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The Influence of Raw Material Inventory Control on the Production Process at PT. Dayup Indo in North Jakarta

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ABSTRACT: This study aims to determine how much influence the control of raw material inventories on the production process at PT. Dayup Indo. The population in this study is the entire number of employees in the production and warehouse. This study uses a quantitative method. The sample in this study were 60 people with Non Probability Sampling technique, namely saturated Sampling. The independent variable in this study is the control of raw material inventory, while the dependent variable is the production process. Simple linear regression test results obtained Y = 4.215 + 0.728X which means that the value of 4.215 with 0.728 which states the effect of variable X on Y is positive. Based on regression analysis (t-test), it is known that t-value > t-table is 9.757 > 1.672 which means that raw material inventory control affects the production process at PT. Dayup Indo. With the coefficient of determination (R2) has a value of 0.621 indicates that the magnitude of the influence of raw material inventory control variables on variables of the production process is 62.1% while the remaining 37.9% is influenced by other objects that are not included in this study.

Keywords: Inventory Control Of Raw Materials, Production Processes.

INTRODUCTION

Every company operating in the industrial sector has the goal of making a profit, but achieving this goal is not easy because it is influenced by several factors and the company must be able to deal with these factors. One of the influencing factors is the problem of smooth production.

All production can run smoothly if company management knows how to plan and control raw material supplies properly and correctly. If raw material supplies are controlled well, production

will run smoothly. Therefore, raw materials are an important resource that must be managed. In industrial activities, special attention must be paid to raw materials and everything related to them. Production process forecasting must be adjusted so that raw material inventory planning can be calculated correctly. Shortages and excesses of raw materials also cause costs and affect the production process itself. Of course, this has a huge impact, especially as it can influence several company goals, one of which is meeting consumer needs and achieving maximum satisfaction by providing products that are appropriate and timely. There are many reasons for companies to monitor inventory(Chatterjee & Rong, 2019; Rogetzer et al., 2018).

PT. Dayup Indo is a company operating in the industrial sector where the company focuses on the production of sports gloves. PT. Dayup Indo is a company that produces sports gloves with various brands, namely: Nike.

The following is data on inventory control and raw material purchases at PT. Dayup Indo period August – December 2022.

Table 1

Inventory Control Data and Raw Material Purchase Data for the August – December 2022 Period

Raw material	Early preparation (*yard*)	Purchase	Usage (*yard*)	Ending Inventory (*yard*)
Silicone Palm	400	520	840	80
Synthetic leather	500	525	885	140
Lycra	5.600	7.000	11.440	1.160
Jersey	780	120	827	73
Suede	295	305	585	15
Velcro	8.860	5.520	14.070	310

Source: PT. Dayup Indo

In the table above, it can be seen that the final stock amounts differ. Where the highest final inventory is 1,160 yards of lycra, it can be said to be overstock, while the lowest final inventory is 15 yards of suede.

In its production PT. Dayup Indo always makes monthly targets, where each month it does not always reach the target, due to many reasons, one of which is raw materials being hampered. The following is data on production quantities at PT. Dayup Indo.

Table 2

Data on Production Quantities of PT. Dayup Indo in the period August 2022 – December 2022

No.	Moon	Production Target (install)	Realizatio n (install)	Presentase (%)
1.	August	4000	6125	153,13 %
2.	September	4000	4533	113,33 %
3.	October	4000	3064	76,6 %
4.	November	4000	2990	74,75 %
5.	December	2000	1460	73 %

Source: Production Data PT. Dayup Indo

From the data above, it can be seen that the amount of production has decreased every month due to delays in raw materials, and production even stopped temporarily, so that production did not reach the target.

To ensure the smoothness and continuity of the production process and achieve the goal of maximizing company value, targeted activities are needed in warehouse management, especially raw material storage. In practice, PT. Dayup Indo makes forecasts to determine the number of raw orders. The effect of forecasting used by companies is often a shortage of raw materials (inventory) with large order volumes. Especially when the number of orders fluctuates and changes suddenly, but safety stock is not enough. As a result, the production process had to be temporarily stopped, causing delays in the delivery schedule for products ordered by consumers(Niziołek & Boczkowska, 2019; Suwandi et al., 2018). The company is unable to meet consumer demand, resulting in losses for the company and therefore must be addressed.

