

Design of Key Performance Indicators Using Balanced Scorecard Method in Tire Manufacturing Industry

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Abstract:- PT ABC is a tire manufacturing company that have domestic and global market share. Currently, it is one of the impacts of the disruption era and the VUCA era, this has from the decline in sales volume in 2020 by -21.6% and also a decrease in revenue -15.9% compared to the previous year. This study aims to determine the company's direction strategy and to translation strategy using a balanced scorecard. The process in this research is to determine the strategic direction using the TOWS matrix and the grand strategy matrix, determine priority strategies, create strategic themes, create strategic goals and translate them into a balanced scorecard. The results of the strategic direction in this study are customer intimacy, operational excellence, market development, and market penetration. While the results of strategy translation are four strategic objectives and nine key performance indicators in the financial perspective, two strategic objectives and three key performance indicators in the customer perspective, four strategic objectives and eight key performance indicators in the internal process perspective, and two strategic objectives and two key performance indicators from learning and growth perspective.

Keywords:- *Balanced Scorecard, TOWS Matrix, Grand Strategy Matrix, Strategy Direction, Translate The Strategy, Strategic Objectives, Key Performance Indicator*

I. INTRODUCTION

The phenomenon of the disruption effect causes changes and triggers intense competition, in Indonesia this effect has been very real and felt with the development of technology with the emergence of online stores that change the buying and selling trend of people and disrupt conventional shops. The era of disruption cannot be underestimated, because companies that do not properly manage their management system and change quickly may be affected by the disruption.

At the beginning of 2020, the VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) era was felt all over the world with the emergence of the Covid-19 (Corona Virus Disease-19) pandemic which caused the weakening of people's purchasing power due to declining income. Based on IMF (International Monetary Fund) data, world economic growth in 2020 reached -4.4%, this achievement

experienced negative growth of -6.7% from the previous year which reached 2.3%, while Indonesia's economic growth reached -1.9%, this achievement experienced negative growth of -6.9% from the previous year which reached 5%. The COVID-19 pandemic has resulted in extreme disruption of economic and business activities in the world, including the automotive manufacturing sector. Based on data obtained from Counter Point Research, world automotive sales in 2020 decreased -20% from the previous year, in addition, based on data from AISI (Indonesian Motorcycle Association) related to motorcycle sales in Indonesia and Gaikindo related to car sales in Indonesia, that motorcycle sales in Indonesia in 2020 decreased by -40.2% from the previous year, meanwhile in terms of car sales in Indonesia also decreased in 2020 by -48.3% from 2019.

PT ABC is a tire manufacturing company that has a domestic and global market share, currently, the company is one of the impact of the disruption era and the VUCA era. The emergence of innovations in the automotive sector, such as the development of electric vehicles which is currently being carried out, of course, it can have a disruptive effect on the company. The impact of the decline in sales of the global and Indonesian automotive industries also affected the decline in sales volume of PT ABC in 2020 by -21.6% and also a decrease in net sales value by -15.9% compared to the previous year. In this era, companies are required to be dynamic and have an agile management system to be able to continue to grow in an era filled with uncertainty. A management system that creates agility is a management system that can build strategies and translate these strategies, both innovation and other strategies into quick and real action.

Based on the problem above, this research is expected to be able to communicate strategy to all work units and individuals. it can be understood and executed properly. As proof of seriousness in facing increasingly stringent business challenges in this era, the company's management has the initiative to implement a balanced scorecard-based strategic management system so that the company can move agilely to maintain excellence and continue to grow.

II. LITERATURE REVIEW

SPEX2 (Strategy and Performance Execution Excellence (SPEX2) Strategic Management Model

SPEX2 strategic management model is a strategic management system model that has become a world best practice company and has been implemented by hundreds of GML Performance Consulting client organizations in Asia. The purpose of the SPEX2 model is to achieve the goals of creating a sustainable organization that can translate strategy into performance. The SPEX2 strategic management model includes five stages, namely strategy formulation, strategy mapping, organizational alignment, operational execution and monitoring and realignment. (L. Suwardi, P. Biromo, 2011).

