

Efficiency Of Procurement Of Main Raw Materials For Pizza Makers With Economic Order Quantity (EOQ) Approach

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Abstract —Papa Ron's Pizza is a small and medium business engaged in the culinary field, there are 5 types of main raw materials needed by Papa Ron's Pizza in making pizza, namely twin chakra flour, mozzarella cheese, dough blend, dougo canola oil and pizza sauce. So far, the company manages its inventory based on physical observations. Therefore, Papa Ron's Pizza procures raw material inventory so that its sales activities are not disrupted due to a lack of merchandise inventory. However, if the supply of raw materials is too large, Papa Ron's Pizza will risk a loss, namely damaged, lost, shrinking goods and so on which results in decreased sales of Papa Ron's Pizza. The author applies the Economic Order Quantity (EOQ) method to Papa Ron's Pizza for the five raw materials, namely Twin Cakra flour, mozzarella cheese, dough blend, dougo canola oil and pizza sauce. Before using the EOQ the procurement cost was obtained at IDR 21,361,400, - and after using the EOQ calculation, it was obtained at IDR 4,881,613,68, it can be concluded that the application of the EOQ method can save the total procurement cost of IDR 16,480,626.33, so The efficiency of raw material procurement at Papa Ron's Pizza can be achieved. Papa Ron's Pizza Park Royale Branch should use Economic Order Quantity (EOQ) in the procurement of raw materials, because the required procurement costs are lower.

Keywords : *Economic Order Quantity, Raw Materials.*

I. INTRODUCTION

In the free market era where the market situation is increasingly competitive and full of uncertainty, every company is faced with intense competition. This requires the company to be able to carry out its activities as effectively and efficiently as possible so that the company can improve its competitiveness and the survival of the company can be guaranteed in a relatively long period of time (Khuzaimy, 2015; Purwanto, 2020). The tight competition in the fast food restaurant industry requires culinary entrepreneurs to look for the right tips in order to remain able to survive in the face of competition. Therefore, the company's adjustment to the development of circumstances is absolutely necessary (Darda et al., 2022; Lindiani, 2011; Nathaniel, 2020).

Inventory management is fundamental in establishing a competitive advantage for the long term (Ahmad, 2022; Julyanthry et al., 2020; Pristianingrum, 2017). The existence of raw material inventory that is too large compared to the company's needs adds to inventory costs such as ordering costs and carrying costs (Cahyani et al., 2019; Darmawan et al., 2015). With good inventory management, it will be easier to penetrate the current tight market competition. Lack of existing inventory can make it easy for customers to move to other companies (Elvira, 2021; Hasibuan et al., 2021) and will certainly make the profits to be obtained less than optimal. This is due to the occurrence of a lost sale or loss of opportunity to obtain maximum profit.

Therefore, companies need a system that can regulate the availability of an optimal level of inventory (Apriyani & Muhsin, 2017; Saputri, n.d.), which can meet the needs in quantity, quality, right time, and minimal costs (Chrisna, 2018). This is similar to the principle of economics, which is to produce a certain output at the minimum possible cost (Yusuf & Widyastutik, 2007).

Based on the background described previously, the problem will be focused on the procurement of raw material inventory at Papa Ron's Pizza, Park Royale Branch, which has not used the EOQ method as a calculation of raw material inventory procurement. Therefore, an analysis will be carried out using the Economic Order Quantity (EOQ) method to determine whether or not the supply of raw materials at Papa Ron's Pizza is efficient or not.

II. LITERATURE REVIEW

A. Inventory Control

Inventory is the main part of working capital, because seen from the amount, inventory is usually the largest element of capital. This is understandable because inventory is the most important factor in determining smooth sales (Amanda et al., 2015; Celi & Yusuf, 2021; Napitupulu & Yusuf, 2021), without adequate inventory, it is likely that the business unit will not be able to obtain the desired profit because the production process will be disrupted (Nurhasanah, 2012; Supit & Jan, 2015).

Inventory of goods as an element of working capital is an asset that is always rotating (Dewi & Rahayu, 2016). Errors in determining investment in inventory can reduce company profits (Puspika & Anita, 2013). Inventories of goods as raw materials are goods purchased by the company for the purpose of resale (Tamodia, 2013).

Inventory control is a very important managerial function for a company, because inventory plays an important role so that the company can run well. Without inventory, entrepreneurs will be faced with the risk that their company at some point can not meet the wishes of its customers. However, if the company invests too much of its funds in inventory, it can cause excessive storage costs. Vice versa, if the company does not have sufficient inventory, it can result in costs from material shortages (Iriani & Ardi, 2020; Marince, 2017; Suraya & Ratnasari, 2019).

B. Economic Order Quantity (EOQ)

Economic Order Quantity (EOQ) is the quantity of materials purchased with minimal inventory costs or often called the optimal quantity of ordered materials. The higher the EOQ level, the higher the maintenance costs but the lower the ordering costs. At the same number of units as EOQ, the total ordering cost is equal to the warehouse cost (Maulida, 2018; Saragi & Setyorini, 2014).

III. METHOD

This study uses primary data, where data is obtained from direct sources of research objects. The object of this research is a branch of Papa Ron's Pizza in Jakarta. Where the raw materials studied are the main raw materials for pizza makers, namely twin chakra flour, mozzarella cheese, dough blend, dougo canola oil and pizza sauce. The data obtained were analyzed using the Economic Order Quantity approach (Meitriana et al., 2014).

