Performance Assessment of a Land Freight Forwarder Company Using the Baldrige Excellence Framework Approach with Multiple Linear Regression (Case Study at PT. Galena Perkasa Sidoarjo)

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Abstract— Based on the financial statements for the past three years, shows the decline in performance and the weak competitiveness of PT. Galena Perkasa Sidoarjo. The decline in performance is dominated by internal factors rather than external factors. Internal factors include a variety of variables. Due to the suitability of the characteristics, this study uses a performance measurement tool based on the Baldrige Excellence Framework, which includes six independent variables (leadership, strategy, customers, measurement-analysis-management knowledge, workforce, and operations) and one dependent variable (performance). To determine the effect and significance of the Baldrige Excellence Framework independent variable on the dependent variable, on the survey results in the form of a questionnaire, this study uses multiple linear regression analysis.

Keywords— Baldrige Excellence Framework; multiple linear regression; performance.

I. INTRODUCTION

Performance is a process of comparing something produced by an organization within a certain period, against the standards set. To find out performance, performance appraisal is needed. The purpose of performance appraisal is to motivate employees to comply with established standards of behaviour and following organizational desires. Good performance appraisal is not limited to satisfying only shareholders, but more concerned with stakeholder satisfaction[1].

PT. Galena Perkasa Sidoarjo is a developing company engaged in the land freight forwarder. The condition of the company during the period 2016-2018 decreased financial performance caused by external factors and internal factors. Based on the analysis, external factors are influenced by falling demand for vehicles by consumers and business competition with competitors, while internal factors are influenced by consumer claims for damage to goods due to shipping, vehicle accidents, increased vehicle repair costs, maintenance of vehicles that are not running well, and some employees cannot carry out their functions.

For the weaknesses factors above, the company pays special attention to internal factors. Problems arise that so far PT. Galena Perkasa Sidoarjo does not have a comprehensive performance measurement tool, so the company has difficulty determining what variables affect performance and how significant the influence of these variables on performance.

Answering the problem above, by considering the suitability of the characteristics and being able to collaborate with other similar performance measurement tools, like as the Balanced Scorecard, Lean Management, and Six Sigma[2], this study uses a performance measurement tool based on Baldrige Excellence Framework (BEF) criteria Business/Non-Profit. This method specifically looks at the effect of the independent variable on the dependent variable. Independent variable covers leadership, strategy, customers, measurement-.analysis-management of knowledge, workforce, and operations. Whereas dependent variable-performance.

Multiple linear regression is a research hypothesis analysis technique that tests the presence or absence of impact between a variable on other variables, expressed in the form of mathematical equations (regression). Hypothesis testing tools used in multiple linear regression techniques include Test-F Simultaneous and Test-t Partial[3].

For identification and operationalization of variables, this research sets independent variable are leadership (X_1), strategy (X_2), customers (X_3), measurement-analysis-management knowledge (X_4), labour (X_5), operations (X_6) and dependent variable is performance (Y)[4].

source : http://nist.gov
Fig. 1. Baldrige Excellence Framework Criteria.

II. PURPOSE OF RESEARCH

There have been many previous studies discussing the BEF method, including finding relationships between independent variables and dependent variables, among others:

1. Susanto, Edi (2017). "Analysis of the Malcolm Baldrige Criteria for Performance Excellence (MBCfPE) Approach to Performance at PT. Kinenta Indonesia"[5].
2. Kosasih, Wilson., Laricha, dan Hendrawan (2015). "Analysis of the Quality Management System with the Malcolm Baldrige National Quality Award at the ISO 9001: 2008 Standardized Global Company (Case Study: PT. Zebra Asaba Industries)"[6].
3. Kuspijani, DR.Ir. Indung Sudarto, MT. (2012). "Performance Measurement of the Faculty of Engineering, Bhayangkara University, Surabaya by using Malcolm Baldrige Criteria"[7].
4. Jayamaha, Nilal Palitha. Nigel P. Grigg dan Robin S. Mann. (2011). "Empirical analysis of the Baldrige Criteria as organizational performance measure dan a theoretical model"[8].

Seeing the problems that exist in PT. Galena Perkasa Sidoarjo and based on previous research, the purpose of this study was to determine and measure the significance of the influence of BEF independent variables on the dependent variable (performance).

III. RESEARCH METHOD

The research instrument consisted of documentation, observation, and the results of an internal questionnaire survey. The study population was all company employees totalling 70 people. Because less than 100 people, the study sample is the same as the study population[9].

