

THE EFFECT OF MATERIAL CONTROL AND OPERATIONAL EFFECTIVENESS ON OPERATIONAL PERFORMANCE AT PT. DUTARAYA SEJATI IN MEDAN

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ABSTRACT

This research aims to determine the effect of material control and operational effectiveness on operational performance at PT. Dutaraya Sejati in Medan. The type of data is quantitative and the data source for this research is primary data in the form of a questionnaire. The research population is employees at PT. Dutaraya Sejati in Medan during 2023 as many as 208 people and the sample studied was 137 using random sampling technique. The data analysis technique uses the multiple linear regression method. The partial research results show that material control has a partial effect on operational performance at PT. Dutaraya Sejati Medan because the value of t_{count} (10.472) > t_{table} (1.97769) or a significance value of 0.000 is less than 0.05. And operational effectiveness partially influences operational performance because the value of t_{count} (5.297) > t_{table} (1.97769) or a significance value of 0.000 is less than 0.05. The research results simultaneously show that the variables of material control and operational effectiveness have a partial effect on operational performance because the value of F_{count} (140.293) > F_{table} (3.06) or or a significance value of 0.000 is less than 0.05. PT. Dutaraya Sejati in Medan must pay more attention to operational effectiveness in improving operational performance, so that company employees can complete work within the time set by the company.

Keywords: Material Control, Operational Effectiveness, Operational Performance

I. INTRODUCTION

The progress and development of the world of construction in recent years has given rise to a lot of competition between companies from abroad and within the country to carry out construction work in Indonesia, especially in the city of Medan. One company that faces competition in the construction sector is PT. Dutaraya Sejati. Due to workers' lack of understanding of the basics of construction management in the context of construction work—an area covered by the company's performance standards—research shows that the company is experiencing problems with operational performance. As a result, employees find it difficult to complete their work with high quality. Additionally, workers may not be able to complete the amount of work assigned by the organization if they are unable to produce high-quality work. Another factor that causes problems with decreased operational performance is that employees are often absent during the working day or employees do not use their working time fully, such as employees not arriving on time or employees leaving earlier than work time.

Operational performance problems arise due to low levels of material control. Specifically, the control system applied to the project still uses the conventional method, namely manually matching the type of reinforcing steel to be used with the possible remaining reinforcing steel material. Apart from that, the inventory administration prepared by employees often does not have the same data as the amount of inventory in the field, so this often slows down the company's targets in preparing work. Employees must also be

clever in determining the amount of inventory they want to use because they often find that there is a lot of inventory remaining after employees have finished a job.

Apart from material control, operational performance problems are also caused by the company's low operational effectiveness. Operational effectiveness is a problem because many employees still make mistakes when preparing for work. This leads to an increase in the time required, which makes it impossible for the organization to achieve its goals on time. Apart from that, in this process not all procedures are carried out properly, such as errors in construction work caused by ineffective use of materials or construction work equipment. The result is that construction work procedures do not go well according to the work plan, the completion time is long, so the company cannot work on new projects.

II. LITERATURE REVIEW

Material Control

According to Suaryasa et al. (2023:186), inventory control is a model that is commonly used to complete raw materials and finished goods in a company's activities.

According to Ernawati et al (2022:81), the inventory model consists of several models from deterministic models to probabilistic models. The accuracy of inventory determination is very dependent on the model used. Each model is affected by inventory costs. The types of costs in the inventory model include:

1. Purchasing costs are costs related to the quantity and price of goods.
2. Holding costs are costs associated with storing or carrying goods from time to time which include: capital costs, warehousing costs, expiration costs, loss costs, insurance costs, administration and moving costs.
3. Ordering or setup costs are order costs if they come from outside the company or preparation costs if they come from within the company. Order cost categories include: costs for determining suppliers, typing costs, shipping and receiving orders. Preparation costs include: costs for arranging production equipment, machine setup, preparing work drawings and others.
4. Stockout costs are costs or losses resulting from unmet demand. For the number of items that are not met, the penalty can be converted to rupiah per unit. Meanwhile, the time to fulfill the penalty is converted to rupiah per unit time. Emergency procurement costs, the measurement is based on orders every time supplies run out.

