

DESIGN CRITERIA OF PERFORMANCE MANAGEMENT SYSTEM USING BALANCE SCORECARD AND ANALYTICAL HIERARCHY PROCESS CASE STUDY PT. DUTA HARAPAN TUNGGAL

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Abstract

PT. Duta Harapan Tunggal is a company engaged in the production of beverages. This company employed performs a financial aspect to evaluate company's performance. However, this is unable to control the company's operational process, customers, and learning and growth. Therefore, it is necessary to create a measurement tool that is in line with the vision and mission of the company. This study aims to develop a balanced scorecard to measure the company's performance. The final result of this final project is determine the strategies based on the company's vision and mission, to determine the performance indicators. The weighting of each indicator for financial perspective is 26%, customer perspective is 44%, internal business process perspective is 15%, learning and growth perspective is 14%. The highest weighting score is the customer perspective.

Keywords – Balanced Scorecard (BSC), Analytical Hierarchy Process (AHP), Performance Management

1. Introduction

PT. Duta Harapan Tunggal is a company engaged in the production of beverages, the company has been established since 1949. PT. Duta Harapan Tunggal is a syrup production industry that has spread all over Indonesia. as a long standing company, PT. Duta Harapan Tunggal seeks to optimize its productivity in order to continue to grow. as generally other company companies in Indonesia PT. Duta Harapan Tunggal still uses conventional techniques in analyzing organizational success. this conventional technique is easier to apply because the company only see from the financial side only. conventional techniques used by PT. Duta Harapan Tunggal makes the company pay less attention to other factors such as customer perspective, internal business process perspective and learning and growth perspective.

A good company is the one that can have the right strategies on human resources. Human resource in the company should have a good quality, that's why the company should have a performance management system to measuring their work, so the company can stand against competitor and develop as the company follow their vision and mission. Performance appraisals that only focus on the financial sector are also less able to explain the company's track record and less able to bring the company towards change for the better future of the company (Kaplan & Norton, 1996). If the company applies a comprehensive performance measurement, it is expected to assist management in measuring how far the achievement of the strategy has been applied company. a comprehensive performance assessment is also indispensable for the purpose of performing performance management so as to help integrate the company's goals.

Performance management should originate with what the organization needs to accomplish to meet its strategic objectives.

Designing performance management useful for PT. Duta Harapan Tunggal to compete in the highly competitive global market. One that can be used for measure is Balance Scorecard. The Balanced Scorecard complements financial measures of past performance with measures of the drivers of future performance. The objectives and measures of the scorecard are derived from an organisation's vision and strategy

Balanced Scorecard one effective approach to the measurement of the strategic performance of organization, including their HR departments, is the balanced scorecard. Use of the balanced scorecard stresses measuring the strategic performance of organizations on four perspectives: 1. Financial, 2. Internal business processes, 3.

Customer, 4. Learning and growth.

Then the research will be done is to design performance indicators of PT. Duta Harapan Tunggal using Balanced Scorecard method and Analytical Hierarchy Process. by assessing the four perspectives of financial, customer, internal business process, and learning and growth perspectives. after designing performance measurement at PT. Duta Harapan Tunggal then the company's management can reduce the company's problems and conduct development in accordance with corporate strategy goals to achieve corporate goals.

2. Basic Theory and Research Methodology

2.1 Basic Theory

2.1.1 Performance Management

Performance management is a continuous process of identifying, measuring, and developing the performance of individuals and teams and aligning performance with the strategic goals of the organization (Aguinis, 2013).

