

## COVER LETTER

[Hanny Setyaningrum]  
[Telkom University]  
[Hannysetyaningrum@gmail.com]  
[081295403482]

[31 Maret 2024]

Dear,

I/We wish to submit an original research article entitled “[***Inventory Optimization Model Using Artificial Neural Network Method and Continuous Review (s,Q) at PT BEM Industry***]” for consideration by SINERGI.

We confirm that this work is original and has not been published elsewhere, nor is it currently under consideration for publication elsewhere. We promise not to withdraw this article after it has been processed by the Editorial Team. If there is a withdrawal, we are willing to pay a penalty of USD 150 (IDR 2000K) to the SINERGI Editorial Team.

In this paper, I/we report on / show that:

Field	:	Supply Chain Management
Topic	:	Inventory Management
Brief Background	:	PT BEM Industry has a sharp medical waste container product or often called a Safety Box. Where the safety box product has two items, namely inner and outer. In its management, the company experienced a buildup of finished goods in the warehouse due to the covid pandemic that occurred previously. The problem that occurs at PT BEM Industry is that safety box products that have been produced to support the logistics of medical devices in health facilities then accumulate in the warehouse because the demand for safety boxes has dropped significantly. The gap that occurs is due to higher inventory than demand, causing a buildup of finished goods in the warehouse. The prolonged accumulation of finished goods in the warehouse caused one of the safety box items to deform. There are several damaged products that cause losses to the company, amounting to Rp. 13,635,000.00. This loss cost is due to the accumulation of goods so that the product becomes damaged or shrinks. Based on the problems previously described, the solution provided is to plan demand

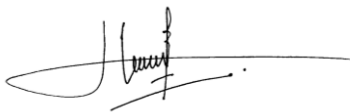
		forecasting and design a continuous review inventory system to reduce total inventory costs with to integrate and add variables of holding cost, ordering cost and repair cost caused by the accumulation of finished goods in the warehouse, where the objective function is to reduce the total inventory cost taking into account the repair items caused during the a.ccumulation of finished goods in the warehouse.
Research Problem	:	<ol style="list-style-type: none"> <li>1. What is the future demand forecast for safety box products at PT BEM Industry using the ANN method in inventory planning?</li> <li>2. What is the total inventory cost of safety box products at PT BEM Industry using the development of the proposed Continuous Review (s,Q) method model based on quantity orders and reorder points in inventory optimization?</li> </ol>
Overview of Method	:	<p>This research is a quantitative study, with the object of research is an assembly company that produces medical devices. The method used in this study to plan demand forecasting is the ANN method and to design inventory control is Continuous Review which is a continuous review policy to be monitored periodically to ensure that the availability of products and raw materials is sufficient with no excess or shortage of inventory. Data collection is taken from the company's secondary data consisting of demand data and inventory data for September 2020-April 2023 to be processed using the ANN method into demand forecasting results which will be used in designing inventory policies in the calculation of optimal order quantity and reorder points with iterations of the Hadley within model. After that, the calculation of total inventory costs is carried out by considering repair items on outer items to achieve the research objective of minimizing the company's total inventory costs by utilizing damaged products that can be repaired and resold into discount packages. The analysis in this study is carried out using the resulting regression value, while the inventory optimisation is carried out by calculating the conditions before forecasting and after forecasting to compare the total inventory cost in the initial condition, before forecasting and after forecasting which considers the repair item on the outer item.</p>
Significant finding	:	From the results it can be seen that before forecasting using the Continuous Review (s,Q) method, the resulting

reorder point value for Inner items is 239 units and Outer items is 42 units. After that, the optimal order quantity value generated for Inner items is 1257 units and Outer items is 189 units in the existing condition. Then in the proposal with forecasting using the Continuous Review (s,Q) method, the resulting reorder point value for Inner items is 235 units and Outer items is 41 units. After that, the optimal order quantity value generated for the Inner item is 1318 units and the outer item is 189 units in the forecasting condition. This reorder point value will be used to determine when the company will reorder the product. From the results of the order quantity and reorder point, there was a decrease in the total inventory cost on inner items by 84% from the initial total inventory cost of Rp6,745,333 / year and outer items decreased by 68% with the proposed total inventory cost of Rp12,032,254 / year. After demand forecasting, there was also a decrease from the initial total inventory cost on inner items by 83%, namely Rp7,026,213/year and outer items by 77% with a total inventory cost of Rp8,635,571/year. This research develops an inventory optimisation model that considers repair items due to the accumulation of goods in the warehouse by integrating holding cost, ordering cost and repair cost variables to develop inventory policies to be more effective and efficient and can utilise damaged products for repair and resale.