SWOT Analysis (Strength, Weakness, Opportunity, Threat)

Opportunities and threats from the results of the external analysis, together with the company's strengths and weaknesses from the results of the internal analysis will be input in compiling with SWOT analysis (L. Suwardi, P. Biromo, 2011). The company's strengths are resources and capabilities that can provide a competitive advantage. The weakness of the company that the absence of certain strengths that the company needs can be considered a weakness. Next, Company opportunities are the result of external analysis in identifying new opportunities to increase profits and growth. Corporate threats are changes in the external environment that pose a threat to the company. (L. Suwardi, P. Biromo, 2011).

TOWS Matrix

The TOWS matrix is a tool to used compile the company's strategic factors, this matrix can produce four possible alternative strategies (Rangkuti, 2018). In making a strategy that takes with the results of the SWOT analysis, after that a TOWS matrix already (L. Suwardi, P. Biromo, 2011). S-O strategy is an effort to pursue opportunities by using existing strengths, W-O strategy is an effort to overcome weaknesses to pursue opportunities, S-T strategy is an effort to use strengths to overcome or reduce the

impact of threats, W-T strategy is an effort to generate or reduce weaknesses so as not to be vulnerable to threats. Based on the results of the strategic composition carried out, there will be many possible strategies that can be carried out by the company (L. Suwardi, P. Biromo, 2011).

Grand Strategy Matrix

The grand strategy matrix is a matching stage in the strategy formulation process. This matrix is have two basic evaluation dimensions, namely competitive position and market growth. it has four quadrants that represent the state of a company. Quadrant I represents companies with high market growth and a strong competitive position. Companies in this quadrant have a very good position. For this company, always concentrate on the market (market penetration and market development) and about the products (product development). Next, quadrant II need to seriously evaluate their current approach to the market. Then, for quadrant III compete in industries that grow slowly and have a weak competitive position. And the last is Quadrant IV companies have a strong competitive position in a slow-growing industry. (David, 2017).

Balanced Scorecard

The balanced scorecard-based strategy mapping initiated by Robert Kaplan and David Norton is an effective to describe about logical cause-and-effect relationships of a predetermined strategy. Strategic visualization in the form of strategy that will be focus and integration of the various strategic activities determined. strategic mapping based on the balanced scorecard has many components, namely perspectives, strategic objectives, key performance indicators and strategic initiatives. (L. Suwardi, P. Biromo, 2011).

III. RESEARCH METHOD

This study aims to describe an event or condition that occurs in accordance with the object of research in the field based on reality. This research was conducted to visualize the company's strategy into the company's strategy map. Figure 1 will describe the steps in this research.

