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Constraints in The Use of Balanced Scorecard Performance Measurement Parameters on Small-Medium Enterprises (Case Study on The Application of SMEs Performance Measurement at CV. X and Y)

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Abstract: Performance measurement method that are widely used to measure company performance is Balanced Scorecard (BSC). The BSC method consists of four perspectives, while from these, a company strategic objective will be designed. Pujianto et al (2016) conducted a study that produced performance measurement parameters based on BSC. Although performance parameters have been found, the accuracy and suitability still needs to be evaluated. This is based on the validation of a number of parameters in the process of measuring the performance of two small producers of snack foods as case studies. When applied there are some obstacles, where there are parameters that are difficult or even impossible to calculate for various reasons. Moreover, even measurement parameters are considered less precise to be used. It is therefore necessary to discuss some of the constraints that arise when those parameters are used to measure the performance of SMEs as well as the reasons why they are considered less precise. The study included: identification of measurement parameters along with a number of variables needed, compiling a number of questions as a discussion guide, arranging for possible grouping of constraint types. Field study was conducted in the form of in-depth discussions with a number of business actors and or managers related to each performance measurement parameter. The method of analysis through a small group discussion is qualitative by presenting the side of the measurement constraints, both technical and logical. Among the 32 parameters, there are 9 parameters discussed in the constraints in the implementation of the measurement. Measurement parameters which are the main constraints in measuring company performance are recording data and information. This parameter is also a source of constraints for measurement of other parameters. Based on the 9 parameters discussed, there are a number of measurement parameters that still need to be reviewed or need to be replaced, namely: number of trained employees, number of work accidents, and number of employee recruitment. whereas those that need rearrangement of the equations used are: number of complaints and compliments, number of defective products, and number of employee recruitment. other parameters that still need to be used are: additional number of market area, number of direct customer interactions, and recording of data and information, because the constraints in measurement are caused by the company's inability to fulfill its performance.

Keywords: Constraint in Measurement; Measurement Parameter; Performance Measurement; SME Performance

1. Introduction

It is very important to measure the performance of a company to be a benchmark for achieving the goals and objectives of the company, as well as to improve and maintain the quality of the company. Performance measurement is a measurement action against various activities within the value chain of a company. Performance measurement is a process of measuring the efficiency and effectiveness of the company [1].

Many studies of performance measurement with the aim of obtaining measurement effectiveness especially in small and medium industries (SMEs). Several studies have been conducted with a focus on determining the exact measurement parameters and in accordance with the characteristics of the SME [1-5].

Performance measurements are many and more easily performed on large industries due to the availability, completeness and accuracy of the data required in measurement, but not when it is applied to SMEs. The performance measurements of SMEs differ from performance measures in large industries due to their different characteristics. Performance measurement approaches are generally designed for large industries, and are often not applicable to SMEs especially in developing countries, because: (1) SMEs are not well structured and correct, and (2) SME's often does not collect the information required for measurement complex performance [2]. Therefore, measuring the performance of IKM needs to be adjusted to the characteristics of SMEs [2].

Performance measurement systems (PMS) enable enterprises to evaluate the extent to which their goals are being met and the efficiency of their decisions by means of a set of indicators. Nevertheless their implementation in small and medium-sized enterprises (SMEs) is scarce. One of the reasons for this is the lack of suitable methodologies to guide the implementation of a PMS focused on the specific needs of SMEs [5].

Author [6] stated that performance measurement methods that are widely used to measure company performance are Balanced Scorecard (BSC) and Performance Prism (PP). The Balanced Scorecard (BSC) method consists of four perspectives, namely financial (Financial), customer (Customer), internal business processes (Internal Processes), and learning and growth (Learning and Growth). From these four perspectives an IKM strategic objective will be designed. BSC consists of three functions, namely as a measurement system, strategic management system, and as a communication tool [7].

Author [3] conducted a study of SME performance measurements in the UK using the Balanced Scorecard (BSC) Method which concluded that there is a gap between performance measurement theory and its implementation in SME scale companies. Author [8] argue the need for a general approach to the examination of performance measurement in organisations, a perspective that addresses the key questions identified by managers and how they deal with the design, implementation, and usage of performance measurement in real-time settings.

