

Design of Performance Measurement System in Feed Company PT XYZ with Balance Scorecard Approach

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ABSTRACT. The management of PT XYZ realizes that the company needs another method that is able to comprehensively provide views with various approaches to corporate strategy formulation. Management is very aware that even though the company has been established for more than 30 years, there are several conditions that need to be improved including 1) Data that is still not integrated, where data from each department is still collecting, managing and utilizing data related to departments and not free to obtain data support from the department easily. 2) The company does not yet have appropriate indicators to develop and manage a sustainable business. and 3) The company does not yet have an integrated approach in viewing all important aspects of the business. This study aims to obtain comprehensive measurements and analyze benchmarks with a balanced scorecard. The data used were primary through interviews and secondary data with literature studies. The methods used were descriptive, paired comparison and BSC analysis. The results show that using the BSC is able to provide a comprehensive and appropriate picture of 4 perspectives.

Keyword: Balanced Scorecard; Comprehensive; Paired Comparison

JEL Classification: M10; M19

INTRODUCTION

Economic development aims at realizing the welfare and prosperity of a country and its citizens. The concept of development can be based on various sectors, one of which is the livestock and fisheries sector. The livestock and fishery sectors are known to play a major role in building the nation's economy. This is because in the agribusiness chain, the sector holds a very wide chain, starting from the upstream, production, downstream and support system industries. Yulia et al. (2015) explained that the role of the livestock and fisheries sector is very large, but this needs to be optimized with the support of all parties involved. The role of the livestock and fisheries sector can be seen from development every year. The developments that occur in the two sectors are general descriptions related to the conditions of each sector, these figures can be used as a basis for identifying the condition of the sector.

The contribution of gross domestic product from the livestock and fisheries sector continues to increase every year with different percentages. The conditions that occur are captured by companies engaged in the feed industry to continue producing in order to meet the needs required by the market. This can be an impetus to continue doing business in the industry. Fauziana et al. (2014) that gross domestic product has an influence on confidence in business actors to invest, increase the number of workers and increase their production capacity.

The feed industry in Indonesia plays a very important role in supporting the livestock and fisheries industry in providing the availability of meat consumption and its derivative products for the community as an alternative food and protein source. Feed has a contribution in the formation of production costs of almost 60 percent of the total operating costs. According to the Association of Animal Feed Entrepreneurs (2019), there are 85 feed factories that are active in the feed production industry. The Indonesian animal feed industry in the last five years (2013-2017), its production grew an average of 8.35% and its business value grew 11.27%. According to research by Central Data Mediatama Indonesia (CDMI) Consulting (2017), domestic animal feed production is 18.93 million tons with a business value of Rp. 131.20 trillion. The rapid growth of production and market value of the animal feed business in Indonesia is due to the expansion steps that are continuously carried out by the main players in this business by increasing production and building new factories. Currently, there are 111 animal feed factories in Indonesia with a production capacity of 26.73 million tons.

PT XYZ is a company engaged in the production of animal and fish feed. PT XYZ has 3 animal feed factories that produce poultry feed in the form of flour, pellets, granules and sinking and floating fish feed with a production capacity of 750 thousand tons per year. PT XYZ has more than 30 years of experience in the animal feed business in Indonesia. PT XYZ is also developing its business by establishing its 4th Factory in East Java Province as an effort to serve and meet customer needs well. At this time PT XYZ only uses a financial perspective to see the condition of its business, that is, if the income increases, it can be said that the company's performance is achieved and is considered good or vice versa if the income decreases, it means that the company's

performance is considered not good. The company's performance information is illustrated in the performance of the net profit margin ratio which is presented in Figure 1.