2.1.2 Balanced Scorecard

The Balanced Scorecard translates mission and strategy into objectives and measures, organized into four different perspectives: financial, customer, internal business process, and learning and growth. The scorecard provides a framework, a language, to communicate mission and strategy. It uses measurement to inform employees about the drivers of current and future success. By articulating the outcomes the organization desires and the drivers of those outcomes, senior executives hope to channel the energies, the abilities, and the specific knowledge of people throughout the organization toward achieving the long-term goals. (Kaplan & Norton, 1996)

2.1.3 Analytical Hierarchy Process

The Analytic Hierarchy Process is a general theory of measurement. It is used to derive ratio scale from both discrete and continuous paired comparisons in multilevel hierarchic structures. These comparisons may be taken from actual measurements or from a fundamental scale that reflects the relative strength of preferences and feelings (Saaty & Vargas, 2012).

2.2 Conceptual Model

Conceptual model is a picture that shows the mindset of looking at and settle existing problems. the following conceptual model for this research:

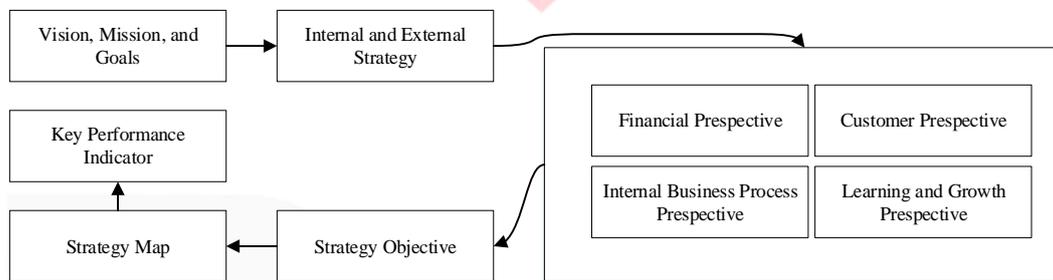


Figure 3 Conceptual Model

Based on figure 3, the first step to design performance management measurement is to see the vision and mission from PT. Duta Harapan Tunggal, vision and mission is the thing that company want to accomplished, then see strategies that already been applied in the company. Then we define both into balance scorecard perspective which is financial, customer, internal business, and learning and growth perspective. Then the result is strategy map and key performance indicator.

3. Discussion

3.1 Vision and Mission

PT. Duta Harapan Tunggal formulates the business plan which has been defined the vision and missions of the company in it along with the strategy used in competing, where the vision of PT. Duta Harapan Tunggal is "To make PT. Duta Harapan Tunggal (DHT) as a hygienic and halal refreshment syrup company, as well as the best and foremost syrup especially in south sulawesi region, to outside of South Sulawesi in general, and want to expand the sales network throughout the archipelago". To realize its vision, PT. Duta Harapan Tunggal have missions that are:

1. Empower local workforce resources
2. Produce a high quality drink
3. Committed in maintaining flavor
4. Maintain stock availability of goods
5. Competitive price
6. Providing the best service to clients / consumers

3.2 SWOT Analysis

Based on research that has been done about the general description and vision and mission of PT. Duta Harapan Tunggal, and seeing the current condition of PT. Duta Harapan Tunggal, to analyze the strategies used and the performance that has been produced by the company, It can be seen several factors which are internal factors that include the strengths and weaknesses of the company, as well as external factors that include the opportunities and threats of the company. Based on the analysis, it can be concluded internal factors and external factors in the table below:

Internal Factors	
Strength	Weaknesses
a) Customers spread throughout the territory of Indonesia b) Broad market segment c) Has a distinctive flavor d) Packaging in Bottles and Jerry Cans e) Competitive price	a) The product is only produced in South Sulawesi b) Do not have independent store and distributor c) DHT product promotion strategy is limited
Faktor Eksternal	
Opportunity	Threat
a) The growth of culinary business in Indonesia b) Marketing expansion to Indonesia region through national and local Distributors c) Economic growth in Indonesia d) Increased percentage of e commerce transaction activity e) Availability of raw materials	a) Increased regional minimum wage b) Food and beverage industry growth