Author [6] conducted a study that produced performance measurement parameters based on Balanced Scored Card (BSC). Although performance parameters have been found, the accuracy and suitability still needs to be evaluated. This is based on the validation of a number of parameters in the process of measuring the performance of two small producers of snack foods as case studies. When applied there are some obstacles, where there are parameters that are difficult or even impossible to calculate for various reasons. Moreover, even measurement parameters are considered less precise to be used.

It is therefore necessary to discuss some of the constraints that arise when those parameters are used to measure the performance of SMEs as well as the reasons why they are considered less precise. This discussion can be used as a material to improve the parameters so as to obtain a better performance measurement package for SMEs in food business. Benefits to be gained is the improvement of performance measurement more simple but precise and appropriate.

2. Materials and Methods

This research is descriptive, using the object of research that is the parameter of performance measurement for SME in food which is the result of research conducted by Pujianto et al (2016) [6]. The study begins with a study of the results of the research object above. The study included: (1) identification of measurement parameters (Key Performance Indicators) along with a number of variables needed to determine the measurement results, (2) compiling a number of questions as a discussion guide to answer the need for measurement parameters to be used and the reasons for the variables used to measure them. The variables are either quantitative or qualitative, (3) arranging for

possible grouping of constraint types, both on the level of measurement parameters and the variables they need.

Furthermore, a field study was conducted in the form of in-depth discussions with a number of business actors and or managers in CV. X and Y related to each performance measurement parameter. Each measurement parameter from each perspective within the BSC framework and from each strategic objective is discussed. The method of analysis is qualitative by presenting the side of the measurement constraints as well as the guidance of assessments, both technical and logical. The technical nature in question is that which concerns the availability of variable data needed in the measurement. The logic in question is the logic of the absence of possible measurement parameters applied. This process is done through a small group discussion in which the discussion member is a research team involved in the assessment process.

3. Results and Discussion

The measurement parameters evaluated to discuss various obstacles in their application are performance measurement parameters with BSC perspective as shown in Table 1.

Table 1. Performance Measurement Parameters with BSC Perspective

Perspective	Strategic Objectives	Parameters
Financial	Long-term Financial Success	Return On Investment (ROI) Return On Equity (ROE) Total Asset Turn Over (TATO) Return On Asset (ROA)
	Short-term Financial Success	Profit Margin Sales Growth
Customer	Increase customer satisfaction	Number of complaints and compliments On time delivery
	Increase market share	Sales volume Number of market areas Market segments
	Management of customer needs	Number of direct interactions with customers Customer retention
Internal Business Process	Development of new products	Number of new variants Number of new products
	Increase production capacity	Technology changes Managerial change
	Risk and crisis management	Amount of equipment damage Hazard analysis
	Performance Evaluation System	Raw material efficiency Listing Ordering
	Quality Control	Number of defective products
Growth and Learning	Employee capability	Number of trained employees The level of education Employee retention
	Increase a conducive working atmosphere	Number of work accidents Employee Presentation
	Increase the number of reliable employees	Recruitment of employees Staff Reliability
	Increase employee productivity	Level of productivity Employee satisfaction Reward and punishment programs

In the process of analyzing, it is necessary to distinguish between the inability of a company to meet the measured parameter values because of the company's performance with deficiencies or weaknesses or incompatibility. This is due to the reason that the parameters are not directly related to the performance of the measurement object (can be due to the type of company or its level).

The number of parameters is 32. One by one parameter is discussed with the actors involved in the company. The subject matter is the logical side of the parameter, the relationship between parameter and the interests of the company, the ability to be measured, the availability of quantitative data, the ability to provide qualitative data, and the constraints in terms of facilitating the measurement.

Overall, the discussion of parameter is actually logical as a parameter to measure company performance and is closely related to the type of business. However, when quantitative data is required, the company finds it difficult to provide records that can represent the required data. The types of difficulties are: (1) no records at all, (2) there is little data but not complete either in terms of time, or from the side of variables that need to be recorded, (3) there is data that needs to be processed first but still require data additional. This problem begins with the assumption that recording requires extra time and effort, while the results are not considered so important by the owner of the company.

