INTERNATIONAL JOURNAL OF INNOVATION AND INDUSTRIAL REVOLUTION (IJIREV)

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GLOBAL ACADEMIC EXCELLENCE

SMART HALAL SUPPLY CHAIN PERFORMANCE: INDONESIA FISHERY PORTS SUSTAINABLE

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Article Info:	Abstract:
	Performance plays a crucial role in a company's survival, as it determines its success rate. We conducted this research to design performance measurements for a retail business in Fish Landing Ports, utilizing the Halal Supply Chain Operation Reference. This approach aims to gauge the current value of the company's performance and offer recommendations for potential improvements. Until now, the company has not conducted performance measurement across all its business process networks, focusing solely on product sales and profit value. Therefore, the company conducted research using the SCOR (Supply Chain Operation Reference) method based on Islamic values, with the expectation of measuring supply chain performance more objectively and in detail to create competitive advantages. We use the AHP (Analytical Hierarchy Process) method to assign weights to each criterion in the SCOR design. The supply chain performance measurement design yields its results. We obtain 22 metrics, five of which are based on Islamic values and categorised into five main business processes: plan, source, make, deliver, and return, drawing on literature and expert opinions for guidance. We carry out the assessment using a normalisation process to equalise the scale of values on each metric. The performance measurement results are very satisfactory, with a value of 91.713144. However, four metrics still have low values, indicating the need for improvement proposals. Furthermore, the plan has the highest

weight of 0.42, followed by deliver, source, and return, all of which have weights of 0.22, 0.22, and 0.14 respectively.

Introduction

Performance is a crucial determinant of the company's survival in the industrial sector. Performance refers to the level of achievement that an organisation attains to accomplish its goals. (Hartati & Efendi, 2016). Every industry must continuously enhance its performance to succeed in the competition (Ariani et al., 2014). One way to enhance a company's performance is by quantifying its value, thereby gaining insight into the extent of the company's performance level. The citation for this information is from Ridwan et al.- (2017).

One way to measure supply chain management success is to use the Supply Chain Operation Reference (SCOR) model, as suggested by Mutakin and Hubeis (2011). The SCOR model is a managerial tool that facilitates the handling, enhancement, and communication of supply chain management decisions within a firm with the goal of satisfying consumer demand. It accomplishes this by evaluating the company's reliability, responsiveness, flexibility, cost, and assets (Erkan & BAC, 2011). The Analytic Hierarchy Process (AHP) is a very efficient approach or instrument for making decisions on a range of intricate problems. This is achieved by streamlining the process of finding solutions to the challenges we face (Saaty, 1993).

The study was conducted in Indonesia's fishery ports, which are situated in various marine areas of the country. Given this industry's importance, the Indonesian government prioritizes empowering fishermen to strengthen the country's economy. To manage and provide assistance to fishery and marine operations, the government has established the Ministry of Maritime Affairs and Fisheries (KKP), which supervises multiple fishery ports throughout the nation. Indonesia Fishery Ports has not previously assessed the SCM Company's performance. Therefore, we conducted this study to evaluate the supply chain management performance at Indonesian fishery ports. Assessments was based on SCOR and AHP methodologies, with Islamic values serving as the foundation for continuous improvement considerations (Ahmad et al., 2019). Given the provided background information, we can formulate the problem as follows: How does the performance value of the supply chain in Indonesian fishery ports, based on the Islamic value, align with the supply chain operation reference (SCOR) model? How can we improve the performance of the supply chain in Indonesian fishery ports while considering Islamic values?

Literature Review

According to Indrajit and Djokopranoto (2003), the supply chain is a complex system of interconnected and interdependent organisations that work together to control, manage, and enhance the flow of goods and information from suppliers to end users. An efficiently managed supply chain ensures the production of cost-effective, superior-quality, and punctual products, thereby meeting the demands of the target market and generating profits for the organization. Li et.al. (2011) defines supply chains as a systematic strategy for enhancing performance by

leveraging the opportunities arising from interactions with suppliers and customers. Halal refers to anything that is permissible to ingest according to Islamic Shariah law. Humanity should consume only what is permissible and beneficial from the planet's resources and refrain from imitating Satan's actions, since he is a clear adversary (Suhairi et al., 2023).

