

## MODEL-BASED GREEN MANAGEMENT WITH BALANCED SCORECARD PERSPECTIVE FOR COOPERATIVES

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### ABSTRACT

*The purpose of this research is to know the influence of balanced scorecard (BSC) variable based Green Management which sustainable and synergized with Structural Equation Modelling (SEM) as a means of planning future strategy in business process. This study uses a Likert scale with 100 samples for using maximum likelihood estimation technique to formulate 6 hypotheses based on the BSC perspective, excellence Green Management. The results showed 4 significant variables and 2 not significant variables, learning variable ( $X_1$ ) is not significant to Internal Business Process ( $Y_1$ ) and Green Management ( $Y_4$ ) is not significant to Sustainable Competitive Advantage ( $Y_6$ ) with mathematics model equations as follows  $Y_5 = 0.07 X_1 + 0.15 X_2$ , the process of mathematical equations through three processes namely measurement, structural and modification.*

**Keywords:** *Balanced Scorecard, Structural Equation Modelling, Green Management, Sustainable Competitive Advantage*

### INTRODUCTION

Performance of XYZ Cooperative including good category with assets of 1.2 T. The performance evaluation organization not only based on assets but also management. To face ASEAN Economic Community (AEC) competition, management must be able to compete and to be oriented to a sustainable Green Management system in order to stay ahead and have a sustainable competitive advantage. XYZ Cooperative has one business unit to focus on the waste transport expansion which oriented to Green Management as one of the company's commitment to environmental responsibility.

Based on the description above, the researchers want to create a model that accommodates the BSC perspective as a major element that has been applied in company by synergizing Green Management variable to provide an identification overview of sustainable performance improvement in the XYZ Cooperative. The test model using SEM shows good results and it will be used as the basis of measurement in the next year to see the value of Goodness of Fit. According to Kaplan and Norton, the BSC is a flexible performance measurement method that

can be applied to any business entity or organization which consists of 4 perspectives, financial, customer, internal business processes, learning and growth. These four processes translate the vision, mission and strategy of the company in determining performance measures, the vision which outlined in the organization's goals and objectives (Kaplan, Norton 1996 and Ken Ogat., *et al* 2014). Variables and indicators for this study can be seen in Table 1.

### **Balance Scorecard Perspective**

Based on the model in Figure 1, perspective balanced scorecard beginning from growth ( $X_1$ ), Learning ( $X_2$ ), Internal Business Process ( $Y_1$ ), Customer ( $Y_2$ ), Finance ( $Y_3$ ), Green Management ( $Y_4$ ) and Sustainable Competitive Advantage ( $Y_5$ ).

### **Learning and Growth Perspective**

Learning and growth perspective according to Kaplan and Norton became one variable but in this research refers to Minto Waluyo, learning perspective becomes an exogenous variable 1 and the growth perspective becomes an exogenous variable 2. Measuring the benefits of the company's ability to develop and utilize human resources so that the company's strategic objectives can achieved for the present and the future. (Kaplan and Norton, 1996) said the importance of companies to pay attention to their employees, to monitor the employee prosperity and increase the knowledge of its employees, this can be increased the knowledge of employees in improving employee performance, which means participating in achieving the company's goals.

Learning Perspective Variable with five indicators can be seen in Table 1.

### **Internal Business Process Perspective**

Internal business process perspective displays critical process that allows business to provide a value proposition that is able to attract and keep the customers in market segments and satisfy the expectations of shareholders through financial returns.

Variable State of the art technology includes high artistic workers and quick response to art technology. For these two indicators can be seen in Table 1.

Each company has a value creation process for its customers. In general (Kaplan and Norton, 1996) divides it into 3 basic principles:

- Innovation Process

The innovation process is the most important part in the overall production process. But there are companies that put innovation beyond the production process. In the innovation process consists of two components, that is: identification of the customer's wishes and make the process of designing products according to customer wishes. When the results of the innovation of the company does not suitable with the wishes of customers, then the product will not get a positive response from customers, so it does not give value added to the company moreover the company must pay more investment for research and development.

- Operation Process

Operation process is activity in the company, start from receipt of orders from customers until the product is shipped to the customer. Operation process

emphasizes the delivery of products to customers in an efficient and on time. This process, based on the fact of being the main focus of the performance measurement system of most organizations.