Table 1. Procurement of Goods at Papa Ron's Pizza

No	Raw material	Unit	Unit price (IDR)	Needs			
				Per month		Per year	
				Quantity	Amount (IDR)	Quantity	Amount (IDR)
1	Flour	Ball	185.000,-	32	5.920.000,-	384	71.040.000,-
2	Mozarella cheese	Carton	1.500.000,-	6	9.000.000,-	72	108.000.000,-
3	Dough Blend	Pack	15.500,-	160	2.480.000,-	1920	29.760.000,-
4	Dougo Canola Oil	Gallon	483.000,-	4	1.932.000,-	48	23.184.000,-
5	Pizza Sauce	Carton	396.000,-	5	1.980.000,-	60	23.760.000,-
Amount					21.312.000,-		255.744.000,-

Source: Papa Ron's Pizza, 2022

From the table above, it can be seen that the quantity of raw material inventory of Papa Ron's Pizza Park Royale branch in 1 year, it can be calculated the cost of ordering storage costs in one year.

The following is presented the total cost of procurement of raw materials for Papa Ron's Pizza in 1 year before being calculated using the EOQ method.

Table 2. Procurement of Raw Material Supplies at Papa Ron's Pizza before using EOQ

No	Raw material	Number Of Orders A Year	Booking fee (IDR)	Total cost of ordering a year (IDR)	Annual storage fee (IDR)	Total cost of ordering + storage (IDR)
1	Cakra Kembar Flour	48	49.000,-	2.352.000,-	3.368.000,-	5.720.000,-
2	Mozarella Cheese	48	73.500,-	3.528.000,-	5.610.000,-	9.138.000,-
3	Dough blend	48	21.000,-	1.008.000,-	1.548.000,-	2.556.000,-
4	Dougo Canola Oil	48	15.750,-	756.000,-	1.204.200,-	1.960.200

5	Pizza Sauce	48	15.750,-	756.000,-	1.233.000,-	1.989.000,-
Amount			175.000,-	8.400.000,-	12.963.200,-	21.363.200,-

Source: Papa Ron's Pizza, 2022

From the table above, it can be seen that the total cost of procurement of raw materials for Papa Ron's Pizza at the Park Royale branch in the 1 year before is calculated using the EOQ method.

The following is presented the procurement of Raw Material Inventory at Papa Ron's Pizza using the EOQ method.

Table 3. Procurement of Raw Material Supplies at Papa Ron's Pizza After using EOQ

No	Raw Material	Number Of Orders a Year	Total cost of ordering a year (IDR)	Annual storage fee (IDR)	Total cost of ordering + storage (IDR)
1	Cakra Kembar Flour	14	698.093,40	698.093,40	1.396.186,80
2	Mozzarella Cheese	18	1.291.115,79	1.291.115,79	2.582.231,58
3	Dough blend	9	193.642,97	193.642,97	387.285,94
4	Dougo Canola Oil	8	128.186,04	128.186,04	256.372,08
5	Pizza Sauce	8	129.768,64	129.768,64	259.537,28
Amount			2.440.806,84	2.440.806,84	4.881.613,68

Source: Papa Ron's Pizza, 2022

From the calculation in table 3, we get a comparison of the calculations between before using the EOQ method and after using the EOQ method, as follows:

- 1) Before using the EOQ method for Twin Cakra Flour, the total cost of ordering + storage was IDR 5,700,420,- when compared to after using the EOQ method, the total cost of ordering + storage was IDR 1,396,186.8, - thus saving occurred ordering cost + storage of Twin Cakra Flour is IDR 4,304,233.2,-
- 2) For Mozzarella Cheese before using the EOQ method, the total cost of ordering + storage is IDR 9,158,470,- when compared to after using the EOQ method, the total cost of ordering + storage is IDR 2,582,231,58, thus saving on ordering costs + Mozzarella Cheese storage for IDR 6,576,238,42,-
- 3) For Dough Blend before using the EOQ method the total cost of ordering + storage is IDR 2,523,960,- when compared to after using the EOQ method, the total cost of ordering + storage is IDR 387,285,94, - thus saving on ordering + storage costs Dough Blend of IDR 2,136,674.06,-
- 4) For Dougo Canola Oil before using the EOQ method the total cost of ordering + storage is IDR 1,964,580,- when compared to after using the EOQ method, the total cost of ordering + storage is IDR 256,372.08, - thus saving on ordering costs + Dougo Canola Oil storage of IDR 1,708,207,92,-
- 5) For Pizza Sauce before using the EOQ method, the total cost of ordering + storage is IDR 2,014,810, - when compared to after using the EOQ method, the total cost of ordering + storage is IDR 259,537.28, - thus saving on ordering + storage costs Pizza Sauce for IDR 1,755,272.72,-
- 6) The total amount of savings obtained for the five main types of pizza-making raw materials after being calculated using the Economic Order Quantity (EOQ) method is IDR 16,480,626.33,-

IV. CONCLUSION

Based on the discussion that the author has described, the following conclusions can be drawn:

1. Procurement of raw material inventory by one of Papa Ron's Pizza branches in Jakarta before using EOQ of IDR 21,361,400
2. By using the Economic Order Quantity (EOQ) method, in the procurement of goods inventory, there is efficiency because there is a balance between ordering costs and storage costs so that the total cost reaches the lowest point of IDR 4,883,552,548.
3. Thus, it can be seen that procurement costs using the Economic Order Quantity (EOQ) method are more efficient than the method used by Papa Ron's Pizza so that there is a savings of IDR 16,478,717,452.

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