

The Impact of Inventory Management on Customer Satisfaction at Apotik Global Medan

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Article Info

Article history:

Received Feb 19, 2023

Revised March 03, 2023

Accepted April 10, 2023

Keywords:

Inventory Management;

Customer Satisfaction

ABSTRACT

One of the most important aspects of any business is inventory management. While inventory management has always been important, it has become more important over the past several decades. Inventory management has issues that affect customer satisfaction levels. Many large retailers are expecting manufacturers to provide them with perfect order deliveries. The writer will conduct research in Apotik Global Medan. Apotik Global Medan is a family business whose core business is a drug store which provide many kind of medicines for individuals, hospitals, and doctors' prescriptions. When the customers order and look for the medicines, the products are not available and the customers will feel dissatisfied with the unavailability of the medicines they need. The problem identifications are Is there any impact between inventory management and customer satisfaction at Apotik Global Medan? How strong does the impact of inventory management on customer satisfaction at Apotik Global Medan? In research design, the population that the writer will use the most error inputs which are occurred in July, August, and September 2013, the total customers in July, August and September 2013 of Apotik Global Medan are 800 people. The writer will use 10% of 800 people is 80 customers. In analyzing data, the writer used some methods such as statistics, validity test, reliability test, normality test, correlation test, determination test, linear regression, and hypothesis test. According to the result calculation data through the answers of the respondents, the writer got the result of 0.78 which inventory management has a strong towards customer satisfaction at Apotik Global Medan. From the calculation of hypothesis test, $z_{count} = 7.09$. The $z_{count} > z_{table}$ ($7.09 > 1.96$), This means the Null hypothesis (H_0) is rejected. Inventory Management do have impact on customer satisfaction at Apotik Global Medan.

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1. INTRODUCTION

One of the most important aspects of any business is inventory management. Without inventory management it would be difficult for any company to maintain control and be able to handle the needs of their customers. Whether the company uses a fulfillment company or ship products itself, it needs to know where the inventory is and where it's going. While inventory management has always been important, it has become more important over the past several decades. As the needs of companies increase, they must in turn increase demands on their suppliers. In order for suppliers to have the goods their customers need, it is necessary for them to maintain excellent and accurate inventory management. Without procedures in place to

oversee inventory levels it will be quite easy to allow inventory levels to diminish to dangerous levels, levels that will prevent the company from meeting the supply and demand needs of customers. A Good inventory control means that your time to fulfill orders stays low. If you use your inventory management system to analyze product sales, you can have your popular items in stock and ready to instantly fulfill any customer's order. You also know which special orders sell on occasion and have those products available in a limited quantity to keep your inventory costs down and to develop a positive reputation for quickly filling special orders. Inventory management means the act to monitor the product availability, determine purchasing schedules and cycle out obsolete or unsold product. The availability of product is just one way in which an inventory management system attempts to create customer satisfaction. Customer satisfaction is the way the customer thinks about the company and deals with the meeting or exceeding of expectation over the lifetime of the products and/or services. A company's loyalty and product repurchase comes from achieving customer satisfaction. The measurement of customer satisfaction is not an exact science because of its subjectivity. Because customer satisfaction is non-quantitative in nature, it requires sampling and statistical analysis.

According to Eckert (2007, p.5) in Journal of Inventory Management, "Inventory management has issues that affect customer satisfaction levels. Many large retailers are expecting manufacturers to provide them with perfect order deliveries. This study examines the relationship between effective inventory management and customer satisfaction with the goal of having complete orders and on time deliveries". The customers complaints which lead to dissatisfaction. The writer interviewed the customers who are visiting and they said that they can wait for long time while the staff check and look for the medicines yet the medicines are out of stock. This case made the customers feel dissatisfied, and upset and impact to the decreasing of their satisfaction.

2. RESEARCH METHODS

Research design is a plan and structure of investigation so conceived as to obtain the answer of the research question. The plan is the overall scheme or program of research. According to Burns (2008:231), "A research design will express both the structure problem and the plan of the investigation used to obtain empirical evidence on relation of the problem". Research design is all process in planning and doing the research. A good research design is those that can result in a logical and systematic conclusion. In this skripsi, the writer does the research to find the notes or the data that need to get some truth naturally, in getting data or notes, either primary or secondary, either qualitative or quantitative.

For this research, the writer will take sample for 10% of the population (10% x 800) which are 80 customers, the writer takes 10% of population which are 80 customers become the sample. This sampling technique is called as simple random which all sample has same chance to be selected as sample.

