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Analysis of Raw Material Inventory Control to Achieve Cost Efficiency at PT Delapan Jaya Perkasa Garmen

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Abstract: *PT Eight Jaya Perkasa Garmen is a company operating in the garment sector from Sragen, the products produced are trousers, shorts, shirts, suits, uniforms and so on. The problem that emerged at PT Empat Jaya Perkasa Garmen was the late supply of raw materials. Delays in the supply of raw materials result in the production process stopping. Control of raw materials is a solution to overcome this problem. Raw material inventory control is expected to be able to control raw materials so that the production process does not stop. The inventory costs incurred by PT Empat Jaya Perkasa Garmen for the procurement of raw materials can also be said to be quite high, this occurs because the purchase of raw material supplies is only based on habit. Therefore, in purchasing raw material procurement, you must first determine the raw material procurement policy using inventory models that are appropriate to the problems that are first analyzed using the EOQ method. This research aims to determine the raw material inventory control carried out by PT Empat Jaya Perkasa Garmen, and to find out how the Economic Order Quantity (EOQ) method can increase the efficiency of raw material inventory costs. From the results of calculations that have been carried out by comparing current policies in force. in companies using the EOQ method, it can be concluded that using the EOQ method the results are more efficient. This can be seen by the average purchase amount of 257,608 yards per order with a total order of 12 times a year and inventory costs of IDR 21,286,432, whereas when using the EOQ method the number of orders is 1,142,158.88 yards with a number of orders of 3 times a year. The total costs incurred are IDR 9,137,271.06. To anticipate undesirable things related to raw material supplies, the EOQ method advises the company to provide a safety stock of 14,781.36 yards and order materials again when the raw materials total 12,880.4 yards.*

Keywords: *Control, Raw Material Inventory, EOQ Method*

1. INTRODUCTION

Controlling raw material inventory is very important for a company because it can affect the production process and storage costs. To achieve optimal conditions, companies need to establish inventory control policies in order to minimize production costs. Companies must pay attention to ordering costs, storage costs, and repurchase costs in order to control production costs effectively.

Raw materials are the main capital in the company's production process. Sufficient raw material supplies are important so that the production process is not hampered. The company must ensure the quality of quality raw materials at competitive prices to produce high quality products but at low cost.

PT Delapan Jaya Perkasa Garmen, a garment company from Sragen, must determine the provision of the right raw materials to keep the production process running smoothly and reduce costs. The EOQ method can help companies determine the economical purchase volume to meet production needs. In procuring inventory, companies need to pay attention to the arrival

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time of goods to be reordered, as well as the amount of inventory that is in accordance with storage capacity. It is important for companies to maintain sufficient raw material inventory so that production runs smoothly.

This study aims to analyze the raw material inventory control policy of PT Delapan Jaya Perkasa Garmen, and to apply the EOQ method to achieve inventory cost efficiency. Through this study, it is expected that the company can optimize raw material inventory control to increase production cost efficiency.

2. LITERATURE REVIEW AND HYPOTHESIS FORMULATION

The results of the study conducted (Darsono 2012) , showed that with the EOQ method, the frequency of purchasing raw materials became 4 times a year with an average purchase of 11 rods (6 meters) and a lead time of 5 days. Purchase of raw materials amounted to Rp. 23,325,000 in 2009 and Rp. 23,500,000 in 2010, but with the EOQ method it became Rp. 20,900,000 in 2009 and Rp. 22,000,000 in 2010. This resulted in cost efficiency of Rp. 1,425,000 in 2009 and Rp. 1,500,000 in 2010. This study was conducted to control raw material inventory and achieve inventory cost efficiency at SMK WARGA SURAKARTA in 2009-2010 using the EOQ method.

(Karyawati 2018) , conducted a study on raw material inventory control using the Economic Order Quantity (EOQ) method at CV. Citra Sari Makassar. This study aims to minimize raw material inventory costs. Data were obtained from financial statements and raw material inventory in 2016. The results show that the application of the EOQ method can minimize total inventory costs of Rp. 16,125,139 with an ordering cost of Rp. 6,880,506 and a storage cost of Rp. 6,858,951. Another difference refers to the study program. In Diah Karyawati's research, it is based on economics and study programs, while this study refers to industrial engineering and study programs.

Research conducted by (Triani 2019) , with the results of the study showing that by using the Economic Order Quantity (EOQ) method, PT. Diajeng Arcadia Trimitra can reduce the cost of raw material inventory for fabric and sole in 2017-2018. The most economical number of orders for raw material fabric in 2017 was 449 sheets with an ordering frequency of 3 times, while in 2018 it was 522 sheets with an ordering frequency of 3 times. Meanwhile, raw material sole in 2017 was 5,124 pairs with an ordering frequency of 6 times, and in 2018 it was 5,292 pairs with an ordering frequency of 7 times. With a lead time of 2 days, the reorder point for raw material fabric in 2017 was 48 sheets, and in 2018 it was 69 sheets. The total cost

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of raw material inventory incurred by the company is also smaller compared to the previous calculation.

