

The Proposed Dashboard Model for Measuring Performance of Small-Medium Enterprises (SME)

Taufiq Immawan^{1*}, Annisa Indah Pratiwi¹, Winda Nur Cahyo¹

¹Department of Industrial Engineering,
Faculty of Industrial Technology, Universitas Islam Indonesia, Yogyakarta, 55584, INDONESIA

*Corresponding author

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Abstract: The era of free market and the more dynamic environment condition forces many companies to establish the proper strategy. Implementation of a correct strategy can increase the effectiveness and efficiency of the use of the company resources. The system of measuring performance is one of models used to monitor the success of implementing objective strategy which has been determined by the leader of the company, including SME (small-medium enterprise). However, a lot of SME do not have clear vision and strategy. It is because the SME orientation only focuses on more dominant operational performance. Therefore, smart system can be used to arrange a parameter of performance measurement. AHP (Analytic Hierarchy Process) is used to determine the priority from each criterion from KPI (Key Performance Indicator). Knowing the proper need, the company can determine the priority to select if the company has limited fund and resources. Moreover, the assessment system used in this research uses OMAX (Objective Matrix) method for each KPI. To assess, the measurement uses the concept of traffic light system using 3 colors: green (achieving a target), yellow (close with the target), and red (far from target). Nevertheless, this KPI needs to get attention in the next period. The research observes 3 SMEs located in Krobot tourism village. They are SME Ragil Handicraft, SME Sanggar Punokawan and SME Yuan art. The result shows that there are 31 keys performance indicators (KPI) used to measure the performance of SME. The assessment result of OMAX shows that there are still a lot of KPIs with red color. Thus, they need to be repaired. Knowing the performance of SME still far from target (red), the sources of the problem can be identified, so that the reparation target done by SME is more appropriate.

Keywords: SMEs, Performance, Smart system, AHP, OMAX

1. Introduction

To compete in regional and global markets, the SMEs should be competitive. They have at least competitive and comparative products. Consequently, the development of SMEs should head for two directions, i.e. improving the quality of SME as well as its quantity. If the development can be done, SME can serve as a mainstay in the enhancement and the development of Indonesia's economy. SME as economic pioneer in the development of the national economy in the future is a very appropriate and wise choice. Nevertheless, it must be equipped with an appropriate development strategy to avoid disharmony or discontinuity.

Inaccurate and negligent provisioning toward SMEs to compete in regional, national and international markets will cause the helplessness of SMEs facing the global competition. In addition, the cause of the decreasing production is caused by the shellacking of the SME product with the flood of Chinese products in Indonesian market. These products are competitor's commodities of Indonesian SMEs such as ceramic, apparel, footwear (shoes/slippers), furniture, and craft products [1].

The global competition has already been unavoidable because of the enactment of CAFTA and MEA. Local entrepreneurs must be ready to compete with foreign entrepreneurs in Indonesian market. The era of free market and the more dynamic environment condition force many companies to establish the proper strategy. Furthermore, its implementation with a good strategy can increase the affectivity and efficiency of the usage of company resources. The system of measuring performance is one of models used to monitor the success of implementing objective strategy which has been determined by the leader of the company, including SME.

Until now, the performance measurement of companies tends to focus more on financial aspect only. It should be noted that such trend may insignificantly affect the company's business sustainability because the results of measuring performance partially are likely to obscure or even hide the company's reliability to achieve economic value in the future. For instance, many companies' leaders could be judged as a successful leader if he can achieve a certain financial level. Therefore, many companies are trying to increase profits in several ways. This method can trap the company in the short- term orientation and ignores the continuity of long-term business of the company.

The Methods of measurement performance has thrived in this era. Academics and practitioners have much implemented new models of performance measurement system, such as the Balanced Scorecard [2], Integrated Performance Measurement System (IPMS) [3], and SMART (Strategic Management Analysis and Reporting Techniques) System [4]. The implementation of the many performance measurement systems in the context of companies in Indonesia has been done in this era. However, performance measurement application in small and medium sized industrial companies is still in the low level, whereas small and medium industrial enterprises in Indonesia are abundant and have a significant contribution to the Indonesian economics. The durability of the small and medium industry when the monetary crises shock is also better than that of big industry. In general, there are still plenty of companies of Indonesia both small and medium-scale enterprise (SME) who runs their business without having the vision, mission, and management strategy. Moreover, a lot of the SMEs never access to the performance of their business. This gives bad impacts i.e., although the durability against the economy shocks seems to be strong, but the business competitiveness in domestic and international market appears to be low. These conditions are not favorable for the development efforts of SMEs and embodying the SMEs as the pillars of a strong economy to support economic growth. Based on that condition, it is needed to study about the business strategy of SMEs within the framework of the development of the SME which focused on competitive improvement of performance in the future. Thus, it is needed the improved performance of SME model based on performance assessment system which is appropriate to the nature and characteristics of SMEs.