Normality test is used to check the sample being used is normal or not, is actually by conducted tests on normally or not the distribution of the data to be analyzed. If researchers have two different values of the variables therefore normality test should also be done for both variables. The purpose of normality test is to test whether the regression model, confounding or residual variable has a normal distribution. A good regression model is to have data distribution normal or near the normal. Application of the Kolmogorov Smirnov test can be checked by the scale below:

Table 1
The scale use for the normality test:

Normality test < 0.05	difference with standard normal
Normality test > 0.05	Data is normally distributed

Validation is a measurement that shows validity level of an instrument. A valid instrument had high level of validity. And the reverse, if the instrument is less valid means had low level of validity.

Table 2.

Score	Intervals
0.00 – 0.20	Low validity
0.21 – 0.40	Low but sure validity
0.41 – 0.60	Moderate validity
0.61 – 0.80	High validity
0.81 – 1.00	Very high validity

The level acceptance of validity test is the questionnaire result at least get the result with minimum the range of 0.60 which is at high validity. The result may not at the range of moderate validity since it is not certainly as low or high validity.

Reliability is one of the requirements that are trustworthy enough to be used as one of the tool in collecting data because it has been proven as a good instrument. The level acceptance of reliability test is the questionnaire result at least get the result with minimum the range of $0.60 < \alpha < 0.80$ which is acceptable data reliability.

The writer uses the correlation formula according to Pearson's product moment coefficient. The essence of the correlation is an index which ranges from -1 to +1..

Regression analysis is a statistical technique that analyzes the linear relationships between two variables (variable x and variable y) by estimating coefficients for an equation for a straight line. Test of hypothesis is conducted by comparing the z-table value and the z counted value in order to test whether the value is accepted in certain area. Z-test is used for sample size more than 30 people. $z = \text{test of hypothesis}$ $n = \text{sample size}$ $r = \text{the correlation between variable x and variable y}$ The scale used for the result of hypothesis test is: Level of significance = 5% Level of Configuration = 95% The scale used for the result of hypothesis test is:

Table 3

$-Z_{table} < Z_{count} < +Z_{table}$	Null hypothesis (H_0) is accepted
	Alternative hypothesis (H_a) is rejected
$Z_{count} \leq -Z_{table}$	Null hypothesis (H_0) is rejected
$Z_{count} \geq +Z_{table}$	Alternative hypothesis (H_a) is accepted

If the value of the Zcount falls between $-Z_{table}$ and $+Z_{table}$, the null hypothesis (H_0) will not rejected or it means null hypothesis will be accepted and alternative hypothesis will be rejected. But, if the value of Zcount is less than $-Z_{table}$ or more than $+Z_{table}$, the null hypothesis (H_0) will be rejected and the alternative hypothesis (H_a) will be accepted.

3. RESULTS AND DISCUSSION

After got the result from statistics, the writer will use normality test to test the sample used whether is normal or not. The normal distribution is the raw data that has been transformed into the form of Z-Score and assumed normal. The Normality test is shown in the table below:

Table 4. One-Sample Kolmogorov-Smirnov Test

		Inventory Management	Customer Satisfaction
N		80	80
Normal Parameters ^a	Mean	20.78	12.97
	Std. Deviation	4.170	2.797
Most Extreme Differences	Absolute	.183	.211
	Positive	.183	.211
	Negative	-.183	-.121
Kolmogorov-Smirnov Z		2.145	1.302
Asymp. Sig. (2-tailed)		.357	.213

Based on the result above, the significant or probability value which is 0.357 and 0.213 which greater than 0.05. This means, the sample has normality distribution.

Based on the data above, the writer then count the mean, median and mode for variable X (Inventory Management). Mean : The calculation of mean for variable X is 11.81. The value of 11.81 compare with 4.12, it is at disagree. This means that in average, the respondents (customers) answered disagree with the inventory management applied by Apotik Global Medan. Median: The calculation of median for variable X is 11.50. This means the middle value of the respondents' answer for variable X is Disagree. The respondents (customers) answered disagree with the inventory management applied by Apotik Global Medan. Mode: The Mode for variable X is 11. The most frequently appeared answer for variable X is 11. Most respondents (customers) answered disagree with the inventory management applied by Apotik Global Medan.

In order to count the product moment correlation, the writer arrange into a table as follows:

Table 5. Coefficient of Correlation

		Inventory Management	Customer Satisfaction
Inventory Management	Pearson Correlation	1	.780**
	Sig. (2-tailed)		.000
	N	80	80
Customer Satisfaction	Pearson Correlation	.780**	1
	Sig. (2-tailed)	.000	
	N	80	80

The result of calculation of correlation coefficient between Variable X (Inventory Management) and Variable Y (Customer Satisfaction), the writer got the result of 0.78. The value of 0.78 is indicated as strong. This means inventory management has a strong relation or impact towards customer satisfaction at Apotik Global Medan.