(Aida 2021) , conducted a study on raw material inventory control using the EOQ method at a tofu factory in Jember Regency. The purpose of the study was to analyze the control of soybean raw material inventory using the EOQ method. The results of the study showed that the determination of the efficient purchase amount was still unknown, the frequency of purchases made was still high and caused the purchase cost to increase. So that there was a waste of costs as indicated by the difference in the total inventory cost. The total inventory cost at the Jamhari Tofu Factory was IDR 2,235,182 while according to EOQ it was only IDR 393,573. While at the Saudara Jaya Tofu Factory it was IDR 3,524,020 and EOQ was only IDR 357,440.

Table 1. Comparison of Company Policies with the EOQ Method

No	Name	Research site	Method
1	Darsono (2012)	Production Unit of WARGA VOCATIONAL SCHOOL OF SURAKARTA	EOQ
2	Employee (2018)	CV. Citra Sari Makassar	EOQ
3	Triani (2019)	PT. Diajeng Arcadia Trimitra	EOQ
4	Aida (2021)	Tofu Factory in Jember	EOQ
5	This research, (2024)	PT. Delpan Jaya Perkasa Garment	EOQ

Inventories are goods available for sale in the ordinary course of business, In the production process for such sales, In the form of materials or supplies to be used in the production process or provision of services (Sasongko 2016) .

According to (Mulyamah 1987) , the definition of efficiency is a measure in comparing the plan of input usage with the realized usage or in other words the actual usage. According to (SPHasibuan 1984) , efficiency is the best comparison between input and output (results between profits and resources used), as well as the optimal results achieved with the use of limited resources. In other words, the relationship between what has been completed.

Economic Order Quantity (EOQ) is one of the oldest and most widely known inventory control techniques, this inventory control method answers two important questions: when to order and how much to order (Heizer and Render 2011) . The EOQ method is used to determine the quantity of inventory orders that minimizes the direct cost of holding inventory and the inverse cost *of* ordering inventory (Handoko 1999) .

The following are the steps for implementing the EOQ method for PT Delapan Jaya Perkasa Garmen :

1. Data and Parameter Identification

Collect historical data on raw material demand and associated costs (storage costs, ordering costs, etc.).

2. Also determine the *lead time* (the time between ordering and delivery of raw materials).
3. Calculation of *Economic Order Quantity* (EOQ)

Use the EOQ formula to calculate the optimal amount of raw materials to order each time. The EOQ formula is:

$$EOQ = \sqrt{\frac{2 . S . D}{H}} \text{.....(equation 1)}$$

Information:

D = Demand rate (number of units demanded per year)

S = Ordering cost per order

H = Storage cost per unit per year

4. Total Inventory Cost *(* TIC)

In calculating the total inventory cost, it aims to prove that with the existence of an optimal amount of raw material purchases, calculated using the EOQ method, the minimum total cost of raw material inventory will be achieved. According to (Heizer and Render 2011)

The total inventory cost formula is as follows:

$$TIC = \left[\frac{D}{Q^*}S\right] + \left[\frac{Q^*}{2}H\right] \text{.....(equation 2)}$$

Information:

D = Demand rate (number of units demanded per year)

Q* = Economical raw material purchases

S = Ordering cost per order

H = Storage cost per unit per year

5. Safety Stock Evaluation

In addition to EOQ, consider establishing *safety stock* to anticipate fluctuations in demand or delays in raw material deliveries.

6. Implementation and Monitoring

After calculating EOQ and determining *safety stock* , implement it into the inventory management system. Monitor regularly to re-evaluate the parameters used and make adjustments if necessary.

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The basic assumptions for using the EOQ method are:

1. Demand can be determined with certainty and constant so that *stock out costs and* those related to capacity do not exist .
2. Items ordered are independent of other items.
3. Orders are received promptly and with certainty.
4. Constant item price.

Total Annual Cost (TOC) or total cost is the sum of Total Carrying Cost (TCC) or storage cost and Total Ordering Cost (TOC) or ordering cost. TCC is obtained from the assumption that half of the number of orders will be stored and TOC is the ordering cost multiplied by the number of orders each year (T. Hani 1984) .

3. METHOD

In this study, the author conducted research at PT Delapan Jaya Perkasa Garmen. With the object of research is the inventory of raw materials at PT Delapan Jaya Perkasa Garmen. Research Stages In this study, the researcher conducted the following research stages:

1. Observation

In this stage, it is carried out at the beginning of the research, namely being able to observe directly starting from the stock of raw materials in the warehouse, production process, production results, raw materials at PT Delapan Jaya Perkasa Garmen.