Logistics management

According to Pujawan (2017), logistics management is a series of planning, organizing and supervising activities for procurement, recording, distribution, storage, maintenance and disposal of logistics to support effectiveness and efficiency in efforts to achieve organizational goals.

Inventory Control

According to Ristono (2013:4) Inventory control is the activity of accurately estimating the amount of inventory (raw materials or auxiliary materials), where the amount is not too large and not too small compared to needs or demand.

Raw material

According to Sadeli and Siswanto, quoted from Ramadhanty and Evitha (2021:30) Raw materials are all raw materials that can be physically identified as part of the final product and can be easily and cheaply traced to the final product.

Production process

According to Assauri (2016: 123), "The production process is an activity that uses human power, materials and equipment to produce useful products."

According to Rusdi Nur and Muhammad Arsyad Suyuti (2017), the goods production process is basically the utilization of resources (people, materials, money and information), especially raw materials in making finished products.

Theoretical framework

Independent variables or independent variables (X), according to Sugiyono (2022), independent variables are variables that influence or are the cause of changes or emergence of the dependent variable. The independent variable (X) in this research is raw material inventory control(SARIR, 2020). Meanwhile, the dependent variable or dependent variable (Y) is a variable that is influenced or caused by the existence of the independent variable (Sugiyono, 2022). The dependent variable (Y) in this research is the production process.

Hypothesis

From the research that the author will examine, the hypothesis put forward is as follows:
H1: There is an influence between raw material inventory control on the production process at PT Dayup Indo.

METHOD

Research Approach

The research approach used in this research is quantitative research. Quantitative methods are a research approach whose specifications are systematic, planned and clearly structured from the start until the creation of the research design.

This research uses an associative method. According to Sugiyono (2019), associativity is a research problem formulation that asks about the relationship between two or more variables. This type of associative research method is a method that uses a formula that asks about the relationship between two variables or more than two variables. Casual relationships are relationships that are cause and effect. This research refers to casual relationships which show cause and effect from the existence of independent variables (influencing variables) and dependent variables (influenced

variables). Casual associativity in this research is used to determine the extent of the causal relationship of variables. Meanwhile, the quantitative approach is an approach that builds facts, provides descriptive statistics, tests theories, shows relationships and influences as well as comparisons between variables, estimates and enlivens the results. Casual associativity in this research is used to determine the extent of the causal relationship of the influence of raw material inventory control as variable X and the production process as variable Y(Kyriakidis, 2016; Yi & Reklaitis, 2015).

In this study, the population in this study was 60 respondents, namely employees in the warehouse and production departments (*sample R&D*) PT. Dayup Indo, which consists of warehouse operators, production operators (*sample R&D*), staff, and*supervisor* related person responsible for the production department.

Based on the total population of the research object which is less than one hundred people or in accordance with the entire population, in this study the entire population was determined as a sample with a total of 60 respondents.

This research also uses data collection techniques in the form of observation techniques. According to Sugiyono (2014: 145), observation or also called observing includes the activity of recording objects and activities or events that are used to obtain information.

In this research, researchers conducted participant observation (*participant observation*) namely researchers are directly involved at the research location. The location of this research is PT. Dayup Indo is located in the Nusantara Bonded Zone, Jl. Madura 6 Blok D 13a, Cakung – Cilincing, North Jakarta.

RESULT AND DISCUSSION

General Image of Research Objects

PT. Dayup Indo is a company operating in the field*sport gloves* (gloves). PT. Dayup Indo was founded in October 1989 located on Jl. Nusantara Bonded Zone Block D 13A Cilincing, North Jakarta.

Based on information from HRD PT. Dayup Indo has an area of (*factory site*) approximately 20,000 m2 with building area (*factory building*) 15,000 m2 is engaged in the industrial sector*sport glove* (gloves). The total production of gloves produced by the company is around 600,000 pcs per year. PT. Export destination country. Dayup Indo covers the US, Japan, China and the UK. Has special Nike customers. 90% of the material used for sports gloves is exported from China, Korea and Hong Kong. In its development PT. Dayup Indo has a vision to be at the forefront in its field and has made many changes and developments to reach a higher level. Basically, companies that are involved in the production process convert raw goods into finished materials or ready-to-use goods. In carrying out the production process, various needs are needed for production and

components of a product along with existing processes in the company:*R&D, marker, warehouse, cutting, sewing, quality control, ironing, finishing packing*.