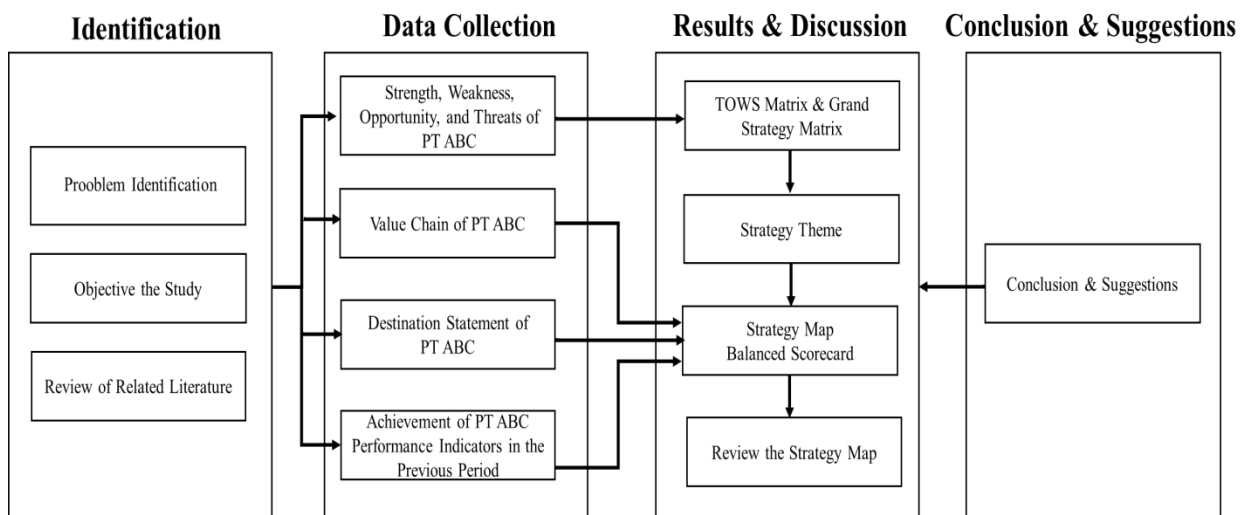


Figure 1. Research Framework

Method of Collecting Data

➤ Strength, Weakness, Opportunity, and Threats of PT ABC

The strengths, weaknesses, opportunities and threats of PT ABC are collected data to be used as input for making the TOWS matrix and Internal Factor Analysis Summary (IFAS) and External Factor Analysis Summary (EFAS) in the grand strategy matrix. Data on strengths, weaknesses, opportunities, and threats of PT ABC were obtained by focus group interviews.

➤ Destination Statement of PT ABC

The purpose of the data collection to be used as input for mapping the company's strategy. it was obtained by conducting interviews on focus groups discussion with the head of the Corporate Planning Division.

➤ Value Chain of PT ABC

In this study, the value chain of PT ABC's business processes is secondary data obtained by the author to be used as input in mapping the company's strategy in the perspective of internal business processes. This data was obtained by observing the PT ABC business process documents.

➤ Achievement of PT ABC Performance Indicators in the Previous Period (2019 – Semester 1 2021)

The achievement of PT ABC's performance indicators in the previous period is data collected by the author to be used as a benchmark in determining the target of the company's main performance indicators. In this study, the achievement of PT ABC's performance indicators for the previous period (2019 – semester 1 2021) is secondary data collected by the author by observing the PT ABC performance indicator document.

IV. RESULTS & DISCUSSION

➤ TOWS Matrix

The TOWS matrix in this study is used to compile PT ABC's strategic factors in the form of strengths, weaknesses, opportunities and threats obtained from data collection of PT ABC's strengths, weaknesses, opportunities and threats. In addition, this matrix also produces four alternative strategies, namely S-O strategy, W-O strategy, ST strategy and W-T strategy.

➤ Grand Strategy Matrix

The grand strategy matrix in this study is used to determine the strategy recommendations of PT ABC. Enter the data in making the grand strategy matrix, namely data on strengths, weaknesses, opportunities and threats that have

been collected in the data collection process, then the data is processed into Internal Factor Analysis Summary (IFAS) and External Factor Analysis (EFAS), as well as making a grand strategy matrix.

➤ Strategy Theme

At this stage, the strategy theme is determined. The purpose of the strategy theme is to provide direction regarding the strategic focus to be achieved by the company, later the theme will be translated into strategic objectives contained in the perspective of the balanced scorecard strategy map. In this study, the strategy theme was obtained from determining the priority of strategic directions in the TOWS matrix and the grand strategy matrix.

In obtaining priority strategic direction sourced from the TOWS matrix, the author uses the customer value proposition approach and in obtaining strategic direction priority sourced from the grand strategy matrix, the author determines the priority direction for growth strategy using the AHP (Analytical Hierarchy Process).

➤ Strategy Map Balanced Scorecard

After obtaining the strategic theme, then the theme is translated into strategic goal in each perspective. After that, PT ABC's strategic objectives were formulated along with the causal relationship between strategic objectives based on the strategic objectives contained in each perspective. After obtaining the strategic objectives, then the key performance indicators and targets are made, which are translated from the strategic objectives.

➤ Review the Strategy Map

This sub-chapter discusses the review mechanism applicable in evaluating PT ABC's strategy map. This mechanism was created to guide company management and PT ABC division leaders to conduct a review of the achievement of strategic objectives, by reviewing the achievement of key performance indicators in a predetermined period.