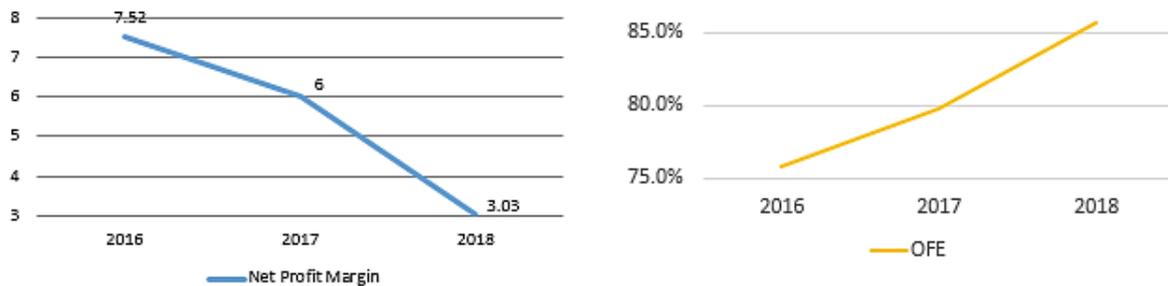


Figure 1. PT XYZ's Net Profit Margin and PT XYZ's Overall Factory Effectiveness (in percent)

Picture 1 shows the performance of net profit margin has decreased every year in the last 3 years. This can be an early warning for the company to maintain the company's performance in order to restore the performance of the net profit margin ratio. In addition, the ratio of Overall factory effectiveness is one of the company's performance information on the manufacturing side showing a positive trend. This condition indicates a continuous improvement in performance in terms of productivity, performance and quality at PT XYZ's animal feed factory. This further strengthens that financial information is needed but other performance information is needed in order to get a comprehensive and not misleading view.

The management of PT XYZ realizes that the company needs another method that is capable of comprehensively providing views with various approaches to formulating corporate strategy. According to Luis and Biromo (2007), financial statements are only able to provide an overview of what has happened in the past, but cannot be used as a strategy reference in the future. Lusch and Constantin (1994) have other performance measurement tools based on a non-financial approach, this is based on other capabilities to increase company value, company performance is not only measured by tangible measures (financial statements) but can also be measured by intangible measures.

A company is an organization that produces goods and services for profit (Elbert and Griffin 2006). Company refers to a legal entity and the actions of a business entity in carrying out its business. Furthermore, the company is a place for production activities and the gathering of all factors of production with reference to profit (Kadir 2010); Wahyuniawati (2019) ; Widayati and Widalestari (1996). Management is the science and art of managing the process of utilizing human resources and other resources effectively and efficiently to achieve a certain goal (Hasibuan 2012). Kaplan and Norton (2000) The balanced scorecard is a tool for measuring executive performance that requires a comprehensive measure with four perspectives. , namely financial perspective, customer perspective, internal business perspective, and growth and learning perspective. Mulyadi (2001); Vanany (2003) states that the balanced scorecard consists of two words, namely the scorecard and balanced.

Vision and mission is an important part of knowing and formulating targets. Experts explain that the abstract nature of the vision needs to be translated into performance indicators. At this stage, each stakeholder (decision maker) is required to begin to be aware and think about indicators that can support achieving the vision and mission (Soleh 2014); (Chavan 2009). The establishment of indicators is intended to determine the key factors that can affect performance and achieve company goals. At this stage, it is generally done with brainstorming and focus group discussions with key company parties to get a description of each activity that is considered capable of playing a role. All identified indicators will be merged into a directory (Saad and Daraghma 2015); (Perramon et al 2015). The strategy map is considered as a guide and explains the relationship from the perspective of the balanced scorecard and its indicators. In this case, the determination of the strategy map is based on the causal relationship between indicators and the intuition of practitioners who have experience in their fields. The formulation of the strategy map is ordered based on the balanced scorecard approach.

Management is very aware that even though the company has been established for more than 30 years, there are several conditions that need to be improved including 1) Data that is still not integrated, where data from each department is still collecting, managing and utilizing data related to the department and is not free to obtain data support from the department easily. 2) The company does not yet have the appropriate indicators to develop and manage a sustainable business. and 3) The company does not yet have an integrated approach in viewing all important aspects of the business.