Operational Effectiveness

Bormasa (2022:134) defines effectiveness as a condition that shows the success of an organization in achieving a certain goal by using existing resources with a predetermined size.

According to Gani et al. (2020:116) several factors that can influence organizational effectiveness and efficiency are as follows:

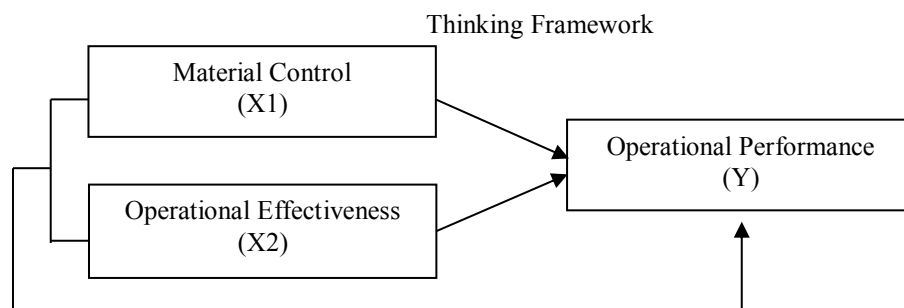
1. Absenteeism is defined as absence from the office without permission. Absenteeism is a huge loss and disruption for employers.
2. Employee turnover is permanent voluntary or involuntary resignation from an organization. High employee turnover rates result in increased recruitment, selection and training costs. In addition, high employee turnover rates can disrupt the efficient operational processes of an organization when capable and experienced personnel leave and replacements must be found and prepared to take over the positions left behind.
3. Deviant workplace behavior is voluntary behavior that violates significant organizational norms and thereby threatens the well-being of its members. Companies sometimes create policies that prohibit certain behaviors.

Operational Performance

According to Sinaga et al. (2020:14) performance is the result of a person's work function or activities in an organization which is influenced by various factors to achieve organizational goals within a certain time period.

According to Silaen et al. (2021:148-150) performance improvement to be able to provide the expected results must meet the following characteristic criteria:

1. Practically, the plan specifications must relate to the performance that must be improved. Improving performance by reading theory books or taking industrial psychology courses is very impractical and takes too long.
2. Time orientation, the deadline for completing work must be determined realistically and considered together. There is no work without a time limit.
3. Specific, must clearly explain what will be done. If the area to be improved is the quality of communication with workers, then specific references must be made that must be improved.
4. Involves commitment, both managers and workers must sell the plan and be committed to its implementation. They must agree on what to do. Performance improvement plans are designed to change worker behavior.



Hypothesis

According to Sahir (2021:26-27) hypothesis is an initial prediction of the initial hypothesis of preliminary research, which can be in the form of a relationship between the independent variable and the dependent variable.

- H1: Suspected influence material control of operational performance at PT. Dutaraya Sejati in Medan.
- H2: Suspected influence operational effectiveness on operational performance at PT. Dutaraya Sejati in Medan.
- H3: Suspected influence material control and operational effectiveness on operational performance at PT. Dutaraya Sejati in Medan.

III. RESEARCH METHODOLOGY

Research Place

The place of research was carried out at PT. Dutaraya Sejati in Medan is located at Jl. Raya Aluminum No. 2 Kel Tanjung Mulia, Medan-Deli District Medan, North Sumatra.

Population and Sample

The population in this study were employees at PT. Dutaraya Sejati in Medan during 2023 as many as 208 people consisting of 30 office employees and 178 non-office employees. Because the population was 208 people, determining the sample size was carried out using the Slovin formula. So the sample studied was 137 employees of PT. Dutaraya Sejati in 2023.