- **After-Sales Service**

The after sales service which is referred here can be a warranty, replacement for defective products is a customer service process. (Baggio R. Sainaghi R, 2011)

### **Customer perspective**

First, companies must determine market segments and customers for the organization or business entity target, then the manager must determine the best measurement tool to measure the performance of each unit of the cooperative in order to achieve its financial targets. Customer perspective indicators can be seen in Table 1.

### **Financial perspective**

BSC has the financial performance benchmarks such as net income and ROI, because that benchmarks generally used in the company to know the profit. Financial benchmarks only can't describe the cause of the change in the company's profits or organization. BSC can explain more about achieving the vision that play a role in realizing increased profit for the company:

- Increased satisfied customer so the profits will increase (Increased revenue).
- Increased productivity and employee commitment so profits will increase (Improved cost effectiveness).
- Increased company ability to generate financial returns by reducing capital employed or invest in projects that generate high returns.

Indicators which used in financial perspective can be seen in Table 1.

### **Green Management**

One of approach model for evaluating a company's commitment to environmental responsibility is a Shades of Green approach. Companies that use this approach could be committed by different levels of depth of his activity.

Hierarchy Shades of Green approach:

- **Legal**

Although government's "law enforcement" is weak, but if there is violation in environmental management or public complaints due to the impact of an industrial activity, it will have a negative impact on the industry reputation.

- **Stakeholder**

Besides that, local and international environmental organizations will react strongly if there is violation of environmental regulations. This happened in case of PT. Freeport Indonesia, PT. Newmont. As has been described above that green business is a "trend" recently, which is to achieve this there must be interaction between management, economics and ecology, it is due to their impact on natural resources and human resources of every aspect from activity in industrial company. To achieve its goals, the company should create an input system, process

and output which integrated so as to allow the achievement of a green company comprehensively.

- Market

With the market demand for business peoples and the business world in terms of environmental management systems, which subsequently developed into ISO 14001 certification, so it give a positive impact for the business world. Business in waste treatment plants, air pollution control equipment, recycling technology, design of "containers" packaging is an opportunity in the transition of environmental management strategies "end off pipe treatment" becomes "waste reduction at source".

- Application of Green

Having a positive attitude towards the environment is a good thing to be able to cultivate an "image", which further to enlarge the "market share". Expand the market by "greening image" would be achieved if the consumer has shades of green. It can start by greening the employees of the company itself, so the "green company" image will appear, and then socialize to the public by marketing its products.

- Recycling

With the awareness that natural resources (materials and energy) is very limited, so whatever must be done to reduce it use. Therefore, the industry must efforts recycling.

### **Advantages of Environmental Conservation-Based Green**

- Reduce operating costs to streamline the exploitation of natural resources by reducing the amount of waste created, maximizing energy conservation, recycling and extend the cycle of raw materials used.

- Creating competitive advantage and can maintain customer loyalty, because it can fulfill the customer wishes for products and environmentally friendly packaging.

- Helping companies to expand into global markets to improve the "image" of the company and a good relationship with the community.

- Minimize the risk of long-term environmental damage related to natural resources, energy conservation and pollution control and waste management.

- Make the company a step closer in environmental compliance.

- The key to success in the solution of environmental problems is through technological innovation and scientific research related to product planning, packaging and production processes.

- The company has realized the need for environmental protection and environmental sustainability, and therefore both of these become part of the mission and vision of the company.

- The presence of a high consistency of the environmental values that covers all aspects of the company (product development, production, energy and waste management, consumer protection, environmental and social policy).

- The company's profit was converted into an environment of social programs.

### **Sustainable Competitive Advantage**

Sustainable competitive advantage are the kinds of strategies to help the company to survive. Competitive market, company's ability to produce the performance, especially the financial performance, highly dependent on the degree of competitive advantage. Sustainable competitive advantage is the company's strategy to reach its final goals, high profits performance. This means that sustainable competitive advantage is not the end, but a means to achieve the ultimate goal of the company, it is high performance. The advantages which achieved continuously by implementing strategies for achieving the unique values that are not owned by a competitor. Further, he said that the company is said to have a sustainable competitive advantage if the company is able to create value at that time is not being carried out both by competitors and potential competitors and other corporate companies are not able to imitate the advantages of this strategy.

