaccurate customer water meters, (4) use of water without an account. Even though the ROI value is lower than that

Even though the ROI value is lower than in 2017 it does not mean that the PDAM's performance is very low because PDAM management continues to strive to maximize water discharge from the three water sources, namely Bili Bili, Jeneberang, and Lekopacing. Financial performance was quite significant in 2015 (15.02%), 2016 (16.95%) and 2017 amounting to 17.54%. The increase in ROI was caused by: (1) an increase in assets in proportion to the income received in the current year, (2) replacement of old distribution pipes, (3) making a distribution area, (4) availability of raw water with pumping systems with a discharge of 2.984 18 liters / second.

Total Asset Turn Over (TATO) is used to measure the turnover of all assets owned by the company and measure the amount of sales obtained from each asset rupture. Based on the calculation of the TATO formula above, it can be explained that fluctuations in total assets turn over in the Municipal Water Company Makassar. The highest TATO was obtained in 2014, amounting to 43.43%, a decrease in 2017 of 31.89% and 2018 of 29.94%. The decline occurred due to a high increase in total assets, which amounted to IDR 431,244,514,860 in 2017 and IDR 417,526,451,681 in 2018.

3.2 Company Performance from the Customer Perspective

Measuring performance from a customer perspective will be based on the development of the number of active customers in 2017 of 169,413, an increase of 0.98% to 172,033, in 2018, and an increase in customers in the June 2019 period to 172,414 (0.99) Increase in the number of active customers in the last three years . The total population served in the administration area is 1,044,282 people or 70.13% of the total population of the existing pipeline network of 1,489,011 people. To reach the target customer of 88.50%, the Regional Water Supply Company is developing a network, adding new customer connections and installing distribution pipes with additional capacity at three IPAs.

The performance of the services provided by company management to customers can be measured by the level of customer satisfaction with the products, goods and services they receive. The better the service, the more satisfied the customer will be, which results in compliance with paying water bills on time. To measure customer satisfaction, 100 questionnaires were distributed containing 14 questions that must be answered by each respondent.

Based on the results of the calculation of customer satisfaction positions obtained a score of 5600 is in the interval 4648 5824 which means that most customers in the category are satisfied with the service received from the officer.

3.3 Company Performance from the Internal Operations Perspective

The internal business process perspective measures the efficiency of time spent by the company in carrying out its business processes. To find out the level of time efficiency used by employees to customers in the form of customer registration. Data processing time is the time determined by the company at each customer registration for 20 minutes, processing time 5 minutes, file inspection time 5 minutes, queuing time employees get what is needed for 10 minutes.

If the resulting ratio is close to 1, the Makassar Municipal Water Company in carrying out internal operations is more efficient. Conversely, if the resulting ratio is getting closer to 0 means the internal business operations are not efficient.

Based on the results of calculations using EMR obtained values of 0.79 in 2014, 0.74 in 2015, 0.78 in 2016, 0.70 in 2017, and 0.78 in 2018. All ratios resulting from these calculations are in the good category means Regional Municipal Water Companies Makassar has worked effectively and efficiently.

3.4 Company Performance from the Learning and Growth Perspective

Analysis of company performance in the perspective of learning and growth is focused on the strategic role of employees to achieve the company's vision, mission and goals. Of the 810

employees, there are 445 (54.93%) employees of the company with high school education and below who work as operational staff who determine the achievement of the company's vision, mission and goals. To improve the performance and productivity of the employee's company is given Education and training and technical guidance related to the main tasks and functions. In addition, 365 highly educated employees (45.07%) were given the opportunity to improve their managerial and technical competencies so that the company would develop in the future. During the last two years the directors have carried out employee competency development programs, namely: In 2017 the management workshop was attended by 144 employees, and operational technical guidance was attended by 429 employees. Whereas in 2018 the management workshop was attended by 51 employees, and operational technical guidance was attended by 202 employees.

The employee satisfaction index aims to determine the level of employee satisfaction. The sum of all respondents totaling 50 employees got a score of 1900 which was in the range of 1700 2100 categorized as satisfied. This means that the management and staff of the Makassar City Drinking Water Company are satisfied with the salaries earned, promotions and jobs faced every day.

The level of productivity shows that based on the results of the calculation of the level of employee productivity of the Regional Water Company experienced fluctuations due to an imbalance between operating income and the number of employees working. But there is a significant relationship between employee satisfaction and work productivity. In line with the results of the study by Haeruddin [6] found that measuring employee performance with a persuasive learning and growth can be used as a strategic reference to develop regional companies. Contributions to the development of employees in the form of education and training, technical guidance has significantly increased to increase job satisfaction and employee productivity. This is in line with the results of Mayasari's research [7] that if employees receive sufficient hours of training according to their job needs, they will improve the performance of their learning and growth perspective better.

4 Conclusion

The measurement results of the performance of the Makassar City Water Supply Company based on the Balanced Scorecard are in good category, but the Makassar City Government and company management need to make improvements to achieve maximum performance. The company's performance from a financial perspective has fluctuated over the past five years due to the increase in total assets not proportional to the increase in net income. As for the suggestions submitted based on the results of the research, the management of the Makassar City Drinking Water Company seeks to increase profit after tax so that the value of Return on Investment (ROI) will no longer decrease in the year that will come. The strategies that can be carried out include: (1) adding water sources, (2) adding pipelines to meet community needs, (3) overcoming pipe leaks, (4) replacing damaged customer water meters, (5) recording correct water. Likewise, Total Assets Turn Over (TATO) will be more stable if PDAM management increases revenue from clean water services from customers. Company performance from the customer's perspective is in the category of being quite satisfied. However, the management of the company continues its efforts to increase customer satisfaction so that the payment of the account is on time, avoiding the use of clean water that is not billed. Although the level of employee satisfaction is related to salary, promotion, and the work itself is in a good category.

However, it should be considered to accept employees for the next five years because employee productivity has experienced fluctuations over the past five years, even though training and technical guidance have been carried out.

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