

STRATEGIC PLANNING ON ELECTRIC MOTORCYCLE MANUFACTURING COMPANY WITH HOSHIN KANRI AND BALANCED SCORECARD METHODS

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ABSTRACT

Performance measurement aims to provide information about company performance so the company can focus on achieving their goals. This research was conducted by collecting performance data of an electric motorcycle manufacturing company in Indonesia. Currently, the company only focuses on winning the competition in the industrial world, without paying attention to other aspects that are also indicators of driving success. Therefore, this study aims to measure the company's performance so that future strategic planning can be designed. Performance measurement was carried out using the Balanced Scorecard (BSC) by describing the company's vision and mission into 4 perspectives, namely Finance, Customers, Internal Business Processes, and Learning and Growth with weights of each perspective 0.299, 0.399, 0.171, and 0.202. This research produces 12 Key Performance Indicators (KPI) with an Objective Matrix (OMAX) and a Traffic Light assessment system. The results of the performance appraisal are 2 performance indicators are good, 8 performance indicators have not been achieved but close to the target, and 2 performance indicators are still far below the target. Furthermore, strategic planning is carried out using Hoshin Kanri by identifying long-term goals that are expected to align company goals with the company's business activities.

INTRODUCTION

Performance measurement is needed to improve the performance of a company. Job performance means to achieve a goal or set of goals in a job, role, or organization [1]. The performance measurement system in an organization reflects the basic principles of the organization and it can identify the organizational performance. Many companies are only placed for competition in the industrial world without paying attention to other aspects which are also indicators of driving success. Therefore, performance measurement is needed in order to assess the overall performance of the company from various aspects so targets and strategies of the company can be set.

This study aims to measure the company's performance so its future strategic planning can be designed. The research was conducted on an electric motorcycle manufacturing company in Indonesia. Currently, this company's goals has not been supported by company's performance measurement. Since the company was founded, performance measurement has not been carried out. So, we performed the Balanced Scorecard (BSC) to this company which consists of four perspectives, namely financial perspective, customer perspective, internal perspective process, and learning and growth perspective [2]. The result of performance analysis will generate the

basis of Hoshin Kanri strategic planning, where the strategy is ready to be reviewed and followed up throughout the organization, both vertically down through the organization and all organizational functions [3].

BALANCED SCORECARD (BSC)

Balanced Scorecard (BSC) is a set performance targets and approach to performance measurement that stresses all of the organization's objectives relating to its critical success factors [4]. Measurement using the BSC needs to be carried out because the operational conditions faced by the company are constantly changing, so the measurements are needed to determine the decision-making process by management to achieve organizational goals or objectives. 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 organization's vision and strategy [5].

The BSC have four perspectives: financial, customer, internal business process, and learning and growth. [5] Financial perspective shows whether the planning, strategy implementation, and strategy implementation provide improvement or not for the company. Customer perspective identify the customer and market segments in which the company have chosen to compete by satisfy customer's needs. Internal business process perspective identify the processes that are most critical for achieving customer and shareholder objectives. Learning and growth perspective provide the infrastructure to enable ambitious objectives in the other three perspectives to be achieved.

Eventually, all objectives and measures in the other scorecard perspectives should be linked to achieve one or more objectives in the financial perspective. This link to financial objectives, recognizes the long-term goal for the business to generate financial returns to investors. All the strategies, programs, and initiatives should enable the business unit to achieve its financial objectives. Every measure selected for a scorecard should be part of a link of cause-and-effect relationships, ending in financial objectives, that represents a strategic theme for the business unit [5]. Figure 1. shows the BSC provides a framework to translate a strategy into operational terms [5].

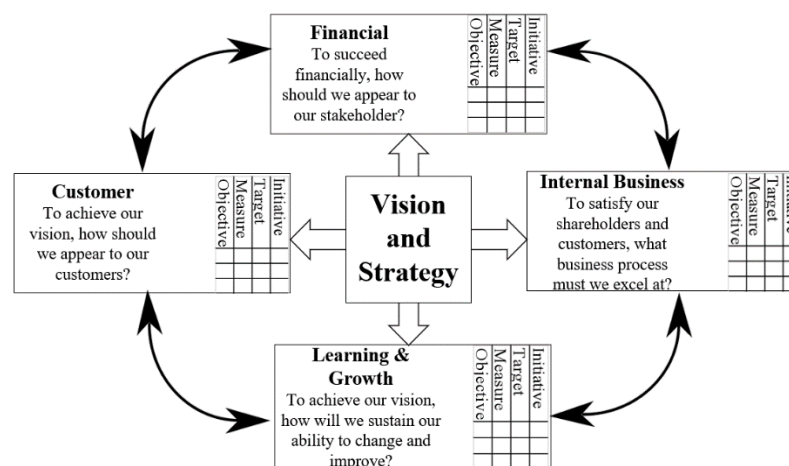


FIGURE 1. The Balanced Scorecard Provides a Framework to Translate a Strategy into Operational Terms