When the measurement process is done by trying one by one parameters, most parameters obtained data results for later used to calculate the score. However, among the parameters found there are 9 parameters whose measurement results obtained a score of zero (0). This zero score does not indicate that the parameter is incorrectly used as a measuring tool, but rather means that the company does not have performance related parameters, whereas the type of business that runs has the potential to grow when the company takes into account that aspect.

The discussion of the constraints on parameter measurement is more focused on the parameters that result in zero score components, to see whether the zero score is indeed systemic (all SME types will produce the same score) or the zero score does show the actual company performance (other company may be generate non-zero score). The nine parameters are as shown in Table 2.

Table 2. Parameter Measurement Whose Measurement Results Have a Zero Score

Perspective	Strategic Objectives	Parameters
Customer	Increase customer satisfaction	Number of complaints and compliments
	Increase market share	Additional number of market areas
	Management of customer needs	Number of direct interactions with customers
Internal Business Process	Performance Evaluation System	Recording of data and information
	Quality Control	Number of defective products
Growth and Learning	Employee capability	Number of trained employees
	Increase a conducive working atmosphere	Number of work accidents
	Increase the number of reliable employees	Recruitment of employees
	Increase employee productivity	Level of productivity

The following describes each of the problems in the use of the parameters listed in Table 2 when used in measuring company performance.

3.1. Number of Complaints and Compliments

The firm did not have a specific target for the number of complaints and compliment from customers, but it is very important to measure the extent to which customer satisfaction on SME products and can also be an evaluation of the company.

This parameter is difficult to measure as a parameter. Although it can be measured quantitatively in the form of the number of complaints and compliments, but will find difficulty when setting the value. Ideally the company hopes there is no complaint at all, and expect compliments much. The size

of the amount of compliment is difficult to determine absolutely how much it is scored 100%. On the contrary it will also be easy to determine a complaint score to be 100% when no complaints are made at all, but it is difficult to give a score of 0% that is equivalent to how much the complaint counts.

In addition to this, it still needs to be defined and standardized regarding the quality of complaints and compliments. This requires a separate study of the types of complaints and compliment from customers.

3.2. Additional Number of Market Area

Likewise, in the number of areas, the company did not have a specific target how many cities that are targeted sales of SMEs, so that the spread of SME products just happened, without knowing exactly how many cities routinely supplied by the firm. This indicates that the firm has not yet thought about expanding the marketing area.

In most SME, the expansion of market areas is still not a concern. But companies will grow if turnover increases. Additional sales turnover can be obtained through the expansion of market areas that provide additional consumer opportunities. Based on this, the parameters of increasing the number of market areas are so relevant that they need to remain as performance measurement parameters. The company selected as a case study has a business field that logically enables the expansion of the market area and the distance factor determines the success of the sale.

3.3. Number of Direct Customers Interactions

The third parameter is the number of direct interactions with customers, company do not have specific targets how much the number of direct interactions that are desired., this can be a good evaluation for SME's, because we can know directly complaints or inputs of customers towards SME's products, even this direct interaction can be a way of further introducing SME products.

Today, SMEs tend to find it much easier to interact with customers, because of the social media platform on the internet that is so easy to use. Society is relatively so common with various facilities available on the internet. Many customers use social media and online communication channels to meet their needs. Expectations, comments, and feedback from customers to producers or sellers are very easy to obtain. Because of that reality, corporate interaction with customers becomes very important as a performance measurement parameter. The existence of such interactions can always maintain its performance in terms of fulfillment of customer expectations of the product, even to the service and positive image of the company.

This does not mean that if the company has not planned to interact either directly physically or through electronic media and the internet, then this parameter is not considered necessary. If the company has not done, then the company's performance alone becomes lessened by the customer relationship factor. SME food sector where the product is the final product that is directly enjoyed by the end consumer, then the interaction with the customer is needed. As with the SME that produces goods as industrial raw materials, even for this case can also be debated whether or not the parameters of measurement of interaction with consumers.