2. Literature Study

Literature study is conducted to obtain basic references that are relevant to the problem being studied. Literature study refers to sources of books, papers, journals, and articles related to the topic of track balance research. At this stage, the researcher conducts a literature study aimed at obtaining information and previous research.

4. Formulation of the problem

It is a critical process that helps identify, formulate, and describe the problems or questions that are the main focus of the research. This problem formulation is obtained from the results of problem identification that has been done by looking at the problems that exist in the company.

5. Research purposes

The purpose of the research is generally also referred to as the purpose of writing where it comes out of the results of the literature review process to explain the problems and basic theories along with the collection of data needed to become the purpose of the research. In this stage, it is to find out the amount of raw material purchases so that the costs incurred are more

efficient by using the Economic Order Quantity (EOQ) method.

6. Data collection

This data collection was conducted by interviewing Purchasing and HRD or parties directly related to purchasing, storing, and issuing raw materials. Interviews were also conducted to find out the general description of the company. In addition to interviews, documentation was taken about the general description of the company such as the history of the company, the location of the company, and the production process.

7. The Economic Order Quantity (EOQ) calculation uses the EOQ formula to calculate the optimal amount of raw materials that should be ordered each time .

a. Economical purchase of raw materials

$$EOQ = \sqrt{\frac{2 \cdot S \cdot D}{H}} \quad \text{.....(Equation 1)}$$

Information:

D = Demand rate (number of units demanded per year)

S = Ordering cost per order

H = Storage cost per unit per year

b. Purchase frequency

$$F = \frac{D}{EOQ} \quad \text{.....(equation 3)}$$

c. Total inventory cost

$$TIC = \left[\frac{D}{Q^*}S\right] + \left[\frac{Q^*}{2}H\right] \quad \text{.....(equation 2)}$$

8. Analysis and Discussion in this stage is done to find out the results of the calculations that have been done with the aim of knowing how the EOQ method can increase the efficiency of raw material inventory costs. There are several costs that will be compared including: ordering costs, storage costs, inventory costs

9. Conclusion and suggestions

This stage contains the conclusion of the calculation results carried out using the EOQ method. Suggestions contain input that can be used as re-research material to analyze the methods used in controlling raw material inventory.

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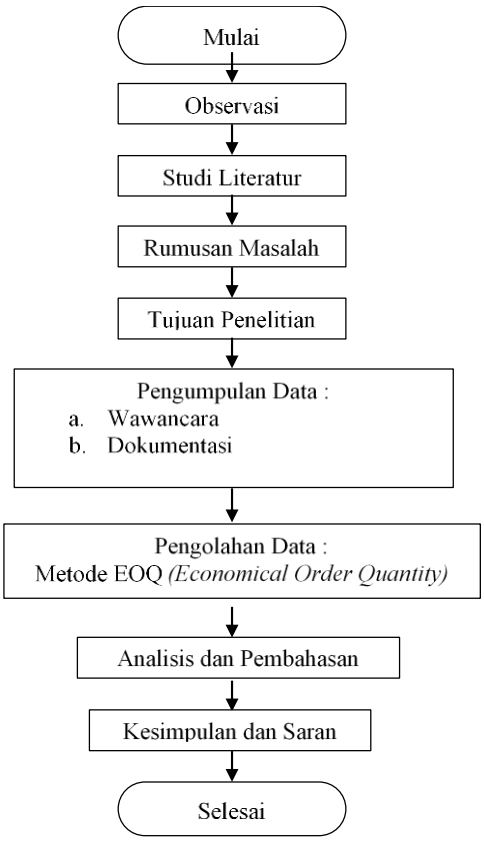

Figure 1. Research Framework

4. RESULTS AND DISCUSSION

From the calculation results above, it can be seen that the calculation of total inventory costs using the Economic Order Quality (EOQ) Method does not provide inventory cost savings because the amount of costs incurred by the company using the EOQ method is higher than using the EOQ method with a difference in inventory costs of Rp. 6,125,381.2.

EOQ calculation must also determine the amount of safety stock to calculate ROP and inventory. PT Delapan Jaya Perkasa Garmen does not stipulate safety stock *in* its policy, while in the EOQ method the company must hold safety *stock* to facilitate the production process with a total of 14,781.36 yards.

The calculation of safety stock has been obtained, then the ROP/reorder point (determination of reorder) can be determined because ROP is obtained from the sum of safety stock plus usage during lead time (order waiting time). According to the EOQ method, the company must reorder raw materials when the raw material inventory is at 12,880.4 yards. Comparison of Company Policy with the EOQ Method can be seen in Table 2.