### **Study Area and Methods**

This research area studies is in Gresik, Indonesia. The research methodology is a comprehensive plan of a study which include things that will be conducted by researchers from making hypotheses, testing hypotheses and making it operational implications until the end of the subsequent analysis is concluded and given advice. The model that used in this research aimed to determine the association of a cause and effect between exogenous and endogenous variables. This study uses research explanations (explanatory research) which describes a relationship of causality between the variables through hypothesis testing, in order to explain the causal relationship between the variables through hypothesis testing and also conclusive study because fulfill the characteristics (Malhotra, 1999)

The data collection is done by observation, interviews and questionnaires. The collected data was processed using descriptive and quantitative analysis tools. Analysis technique which used to analyze the data is SEM (Structural Equation Modelling) analysis. The results of the analysis is interpreted and the final step is concluded and given recommendations. The methodology which used in this case is a combination of Balanced Scorecard variables, Green Management and Sustainable Competitive Advantage. Collecting data using maximum likelihood with the number of 100 respondents (Tabachnick, B. G., et al, 1996). Analysis of the data in this study using Chi - Square Statistic ( $\chi^2$ ), The Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Tucker Lewis Index (TLI), Goodness of Fit Index (GFI) and Adjusted Goodness of Fit Index (AGFI), with a significant coefficient (p value) of 5%.

### **RESEARCH LOCATION**

This research was conducted in the XYZ Cooperatives

### **DATA SOURCE TYPES AND RESEARCH**

#### **• Type of data**

The quantitative data, for testing hypotheses that want to be researched. In this case create and test Continuous Improvement model in Indonesian

Cooperative Green Based Management by BSC perspective in order to providing an overview identifying sustainable performance improvement.

- Data source

Primary data is the data which obtained or collected by researchers directly from the source. Primary data in this research is the information which collected based on the answers of respondents from the questionnaire.

### POPULATION, SAMPLE RESPONDENTS

The population which used in this research were employees of XYZ Cooperative and the samples in this research were 100 (Maximum likelihood) consisting of Supervisor (SPV), administrative and labor (driver) that focus on Waste transportation Expansion XYZ Cooperative.

**Table 1.** Variables and Indicators Research

Variable	Indicator	Intervening Variable
Sustainable Competitive Advantage (Y <sub>5</sub> )	Superior capability (Y <sub>5.1</sub> ) Superior resources (Y <sub>5.2</sub> ) Durability (Y <sub>5.3</sub> ) Imitability (Y <sub>5.4</sub> ) Ease in imitating (Y <sub>5.5</sub> ) Augusty (1999)	
Green Management (Y <sub>4</sub> )	Depth Waste Activities that Do to Preserve the Environment (Legal approach) (Y <sub>4.1</sub> ) Depth Waste Activities that Do to Preserve the Environment (Market approach) (Y <sub>4.2</sub> ) Depth Waste Activities that Do to Preserve the Environment (Stakeholder approach) (Y <sub>4.3</sub> ) (R.E. Freeman, J. Pierce dan R. Dodd, 1995) Human Resources Understand and Applicate of Green (Efficiency) (Y <sub>4.4</sub> ) Greening the raw materials out of use (indirect removed / Renewable) (Y <sub>4.5</sub> ) (Regulation of the Environment Ministry of Republic Indonesia)	Finance
Finance (Y <sub>3</sub> )	Income Growth (ROI) (Y <sub>3.1</sub> ) Reduced costs (Y <sub>3.2</sub> ) (B.K. Behn., et al., 2010., E. Grigoroudis., et al., 2012)	Customers (Y <sub>2</sub> )
Customers (Y <sub>2</sub> )	Increase customers confidence (Y <sub>2.1</sub> ) Speed service (Y <sub>2.2</sub> ) (H-Y Wu., 2012)	Internal business process (Y <sub>1</sub> )
Internal business process (Y <sub>1</sub> )	Improving the quality of customer service process (Y <sub>1.1</sub> ) (Baggio R. Sainaghi R., 2011, H-C Huang, 2009) State Of The Art Technology (Y <sub>1.2</sub> ) (Johnson, H.T., et.al, 1987, M. Martinsons, R., et al. 1999)	
Learning (X <sub>1</sub> )	Employee Satisfaction (X <sub>1.1</sub> ) Employee Retention (X <sub>1.2</sub> ) Employee Productivity (X <sub>1.3</sub> ) Motivation (X <sub>1.4</sub> ) Empowerment and harmony (X <sub>1.5</sub> ) (Bhattacharya, et al. 2014, Chen, et al. 2011, Grigorodis, et al 2012)	
Growth (X <sub>2</sub> )	Sales growth (X <sub>2.1</sub> ) Organization growth (X <sub>2.2</sub> ) Network growth (X <sub>2.3</sub> ) (Bhattacharya, et al. 2014, Chen, et al. 2011, Grigorodis, et al. 2012)	