In this research, all instrument testing instruments and hypothesis testing use Statistical. Package for the Social Science (SPSS) software.

Be based the conceptual framework of the relationship between the independent variable and dependent variable, the research hypotheses are arranged as follows:

$H_{o(1)}$: No positive impact and significance of all BEF independent variables on the performance of PT. Galena Perkasa Sidoarjo simultaneously or as a whole.

$H_{a(1)}$: Having a positive impact and significance of all BEF independent variables on the performance of PT. Galena Perkasa Sidoarjo simultaneously or as a whole.

$H_{o(2)}$: No positive impact and significance of leadership variable on the performance of PT. Galena Perkasa Sidoarjo.

$H_{a(2)}$: Having a positive impact and significance of leadership variable on the performance of PT. Galena Perkasa Sidoarjo.

$H_{o(3)}$: No positive impact and significance of strategy variable on the performance of PT. Galena Perkasa Sidoarjo.

$H_{a(3)}$: Having a positive impact and significance of strategy variable on the performance of PT. Galena Perkasa Sidoarjo.

$H_{o(4)}$: No positive impact and significance of customer variable on the performance of PT. Galena Perkasa Sidoarjo.

$H_{a(4)}$: Having a positive impact and significance of customer variable on the performance of PT. Galena Perkasa Sidoarjo.

$H_{o(5)}$: No positive impact and significance of measurement-analysis-knowledge management variable on the performance of PT. Galena Perkasa Sidoarjo.

$H_{a(5)}$: Having a positive impact and significance of measurement-analysis-knowledge management variable on the performance of PT. Galena Perkasa Sidoarjo.

$H_{o(6)}$: No positive impact and significance of workforce variable on the performance of PT. Galena Perkasa Sidoarjo.

$H_{a(6)}$: Having a positive impact and significance of workforce variable on the performance of PT. Galena Perkasa Sidoarjo.

$H_{o(7)}$: No positive impact and significance of operations variable on the performance of PT. Galena Perkasa Sidoarjo.

$H_{a(7)}$: Having a positive impact and significance of operations variable on the performance of PT. Galena Perkasa Sidoarjo.

IV. DISCUSSION

A. Test Instrument

To discover the appropriateness and consistency of the questionnaire, instrument tests were carried out on the survey results which included testing the validity and reliability of all variable question items X_1, X_2, X_3, X_4, X_5, X_6, and Y.

Basic of making decisions for a questionnaire validity test[10]:

1. Comparing r_{output} with r_{table}
   - If $r_{output} > r_{table}$ then the question items are declared valid.
   - If $r_{output} < r_{table}$ then the question items are declared invalid.
2. Comparing Sig. (2-tailed) with a probability of 0,05
   - If Sig. (2-tailed) < 0,05 so then the question items are declared valid.
   - If Sig. (2-tailed)> 0,05 so then the question items are declared invalid.

The research was obtained N = 70, a significance level of 0,05 and r_{table} 0,235 so that the results of the validity test of each question item in the questionnaire survey results were declared valid if the $r_{output} > 0,235$ or Sig. (2-tailed) < 0,05

Whereas basic of making decisions for a questionnaire reliability test is said to be reliable if the value of Cronbach Alpha$_{output} > 0,60$[10]. That all BEF independent variables have Cronbach Alpha$_{output} > 0,60$ so they are declared to be reliable and suitable for use in this research.

B. Multiple Linear Regression Analysis

As a classic requirement, before the regression analysis, a normality test is done on the survey results and the results are obtained according to the figure below.
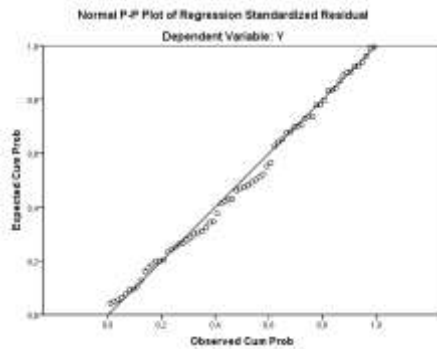
Fig. 2. Normality Test Results.

The figure above shows the results that the data are distributed evenly along the diagonal line. This proves that the data used in this study gives an assumption of normality[3].

The next step, run the process of multiple linear regression analysis and the results can be simply concluded according to the table below.

TABLE I. Multiple linear regression analysis Results.