Researches on performance measurement have been done by some earlier researchers. A research by J. Sinisammal [5] promoted the Balanced Scorecard as a performance measurement. According M.Hudson et. al., [6], performance measurement strategy from the perspective of quality, flexibility, time, finance, customer satisfaction and human resource is suggested. In [7], some related performance measurement method related to complexity, diversity and the development of a dynamic business surroundings is analyzed. L. Lesakova et. al., [8] conducted a research on public administration in the Republic of Slovakia by using methods of the BSC. N. Wahyuni et. al., [9] performed a research with the Engineering Faculty as an object as a performance evaluation by using the Smart System. L. Arkea [10] proposed the "Smart Measures" as approaches in creating performance measurement priorities for business consultant based on organizational culture and style of leadership.

A lot of small and medium organizations do not have a clear vision and strategy. Their orientation is more focused on the operational performance. Besides, the method of SMART system is able to identify the feedback context to monitor organizational performance and to improve performance measurement over the traditional action [11]. This model is often used by small and medium sized organizations to measure the performance of the organization. Therefore, this study will use the Smart system in developing SME performance measurement model.

However, this method still lack of mechanism to identify key performance indicators, to determine the form act of measurement and also to integrate implicitly the concept of continuous improvement [11]. Thus, it needs the integration of other methods to cover the shortcomings of the SMART method to identify the key indicators. KPI identification begins from gathering as many variables as possible to be key indicators at each perspective in the unit of SMART paradigm level by using the interview method. The use of KPI, Monitoring system and performance measurement can be found in [12 – 14]

The key indicators that have been identified will then be measured using SMART method which begins with the Analytical Hierarchy Process. Measuring each KPI, the performance measurement is done to find out if, during the execution of the performance, there was a deviation from the plan that has been specified. The required data in the measurement is secondary data of the SMEs. The obtained data was converted in the form of numbers or score. Furthermore, the scoring system used in this research is the method of OMAX (Objective Matrix) for each KPI. When measuring, the concept of Traffic Light System is used with three colors, i.e. green with threshold 7-10 meaning that performance of KPI has reached the targets even beyond the target, the yellow with a threshold of 3 to 6 meaning that performance of KPI has not yet reached the target but close to achieve the target and the red color with a threshold of 0 - 2 meaning that the performance of KPI is truly under target. This KPI needs to get special attention in the next period.

OMAX is introduced in the 1980s by James L. Riggs PE from Oregon University [15]. It is commonly used to measure a partial productivity in an organization and to monitor the productivity in every level of management or

departments. The basic concept of this process is developing a matrix based on the working groups of the performance criterion. The result is a single value of a working group. The application of this method can be found in [16, 17].

2. Research Method

2.1 Object and Subject of the research

Object of the research is the achievement of performance gained by SMEs in Kreet Tourism Village. The number of subjects for distributing questionnaire consists of all employees and owners of those three SMEs, i.e., 57 respondents.

2.2 Research Procedure

i. Data Collection

The required data consists of primary and secondary data. Primary data are obtained by spreading questionnaire and doing interview to find out attributes of the KPI and stakeholder assessment against those obtained KPI. While secondary data are obtained by library research, direct observation and interviews with the owners of SMEs.

ii. The concept of the program

Some possible variables that can be served as key indicators are formulated from the results of interviews and brainstorming with the SMEs and relevant parties. After obtaining some variables, the validity and reliability test is, then, carried out to evaluate and get the reliable variables as key indicators. By using the framework of SMART system, the objective strategy of the company is observed from the level of the company business and perspectives of each level. Furthermore, the company's objectives strategy can be determined through the company's data and interviews with the managers. The validation of the results of the KPIs by management party is concluded by categorizing them according to the types of perspective in the framework of the SMART system.