V. RESULTS AND DISCUSSION

TOWS Matrix

The results of these studies show that seven strengths, six weaknesses, ten opportunities, and four threats. it also has several strategies, namely four S-O strategies, three W-O strategies, three S-T strategies, and three W-T strategies. Table 1 will be presented the items of strengths, weaknesses, opportunities and threats of PT ABC in the TOWS matrix, and table 2 will be presented about the alternative strategies in the TOWS matrix.

Table 1. Strengths, Weaknesses, Opportunities and Threats of PT ABC

No	Strength (S)	No	Weakness (W)
S1	PT ABC is the only tire manufacturer in Indonesia that produces mining tires, both radial and bias types	W1	Equipment and machines used in the production process have below target utilization
S2	PT ABC has an integrated information system	W2	Scrap finished good in the company have not been managed properly
S3	Employees at PT ABC are predominantly young (< 30 years old)	W3	Scrap on-process in the company have not been managed properly
S4	Raw materials are available in sufficient volume to enable sustainable production	W4	Production costs have not been managed properly
S5	Equipment and machines used to support production activities are in good condition	W5	Sales volume did not reach the target
S6	Orders from customers are always fulfilled in the required quantity and time	W6	Customer satisfaction is not better than competitors
S7	Customer voices and customer complaints are well followed up		
No	Opportunity (O)	No	Threat (T)
O1	Minister of Trade Regulation No. 05 of 2019 which has the goal of importing tires, it is hoped that they will not interfere with the existence and be able to support the development of the national tire industry	T1	The price of rubber (RSS3) is projected to increase from 2021 to 2022
O2	New car tax relaxation PPnBM (Sales Tax on Luxury Goods) 0% Cars which can increase car sales	T2	Good Year Tire & Rubber Co. officially acquires tire company from the United States (US), Cooper Tire & Rubber Co
O3	It is projected that there will be an increase in Indonesian and global economic growth in 2021	T3	Michelin will increase the number of local production in each regional region (America, Europe, Asia, Africa)
O4	It is projected that global automotive production growth in 2021 will reach 10%	T4	The Jakarta-Bandung high-speed rail project which will be completed by the end of 2022
O5	Sales of motorcycles and cars in Indonesia have increased		
O6	A new industrial landscape characterized by four characteristics: hygienic, reduced touch, avoidance of crowds, and low mobility		
O7	The potential of electric vehicles in Indonesia from those that have increased from 2021-2030		
O8	Have loyal customers compared to competitors		
O9	The company does not depend on one supplier		
O10	The local tire industry has not been able to meet the national demand for mining tires and heavy equipment, so the unmet tire needs still have to be imported by importing		

Table 2. Alternative Strategies of PT ABC

S-O Strategy		W-O Strategy	
S1 + O1, O3	Increase sales volume of domestic mining tires	W2 + O4, O5	Reducing scrap finished well
S4 + O2, O3, O5	Increase sales volume of domestic motorcycle and car tires	W3 + O4, O5	Reducing scrap on-process
S2 + O6	Develop a digital platform that provides sales channels from outside the network into the network	W5 + O3, O4, O5	Increase sales volume of motorcycle and car tires
S1 + O8	Company OE strategic alliances, as well as collaborating with national mining companies		
S1 + O10	Increase sales volume of domestic mining tires		
S-T Strategy		W-T Strategy	
S7 + T2	Increase customer satisfaction and loyalty	W2, W3, W4 + T1	Implement production cost-efficiency
S4, S5, S6 + T3	Increase export sales volume	W1 + T3	Increase export sales volume. This is an effort to increase machine utilization
S3 + T4	Employees are involved as brand ambassadors	W6 + T3	Increase brand awareness, customer satisfaction and loyalty

Grand Strategy Matrix

The grand strategy matrix is used to obtain PT ABC's strategy recommendations. This matrix is based on two evaluation dimensions, namely competitive position and market growth. The appropriate strategy for the company to consider is in the order of attractiveness in each quadrant of the matrix.