Variable	Regression Coefficient	t_{output}	Sig.
Konstanta	0,320		
X_1	0,206	3,439	,001
X_2	0,179	2,574	,012
X_3	0,153	3,358	,001
X_4	0,133	2,342	,022
X_5	0,165	2,850	,006
X_6	0,131	2,361	,021
F_{output}	19,957		0,000
R Square	0,655		

Based on the table above, the research regression equation is formulated:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6$$
$$= 0,320+0,206X_1+0,179X_2+0,153X_3+0,133X_4+0,165X_5+0,131X_6$$

C. Test-F Simultaneous Results

Test-F simultaneous is one of the hypothesis testing tools in the multiple linear regression method, useful for knowing the effect of independent variables X_1, X_2, X_3, X_4, X_5, and X_6 on the dependent variable Y with simultaneously. Test-F simultaneous is done by reading the ANOVA table from the results of multiple linear regression analysis, according to the table below.

TABLE II. ANOVA

	Model	Sum of Sq.	df	Mean Sq.	F	Sig.
1	Regression	719,432	6	119,905	19,957	,000ᵃ
	Residual	378,511	63	6,008		
	Total	1097,943	69			

a. Predictors: (Constant), X_1, X_2, X_3, X_4, X_5, X_6
b. Dependent Variable: Y

It is known that df for the numerator (N_1) = 6 and df for the denominator (N_2) = 70-6 = 64, with a probability of 0,05

and F_{ouput} (19,957) > F_{table} (2,24) and Sig. (0,000) < Sig. α (0,05)

Based on table II above, Test-F simultaneous results of the research found that $H_{o(1)}$ **was refused** and $H_{a(1)}$ **was accepted** which means that having a positive impact and significance of all BEF independent variables on the performance of PT. Galena Perkasa Sidoarjo simultaneously or as a whole.

D. Test-t Partial Results

Test-t Partial is one of the hypothesis test tool in the method of multiple linear regression, with the aim to determine whether there is the impact of the independent variables X_1, X_2, X_3, X_4, X_5, and X_6 partially (individually) to the dependent variable Y. Basic of making decisions for *Test-t Partial*[10]:

1. Comparing t_{output} with t_{table}.
   - If $t_{output} > t_{table}$ then the question items are declared valid.
   - If $t_{output} < t_{table}$ then the question items are declared invalid.
2. Comparing (Sig.) with a probability of 0,05
   - If (Sig.) < 0,05 so then the question items are declared valid.
   - If (Sig.) > 0,05 so then the question items are declared invalid.

Test-t Partial is done by reading the coefficient table from the results of multiple linear regression analysis, where t_{table} (1.995) with probability (0.05) and then results of test-t partial can be explained according to the table below.

TABLE III. Coefficient and Analysis.

	Model	t	Sig.	Results
1	(Constant)	,081	,936	
	X_1	3,439	,001	Has a positive impact and significance of the X_1 variable on the Y variable
	X_2	2,574	,012	Has a positive impact and significance of the X_2 variable on the Y variable
	X_3	3,358	,001	Has a positive impact and significance of the X_3 variable on the Y variable
	X_4	2,342	,022	Has a positive impact and significance of the X_4 variable on the Y variable
	X_5	2,850	,006	Has a positive impact and significance of the X_5 variable on the Y variable
	X_6	2,361	,021	Has a positive impact and significance of the X_6 variable on the Y variable

Based on table III above, the decision on the hypothesis is:

$H_{o(2)}$ was **refused** and $H_{a(2)}$ was **accepted**
$H_{o(3)}$ was **refused** and $H_{a(3)}$ was **accepted**
$H_{o(4)}$ was **refused** and $H_{a(4)}$ was **accepted**
$H_{o(5)}$ was **refused** and $H_{a(5)}$ was **accepted**
$H_{o(6)}$ was **refused** and $H_{a(6)}$ was **accepted**
$H_{o(7)}$ was **refused** and $H_{a(7)}$ was **accepted**

V. CONCLUSION

1. All independent variables of leadership, strategy, customers, measurement-analysis-management knowledge, workforce, and operations have a positive

impact and significant on the dependent variable of performance, both simultaneously and partially.

2. Current achievement of performance is quite good. It must be done by PT. Galena Perkasa Sidoarjo is maintaining current achievements and must be improved for the coming period.

3. Stakeholders are expected to immediately make improvements to the variable with the smallest achievement with the aim of further performance improvement.

4. For further research, it is hoped to try to develop the BEF method by integrating with other similar performance measurement tools, such as the Balanced Scorecard or Six Sigma[11].

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