The next step is to measure the KPI with Analytical Hierarchy Process (AHP). After the measurement of each expected KPI performance is established, the performance measurement process is carried out to find out if, during the execution of the performance, there was a deviation from the plan that has been specified. The required data in the measurement form is secondary data from Kreet village. The obtained data was converted into numbers or score. Furthermore, the scoring system used in this research is the method of OMAX (Objective Matrix) for each KPI.

OMAX score lies in the range of 0 to 10 where a score of 0 indicates that KPI performance is very far from target or is the worst performance. A score of 3 indicates KPI average performance. A score of 10 shows KPI has reached the target or, even, far beyond the target. The score of 1.2 is the interpolation value in range 0 up to 3, while the score of 4, 5, 6, 7, 8 and 9 is the interpolation value between 3 and 10.

When measuring, the concept of Traffic Light System is used with three colors, i.e. green with threshold 7-10 meaning that performance of KPI has reached the targets even beyond the target, the yellow with a threshold of 3 to 6 meaning that performance of KPI has not yet reached the target but close to achieve the target and the red color with a threshold of 0 - 2 meaning that the performance of KPI is truly below target. This KPI needs to get special attention in the next period. In the performance measurement using OMAX and Traffic Light, a dashboard will be designed to ease SMEs in conducting the measurement of its performance.

The key attribute with the problematic performance is marked with red (extremely low) and yellow (quite low), while the key attributes that are already well marked with green color. After obtaining the troubled key attributes, the next step is to find a solution to those problematic attributes. That case is done for increasing performance of SME in the future.

3. Results and Discussion

Referring to the framework of SMART system, the analysis of the objective strategy is carried out from each perspective on SMEs by conducting a direct observation and interviews with owners of SMEs as object of the research. Because objective strategy has not been able to demonstrate how successful companies achieve their targets, therefore, metrics is needed to measure and present the success of the objective strategy. The referred metrics are the Key Performance Indicators (KPI) as shown in Table 1.

To provide a better understanding of all the KPI in the organization and its units, a mind map of key indicators for each perspective on each level based on the SMART framework is developed and presented in Fig. 1. Then, the next step is to determine the weighting of each KPI based on hierarchical structure of performance measurement. This step is required as a preference of management party toward the importance of the criteria. The characteristic of the questionnaire that serves as a data capture instrument is covered as well as given to the party which is competent and understanding of each criterion which will be asked. In this study, the respondent consists of owners of the SME Ragil, SME Yuan art and SME Punokawan. Weighting method is obtained from the Analytical Hierarchy Process (AHP) based on a hierarchical structure of performance measurement.

After obtaining key indicators for each perspective on each level of the SMART pyramid, mind map and performance measurement will be made the next dashboard based on the SMART method. This dashboard is the

development of SMART performance measurement that has flaws; SMART not clearly defined key indicators and the measurement performance. This dashboard will later be used for other performance measurement that has business processes and the same production process with SMEs wooden Batik Krebet.

Table 1 – Performance Measurement Perspectives, Objective Strategy and KPI

Business Level	Perspective	Strategy Target	KPI
Business unit	Financial Measurement	Company Program Implementation Raising Profit Raising Income Raising Liquidity	Work Organization Target Amount of Profit Income Cash Ratio
	Market Measurement	Raising Market Segment Raising Amount of Order Raising Sales Product	Market Segment Percentage the mount of Order Amount of Product’s Sales
Business Operation Unit	Productivity	Product Minimization Flaw’s Product Increasing Consistency Production Result Increasing Worker’s Ability Minimize The Kinds of Product’s Flaws Increasing Worker’s Productivity	Percentage Flaw’s Product Consistency Production Result Solution Flaw’s Product Amount of Flaw’s Product Worker’s Productivity Level
	Flexibility	Increasing the usage of utility product Increasing maintenance	The Frequency Technology Usage Maintenance Production Tool Maintenance Non-production Tool
	Customer	Minimalist Customer Complain Increasing Amount of Customer Increasing the customer’s satisfaction Increasing The Respond Speed to Customer Minimalist The Flaws Of Booked Product Increasing Speed Solving Customer Problem	Customer Complain Amount new Customer Costumer Service Customer’s Respond Speed Appropriate Consumer’s Criteria The Speed Solving Customer Problem
Department and Work Center	Cost	Minimalist production cost Increasing indirect material turn over in warehouse	Capital cost production Indirect material turnover
	Process Duration	Increasing production capacity Minimize the flaw’s product in the warehouse Improve employee skill	Production capacity Percentage breakdowns of products in the warehouse The number of employees trained
		Improve the capability of fulfilling orders	The percentage of orders are not full filled
	Shipping	Improve shipping on time Minimize error order specification Speed up lead rime order	The timeliness of shipping product Accuracy Order Specification of Product Lead time order
		Quality	Boost repair defective product Improve product warranty

After obtaining Mind Map of key indicators for each perspective on each level based on the SMART framework, the dashboard obtained from the results of KPI collection which has been validated with validity and reliability test and weight of each KPI obtained from the result of AHP will henceforth be made. These perspective and weights can be used for the performance measurement of other UKM that have the business process and the same production process in the tourist village of Krebet.