This study has several research objectives based on the research formulation, including: 1) Analyzing the vision and mission descriptions translated into strategic objectives that can be understood by all PT XYZ stakeholders. 2) Analyzedetermination of the target instrument of the company's strategy PT XYZ becomes comprehensive. 3) Analyzing the size of the company's strategic target instrument (lags and leads) based on 4 perspectives of the balanced scorecard. and 4) Designing a performance appraisal system for PT XYZ with a balanced scorecard approach.

The scope of research conducted at feed companies is related to balanced scorecard design and simulation. This research was conducted from September 2020 to March 2021. The design was carried out by taking the opinions of the company's management, employees and consumers who were considered competent and credible in answering the research formulation. This study is intended to obtain a corporate level balanced scorecard.

METHODS

The research location takes the case of PT XYZ which has a declining performance problem. The determination of the research location was due to problems related to strategy, data availability and the company's willingness to be the object of research. The time of the research will be from September 2020 to March 2021. The types of data used in this study are primary data and secondary data. Both types of data are presented in qualitative and quantitative forms. Primary primary data is data obtained directly from the object of research and can only be used to support research conducted (Sugiyono 2010). Primary data is obtained through several series aimed at obtaining the

best formulation and determination of the strategy. Secondary data is data used to support the research conducted. Primary data is taken from the Board of Directors and the Board of Managers. Sugiyono (2010) explains that secondary data sources come from and are obtained through other media sources not from direct researchers (there are intermediaries).

The data collection process is carried out using a purposive sampling approach or a deliberate approach, where the previous sample criteria have been previously determined. The determination is also based on the respondent's ability to answer in accordance with the formulation of the best strategy for the company. Data and information in the formation were collected in three ways, including: a) Interview, b) Independent Interview and c. Focus Group Discussion.

Table 1. Stages of Research Analysis

No	Aim	Analysis	Data
1	Analyze determination of the target instrument of the company's strategy PT XYZ becomes comprehensive.	Descriptive Analysis	Primary Data (Interview assisted by open questionnaire)
2	Analyzing the size of the company's strategic target instrument (lags and leads) based on 4 balanced scorecard perspectives.	Descriptive Analysis Validity Test & Significant Difference <i>Paired Comparison</i>	Primary and secondary data (interviews assisted by weighting questionnaires)

The data analysis method is an approach used to provide a basis for processing and producing findings in answering the specified problem. In this study, there are several methods of data analysis used to obtain the best strategy for the company. Descriptive analysis is a method that functions to describe or provide an overview of the object under study through data or samples that have been collected as they are without analyzing and making conclusions that apply to the public (Sugiyono 2010; Utomo et al 2019). *Paired comparison* or pairwise comparison can be interpreted as a pairwise comparison where to compare the elements that have been arranged into a hierarchy in order to find out the influential elements. The value obtained from paired comparison is obtained from the distribution of questionnaires in which there is a scale of importance. This method shows the value of the comparison between indicators (horizontal-vertical) on a scale of 0.1,2,3,4,5,6,7,8,9 and 10 (Widhiastuti (2002)). The Balanced Scorecard assesses company performance by considering four perspectives to measure company performance, namely: financial, customer, internal business processes and learning and growth perspectives (Kaplan and Norton 2000).

RESULT AND DISCUSSION

The design of the performance appraisal of PT XYZ is done by calculating through weighting. The factors are based on the perspective of the balanced scorecard that has been prepared previously. The process of assigning a level of importance uses the weighting obtained from the

experts (company management). Yuniaristanto et al (2016); Widjaja (2003) explains that the weighting can use a paired comparison approach, the approach is considered capable of providing an accurate picture related to the level of importance of each factor. This design provides a description of the percentage of each perspective on the balanced scorecard to achieve the company's vision.

Financial Perspective

The financial perspective is known to have a weight of 26.97 percent to achieve the company's vision. Contribution from a financial perspective can be achieved if it focuses on two targets, namely a) increasing company income by a weight of 10.5 percent, b) investment effectiveness with a weight of 7.20 percent and c) monitoring of the cost of production of feed with a weight of 9.29 percent. The description of each financial perspective is illustrated in Table 2.