Data Types and Sources

The data type is quantitative and the data source for this research is primary data. The data source used by researchers uses primary data, namely data obtained directly from the results of distributing questionnaires from PT. Dutaraya Sejati in Medan contains the results of the answers to the variables material control, operational effectiveness and operational performance.

Data Collection Procedures

Purba et al. (2021:88-90) explains that there are three types of data collection techniques used in this research, namely observation, questionnaires and documentation.

Operational Definition of Research Variables

The independent or free variables in this research are material control (X1) and operational effectiveness (X2) and the dependent or dependent variable is operational performance (Y)

Operational Definition of Research Variables

Research variable	Definition	Indicator	Scale
Material Control (X1)	Inventory control is a concept and practice in operations management that aims to manage inventories of goods or products in the right quantities, at the right time, and at optimal costs.	1. Inventory procurement system. 2. Determining the amount of inventory. 3. Inventory administration. Source: Ernawati et al. (2022:80).	Likert
Operational Effectiveness (X2)	Effectiveness describes the entire cycle of input, process, and output which refers to the results of an organization, program, or activity which states the extent to which goals (quality, quantity, and time) have been achieved, as well as measures of the success or failure of an organization in achieving its goals and achieving its targets. the target.	1. Work productivity 2. Capacity utilization rate. 3. Error rate in operational processes. 4. Production cycle time. Source: Shamil et al. (2023:73).	Likert
Operational Performance (Y)	Performance is the result of a person's job function or activities in an organization which is influenced by various factors to achieve organizational goals within a certain time period.	1. Work quality factors. 2. Work quantity factor. 3. Knowledge factor. 4. Reliability factor. 5. Attendance factor. 6. Cooperation factor Source: Indrasari (2017:57).	Likert

Data Analysis Techniques

In this research, the regression analysis used is multiple linear regression analysis. According to Sahir (2021:52) multiple regression is an analysis method that includes more than two variables, usually two or more independent variables and one dependent variable. The regression model used is as follows:

$$Y = a + b_1X_1 + b_2X_2 + e$$

Information:

Y = Operational performance.

a = Constant.

b1, b2 = Variable coefficient.

X1 = Material control.

X2 = Operational effectiveness.

e = Standard error.

IV. RESULTS AND DISCUSSION

Multiple Linear Regression Analysis

Objective multiple linear regression analysis, namely to find out how big the regression coefficient in this study discusses influence material control and operational effectiveness on operational performance at PT. Dutaraya Sejati in Medan. The following are the results of multiple regression analysis:

Multiple Linear Regression Test Results
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,172	1,102		,156	,876
	Material Control	,682	,065	,612	10,472	,000
	Operational Effectiveness	,330	,062	,310	5,297	,000

a. Dependent Variable: Operational Performance

Source: Research Results (processed data) 2023

From the table above, the multiple regression equation is $Y = 0.172 + 0.682 X_1 + 0.330 X_2 + e$

An explanation of the multiple regression equation can be explained below.

1. The constant value (a) is 0.172, meaning that if the value of the independent variables, namely material control and operational effectiveness, is equal to zero, then the value of changes in operational performance as seen from the Y value increases by 0.172.
2. The material control value (b1) of 0.682 indicates that if the material control variable increases by one unit, operational performance will also increase by 0.682 units assuming that the other independent variables are considered zero.
3. The operational effectiveness value (b2) of 0.330 indicates that if the operational effectiveness variable increases by one unit, then operational performance will also increase by 0.198 units assuming that the other independent variables are considered zero.

Partial Test (t test)

t Test Results
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,172	1,102		,156	,876
	Material Control	,682	,065	,612	10,472	,000
	Operational Effectiveness	,330	,062	,310	5,297	,000

a. Dependent Variable: Operational Performance

Source: Research Results (processed data) 2023.

The following is an explanation of the partial test (t test) based on the table above as follows:

1. There is influence material control of operational performance at PT. Dutaraya Sejati in Medan.

The t test results above show that the value of tcount (10.472) > ttable (1.97769) and The significance value of the material control variable is 0.000, less than 0.05. It can be said that the material control variable has a positive and significant effect on operational performance at PT. Dutaraya Sejati Medan.