We have no conflicts of interest to disclose.

Thank you for your consideration of this manuscript.

Sincerely,  
[Hanny Setyaningrum]



## AUTHORSHIP STATEMENT

I/We wish to submit an original research article entitled “[*Inventory Optimization Model Using Artificial Neural Network Method and Continuous Review (s,Q) at PT BEM Industry*]” for consideration by SINERGI.

All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated sufficiently in work to take public responsibility for the content, including participation in the concept, design, analysis, writing, or revision of the manuscript.

<b>Author 1</b>	
Name	: Hanny Setyaningrum
Affiliation	: Telkom University
Email Address	: <a href="mailto:hannysetyaningrum@gmail.com">hannysetyaningrum@gmail.com</a>
<b>Author 2</b>	
Name	: Dr. Iphov Kumala Sriwana, ST,M.Si., IPM
Affiliation	: Telkom University
Email Address	: <a href="mailto:iphovkumala@telkomuniversity.ac.id">iphovkumala@telkomuniversity.ac.id</a>
<b>Author 3</b>	
Name	: Ilma Mufidah S.T., M.T., Ph.D.
Affiliation	: Telkom University
Email Address	: <a href="mailto:ilmamufidah@telkomuniversity.ac.id">ilmamufidah@telkomuniversity.ac.id</a>
<b>Author 4</b>	
Name	:
Affiliation	:
Email Address	:

## POTENTIAL REVIEWERS

Please send 3 (three) prospective reviewers (who are not yet registered in SINERGI) to speed up the review process who are competent for the topic and have a good reputation in the field. Please ensure that **they are willing to review** this paper.

<b>Reviewer 1</b>	:	
Name	:	Dr. Nunung Nurhasanah
Affiliation	:	Al Azhar University
Email Address	:	<a href="mailto:nunungnurhasanah@uai.ac.id">nunungnurhasanah@uai.ac.id</a>
Scopus url	:	<a href="https://www.scopus.com/authid/detail.uri?authorId=57194235241">https://www.scopus.com/authid/detail.uri?authorId=57194235241</a>
Google Scholar url	:	<a href="https://scholar.google.co.id/citations?user=0zqvnwgAAAAJ&amp;hl=id">https://scholar.google.co.id/citations?user=0zqvnwgAAAAJ&amp;hl=id</a>
<b>Reviewer 2</b>	:	
Name	:	Dr Lamto Widodo
Affiliation	:	Tarumanagara University
Email Address	:	<a href="mailto:lamtow@yahoo.com">lamtow@yahoo.com</a>
Scopus url	:	<a href="https://www.scopus.com/authid/detail.uri?authorId=57204293735">https://www.scopus.com/authid/detail.uri?authorId=57204293735</a>
Google Scholar url	:	<a href="https://scholar.google.co.id/citations?user=VHaH58gAAAAJ&amp;hl=en">https://scholar.google.co.id/citations?user=VHaH58gAAAAJ&amp;hl=en</a>
<b>Reviewer 3</b>	:	
Name	:	Dr. Nofi Erni
Affiliation	:	Esa Unggul University
Email Address	:	<a href="mailto:nofi.erni@esaunggul.ac.id">nofi.erni@esaunggul.ac.id</a>
Scopus url	:	<a href="https://www.scopus.com/authid/detail.uri?authorId=57200113777">https://www.scopus.com/authid/detail.uri?authorId=57200113777</a>
Google Scholar url	:	<a href="https://scholar.google.co.id/citations?user=8k9ofkQAAAAJ&amp;hl=en">https://scholar.google.co.id/citations?user=8k9ofkQAAAAJ&amp;hl=en</a>