3.4. Recording of data and information

Recording of data and information also becomes very weak in the company which is used as an object of case studies. The production process goes just like that without recording the amount of incoming raw materials and the number of final products that meet the standards or the defective ones, let alone record the activities during the process. In the company there is also no record of capital expenditures and the amount of income per period, even though this recording is very useful for the process of evaluating company performance. With the recording, control and monitoring of the company's performance will be much easier.

This recording is a major factor in measuring company performance. This is a major obstacle. The company itself is unable to know exactly and objectively about the company's problems so that it will encounter difficulties when the company wants to improve itself. The weakness of the company is on

the administrative management side. Therefore, the order parameter of administrative registration is absolutely necessary because it is the main source of performance measurement.

3.5. Number of defective products

Performance measurement related to this defective product is also experiencing problems because the company does not record and even estimates are difficult. In addition, the company does not have a maximum defect product target. The company should have wished that the final product would not be defective. This parameter is still needed to see how far the achievement of the business process is in the production stage.

The problem of measuring parameters for the number of defective products is also the same as some other parameters which are perfect if there are no events, such as the number of work accidents, and the number of consumer complaints. Parameters such as this need to be reviewed in relation to the lowest value limit.

3.6. Number of Trained Employees

The companies that were subjected to the case study found it difficult to identify the question of whether the employee had been trained or not formally. This parameter is approximated by the level of employee education. The results of in-depth interviews on the parameters of employee education measurement, firms do not have targeted number of employees at a certain level of education, employees are not given education level limits, the SMEs only require employees to work properly and diligently.

However, for the advancement of SMEs this is worth noting, the level of employee education can indicate the level of knowledge and work skills of an employee, by forging, training and giving the same experience to the graduate of elementary and high school graduate employees will be different, really payed attention.

Based on the discussion and referring to the enactment of the Indonesian National Qualification Framework (INQF/in bahasa = KKNI), the measurement parameter of "education level" is better if replaced with a qualification level indicating one's competence. In KKNI, it shows the equivalence of the competencies that are gained through the path: (1) academic education, (2) experience and self learning, (3) professional and professional sertification, and (4) work in industry, so that a person is considered to have an equal qualification even if the competencies are obtained from different paths.

More detailed references are the Indonesian National Work Competency Standards (in bahasa SKKNI). The definition of SKKNI is a formulation of work capability that covers aspects of knowledge, skills and / or skills and attitude that are relevant to the implementation of duties and job requirements that are determined in accordance with the provisions of the prevailing laws and regulations [9].

Scores of this measurement component are not based on the number of highly educated employees, but rather are based on the suitability of competence and availability needs and account for the amount.

3.7. Number of work accidents

Furthermore, in the parameters of the number of workplace accidents, where the company is used as a case study, work accidents rarely occur, where in one year only 2-3 accidents. However, when viewed from the perceived good performance on the parameters of workplace accidents, it can be said to be less good, because of good performance if there is no work accident or zero accident. This relates to the company's attention to employee safety, and employee attention to hazards in the work environment.

The number of workplace accidents is measured as a strategic goal approach Increase a conducive working atmosphere. Although in fact the work atmosphere is not only a matter of the number of work accidents. The occurrence of psychological barriers caused by the physical condition of the environment or collegial relations between employees, mental pressure by the need to achieve work targets also affect the conducive work atmosphere. However, all of these causes are difficult to measure.

The other approach proposed is to use the average employee working period. This is based on the assumption that if the average working period of all employees is long enough, then it shows that in the company there is a conducive working atmosphere. It's just that a measure of perfection for this objective strategy needs to be clearly defined. It is very difficult to determine the employee's working period that reflects a conducive work atmosphere in the company.

3.8. The number of employee recruitment

The parameter of the number of employee recruitment is to represent the strategic goals of increasing employee reliability. This means that the recruitment of employees is carried out to meet the level of needs so that there is an adequate number of employees according to the production plan. The recruitment target is important for the company because with the target the company can regulate and predict the amount of production that can be done. The company can also forecast expenses for the salaries of all its employees.