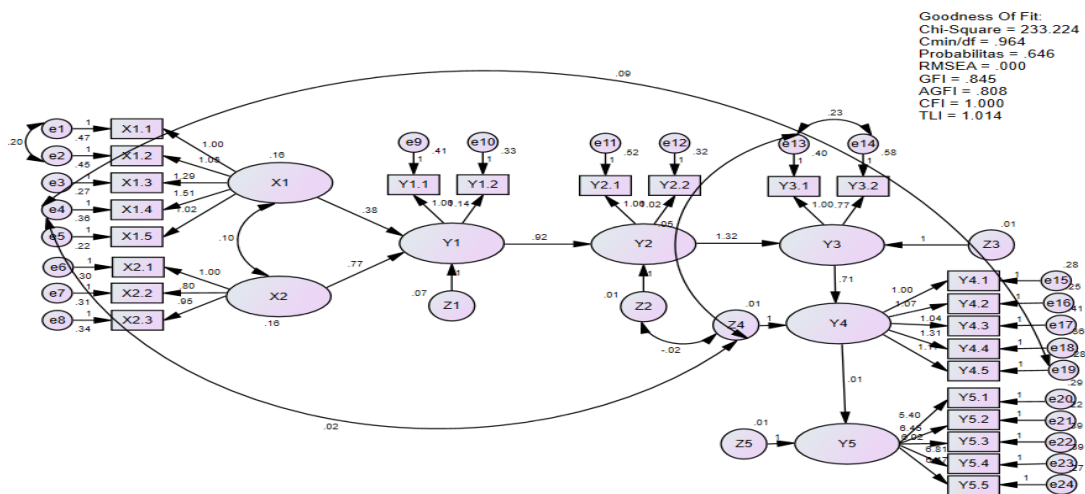
Source: Processed primary data

**STEPS WORK**

The study starts from the literature study and observation to support the description of problem which to be researched carefully, then formulate the problem to determine the effect of balanced scorecard variable based Green Management and Sustainable Competitive Advantage synergized with SEM as a tool in the process of strategic planning for future business. The next step in this research was to make a questionnaire, distribute and collect the questionnaire, before conducting the analysis with SEM, testing the validity and reliability must be done. Modeling process consists of measurement, structural and modifications to develop a variable that has been determined. Each modeling produces goodness of fit. The discussion in this model is the result of the modification model. Here is a hypothesis which proposed in this research as in Table 3.

**RESULTS AND DISCUSSION**

Construction model in XYZ Cooperative management based Green Management with Balance Scorecard perspectives run into three processes, measurement, structural and modification. The results of modifications can be seen in Table 2 and for the model can be seen in Figure 1.



**Figure 1.**

To get the modifications test results appropriate Goodness of Fit criteria, researchers conducted a trial and error by connecting Modification Indices (MI) covarians of structural output obtain the greatest value is in the variable Z2 and connected to Z4 value of MI at 10,073, e13 to z4 with a value of MI at 14 655, e13 to E14 with a value of 27 250 MI, e2 to e1 to the value of 13 587 MI, e4 to z4 with a value of 11 081 MI, and e4 to E19 with a value of MI at 10 302 and the results fulfill the criteria of the test results for the modification model. See Figure 1 and Table 3.