Research result

1. **Validity Test Results**

Table 3 Validity Test Results

Variable	Indicator	R - Count	R - Table	Information
Raw Material Inventory Control (X)	X1	0,601	0,254	Valid
	X2	0,757	0,254	Valid
	X3	0,703	0,254	Valid
	X4	0,705	0,254	Valid
	X5	0,722	0,254	Valid
	X6	0,747	0,254	Valid
	X7	0,501	0,254	Valid
	X8	0,696	0,254	Valid
	X9	0,639	0,254	Valid
	X10	0,806	0,254	Valid
	X11	0,685	0,254	Valid
Production Process (Y)	Y1	0,716	0,254	Valid
	Y2	0,791	0,254	Valid
	Y3	0,728	0,254	Valid
	Y4	0,764	0,254	Valid
	Y5	0,884	0,254	Valid
	Y6	0,784	0,254	Valid
	Y7	0,832	0,254	Valid
	Y8	0,659	0,254	Valid
	Y9	0,669	0,254	Valid

Source: Data processing results in SPSS 26

2. **Reliability Test Results**

Table 4
Reliability Test Results
Inventory Control Variables

Reliability Statistics	
Cronbach's Alpha	N of Items
0.888	11

Sumber: Output SPSS 26

Based on the reliability test for the Raw Material Inventory Control variable, research using 60 respondents, a value was obtained*Cronbach Alpha* of 0.888 or greater than 0.6. Thus, the research

results for the Raw Material Inventory Control variable are reliable and meet the requirements for good data quality(El-Baz & Taha, 2019; Girsang & Purwanto, 2017; Ran & Liu, 2018).

Table 5
Reliability Test Results
Production Process Variables

Reliability Statistics	
Cronbach's Alpha	N of Items
0.907	9

Sumber: Output SPSS 26

Based on the reliability test for the Production Process variable, research using 60 respondents, a value was obtained*Cronbach Alpha* of 0.907 or greater than 0.6. Thus, the research results for the Production Process variable are reliable and meet the requirements for good data quality.

3. Normality Test Results

Table 6
Normality Test Calculation Results

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		60
Normal Parameters[a,b]	Mean	0,0000000
	Std. Deviation	3,07854980
Most Extreme Differences	Absolute	0,101
	Positive	0,101
	Negative	-0,092
Test Statistic		0,101
Asymp. Sig. (2-tailed)		.200[c,d]
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		
d. This is a lower bound of the true significance.		

Sumber: Output SPSS 26

From the normality test results of the method*kolmogorov-smirnov*The significance result obtained from the normality test was 0.200, where the result was greater than the significance level of 0.05, so it could be concluded that the test for normality in this study was normally distributed..

4. Correlation Coefficient Results

Table 7
Calculation Results
Correlation Coefficient Test

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.788[a]	0,621	0,615	3,105
a. Predictors: (Constant), Raw material inventory control				
b. Dependent Variable: Production process				

Sumber: Output SPSS 26

The calculation results in the table above show a Correlation Coefficient (R) value of 0.788. This value shows that the influence of raw material inventory control variables on the production process is very strong(Indrawati et al., 2018; Mohammad & Ismail, 2020). According to Sarwono, quoted from Mulyanto (2021), the provisions for the correlation coefficient are as follows.

a) 0: There is no correlation between two variables
b) > 0 – 0.25: Very weak correlation
c) > 0.25 – 0.5: Fair correlation
d) > 0.5 – 0.75: Strong correlation
e) > 0.75 – 0.99: Very strong correlation
f) 1 : Perfect correlation

5. Coefficient of Determination Results

Table 8
Coefficient of Determination Test Calculation Results

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.788[a]	0,621	0,615	3,105
a. Predictors: (Constant), Raw material inventory control				
b. Dependent Variable: Production process				

Sumber: Output SPSS 26

Based on the table above, it is known that the Coefficient of Determination (R^2) value is 0.621. This shows that the raw material inventory control variable (X) can explain or explain the production process (Y) by 62.1%(Citraresmi & Azizah, 2019; Susanto, 2018). Meanwhile, the remaining 37.9% (100% - 62.1%) is influenced by other variables not included in the model or equation in this research.