However, this is a waste if there are many incidents of employees going in and out, so the frequency is high. As if high frequency shows good performance. Though the reason for hiring employees is detected not only because it meets the availability of the number of employees associated with the production plan. Employee recruitment can be due to other things.

This frequency number becomes invalid to represent employee reliability. This does not mean that companies that do not recruit employees are considered unreliable. Therefore, this employee recruitment parameter needs to be reviewed if it is used as an indicator of strategic objectives of employee reliability.

3.9. Employee productivity

The measurement of employee productivity parameters is actually very significant to be used as a component of the company's performance measurement. The main problem in small companies that are used as case studies is the absence of quantitative recording of the performance or products produced by each employee. The company is only able to deliver data qualitatively whose accuracy is doubtful because of inadequate supporting data from other perspectives. But this can actually be designed to be measured in groups according to certain processes that are carried out by a group of employees. The data used can be in the form of records of results of each process in a certain time interval compared to the number of employees in the group being reviewed. So the point is that this parameter is still needed in measuring the company's performance, but needs to be supported by the recording performance by the company.

4. Conclusions

Among the 32 parameters, there are 9 parameters discussed in the constraints in the implementation of the measurement. Measurement parameters which are the main constraints in measuring company performance are recording data and information. This was acknowledged by the company regarding the lack of properly recorded data and information. This parameter is also a source of constraints for measurement of other parameters. Of the 9 parameters discussed, there are a number of measurement parameters that still need to be reviewed or need to be replaced, namely: (1) Number of Trained Employees, (2) Number of work accidents, and (3) The number of employee recruitment. Whereas those that need rearrangement of the equations used are: (1) Number of Complaints and Compliments, (2) Number of defective products, and (3) The number of Employee Recruitment. Other parameters that still need to be used are: (1) Additional Number of Market Area, (2) Number of Direct Customers Interactions, and (3) Recording of data and information, because the constraints in measurement are caused by the company's inability to fulfill its performance.

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References

1. A. Neely, J. Mills, K. Platts, M. Gregory, dan H. Richards, "Performance measurement system design: Should process based approaches be adopted?," *International Journal of Production Economics*, vol. 46–47, hlm. 423–431, Des 1996.
2. M. Hudson, J. Lean, dan P. A. Smart, "Improving control through effective performance measurement in SMEs," *Production Planning & Control*, vol. 12, no. 8, hlm. 804–813, Jan 2001.
3. S. Sousa dan E. Aspinwall, "Development of a performance measurement framework for SMEs," *Total Quality Management & Business Excellence*, vol. 21, no. 5, hlm. 475–501, Mei 2010.
4. M. Alles dan M. Gupta, "The impact of uncertainty and ambiguity when implementing the Balanced Scorecard," *Asia-Pacific Journal of Accounting & Economics*, vol. 9, no. 2, hlm. 235–262, Des 2002.
5. R. Chalmeta, S. Palomero, dan M. Matilla, "Methodology to develop a performance measurement system in small and medium-sized enterprises," *International Journal of Computer Integrated Manufacturing*, vol. 25, no. 8, hlm. 716–740, Agu 2012.
6. T. Pujianto, I. Ardiansah, dan H. Amin, *Optimalisasi Ukuran Kinerja Industri Kecil Menengah Sektor Agro-Food Menggunakan Kerangka Balanced Scorecard (BSC)*, 1 ed., vol. 1, 1 vol. Jember: UPT Penerbitan UNEJ, 2016.
7. S. J. Simon, "Balanced Scorecard: A Tool to Improve IS Department Planning and Evaluation," *Journal of Information Technology Case and Application Research*, vol. 7, no. 4, hlm. 7–29, Okt 2005.
8. M. Elg dan B. Kollberg, "Alternative arguments and directions for studying performance measurement," *Total Quality Management & Business Excellence*, vol. 20, no. 4, hlm. 409–421, Apr 2009.
9. Kementerian Perindustrian Republik Indonesia, "Standar Kompetensi Kerja Nasional Indonesia (SKKNI)." Kementerian Perindustrian Republik Indonesia, 2016.