HOSHIN KANRI

Hoshin Kanri or also known as strategic planning and deployment is a strategy that helps organizations focus on achieving company targets and goals by linking plans so as to ensure the alignment of individuals in the organization. Hoshin Kanri is primarily a visual deployment system for strategic planning. It creates visual templates at each level of the organization that connect the plan down through the organization in such a way that ensure alignment of individuals across the organization, both vertically and horizontally. Hoshin Kanri is fundamentally all about creating and leveraging visibility around your plan [6]. Figure 2. shows strategy formulation and deployment approach [6].

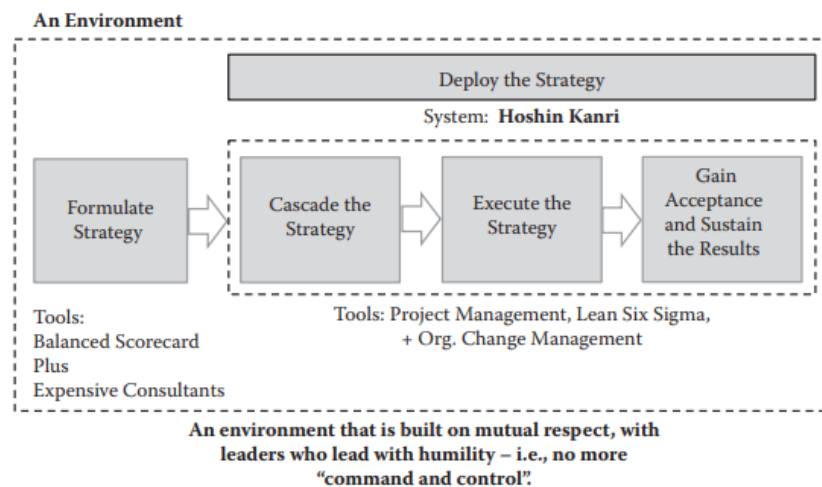


FIGURE 2. Strategy Formulation and Deployment Approach: A Supportive Work Environment

The Hoshin Kanri provides the planning, implementation, and evaluation process steps in managing the company to improve the quality of the company. This method demonstrates the company's vision which is converted into the obligations of an individual in a company. The planning process using the Hoshin Kanri can be completed through implementing Plan-Do-Check-Action (PDCA), that begins with systematically setting goals to be achieved in all business activities. Then, there is also a catchball process that describes communication between stakeholders. This relationship is illustrated through the X Matrix which is the strategy map of Hoshin Kanri. In the X Matrix, it can be seen what sub-criteria have a relationship between one another. This relationship can be primary or complementary. From this relationship, it will be known which sub-criteria are related to the channels in a company.

METHODOLOGY

The study was divided into several stages: implementing hoshin kanri, elaborating the company's vision and mission into strategic targets and KPI, performance assessment of each KPI using OMAX and Traffic Light System, and strategic planning by designing hoshin planning X-matrix.

The first stage was implementation of Hoshin Kanri. It began with outlining the company's vision and mission. The company's vision and mission were translated into corporate strategies which were divided into four Balanced Scorecard perspectives. The interpretation of each perspectives must be able to describe the strategy that will be implemented in a company by striving for the realization of the vision and mission obtained from the formulation of objective strategies. Then, the performance of each KPI was measured.

The next stage was conducted performance appraisal using OMAX with the analysis of the results using a Traffic Light assessment system. This stage was carried out to determine which KPI of each perspective has the highest or lowest performance based on predetermined targets. Analysis of the results of the assessment was carried out by grouping the performance into 3 categories, namely high, moderate, and low. Each criterion was assigned by different color to make it easier in comparison.

Furthermore, strategic planning was carried out with the Hoshin Planning X-Matrix aimed at aligning long-term needs through strategic initiatives, by identifying the most important activities to be carried out and analyzing the criteria for continuous improvement.

RESULTS AND DISCUSSION

Identification of Strategic Objectives and Key Performance Indicators Weight

First stage of this study is identification of strategic objectives and KPIs from each perspective. Then, weight the KPIs using a pairwise comparison matrix in the Analytical Hierarchy Process. Weighting is carried out to determine the priority importance of each key performance indicator [7], as shown in Figure 3.