Table 2. Comparison of Company Policies with the EOQ Method

No	Information	Company policy	Eoq Method
1	Average purchase of raw materials/year	257,608 yards	1,142,158.88 yards
2	Total inventory cost	Rp. 21,286,432	Rp. 9,137,271.06
3	Order frequency/year	12x	3x
4	Safety stock	-	14,781.36 yards
5	Re-order point	-	12,880.4 yards

This study is not in line with the study conducted by (Karyawati 2018), with the results using the EOQ method can minimize the total inventory cost of Rp. 16,125,139 with an ordering cost of Rp. 6,880,506 and a storage cost of Rp. 6,858,951. While this study did not get cost savings because when using the EOQ method the company gets excess inventory costs of Rp. 6,125,381.2.

5. CONCLUSION AND SUGGESTIONS

Based on the research results in the previous chapter, the following conclusions can be drawn:

1. So far, PT Delapan Jaya Perkasa Garmen has ordered raw materials amounting to Rp. 20,256,000 and raw material storage costs amounting to Rp. 25,436,500. With a purchase frequency of 12 orders in a year. PT Delapan Jaya Perkasa Garmen does not determine its policy in terms of safety stock.
2. The results of data processing using the EOQ method did not get savings in raw material inventory costs. The total cost of raw material inventory in the company's policy is Rp. 21,286,432 while using the EOQ method is Rp. 9,137,271.06 with a purchase frequency of 3 times so the total is Rp. 27,411,813.2 so it has a cost difference of Rp. 6,125,381.2. The EOQ method also calculates safety stock to facilitate the production process with a total of 14,781.36 yards. While for the ROP (reorder point) to reorder when the raw material inventory is at 12,880.4 yards.

Based on the conclusions above, this research can provide suggestions to companies that can be used as consideration material, companies should review their current raw material inventory policies, namely:

1. The company should provide safety stock in an amount that is in accordance with the EOQ method calculation to anticipate shortages of cotton fabric raw materials and the production process is not disrupted, and apply a reorder point to avoid delays in ordering raw materials.

2. From the results that have been obtained, it can be developed further, so the researcher suggests that in the next research, another method be used because in this research there are still shortcomings that were found.

BIBLIOGRAPHY

Aida, N., & Dkk. (2021). Analisis pengendalian persediaan bahan baku kedelai menggunakan metode EOQ pada pabrik tahu di Kabupaten Jember. *ADI Bisnis Digital Interdisiplin Jurnal, 4*(1), 100–107. https://doi.org/10.34306/abdi.v4i1.890

Darsono. (2012). Analisis pengendalian persediaan bahan baku untuk mencapai efisiensi biaya persediaan pada unit produksi SMK Warga Surakarta. *Performa: Media Ilmiah Teknik Industri, 18*(2), 125–134. https://doi.org/10.20961/performa.18.2.35418

Handoko. (1999). Metode EOQ digunakan untuk menentukan kuantitas pesanan persediaan yang meminimumkan biaya langsung penyimpanan persediaan. *Rekayasa, 10*(2), 65. https://doi.org/10.21107/rekayasa.v10i2.3606

Hani, T. (1984). TOC adalah biaya pemesanan yang dikalikan dengan jumlah pemesanan tiap tahunnya. *Jurnal Akuntansi dan Keuangan, 72.*

Hasibuan, S. P. (1984). Efisiensi merupakan perbandingan terbaik antara input (masukan) dan output (luaran): Menghasilkan hasil optimal dengan tidak membuang banyak waktu dalam proses pengerjaannya.

Heizer, J., & Render, B. (2011). Analisis pengendalian persediaan dalam hubungannya dengan efisiensi biaya di PT. Hitek Indo Mulia. *Citra Widya Edukasi Journal, 10*(1), 217–224. https://journal.cwe.ac.id/index.php/jurnal_citrawidyaedukasi/article/view/109/98

Karyawati. (2018). Analisis pengendalian persediaan bahan baku dengan menggunakan metode Economic Order Quantity pada CV. Citra Sari Makasar. *Jurnal Ekonomi dan Bisnis, 14*(5), 1–23.

Mulyamah. (1987). Pengertian efisiensi adalah suatu ukuran dalam membandingkan rencana penggunaan masukan dengan penggunaan yang direalisasikan atau penggunaan yang sebenarnya.

Sasongko, & Dkk. (2016). Pengertian persediaan adalah sejumlah barang yang harus disediakan oleh perusahaan pada suatu tempat tertentu. *Journal GEEJ, 7*(2), 6–18.

Triani, V. (2019). Analisis pengendalian persediaan bahan baku menggunakan metode Economic Order Quantity (EOQ) untuk meningkatkan efisiensi biaya persediaan pada PT. Diajeng Arcadia Trimitra tahun 2017–2018.