Table 2. Weighting Financial Perspective (percent)

perspective	Weight	Strategic target	Weight	Lags	Weight	
Finance (F)	26.97	Increase company revenue (F1)	10.5	<i>Sales</i> (F1.1)	2.91	
				<i>Gross Profit Margin</i> ((F1.2)	2.09	
				<i>Operating Profit Margin</i> (F1.3)	1.98	
				<i>Net Profit Margin</i> (F1.4)	3.52	
		Increase investment effectiveness (F2)	7.20	ROE (F2.1)		7.20
		Cash Flow Monitoring (F3)	9.29		<i>Accounts Payable</i> (F3.1)	4.10
<i>Account Receivable</i> (F3.2)	5.19					

Table 2 on the strategic target of increasing the company's revenue, it is known to have two lags with the largest weight, namely net profit margin by 3.52 percent, the strategic goal of increasing investment effectiveness has a lag ROE of 7.20 percent and the strategic target of cashflow monitoring has an Account Receivable percentage of 5.19 percent. PT XYZ based on a financial perspective is known to be very concerned with the positive development of profit and loss, which in this case focuses on proper and efficient management of the cost of good sold and operating costs. On the other hand, management has included an important part, namely the management of working capital which focuses on accounts receivable and accounts payable.

Internal Business Process Perspective

The internal business process perspective is known to have a weight of 24.27 percent to achieve the company's vision. Contribution from the perspective of internal business processes can be achieved when focusing on five goals, namely a) Maintaining and increasing trust, b) Strengthening the raw material supply chain network, c) Efficiency against variable costs, d) increasing production capacity and e) creating new product diversification. The description of each internal business process perspective is illustrated in Table 3.

Table 3. Weighting Internal Business Perspective (percent)

perspective	Weight	Strategic target	Weight	Lags	Weight
			t		t
Internal Business Process (I)	24.27	Maintain and increase consumer confidence by providing high quality service and feed products (I1)	5.50	<i>Pass external food/feed safety audit</i> (I1.1)	5.50
			5.70	Ratio of Formula Price Vs Selling Price of Feed (%) (I2.1)	5.70
		Strengthening the supply chain network of local and imported raw materials in order to obtain continuity of local and imported raw materials with good quality and competitive prices (I2)	4.60	<i>Overall Equipment Effectiveness</i> (%) (I3.1)	1.18
				<i>Manufacturing Cost</i> (%) (I3.2)	1.14
				<i>Shrink</i> (%) (I3.3)	1.16
		Efficiency of variable costs so that the final price of animal feed products is cheaper (I3)		OTIF (%) (I3.4)	1.12
			4.40	Realized Capex (%) (I4.1)	4.40
Increase production capacity (I4)	4.10	New Feed Products (%) (I5.1)	4.10		
Creating new product diversification according to consumer needs (I5)					

Table 3 explained that the lags that need to pay attention to the formula price ratio with feed is 5.70 and *pass external food/feed safety audit* with a weight of 5.50. It is known that there is only one lag on other targets so that what needs to be considered is only focusing on each of the lags that have been determined by management. PT XYZ realizes that internal business processes are an important perspective that needs to be managed starting from maintaining trust and strengthening supply chain networks in the context of production efficiency. PT XYZ realizes that the development of production capacity requires capital expenditure so that the implementation is carried out in stages and the company is required to create product diversification in this case carrying out the research & development function so that the products produced in the future have better quality.

Consumer Perspective

The consumer perspective is known to have a weight of 25.52 percent to achieve the company's vision. Contribution from the consumer's perspective can be achieved if it focuses on two goals, namely a) Increasing customer satisfaction with a weight of 14.20 percent and b) Increasing customer retention with a weight of 11.32 percent. The description of each customer's perspective is illustrated in Table 4.