**Table 2.** Test Results Model and Cut Off Value (Modification)

Criteria	Test Result Model	Critical Value	Information
X <sup>2</sup> Chi square	233.224	Small, X <sup>2</sup> with df = 24 with α = 0,05 is 36.41503	Good
Probability	0.646	≥ 0,05	Good
RMSEA	0.000	≤ 0,08	Good
GFI	0.845	≥ 0,90	Marginal
AGFI	0.808	≥ 0,90	Marginal
TLI	1.014	≥ 0,95	Good
CFI	1.000	≥ 0,95	Good

**Table 3.** Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Regression Weight
Y1	<---	X1	.376	.229	1.640	.101	0.301
Y1	<---	X2	.769	.281	2.738	.006	0.630
Y2	<---	Y1	.921	.205	4.491	***	0.988
Y3	<---	Y2	1.321	.284	4.649	***	0.993
Y4	<---	Y3	.709	.143	4.972	***	1.106
Y5	<---	Y4	.008	.022	.352	.725	0.42

Indirect Equation:

$$Y_1 = 0.301 X_1$$

$$Y_1 = 0.630 X_2$$

$$Y_2 = 0.988 Y_1$$

$$Y_3 = 0.993 Y_2$$

$$Y_4 = 1.106 Y_3$$

$$Y_5 = 0.42 Y_4$$

Simultaneous Equations:

$$Y_1 = 0.301 X_1$$

$$Y_1 = 0.630 X_2$$

$$2Y_1 = 0.301 X_1 + 0.630 X_2$$

$$Y_1 = \frac{0,301 X_1 + 0,630 X_2}{2}$$

$$Y_1 = 0.151 X_1 + 0.315 X_2$$

$$Y_2 = f f (X_1, X_2)$$

$$Y_2 = 0.988 f (Y_1)$$

$$Y_2 = 0.988(0.151 X_1 + 0.315 X_2)$$

$$Y_2 = 0.149 X_1 + 0.311 X_2$$

$$Y_3 = 0.993 Y_2$$

$$Y_3 = f f f (X_1, X_2)$$

$$Y_3 = 0.993 (0.151 X_1 + 0.315 X_2)$$

$$Y_3 = 0.15 X_1 + 0.31 X_2$$

$$Y_4 = f f f f (Y_3)$$

$$Y_4 = 1.106 Y_3$$

$$Y_4 = 1.106 (0.151 X_1 + 0.315 X_2)$$

$$Y_4 = 0.167 X_1 + 0.348 X_2$$

$$Y_5 = f f f f f (Y_4)$$



$$Y_5 = 0.42 Y_4$$

$$Y_5 = 0.42 (0.167 X_1 + 0.348 X_2)$$

$$Y_5 = 0.07 X_1 + 0.15 X_2$$

Simultaneous equations modification is  $Y_5 = 0.07 X_1 + 0.15 X_2$ .

## DISCUSSION

### First Hypothesis (H-1)

H<sub>0</sub>: The learning process does not influence directly and significantly to the internal business processes.

H<sub>1</sub>: The learning process influences directly and significantly to the internal business processes.

**Result:** H<sub>0</sub> accepted. Learning directly influence but insignificant on the process business internal, with the regression coefficient 0,301 with the CR (1.640) > 2,06390, means that the number of 0.301 having a meaning when the process business internal increased by one process unit learning enhancement insignificant on the process business internal. Does not support research Minto Waluyo, 2015.

### Second Hypothesis (H - 2)

H<sub>0</sub>: The growth process does not influence directly and significantly to the internal business processes.

H<sub>1</sub>: The growth process influences directly and significantly to the internal business processes.

**Results:** H<sub>1</sub> accepted. The growth process influences directly and significantly to internal business processes, with a regression coefficient of 0.630 with a value of CR (2.738) > 2.06390 means that the number 0.630 has meaning when growing up processes increased by 1 unit of the process of growth and internal business processes can be through organizational growth, sales growth and networks growth. It will cause the contribution to the internal business processes increase by 0.630 units. Supporting the research of Minto Waluyo, 2016, Bhattacharya, *et al*, 2014, Chen, *et al*, 2011, Ogat, *et al*, 2014, Tseng, 2010, Sangjae, 2013, Mohammad, *et al*, 2011, Tayler, 2010.