Until now, the concept of halal has mostly centred around products that are suitable for human consumption, including food and drinks (Ibrahim et al., 2023). Furthermore, halal is constantly evolving, to the point that the supply chain process becomes a matter of concern because it involves incorporating Islamic values into the process. Inventory management, raw material sourcing, transportation logistics, product handling and delivery, and supply management are among the activities involved in halal supply chain management (Ngah et al., 2014).

This study includes five measures derived from Islamic ideals, as previously indicated by the sources.

The product undergoes a certification inspection and bears a halal logo.
Prior to the procurement process, we conduct the product certification assessment to ensure that the product is genuinely 100% halal and compliant with Islamic Shariah, making it suitable for consumption or use by the Muslim community.

The product is halal certified.
Indonesia Fishery Ports guarantees the 100% halal status of its products. This is A thorough certification and verification process ensures the authenticity of the products. products are suitable for domestic consumption as well as for use as raw materials in the production of export-ready goods.

Transactions are free from Riba.
Indonesia Fishery Ports conducts transactions by making a lump-sum cash payment for the agreed-upon price, without any additional interest or outstanding debt.

The product warranty does not apply to non-halal items.
To avoid contamination from dirt that could cause damage, keep the product warranty separate from routine cleaning of warehouses and transportation equipment.

Transportation equipment hygiene
Transportation equipment undergoes frequent hygienic cleaning, both before and after the distribution procedure. It is crucial to minimize the likelihood of the product encountering dirt while in the car.

The Supply Chain Council (SCC), an independent non-profit organisation, created the conceptual model known as SCOR, or Supply Chain Operation Reference (Analia & Aviasti, 2021). It serves as an inter-industry standard with the goal of improving supply chain comprehension and achieving effective and efficient supply chain management. Within a cross-functional supply chain framework, the approach incorporates three essential management components: business process reengineering, benchmarking, and process measurement. These three elements perform the following functions:

Business process reengineering entails documenting and analyzing the current complicated processes, then designing the desired procedure; Benchmarking is the process of gathering operational performance data from firms that are similar in nature. Benchmarking against the highest level of achieved performance subsequently establishes internal targets; Supply chain processes use process measurement to gauge, regulate, and enhance them.

SCOR categorises supply chain processes into five fundamental stages: plan, source, make, deliver, and return (Analia & Aviasti, 2021).

Plan is the strategic process of aligning the demand and supply factors to establish the optimal course of action for procurement, production, and delivery. The plan encompasses several activities, such as distribution needs analysis, inventory planning and control, production planning, material planning, capacity planning, and aligning the supply chain plan with the financial plan.

Source refers to the acquisition of commodities or services to fulfil demand. The source encompasses several operations, such as coordinating the delivery of items from suppliers, receiving, and inspecting the supplied goods, approving payment for the suppliers, selecting suppliers, assessing their performance, and more. The nature of the procedure may differ depending on whether the commodities purchased consist of stocked, make-to-order, or engineer-to-order products.

Make is the process of converting raw materials or components into completed products that meet the desires of consumers. We might carry out the manufacturing process based on predictive models to reach the desired stock levels (make-to-stock), based on customer orders (make-to-order), or based on specific engineering requirements (engineer-to-order). The manufacturing process involves a variety of operations, including scheduling production, executing production activities, performing quality checks, managing work-in-progress, maintaining production facilities, and more.

Deliver refers to the act of satisfying demands for products or services. The activities involved in the delivery process encompass order administration, transportation, and distribution. The delivery process involves managing client orders, selecting delivery providers, overseeing finished product inventory, and issuing customer invoices.

Return refers to the act of bringing things back for a variety of reasons. The activities involved in the return process include assessing the state of products, obtaining authorization for defective returns, arranging return schedules, and executing the returns. Post-purchase customer assistance is an integral component of the return procedure.