In making the grand strategy matrix, the first thing to do is to make the Internal Factor Analysis Summary (IFAS),

and External Factor Analysis (EFAS) to obtain the total value of external and internal factors. After obtaining the value of internal factors and external factors, then these two values are used as x, y coordinates in the grand strategy matrix. The value of the internal factor is the x-axis, and the value of the external factor is the y-axis. So, the coordinates of the grand strategy matrix in this study are (x = 128,07, y = 42,75). In Figure 2, the grand strategy matrix of PT ABC will be presented.

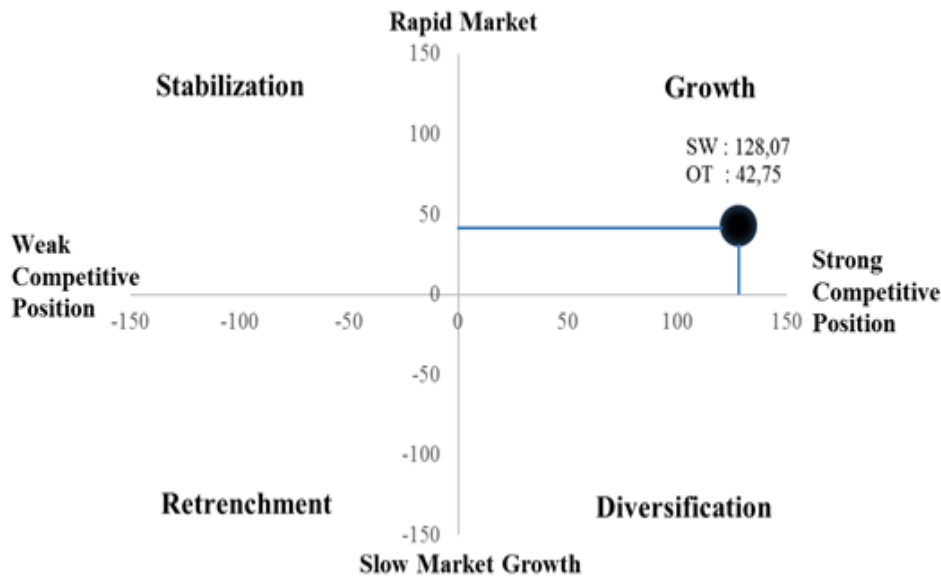


Figure 2. Grand Strategy Matrix of PT ABC

Based on the results above, the coordinate values are in quadrant I (the matrix recommends) it can be use a growth strategy. there are several types of strategies, namely market development, market penetration, product development, forward integration, backward integration, horizontal integration, and related product diversification.

Strategy Theme

The purpose of the strategy theme is to provide strategic direction to be achieved by the company, later the theme is translated into strategic goal contained in each

balanced scorecard perspective. This study was obtained by determining the priority of strategic direction on the TOWS matrix of PT ABC based on the customer value proposition, and determining the priority of the direction of growth strategy on the grand strategy matrix of PT ABC using the AHP (Analytical Hierarchy Process) method. In table 3, will be presented about the priority direction of the strategy on the TOWS matrix and the next table (table 4) will be presented about the priority direction of the growth strategy on the grand strategy matrix.

Table 3. Priority of Strategic Directions on TOWS Matrix

Category	Strategy	Strategic Direction
S-O	Develop a digital platform that provides sales channels from outside the network into the network	Customer Intimacy
S-O	Company OE strategic alliances, as well as collaborating with national mining companies	
S-T	Increase customer satisfaction and loyalty	
S-T	Employees are involved as brand ambassadors	
W-T	Increase brand awareness, customer satisfaction and loyalty	
W-O	Scrap finished good reduction	Operational Excellence
W-O	Scrap inprocess good reduction	
W-T	Implement production cost-efficiency	

Table 4. Priority of Strategic Directions on Grand Strategy Matrix

Growth Strategy Direction	Persentase
Market development	21,43%
Market penetration	18,65%

Based on the results above (determining strategic priorities on the TOWS matrix and the grand strategy matrix), the strategy theme is determined, namely "Corporate Value Growth Through Market Development &

Penetration, Customer Intimacy and Operational Excellence".