### Third Hypothesis (H - 3)

H<sub>0</sub>: Internal business processes do not influence directly and significantly to the Customer.

H<sub>1</sub>: Internal business processes influence directly and significantly to the Customer.

**Results:** H<sub>1</sub> accepted. Internal business processes influence directly and significantly to the Customer, with a regression coefficient of 0.988 with a value of CR (4.491) > 2.06390 means that the number 0.988 has meaning when internal business processes increased by 1 unit of the internal business processes and customer process can be through increased the customer confidence and speed of service. It will cause the contribution to the internal business processes increased by 0.988 units. This research supports the research of Minto Waluyo, 2016, but for the variable Y1 is formed of two variables, namely the state of the Technology by increasing the quality of customer service process (Minto Waluyo, 2009).

**Fourth Hypothesis (H - 4)**

H0: Customers do not influence directly and significantly to the financial.

H1: Customers influence directly and significantly to the financial.

**Result:** H1 accepted. Customers influence directly and significantly to the financial, with a regression coefficient of 0.993 with a value of CR (4.649) > 2.06390 means that the number 0.993 has meaning if the customers processes increased by 1 unit of the customer process and the process of financial can be through increased the customer confidence and speed of service. It will cause the contribution to the internal business processes increased by 0.993 units. This research supports the research of Minto Waluyo, 2016, Chen, *et al*, 2011, Wu, 2012, Mendes, *et al*, 2012, Sangjae, 2013.

**Fifth Hypothesis (H - 5)**

H0: Financial does not influence directly and significantly to the Green Management perspective.

H1: Financial influences directly and significantly to the Green Management perspective.

**Results:** H1 accepted. The process of financial ( $Y_1$ ) influences directly and significantly to the green management process ( $Y_2$ ), with a regression coefficient of 1.106 with a value of CR (4.972) > 2.06390 can be interpreted that the number 1,106 has meaning if the customers process increased by 1 unit financial process activity and green management could be through increased the income growth (ROI) and reduced costs. It will cause the contribution to the internal business processes increased by 1,106 units. This research supports the research of Minto Waluyo, 2016, Chen, *et al*, 2011, Wu, 2012, Mendes, *et al*, 2012, Sangjae, 2013.

**Sixth Hypothesis (H - 6)**

H0: Green Management does not influence directly and significantly to the Sustainable Competitive Advantage.

H1: Green Management influences directly and significantly to the Sustainable Competitive Advantage

**Results:** H<sub>0</sub> accepted. Green Management directly influence but insignificant on the process of sustainable competitive advantage, with the regression coefficient of 0.042 with a value of CR (0.352) > 2.06390 means that the number 0.042 has meaning if the green management process increased by 1 unit of green management process and sustainable competitive advantage. can be through increasing the superior capability, superior resources, durability, imitability, ease in imitating. It will lead the contribution to the process of sustainable competitive advantage increase by 0.042 units.

This small regression value is caused by superior capabilities, superior resources, durability, imitability, ease of imitating the competition is so tight because of the awareness of green management and salary which specialized in waste transport has higher value so there are more competitors. With the awareness of the importance of green management so that many of their competitors and this is what makes insignificant. Capability must be improved in detail understanding and mastered his ability so the competitors won't imitate them. Resources, the essence of competitive advantage must be improved to preserve the competitive advantage, so the resources must be unique and they are

not easily imitated by others company. Based on opinion above, sustainable competitive advantage is defined as excellence which achieved continuously by implementing strategies for achieving the unique values that are not being implemented both by competitors and potential competitors because of their inability to imitate its strategy. The excellence capabilities and resources are expected to have the durability to survive (the superiority of organization strategic assets and the performance of organization's success).

## CONCLUSION

The model proposed by researchers all variables significant except variable learning for of business process internal. While for variables the growth influences significantly to the internal business processes, internal business processes influence significantly to the customers, the customers influence significantly to the financial, financial influences significantly to the green management and green management influences significantly to the sustainable competitive advantage and there are 3 processing, they are measurement, structural and modifications with mathematical model equations  $Y_5 = 0.07 X_1 + 0.15 X_2$ .

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