Methodology
The Indonesian Fishery Ports conducted the study, specifically focusing on the Fish Landing Ports with Type D in East Java. These 38 fish landing ports (PPI) are known for their significant role in facilitating the fish supply chain, from fishermen to fish suppliers for further processing. This study uses primary data collected through direct field investigations of the research subjects. This inquiry requires firsthand knowledge from interviews and questionnaires, with a

specific focus on gathering information about the supply chain system of Indonesian fishery ports (Anjar et al., 2021). We conducted field investigations, which involved a variety of activities. We expect respondents to answer a predetermined list of written questions in a questionnaire. This investigation necessitates the participation of a solitary respondent who possesses expertise in the company's supply chain. This study bases its questionnaire on the examples (Saaty, 1994).

The questionnaire compares criteria and alternatives, specifically the indicator of halal business processes. The library study comprises deductive and inductive investigations into performance metrics using SCOR and AHP methodologies, as well as information pertaining to Halal Supply Chain Management. The purpose of deductive research is to gather comprehensive knowledge on the theories of SCOR, AHP, and Halal supply chain management methodologies (Himawan, 2018). The process of collecting data involves establishing a supply chain framework and identifying criteria and alternative sub-criteria indicators for research purposes. Once we acquire the data, we conduct data processing by determining the weight of the criteria indicator and the sub-criteria for alternatives, and then calculate the total value of supply chain management performance in the organization. We conduct validation to ascertain whether the results of the calculation match the anticipated outcomes. If they do, the analysis of the results can proceed. If not, it's necessary to reassess the indicators of the relevant criteria.

Analysis & Result

The goal of this measurement is to gather data on the state of the supply chain in Indonesian fishery ports, utilizing the Supply Chain Operation Reference methodology. The Supply Chain Operations Reference (SCOR) approach acknowledges five processes at the highest level, yet the Fish Landing Port (PPI) only employs four of these processes. This is because the company does not involve itself in the manufacturing process. Instead, they exclusively deal with the sale of raw material products, which undergo further processing at various ports located outside the main port. First, the procedure at hand refers to the strategic organization of product procurement and supply. Second, origin the procedure pertains to the procurement of goods, suppliers, and product purchases. Third, transport: This procedure pertains to the storage and distribution of products to consumers. And last stage, give back or bring back. The process involves returning defective products received by the company to the supplier and returning advertised products from the consumer to the company.

The second-level hierarchy of the supply chain for Indonesia's fishing ports is shown below: 1. The plan and the source plan are similar, focusing on the procurement process, product acceptance, and product inspection for each outlet. 2. The source-stocked product pertains to the procurement, acquisition, evaluation, and distribution of incoming products, as well as the selection of suppliers. 3. Facilitate retail product distribution by ensuring the efficient delivery of goods to their designated outlets while also ensuring the availability of suitable transportation methods. 4. Deliver return defective products refers to the process of returning a faulty product from the consumer to the manufacturer. This can be due to either physical flaws in the product or it being past its expiration date. The performance aspects of the supply chain hierarchy rely only on external elements of the organization, as outlined below: 1. *Reliability,* 2. *Responsiveness,* 3. *Flesibility*

Fish Landing Ports Business Process Mapping with SCOR Approach.

A corporation must effectively manage three key supply chain flows: the physical movement of products from one location to another, the financial transactions between different entities, and the exchange of information among several departments or entities (Helia, 2012). After presenting the supply chain of Fish Landing Ports (PPI), we conducted a more detailed analysis of the business process using the SCOR approach, as illustrated in the table below.

Tabel 1. Mapping Analysis of the Business Process Fish Landing Ports

No	Business Process	SCOR Level 1	SCOR Level 2	Unit
1	Plan	*Plan*	*Plan source*	MD
2	Procurement	*Source*	*Source stocked product*	MD
3	Material Handling	*Source*	*Source stocked product*	Warehouse
4	Distribution	*Deliver*	*Deliver stocked product*	Warehouse
5	Return	*Return*	*Return defect product*	Warehouse

Source: Author (2023)

The planning process is included in the *plan* at level 1 and *the source plan* at level 2. Then for the procurement process, receipt and storage are included in the *source* at level 1 and *source stocked product*. Furthermore, the distribution process is included in *delivering* at level 1 and *delivering stocked products* at level 2. And return is included in *return* at level 1 and *return defect product* at level.