Based on the results of the determination of KPI scores using the OMAX method, it is found that the strategic objectives which have not been achieved (still red) until the end of the KPI calculation period are the income change ratio (SME Punokawan), the number of defective products (SME Ragil and Punokawan), employee performane data (SME Punokawan) Disabled product data and type of last 3 months (SME ragil), percentage of production equipment maintenance (Punokawan and Yuan art), percentage of customer complaint (SME ragil), Percentage of new customer (SME Punokawan), Data average service duration (All SME), speed of completion of claim, product HPP, percentage of stock, Percentage of warehouse products, timeliness of delivery, data on order delivery time (SME ragil and Punokawan), and product change list.

Based on the data of strategic targets which have not been reached the targets above, it can be analyzed that the problems must be addressed and be determined so that the improvements can be done. Here are proposed improvements to the strategic goals of the problem:

- i. Percentage of disabled products
Apply a quality control system, undertaking preventive actions, controlling quality over raw materials and processes.
- ii. Income change ratio
Expanding market share, adding partners, expanding into other cities and exporting abroad.
- iii. Percentage of production equipment maintenance and non-production
Performing maintenance of production equipment and non-production equipment on a regular basis.
- iv. Percentage of product damage in the warehouse
Evaluation of existing stock in the warehouse, warehouse maintenance, ensuring the product is safe in the warehouse.
- v. Average service duration
Standard time of customer service, list type of customer service, creating SOP for customer service.
- vi. Manufacturing Cost per product
Maximizing the use of materials, looking for an cheaper raw material but should also pay attention of its quality.
- vii. Addition of Market share
Performing Sales through online store, attending an international exhibition
- viii. Claims settlement speed
Adding experts in public relations.
- ix. Product defects and types last 3 months
Improving the workers expertise, maintain the machine - Material quality checking. Timeline for making orders, apply Lean Manufacturing, and Material Inventory Management.
- x. List of product replacements
Adding experts in the field of design, job supervision, penalties for employees was not applied consistently.
- xi. Percentage of new customers
Marketing Strategy (Selling through online, social media), Promotion Strategy (Pricing Strategy, Discount Strategy), Designing products that match with Trend.
- xii. Percentage of stock
Providing employees who specifically 'make to stock' products, Employees who serve orders help to make stock products when there is no order.

4. Conclusion

Key Performance Indicators are obtained based on the results of questionnaires distributed on SME based on the SMART method of 31 key performance indicators (KPI) used to measure the performance of SME. The assessment result of OMAX shows that there are still a lot of KPIs with red color. Thus, they need to be repaired. Knowing the performance of SME still far from target (red), the sources of the problem can be identified, so that the reparation target done by SME is more appropriate.

Company Vision					
Business Unit	Financial Measurement		Market Measurement		
	1	Work Target Organization	1	Market Segment	
	2	Amount of Profit	2	Percentage Amount of Order	
	3	Income	3	Amount of Product Sold	
	4	Cash Ratio			
Business Operation Unit	Productivity		Flexibility		Customer
	1	The Percentages Flaws Product	1	The Frequency of Technology Usage	
	2	Consistency of Production Result	2	The Maintenance of Production Tools	
	3	Solution to Solve Flaws Product	3	The Maintenance of Non-Production Tools	
	4	Amount of Flaws Product		1	Customer's Complain
	5	The Employee Productivity Level		2	Amount of New Customer
Department Work Center	Cost		Process Duration		Shipping
	1	Manufacturing Cost	1	Production Capacity	
	2	Rotation of Raw Materials	2	Percentage Breakdowns of Products in the Warehouse	
			3	The number of Trained Employee	
				1	Time Keeping
				2	Accuracy Order Specification
			3	Lead Time Orders	
				1	Replacement of the Defective Product
				2	Product Warranty Period

Fig. 1 – Mind Map Key Indicators in the framework of the SMART.

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