3.3 Strategy Formulation

The strategy formulation is based on the results of the SWOT analysis by combining the various indicators contained in strengths, weaknesses, opportunities, and threats. Merging using TOWS Matrix. The resulting strategy will be used as a guide in the formulation of strategic objectives in the next step. Based on SWOT analysis and discussion, the management set a new strategy. Here is the preparation of strategy formulation using TOWS matrix :

1. Strategi SO

- a) Expand the product distribution network to reach the marketing area
- b) Maintain quality relationship with customer

2. Strategi WO

- a) Improves sales capabilities to maximize profitability

3. Strategi ST

- a) Make sure the product is always available in the inventory
- b) Increase the scale of factory or production capacity to meet sales needs
- c) Automating on production machines

4. Strategi WT

- a) Optimization of human resources effectively and efficiently
- b) Evaluate the effectiveness of business process

3.4 Data Processing

In the design of performance management system, formulated strategy, strategy, and KPI as follows :

Table 3 . 4 1 Strategy, Strategy Objective, and KPI

<i>Perspective</i>	<i>Strategy</i>	<i>Strategy Objective</i>	<i>KPI</i>
Financial	Improve sales capabilities to maximize profitability	Increased In Sales Revenue	Increase in revenue rate
		Increased Profit	Revenue Growth Rate
	Evaluate the effectiveness of business processes	Increased Cost Efficiency	Operational Cost Efficiency
Customer	Expand the product distribution network to reach the marketing area	Increased Customer Growth	Increase number of distributor
		Market Development	Market Share
	Maintain quality relationship with customers	Increased Customer Satisfaction	Amount of complain
		Increased Customer Loyalty	Customer retention
Internal Business process	Make sure the product is always available in the inventory	Optimization of goods available on inventory	Increased product in inventory rate
	Increase the scale of factory or production capacity to meet sales needs	Production Optimization On Schedule	Downtime
		Increased Production Capacity	Increased in production rate
	Automating on production machines	Decreased Defect On Production	Amount of defect product
Learning and Growth	Optimization of human resources effectively and efficiently	Increased Productivity	Amount of employee that achieve the target
		Improvement of Employee Competence	Amount of training
		Increase Attendance	Percentage of attendance

In the results of the draft it is necessary to have weighting for each perspective, strategy, strategy objective, and KPI because each instrument has different importance level. weighting is done using AHP. besides, it is also necessary to test the consistency of the instrument. the instrument is said to be consistent if the value of consistency is not more than 10%.

3.5 Weight and Consistency Test

Weighting and consistency tests are conducted on each perspective, strategy, strategy objective and KPI. This is done because each perspective, strategy, strategy objective and KPI have different importance level. The weighting and consistency test for each instrument is performed using AHP pairwise comparison ratio. Weighting is done by filling out questionnaires by three people who are considered as experts in the company. The result of the weighting is then processed using Microsoft Excel software. Here is the result of the weighting :

Table 3.5 1 Normalization of Weight

Normalization of Weight							
Perspective	Weight	Strategy	Weight	Strategy Objective	Weight	KPI	Weight
Financial	26%	Improve sales capabilities to maximize profitability	16%	Increased In Sales Revenue	7%	Increase in revenue rate	7%
				Increased Profit	9%	Revenue Growth Rate	9%
		Evaluate the effectiveness of business processes	10%	Increased Cost Efficiency	10%	Operational Cost Efficiency	10%
Customer	44%	Expand the product distribution network to reach the marketing area	18%	Increased Customer Growth	12%	Increase number of distributor	12%
				Market Development	6%	Market Share	6%
		Maintain quality relationship with customers	26%	Increased Customer Satisfaction	21%	Amount of complain	21%
				Increased Customer Loyalty	5%	Customer retention	5%
Internal Business process	15%	Make sure the product is always available in the inventory	4,8%	Optimization of goods available on inventory	5%	Increased product in inventory rate	5%
		Increase the scale of factory or production capacity to meet sales needs	7,0%	Production Optimization On Schedule	2%	Downtime	2%
				Increased Production Capacity	5%	Increased in production rate	5%
		Automating on production machines	3,6%	Decreased Defect On Production	4%	Amount of defect product	4%
Learning and Growth	15%	Optimization of human resources effectively and efficiently	15%	Increased Productivity	9%	Amount of employee that achieve the target	9%
				Improvement of Employee Competence	3%	Amount of training	3%
				Increase Attendance	3%	Percentage of attendance	3%