Table 4. Weighting Consumer Perspective (percent)

perspective	Weight	Strategic target	Weight	Lags	Weight
Consumer (C)	25.52	Improving Consumer Satisfaction (C1)	14.20	Consumer Satisfaction Index (%) (C1.1)	14.20
		Increasing Consumer Retention (C2)	11.32	Old Customer Retention (%) (C2.1)	6.32
				New Customer Addition (%) (C2.2)	5.00

The consumer's perspective is known to have two targets that must be focused on the three lags, namely increasing the percentage of the consumer satisfaction index with a weight of 14.20 percent, keeping old customers with a weight of 6.30 percent and adding new customers with a weight of 5.02 percent. PT XYZ realizes that the consumer's perspective is an important perspective that needs to be considered. PT XYZ already has a marketing network throughout Indonesia so that in this case satisfaction and product purchase loyalty is an important thing that needs to be considered.

Learning and Growth Perspective

The learning and growth perspective is known to have a weight of 23.24 percent to achieve the company's vision. Contribution from the perspective of learning and growth can be achieved if it focuses on two goals, namely a) HRIS integration so that it can be accessed by all employees and in real time, and b) Focus on training and development. The description of each customer's perspective is illustrated in Table 5.

Table 5. Weighting Perspective of Growth and Learning (percent)

perspective	Weight	Strategic target	Weight	Lags	Weight
Learning and growth (G)	23.24	HRIS integration so that it can be accessed by all employees and in real time (G1).	13.10	Update HRIS (Human resources Information system) (G1.1)	13.10
		Focus on training and development (G2)	10.10	Competency Gap Index (G2.1)	10.10

Table 5 provide information that strategic objectives are related to HRIS integration so that it can be accessed by all employees and in real time have lags i.e Update HRIS (Human resources Information system) has a weight of 13.10 percent. Strategy goals focus on training and development have lags i.e *Competency Gap Index* has a weight of 10.10 percent. PT XYZ realizes that resource management is an important thing that needs attention. Management optimizes HRIS integration so that organizational performance can accelerate. The strategy map is a description of the causal relationship in the balanced scorecard approach. Suwono (2010) explains that in the balanced scorecard approach the strategy map is used as a part for management in communicating, implementing and evaluating company plans and targets. The strategy map initially starts with the company's vision and mission, so the strategy map is very important for all

companies to measure and create a pattern of relationships from each target (Rauf 2012; Utama et al 2016).

Performance Appraisal Draft

Performance appraisal design is an important part that is needed by every company. PT XYZ has a Key Performance Indicator but so far it is only as a reference to find out performance results that are not integrated with each other. In this study, the scoring system is described with the explanation that higher is better, lower is better and precise is better. This use is to provide information that a performance indicator has different best measures, which can be higher, lower or in accordance with the predetermined KPI value. The traffic light system is divided into 3, namely red provides information that performance is still far from the company's target, yellow provides information that performance has not reached the target but is approaching and green provides information that the target has been achieved.

Table 6. Work Assessment Based on the Perspective of the Balanced Scorecard 2019-2020

Perspective		1	2	3
Lag				
Finance	F1.1 Total Sales	87.69%	85.70%	83.11%
	F1.2 Gross Profit Margin	96.73%	91.07%	85.07%
	F1.3 Operating Profit Margin	109.20%	91.00%	82.20%
	F1.4 Net Profit Margin	94.00%	75.00%	37.88%
	F2.1 ROE	106.67%	93.33%	86.67%
	F3.1 Turnover Ratio A/P	89.17%	89.17%	89.17%
	F3.2 Turnover Ratio A/R	50.83%	50.83%	50.83%
Consumer	C1.1 Customer Satisfaction Index (%)	96.00%	96.00%	96.00%
	C2.1 Existing Customer Retention (%)	96.84%	96.84%	96.84%
	C2.2 Addition of new Customers (%)	80.00%	80.00%	80.00%
Internal business processes	I1.1 Pass external feed safety audit	100.00%	100.00%	100.00%
	I2.1 Ratio of Formula Price Vs Selling Price of Feed (%)	102.50%	102.50%	102.50%
	I3.1 Overall Equipment Effectiveness (%)	84.11%	88.67%	95.11%
	I3.2 Manufacturing Cost (%)	90.00%	90.00%	90.00%
	I3.3 Shrink (%)	166.67%	166.67%	166.67%
	I3.4 OTIF (%)	95.79%	95.79%	95.79%
	I4.1 Realized Capex (%)	88.42%	88.42%	88.42%
I5.1 New Feed Products (%)	75.00%	75.00%	75.00%	
Learning and growth	G1.1 Update of HRIS (Human resources Information system)	66.70%	66.70%	66.70%
	G2.1 Competency gap index	93.98%	93.98%	93.98%
Total		89.40%	87.30%	85.20%