6. Simple Linear Regression Test Results

Table 9
Simple Linear Regression Test Results

Coefficients[a]						
Model				Standardized Coefficients Beta	t	Say.
1	(Constant)	4,215	3,537		1,192	0,238
	Raw material inventory control	0,728	0,075	0,788	9,757	0,000
a. Dependent Variable: Production process						

Sumber: Output SPSS 26

From the table above, a simple linear regression equation is obtained as follows.
Information :
Y = 4,215+ 0,728X

Y = Production Process
X = Raw Material Inventory Control

The value of a = is 4.215 constant. This means that if the raw material inventory control variable (X) is equal to zero, then the production process (Y) is 4.215(Suwandi et al., 2018). It is known that the Regression Coefficient for raw material inventory control (X) is 0.728 and has a positive value. These results show that every time there is an increase in raw material inventory control (X) by one unit, it will be followed by an increase in the production process (Y) by 0.728 units or vice versa if there is a decrease. Controlling raw material inventory (X) by one unit will be followed by a decrease in the production process (Y) by 0.728 units.

7. Uji T

Table 10
T Hypothesis Test Results

Coefficients[a]						
Model				Standardized Coefficients Beta	T	Say.
1	(Constant)	4,215	3,537		1,192	0,238
	Raw material inventory control	0,728	0,075	0,788	9,757	0,000
a. Dependent Variable: Production process						

Sumber: Output SPSS 26

From the results of the calculation above, the raw material inventory control variable (X) has a calculated t-value of 9.757. The t-table value in making decisions on hypotheses by determining the df value. The value of df = n - 2 with the information n being the number of respondents, then it is obtained (df = n - 2 = 60 - 2 = 58) with the t-table value (Dr. Imam Ghozali) the 58th value with a significance level of 0.05 is amounting to 1,672.

The results of the t-count analysis > t-table (9.757 > 1.672). This shows that H0 is rejected and H1 is accepted, or this means that there is an influence between controlling raw material inventory on the production process.

Based on the title that the researcher will examine and the results of the research above, the researcher carried out proof to find out the magnitude of the influence of raw material inventory control variables on the production process. Researchers analyzed hypothesis tests consisting of Correlation Coefficient Tests and Normality Tests. And the results of the correlation coefficient test hypothesis show a value of 0.788. According to Sarwono, quoted from Mulyanto (2021), a value of 0.788 with a scale of > 0.75 – 0.99 shows that there is a very strong correlation between the raw material inventory control variable and the Production Process variable.

Researchers also tested the coefficient of determination to determine the ability of the independent variable, namely Raw Material Inventory Control, in explaining the dependent variable, namely the Production Process. Then an R^2 value of 0.621 or 62.1% was obtained, this gives the understanding that the dependent variable Production Process can be explained by the Raw Material Inventory Control variable, while the remaining 37.9% is influenced by other variables not included in the model or equation in the research This.

Apart from that, the researcher also got the results from the Simple Linear Regression Test, from

this test the researcher got the result that the X regression value of 0.728 was positive. This shows that every time there is an increase in Raw Material Inventory Control (X), it will be followed by an increase in the Production Process (Y) of 0.728 units.
Meanwhile, for Hypothesis Testing in this study, the researchers obtained results from the T Test showing T-Count of 9.757 > T-Table of 1.672 with a significance level of 0.05. From these results it can be concluded that H0 is rejected and H1 is accepted, or in the sense that there is an influence between controlling the supply of raw materials on the production process(Djuhana & Gozali, 2020; Djunaidi et al., 2019).

CONCLUSION

Based on the results of the research that has been carried out, the researcher can conclude that there is a significant and positive influence of raw material inventory control on the production process between the independent variable of raw material inventory control on the dependent variable of the production process. The influence of raw material inventory control on the production process based on the Coefficient Test value Correlation (R) is 0.788, this value shows that the influence of raw material inventory control variables on production process variables is very strong. As for the magnitude of the influence on the results of the Determination Test (R2) with a result of 0.621, this proves that the influence of raw material inventory control on the production process is 62.1%, while the remaining is 37.9% (from a calculation of 100% -62.1%) is influenced by other variables that are not included in the model or equation in this research, while the T test results have a calculated t-value > t-table (9.757>1.672). This shows that H0 is rejected and H1 is accepted, or this means that there is an influence between controlling raw material supplies on the production process.

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