4. Analysis

4.1 Perspective Analysis

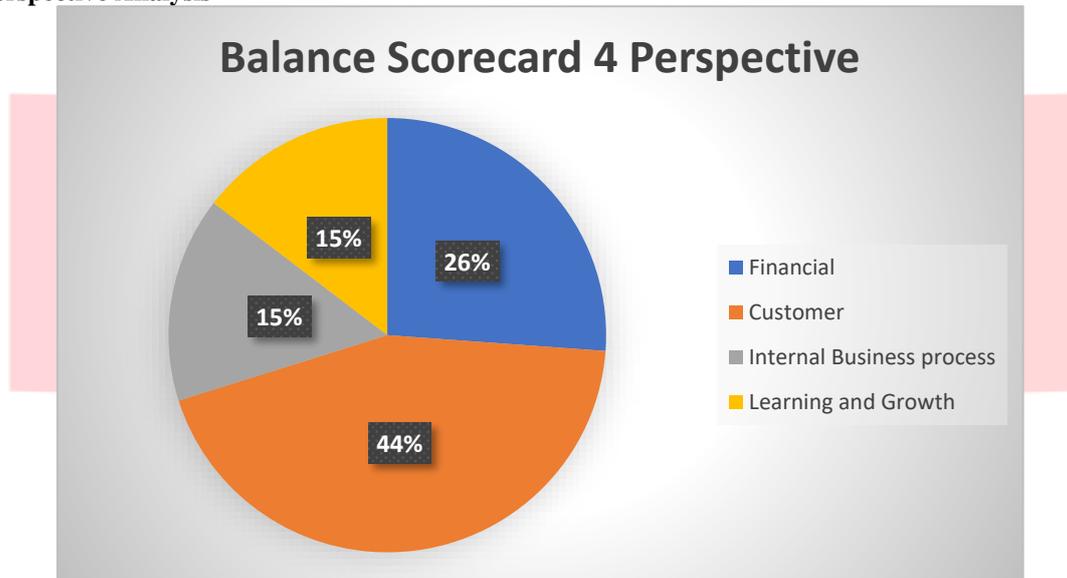
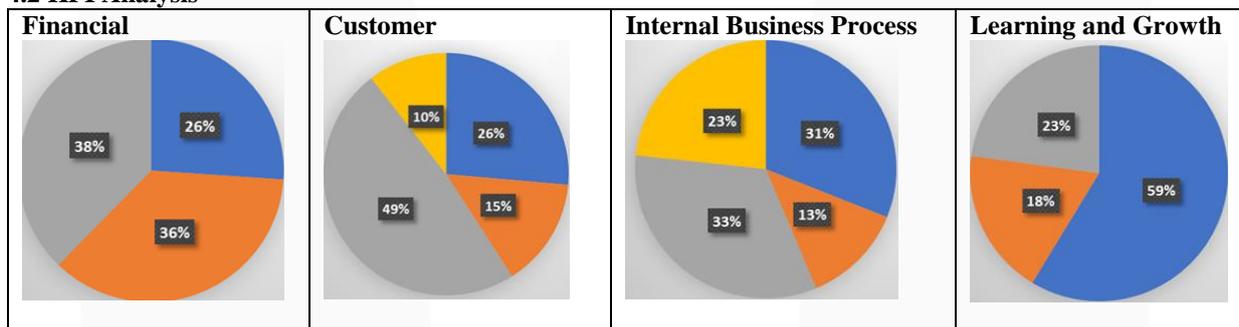


Figure 4 . 1 1 4 Perspective

Customer perspective were in the first place with score 44%. Second place is financial perspective with 26% score. Internal business process and learning and growth perspective were having the same score which is 15% for each.