GOAL	PERSPECTIVE RANK	PERSPECTIVES AND WEIGHTS	STRATEGIC OBJECTIVES	KEY PERFORMANCE INDICATORS	KPIs WEIGHTS	KPIs RANK
Implementing Hoshin Kanri and Balanced Scorecard for Strategic Planning	2	(F) Financial Perspective (0,229)	F-1 Increase Profitability	Sales Target Percentage Achievement	0.102	3
			F-2 Increase Product Sales	Number of Products Sold	0.074	7
			F-3 Increase Income Growth	Revenue Growth Percentage	0.053	8
	1	(C) Customer Perspective (0,399)	C-1 Adding New Customers	Potential Customer Percentage Achievement	0.093	5
			C-2 Brand Recognition	Number of Dealers	0.211	1
			C-3 Maintain Good Relationships with Customers	Number of Buyers	0.095	4
	4	(I) Internal Business Process Perspective (0,171)	I-1 Reduce Production Cycle Time	Production Cycle Time	0.024	12
			I-2 Product Quality Improvement	Number of Defect Products	0.107	2
			I-3 Conducive Working Environment	Frequency of Work Accidents	0.040	11
	3	(C) Learning and Growth Perspective (0,202)	L-1 Increase Employee Productivity	Amount of Production per Employee	0.087	6
			L-2 Improve Employee Competencies	Number of Training Held	0.068	9
			L-3 Improve Employee Discipline	Number of Employees Sanctioned	0.047	10

FIGURE 3. Key Performance Indicator (KPI) Priority Scheme

Performance Assessment using Objective Matrix and Traffic Light System

The Objectives Matrix is a productivity measurement system that functions to equalize the value scale of each indicator, so that the achievement of each existing parameter can be seen and recognize the overall company performance [8]. In conducting a performance appraisal using the OMAX, it is necessary to determine the maximum target, minimum target, and company target. The maximum target is filled at level 10 and the minimum target that can be achieved is filled at level 0. Meanwhile, the company target is filled at level 3. The performance assessment using the OMAX and Traffic Light System is illustrated in Figure 4.

Performance Assessment using Objective Matrix (OMAX)												
Financial Perspective			Customer Perspective			Internal Business Process Perspective			Learning and Growth Perspective			Key Performance Indicator (KPI)
Sales Target Percentage Achievement	Number of Products Sold	Revenue Growth Percentage	Potential Customer Percentage Achievement	Number of Dealers	Number of Buyers	Production Cycle Time	Number of Defect Products	Frequency of Work Accidents	Amount of Production per Employee	Number of Training Held	Number of Employees Sanctioned	
89,919	10	15,743	18,182	2	10	5,304	7	2	23	3	1	Performance
100	15	20	100	5	15	5	5	0	25	4	0	10
92,857	14,000	18,571	90,000	4,429	14,571	5,429	5,714	0,571	24,286	3,714	0,429	9
85,714	13,000	17,143	80,000	3,857	14,143	5,857	6,429	1,143	23,571	3,429	0,857	8
78,571	12,000	15,714	70,000	3,286	13,714	6,286	7,143	1,714	22,857	3,143	1,286	7
71,429	11,000	14,286	60,000	2,714	13,286	6,714	7,857	2,286	22,143	2,857	1,714	6
64,286	10,000	12,857	50,000	2,143	12,857	7,143	8,571	2,857	21,429	2,571	2,143	5
57,143	9,000	11,429	40,000	1,571	12,429	7,571	9,286	3,429	21,429	2,286	2,571	4
50	8	10	30	1	12	8	10	4	20	2	3	3
46,667	6,333	8,333	23,333	0,667	10,333	8,667	11,667	5,333	19,333	1,667	3,667	2
43,333	4,667	6,667	16,667	0,333	8,667	9,333	13,333	6,667	18,667	1,333	4,333	1
40	3	5	10	0	7	10	15	8	18	1	5	0
8,589	5,000	7,020	1,227	4,750	1,800	9,291	7,200	7,500	7,323	6,786	7,833	Score
0,102	0,074	0,053	0,093	0,211	0,095	0,024	0,107	0,04	0,087	0,068	0,047	Weight
0,876	0,370	0,372	0,114	1,002	0,171	0,223	0,770	0,300	0,637	0,461	0,368	Value
1,618			1,287			1,293			1,467			Index Performance

FIGURE 4. Performance Assessment using Objective Matrix (OMAX) and Traffic Light System

Traffic light system is closely linked to the scoring system. Traffic light system is a system that can indicate the condition of a Key Performance Indicator (KPI) whether it requires an improvement or not [9]. There are 3 categories of assessment using the Traffic Light System, green indicates good performance at level 10 to 8, yellow indicates moderate performance at level 7 to 4, and red indicates poor performance at level 3 to 0.