Tabel 2. Matrix Performance Fish Landing Ports

No	SCOR Level 1	SCOR Level 2	Performance Attributes	Matrix
1	*Plan*	*Plan source*	*Reliability*	
				Accuracy of product procurement planning (%)
2				*Inventory inaccuracy*
3				*Warehouse utilization (%)*
4				Inspection of halal certification and logo on products
5				The products sold are halal products
6			*Responsiveness*	
				Product Procurement Process Planning Time
7	*Source*	*Source stocked product*	*Reliability*	Percentage of defective products returned to *suppliers* (%)
8				The percentage of the number of requests that suppliers can meet *(%)*
9				Percentage of shortage of units sent by *suppliers*

No				
10				Completeness of order letter
11				Transactions not using Riba
12				Product guarantee is not contamination with non-halal products
13				Percentage of products stored in accordance with FIFO and FEFO
14			*Responsiveness*	Lead time (the time between when the company places an order and the company receives the product)
15			*Flexibility*	Supplier availability
16	*Deliver*	*Deliver*	*Reliability*	The level of 157ulfilment of consumer demand
17				Cleanliness of transportation
18				Timely delivery of products to consumers
19			*Responsiveness*	Ease of obtaining product information
20	*Return*	*Return defective product*	*Reliability*	Number of complaints received by the company
21				Number of defective products returned to the company
22			*Responsiveness*	Return time of defective products

Source: Author (2023)

Matrik Supply Chain Fish Landing Ports Performance

Supply chain performance measurement conducted at Fish Landing Ports uses 22 metrics that will be measured and verified by the company.

Tabel 3. Matrix Performance Point Fish Landing Ports

No	Matrix	Performance Points	Target	Gap
1	Accuracy of product procurement planning (%)	75	100	25
2	*Inventory inaccuracy*	57	100	43
3	*Warehouse utilization (%)*	100	100	0
4	Inspection of halal certification and logo on products	100	100	0
5	The products sold are halal products	100	100	0
6	Product Procurement Process Planning Time	100	100	0
7	Percentage of defective products returned to *suppliers* (%)	100	100	0
8	The percentage of the number of requests that suppliers can meet *(%)*	57	100	43
9	Percentage of shortage of units sent by *suppliers*	58	100	42
10	Completeness of order letter	100	100	0
11	Transactions not using Riba	100	100	0

12	Product guarantee is not contamination with non-halal products	100	100	0
13	Percentage of products stored in accordance with FIFO and FEFO	100	100	0
14	Lead time (the time between when the company places an order and the company receives the product)	100	100	0
15	Supplier availability	0	100	100
16	The level of fulfillment of consumer demand	100	100	0
17	Cleanliness of transportation	100	100	0
18	Timely delivery of products to consumers	100	100	0
19	Ease of obtaining product information	100	100	0
20	Number of complaints received by the company	100	100	0
21	Number of defective products returned to the company	100	100	0
22	Return time of defective products	100	100	0

Source: Author (2023)

Analytical Hierarchy Process (AHP) is a tool used to compare which indicators or factors are the most important through weighting calculations on each performance indicator by distributing questionnaires to experts. The person who is considered an expert in the Fish Landing Ports (PPI) supply chain process is the manager. In this study, weighting was carried out at level 1 to level 3. At the level one criterion that are compared are *plan*, *source*, *deliver* and *return*. Then for level 2 the criteria compared are *reliability*, *responsiveness,* and *flexibility*. For level 3 the criteria compared are all performance indicators.