4.2 KPI Analysis



4.2.1 Financial KPI

Based on the picture can be seen that there are three performance indicators on the financial perspective and the highest score is operational cost efficiency which have 38% score, the second highest score is revenue growth rate which have 36% score, the third highest score is increase in revenue rate which have 26% score.

4.2.2 Customer KPI

Based on the picture can be seen that there are four KPI on the perspective of the customer and who has the highest weight is amount of complaints which have 49% score. Second highest weight is increase number of distributor which have 26% score. Third highest weight is market share which have 15% score. Fourth and last highest weight is customer retention which have 10% score.

4.2.3 Internal Business Process KPI

Based on the picture can be seen that highest weight is increased in production rate which have 33% score, second is increased product in inventory rate which have 31% score, third is amount of defect product which have 23% score, and fourth is downtime which have 13% score.

4.2.4 Learning and Growth KPI

Based on the picture can be seen that highest weight is amount of employee that achieve the target which have 59% score, second highest is percentage of attendance which have 23% score, third highest is amount of training which have 18% score.

5. Conclusion

Based on the results of research that has been done, researchers can draw conclusions related to the design of performance measuring tools with Balance Scorecard method in PT. The Ambassadors of Hope are as follows :

1.To describe the performance of PT. Duta Harapan Tunggal it has been formulated 14 KPI in four perspective Balance Scorecard, this KPI is derived from vission, mission, strategy, and strategy objective to describe the state of performance in PT. Duta Harapan Tunggal

2.Based on the measurement result, Customer Perspective have the first highest weight which is 44%. The second highest weight is financial perspective which have 26% score. The third highest weight is internal business process which have 15% score, and learning and growth which have also 15% score.

Reference List

Aguinis, H. (2013). *Performance Management Third Edition*. New Jersey: Pearson Education.

Ariyanti, R., 2017. *Industri Makanan & Minuman Tumbuh 7,19%*. [Online]

Available at: <http://industri.bisnis.com/read/20170813/257/680635/industri-makanan-minuman-tumbuh-719>

[Accessed 09 05 2018].

Cooper, D. & Schindler, P., 2008. *Business research methods*. 10th ed. New York: McGraw-Hill/Irwin.

Dessler, G., 2013. *Human Resource Management*. 13th ed. New Jersey: Pearson Education.

Indrawati, 2015. *Metode Penelitian Managemen dan Bisnis; Konvergensi Teknologi Komunikasi dan Informarsi*. Bandung: Refika Aditama.

Kaplan, R. S., & Norton, P. D. (1996). *Translating Strategy Into Action The Balanced Scorecard*. Boston: Harvard Business School Press.

Mahmudi, 2010. *Manajemen Kinerja Sektor Publik*. 2nd ed. Yogyakarta: UPP STIM YKPN.

Mathis, R. L. & Jackson, J. H., 2008. *Human Resource Management*. 12th ed. Mason: Thomson Learning Academic.

Mulyadi, 2005. *Sistem Manajemen Strategik Berbasis Balance Scorecard*. Yogyakarta: UPP AMP YKPN.

Rangkuti, F., 2015. *SWOT Balanced Scorecard*. Jakarta: PT. Gramedia.

Sekaran, U. & Bougie, R., 2010. *Research Methods for BUsiness; A Skill Building Approach*. 5th ed. United Kingdom: John Willey & Sons Ltd..

Saaty, T. L., & Vargas, L. G. (2012). *Models, Methods, Concepts & Applications of the Analytic Hierarchy Process*. Pittsburgh: Springer New York Heidelberg Dordrecht London.