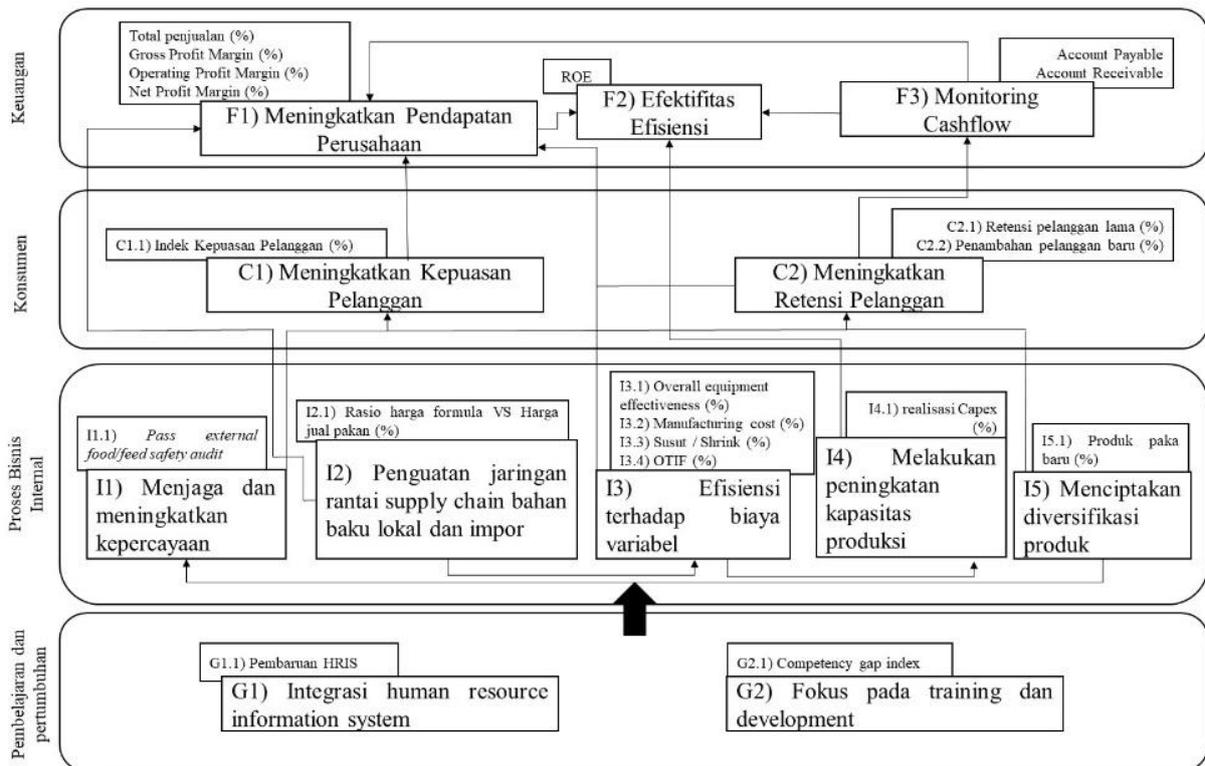


Figure 2. Recommendations for PT XYZ's Strategy Map

Managerial Implications

In this study, it is known that there are several useful managerial implications for PT XYZ including:

a. Management

The management of PT XYZ is required to be able to optimally implement strategic objectives in each perspective. This requires further derivation of each more detailed strategic objective, so that the implementation process can be more structured and directed. This corporate level balanced scorecard can be lowered down by making its leading indicators a strategic target for each perspective in the next balanced scorecard level.