Strategy Map Balanced Scorecard

The next steps is translated into the strategic goals which aims to determine the initial framework for making strategic goals contained in each perspective of the balanced scorecard strategy map. Table 5 will describe the strategic goal contained in the perspective of the balanced scorecard strategy map.

Table 5. Strategic Goal in the Perspective of the Balanced Scorecard

Identification PT ABC's Strategic Themes	Strategic Goal	Balanced Scorecard Perspective
Growth of company value through market development & penetration	Creating a growing income level through market development & market penetration to support the realization of company profits in a sustainable manner	Financial
Customer intimacy	Increase customer trust and loyalty	Customer
Operational excellence	Improving operational excellence to support the realization of corporate profits in a sustainable manner	Internal Process, Learning & Growth

After that, make strategic objectives along with cause-and-effect relationships that refer to the strategic goals. Then in the main performance indicators and targets are determined. the main performance that have the indicator targets, namely the main performance indicator targets in semester 2 2021 obtained based on the difference between actual achievements in semester 1 2021 with the full target in 2021. Figure 3 will describe the PT ABC balanced scorecard strategy map as a whole.

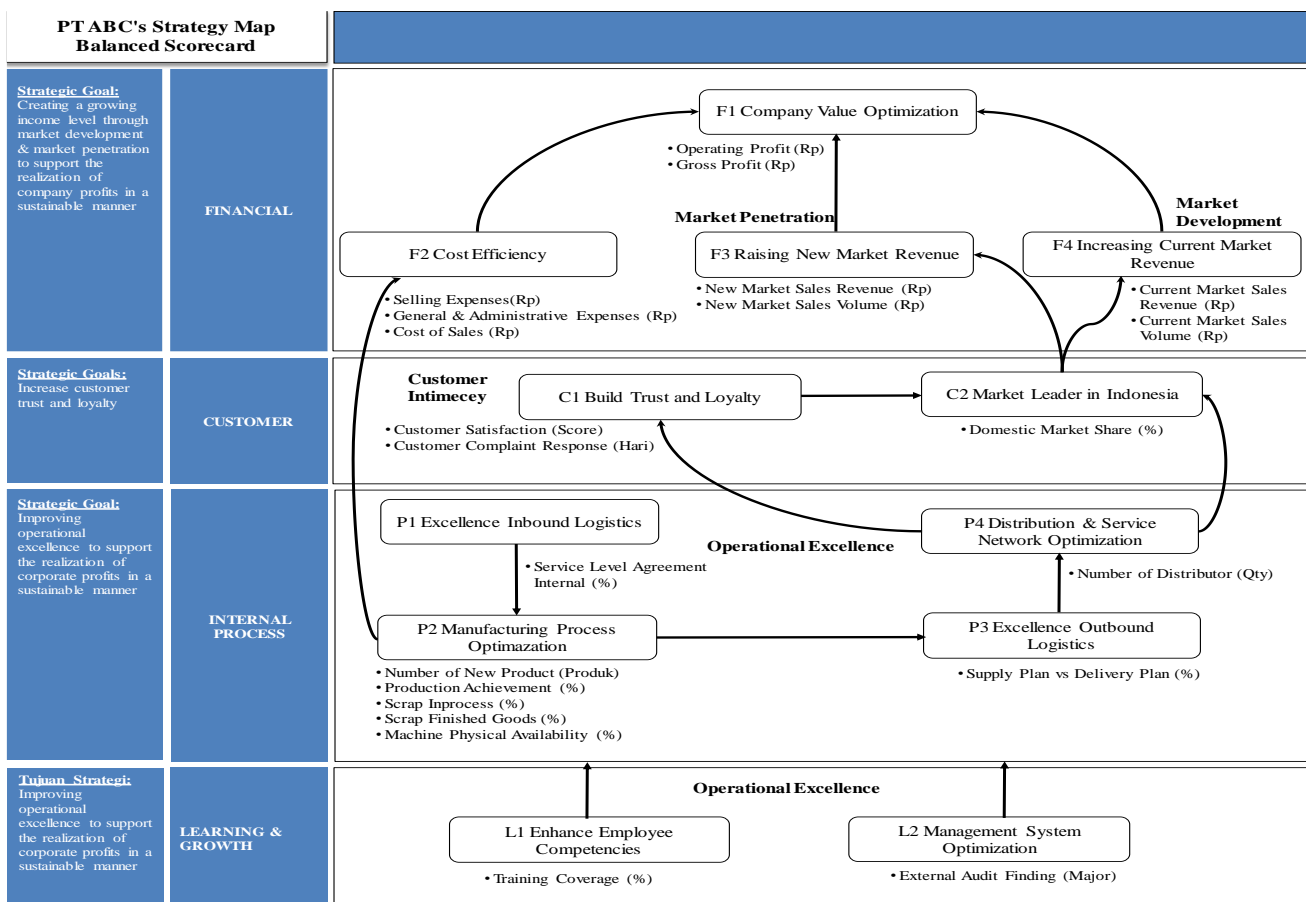


Figure 3. PT ABC's Complete Balanced Scorecard Strategy Map

Review the Strategy Map

The review of PT ABC's balanced scorecard strategy map was made to guide company management and PT ABC division leaders in conducting a review of the achievement of strategic objectives, by reviewing the achievement of key performance indicators in a predetermined period. The results of this review are documented in the manual (CP-SM-PL-05) which is derived from the company's standard operating procedures related to the business plan process. The following is the mechanism contained in the guidelines for reviewing the PT ABC strategy map.

- Pelaksanaan tinjauan dihadiri oleh pimpinan divisi dan dewan direksi
- Reviews are conducted in semester periods. Semester 1 is held in early July of the current year and semester 2 is held in early January of the following year
- The discussion in the review of PT ABC's strategy map is as follows.
 - Discussion of notes from the strategy map review conducted in the previous period
 - Key performance indicators for the period to be reviewed
 - If the main performance indicators do not reach the target, the relevant division is obliged to analyze with improvement plans/strategies to achieve the next target