Figure 3 shows there are 2 key performance indicators with good performance and exceeding the company's targets. Those are sales target percentage achievement and production cycle time. There are 8 key performance indicators with performance that have not reached the target but have approached the target. Those are number of products sold, revenue growth percentage, number of dealers, number of defects products, frequency of work accidents, amount of production per employee, number of training held, and number of employees sanctioned. There are 2 key performance indicators which means the performance is far below target and needs improvement. Those are potential customer percentage achievement and number of buyers.

Strategic Planning using Hoshin Planning X-Matrix

Furthermore, strategic planning can be carried out so that the company can achieve its goals or objectives. This cycle begins by setting goals to be achieved consciously and systematically into all business activities and linking them with stakeholders. Strategic planning by designing the hoshin planning X-matrix which can be seen in Figure 5.

THE HOSHIN PLANNING MATRIX																						
•								Develop training and certification programs	•	•						o		•		•		
						•	•	Expand product and service offerings				o	•			o		•	•			
•		•	•					Educate employees on lean manufacturing concepts	•	•		•						•				
•		•	•					Invest in ISO 9001 certification	•	•						•		•		o	•	
	•	•	•					Implement Material Requirement Planning system										•		•	•	
				o	o	•	•	Advertise products through print and electronic media			o	•	•	•				•	•			
•		o						Reduce the number of employees who are penalized			o		•					•	•			
•		o	•					Developing a more efficient production system	•	•		•					•	•			•	
				•	•		•	Develop revenue growth targets			•	o					•	•		•		
Strive for continuous improvement								<div>Top-Level Improvement Priorities</div> <div>Annual Objectives</div> <div>3-5 Years Breakthrough Objectives</div> <div>Target to Improve</div>														
Increase the empowerment of local vendors									Percentage of product defects 0.1%													
Maximizing the amount of production									Amount of production per employee													
Reduce production cycle times									Company revenue growth above 1%													
Increase revenue growth by 1%									Percentage of income achievement above 50%													
Peningkatan profitabilitas perusahaan 30%									Production capabilities to 2000 per month													
Increase the number of customers									Percentage of potential customers above 30%													
Increase number of products sold									Number of product sold per month is above 15 units													
									The frequency of work accident is 0 times													
									Expanding cooperation with dealers													
								Determine the standard time for production														
								Operational Manager														
								National Sales and Marketing Manager														
								Accounting Manager														
								HRD and GA Manager														
								Procurement Manager														
								Factory and Warehouse Manager														
					o	•	•	Brands are increasingly recognized by public				•										
				•	o	•	•	Reached break-even point				•	•		o	•						
				•		•	•	Company's revenue growth reaches 5%				•										
	•							100% components come from local vendors						o								
•		o						Number of defects below 0.1%	•					•								
			•					Strive for automation in the production process	o				•									
		•						Increase the number of production shifts		•			•									
	o					o	•	Increase product variants						•								
•								Implement a culture of continuous improvement	•				•									

Resources:
• Primary
Responsibility
o Secondary
Responsibility

FIGURE 5. Hoshin Planning X-Matrix

The Breakthrough Objectives for the next 3 to 5 years is this company can reach a break-even point, with revenue growth reaching or exceeding the target of 5% per month. The company's goals or objectives for the next 3 to 5 years are supported by the company's annual goals by identifying several short-term goals that are in line under each long-term goal or breakthrough goal by making improvement priorities that can support annual goals such as developing a more efficient production system, advertising products to be known to the public, as well as investing in ISO 9001. Thus, the company will have guidelines in running its system to produce the best quality, which has an impact on the quality of production and ensures that the system running in the company is guaranteed good.

Target to Improve can be a metric that will be used to measure any short-term initiatives, which are aligned with annual priorities and aligned with breakthrough goals or objectives for the next 3 to 5 years. Of course, all stakeholders including managers in various fields in the company take part in continuous improvement which will have an impact on the achievement of company goals or objectives.

CONCLUSIONS

This study has yielded results of weights each perspective on the balanced scorecard, namely the financial perspective has a weight value of 0.229, the customer perspective has a weight value of 0.399, the internal business process perspective has a weight value of 0.171, and the learning and growth perspective has a weight value of

0.202. This shows that the customer perspective is the most important perspective for increasing profitability of the company. Based on the results of the performance appraisal using the OMAX method and the Traffic Light System, there are 2 key performance indicators with good performance. Those indicators are sales target percentage achievement and production cycle time. In addition, there are 8 key performance indicators have not been achieved but are close to the target, and 2 key performance indicators are still below the target and need improvement.

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