Companies need to work together with private institutions or universities in order to accelerate the discovery of new products that can become product innovations in the future. Based on information from the data and simulation calculations, it can be used as a basis for early warnings related to financial risks, especially receivables, several activities can be recommended, namely: 1) follow up, 2) make billing more aggressively, 3) provide discounts for those who pay off faster or fines delays, 4) Determination of credit limit policies and ensuring the value of credit guarantees is equivalent to the credit limit, 5) making policies for consumers who are still delaying payments to purchase with the CBD system, and 6) blacklisting consumers who have a bad depth of more than 90 days.

Management can compare the conditions of similar industries with companies in order to find out the similarities and create different new values so that the company has competitiveness but still meets the general picture of the industry. The impact of this management is increasingly focused on accelerating achieving the company's vision.

b. Employee

As the implementer of each strategic target that has been derived in lags and leads is known to have a major role. As a party directly involved in the process in each (each) work unit, employees must understand and know the importance of strategic goals, lags and leads from work units, work groups and individuals for themselves. This is intended so that every activity carried out in accordance with the rules to achieve a predetermined goal. Employees can ask management to create guidelines related to the indicators that each employee must achieve.

CONCLUSION

PT XYZ already has a vision and mission, the process of translating the vision and mission is carried out with in-depth interviews so that strategic targets, lags and leads are obtained in order to obtain integrated and comprehensive performance measures for the corporate level which are grouped into 4 balanced scorecard perspectives, then determine the importance of performance measures. based on weighting through the paired comparison method, where it is generally known that the order of each perspective on the balance scorecard at PT XYZ is 1) Finance (26.97%), 2) Consumers (25.52%), 3) Internal Business Processes (24.27%) and 4) learning and growth (23.24%).

The right performance indicators for PT XYZ based on the Balanced Scorecard are 1) Financial perspective needs to focus on total sales, gross profit margin, operating profit margin, net profit margin, ROE, A/P turnover ratio and A/R turnover ratio. 2) The consumer's perspective needs to focus on indicators on managing the customer satisfaction index, retention of old customers and adding new customers 3) The perspective of internal business processes is known to focus on indicators of pass external feed safety audit, formula price ratio vs. selling price, overall equipment effectiveness, manufacturing cost, loss, OTIF, realization of capex, and new feed products, and 4) Learning and growth perspective needs to focus on indicators of updating HRIS (human resources information system) and competency gap index.

The strategic map was prepared to provide an important description for PT XYZ regarding causal relationships with each other grouped from all perspectives. On the map it is known that the vision can be achieved if the management together with all employees start step by step.

Calculation of achievement of performance indicators is done by scoring and traffic light system, in this study used company performance data that is a simulation by taking data that already exists but has not been determined as performance indicators and data that have just been determined (some of the data have been measured "sales, GPM, OPM and NPM" and some have not been determined such as "OTIF and CAPEX realization). The target key performance indicator used is set for simulation purposes only.

The simulation focuses on changes in the percentage value of Net Profit Margin and Overall Equipment Effectiveness. The simulation results show that the opposite trend changes between financial performance (Net Profit Margin) and internal business processes (Overall Equipment Effectiveness) does not necessarily reduce the overall performance of the company.

In the end, the draft of PT XYZ's performance appraisal system design working paper using the balanced scorecard approach was compiled and displayed in descriptive form (narrative and tables) that were easy to read by those in need. This draft needs to be approved by the board of directors as a guide for the company to carry out its business activities.

In this study only discusses the corporate level so it needs to be cascade (downgraded) at the level of work units, work groups and individuals. The goal is to reinforce indicators in achieving the company's vision. Companies need to identify, analyze to determine the percentage of the role in achieving company goals and integrate so that deterministic and stochastic can occur optimally. The balanced scorecard only focuses on the company's internal conditions, therefore additional perspectives are needed so that the company can find out other important factors in identifying other strategic goals that support achieving the company's vision.

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