 - Related information needs support from another division or the board of directors.

VI. CONCLUSION AND SUGGESTION

CONCLUSION

Based on data processing, results and discussions conducted in the research on the design of key performance indicators using the balanced scorecard method in the tire manufacturing industry (PT ABC), the conclusions are as follows.

1. Strategic directions translated into a balanced scorecard strategy map, namely customer intimacy, operational excellence, market development, and market penetration. The strategic direction is obtained from the strategy formulation using the TOWS matrix and the grand strategy matrix and determining the priority of the strategic direction. The direction of the customer intimacy strategy is composed of five strategies contained in the TOWS matrix in S-O, S-T, W-T, operational excellence is composed of three strategies in W-O and W-T. The direction of the market development strategy and market penetration was chosen because it has a higher percentage compared to other types of strategies in the growth strategy of the grand strategy matrix. Market development has a percentage of 21,43% and market penetration has a percentage of 18,65%.
2. After knowing the direction of the strategy, the next step is to make a strategy theme. The strategic themes that have been obtained are then translated into strategic goals in each perspective, after which these objectives are translated into strategic objectives and causal relationships, and the determination of key performance indicators and targets based on strategic objectives is carried out. In this study, there are three strategic goals in the perspective of PT ABC's balanced scorecard strategy map, four strategic objectives and nine key performance

indicators in the financial perspective, two strategic objectives and three key performance indicators in the customer perspective, four strategic objectives and eight key performance indicators in the internal process perspective, and two strategic objectives and two key performance indicators from learning and growth perspective.

SUGGESTION

Results Based on what was done in the main performance design research using the balanced scorecard method in the tire manufacturing industry (PT ABC) put forward some suggestions for further research and the company.

1. The next researcher, it is hoped that further research can be carried out on translation strategies up to the divisional level (business unit) to the individual level.
2. The researcher herself, it is hoped that the strategic management process of PT ABC can be carried out more systematically from the formulation stage to strategy translation.

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