2. There is influence operational effectiveness on operational performance at PT. Dutaraya Sejati Medan.

The test results above show that the value of tcount (5.297) > ttable (1.97769) and The significance value of the operational effectiveness variable is 0.000, less than 0.05. It can be

said that the operational effectiveness variable has a positive and significant effect on operational performance at PT. Dutaraya Sejati in Medan.

Simultaneous Test (F test)

F Test Results
ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1187.804	2	593,902	140,293	,000b
	Residual	567,262	134	4,233		
	Total	1755.066	136			

a. Dependent Variable: Operational Performance
b. Predictors: (Constant), Operational Effectiveness, Material Control
Source: Research Results (processed data) 2023

It is known that the value of Fcount (140.293) > Ftable (3.06) and the significance value of 0.000 is less than 0.05. It can be said that the variables of material control and operational effectiveness have a positive and significant effect on operational performance at PT. Dutaraya Sejati in Medan.

Coefficient of Determination Test (R²)

The coefficient of determination is intended to find out how much the model's ability is to explain the dependent variable. The coefficient of determination in this research can be seen from R square. The results of the coefficient of determination test are as follows:

Coefficient of Determination Test Results

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.823a	,677	,672	2,057

a. Predictors: (Constant), Operational Effectiveness, Material Control
Source: Research Results (processed data) 2023

Based on the table above, It can be seen that the R Square number is 0.677, meaning 67.7% of the variables operational performance can only be explained variables material control and operational effectiveness and the remaining 32.3% variable operational performance explained other variables that were not included in the research model such as heavy equipment control and work motivation.

Discussion

1. The Effect of Material Control on Operational Performance.
The results of partial hypothesis testing show that material control has an effect on operational performance at PT. Dutaraya Sejati in Medan can be accepted or H0 is rejected and H1 is accepted, which means that the material control variable has a positive and significant effect on operational performance at PT. Dutaraya Sejati in Medan. The results of this research are in line with research by Maddeppungeng, Asyiah and Toha (2022) which states that material control has a significant effect on operational performance.
2. The Influence of Operational Effectiveness on Operational Performance.
The results of partial hypothesis testing show that operational effectiveness influences operational performance at PT. Dutaraya Sejati in Medan can be accepted or H0 is rejected and H2 is accepted, which means that the operational effectiveness variable has a positive and significant effect on operational performance at PT. Dutaraya Sejati in Medan. The results of this research are in line with research by Rahayuni, Sudja and

Puspitawati (2022) which states that operational effectiveness has a significant effect on operational performance.

3. The Influence of Material Control and Operational Effectiveness on Operational Performance.

The results of simultaneous hypothesis testing show that material control and operational effectiveness have a positive and significant effect on operational performance at PT. Dutaraya Sejati in Medan can be accepted or H_0 is rejected and H_3 is accepted, which means that the variables of material control and operational effectiveness have a positive and significant effect on operational performance at PT. Dutaraya Sejati in Medan.

V. CONCLUSION

1. Partial hypothesis testing (t test) shows that the material control variable has a significant and positive effect on operational performance at PT Dutaraya Sejati in Medan, where $t_{count} (10.472) > t_{table} (1.97769)$ and has a significance value. of 0.000 is less than 0.05.
2. Partial hypothesis testing (t test) shows that operational performance at PT. Dutaraya Sejati in Medan is positively and significantly influenced by the operational effectiveness variable, with a significance value of 0.000 which is less than 0.05 and a value of $t_{count} (5.297) > t_{table} (1.97769)$.
3. Simultaneous hypothesis testing (F test) shows that the operational effectiveness and material control variables have a positive and significant influence on operational performance at PT. Dutaraya Sejati in Medan, where the value of $F_{count} (140.293) > F_{table} (3.06)$ and the significance value of 0.000 is smaller than 0.05.

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