Determination test is used to determine the percentage impact of inventory management towards customer satisfaction in the company. The determination calculation is as follows:

Table 6. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.780 ^a	.6084	.728	1.126
a. Predictors: (Constant)				

The percentage impact of inventory management towards customer satisfaction is 60.84% and the remaining 39.16% is impacted by other factors which are not discussed in this skripsi. The result of 60.84% with the table of determination scale is high determination. The inventory management has high percentage towards customer satisfaction at Apotik Global Medan.

Linear Regression Equation**Table 7.** Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	5.320	.720		2.483	.018
	Total_X	.690	.061	.810	9.295	.000

a. Dependent Variable:

$Y = a + b X$
 $Y = 5.32 + 0.69X$
 $x=0 \quad y = 5.32 + 0.69(0) = 6.01$
 $x=1 \quad y = 5.32 + 0.69(1) = 6.70$
 $x=2 \quad y = 5.32 + 0.69(2) = 7.39$
 $x=3 \quad y = 5.32 + 0.69(3) = 8.08$

After the calculation, the writer concludes that when inventory management is ($X=1$), the customer satisfaction is 6.70 which increase 0.69 point. When inventory management is ($X=2$), the customer satisfaction is 7.39 and when inventory management is ($X=3$), the customer satisfaction is 8.08. The inventory management has a positive equation towards customer satisfaction, the increase of inventory management will bring to the increase of customer satisfaction.

To know the hypothesis is significant or not, the writer uses z-test hypothesis test. The writer used the ztest to test the hypothesis as the sample size is more than 30 people.

$z = r \sqrt{n-1} = 0.78 \sqrt{80-1} = 0.78 \sqrt{79} = 7.09$
 The confidence level of hypothesis test is 95% and 5% error degree, Since use the two-tailed hypothesis test, $0.95/2=0.4750$. the ztable is 1.96. From the calculation above, the writer got zcount= 7.09. The zcount > ztable ($7.09 > 1.96$)

The writer draws a conclusion that: Null hypothesis (H_0) is rejected and Alternative hypothesis (H_a) is accepted. So, that the content of H_a is accepted. Inventory Management do have impact on customer satisfaction at Apotik Global Medan.

From the results of the employees' answers to the questionnaires can be summarized as follows:

From the results of validity test, the validity results of variable X (Inventory Management) got the value validity test in the scale wmore than 0.80 which is Very high validity. The validity results for variable Y (Customer Satisfaction) got the value within 0.60-0.80 as High validity.

The reliability test is 0.88. The reliability result is $0.88 > 0.80$ which means the questionnaires have good acceptable data reliability.

The significant or probability normality test value which is 0.357 and 0.213 which greater than 0.05. This means, the sample has normality distribution.

The statistics for variable X (Inventory management), mean, median, and mode got result that the customers answered disagree with the current inventory management applied by Apotik Global Medan, The statistics for variable Y (Customer Satisfaction), the mean, median, and mode got result that the customers answered agree that inventory management has impact on customer satisfaction.

From the calculation of correlation coefficient between variable X (Inventory Management) and Variable Y (Customer Satisfaction), the writer got the result of 0.78 which means inventory management has a strong relationship on customer satisfaction at Apotik Global Medan.

The percentage impact of inventory management on customer satisfaction is 60.84% and another 39.16% is impacted by other factors which are not discussed in this skripsi. The inventory management has high percentage towards customer satisfaction at Apotik Global Medan.

The linier regression equation shows that each increase of variable X (Inventory management) will result 0.69 for variable Y (Customer satisfaction). Inventory management has a positive equation on customer satisfaction, the increase of inventory management will bring to the increase of customer satisfaction.

From the result of hypothesis test, $z_{count} > z_{table}$, so that H_a is accepted which Inventory Management do have impact on customer satisfaction at Apotik Global Medan

4. CONCLUSION

After conducting the research, the writer tried to compare the existing theoretical description and the results from the field.

From the result of hypothesis test, inventory management has impact on customer satisfaction at Apotik Global Medan, Apotik Global Medan has to increase and pay more attention on inventory management in order to increase and improve its customer satisfaction.

The correlation test and linear regression equation resulted that Inventory management has a strong and positive relationship (impact) on customer satisfaction at Apotik Global Medan

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