Tabel 4. Analytical Hierarchy Process Points Performance Fish Landning Ports

No	SCOR	Performance Attributes	Matrix	Periodic	Actual Score (Si)	Min.Score (Smin)	Max.Score (Smax)	Total
1			Accuracy of product procurement planning (%)	Week	95%	80%	100%	75%
2	*Plan*		*Inventory inaccuracy*	Week	1.7	2	0	57
3		*Reliability*	*Warehouse utilization (%)*	Week	100%	0	100%	100%
4			Inspection of halal certification and logo on products	Week	1	0	1	100
5			The products sold are halal products	Week	100%	0	100%	100
6		*Responsiveness*	Product Procurement Process Planning Time	Week	1	0	1	100
7	*Source*	*Reliability*	Percentage of defective products returned to *suppliers* (%)	Week	0%	0	1%	100%

8		The percentage of the number of requests that suppliers can meet *(%)*	Week	96.70%	91.30%	100%	57%
9		Percentage of shortage of units sent by *suppliers*	Week	3.33%	0	8%	58
10		Completeness of order letter	Week	1	0	1%	100
11		Transactions not using Riba	Week	1	0	1	100
12		Product guarantee is not contamination with non-halal products	Week	100%	0	100%	100
13		Percentage of products stored in accordance with FIFO and FEFO	Week	100%	0	100%	100
14	*Responsiveness*	Lead time (the time between when the company places an order and the company receives the product)	Day	1	0	3	66
15	*Flexibility*	Supplier availability	Week	1	1	4	0
16	*Deliver*	The level of fulfillment of consumer demand	Week	1	0	1	100
17	*Reliability*	Cleanliness of transportation	Week	1	0	1	100
18		Timely delivery of products to consumers	Week	1	0	1	100
19	*Responsiveness*	Ease of obtaining product information	Week	1	0	1	100
20	*Return*	Number of complaints received by the company	Day	0	1	0	100
21	*Reliability*	Number of defective products returned to the company	Day	0	1	0	100
22	*Responsiveness*	Return time of defective products	Day	0	1	0	100

Source: Author (2023)

Tabel 5. Final Score Of Performance Attributes

No	SCOR	Points	Performance Attributes	Points	Matrix	Points	Score	Score X Points	Total of Each Dimension Points
1	*Plan*	0.426046			Accuracy of product procurement planning (%)	0.118119012	75	8.8589259	93.687907
2					*Inventory inaccuracy*	0.078119012	57	4.452783684	
3					*Warehouse utilization (%)*	0.135646847	100	13.5646847	
4			*Reliability*	0.66666667	Inspection of halal certification and logo on products	0.28762533	100	28.762533	
5					The products sold are halal products	0.380489799	100	38.0489799	
6			*Responsiveness*	0.33333333	Product Procurement Process Planning Time	1	100	100	100
7	*Source*	0.208153	*Reliability*	0.5888889	Percentage of defective	0.157459615	100	15.7459615	86.060074

No	SCOR	Points	Performance Attributes	Points	Matrix	Points	Score	Score X Points	Total of Each Dimension Points
					products returned to *suppliers* (%)				
8					The percentage of the number of requests that suppliers can meet *(%)*	0.201621572	57	11.4924296	
9					Percentage of shortage of units sent by *suppliers*	0.125480922	58	7.277893476	
10					Completeness of order letter	0.08305174	100	8.305174	
11					Transactions not using Riba	0.072065736	100	7.2065736	
12					Product guarantee is not contamination with non-halal products	0.300362678	100	30.0362678	
13					Percentage of products stored in accordance	0.059957739	100	5.9957739	

No	SCOR	Points	Performance Attributes	Points	Matrix	Points	Score	Score X Points	Total of Each Dimension Points
					with FIFO and FEFO				
14			*Responsiveness*	0.25185185	Lead time (the time between when the company places an order, and the company receives the product)	1	100	100	100
15			*Flexibility*	0.15925926	Supplier availability	1	0	0	0
16	*Deliver*	0.2260101			The level of fulfillment of consumer demand	0.2	100	20	100
17			*Reliability*	0.75	Cleanliness of transportation	0.2	100	20	
18					Timely delivery of products to consumers	0.6	100	60	
19			*Responsiveness*	0.25	Ease of obtaining	1	100	100	100

No	SCOR	Points	Performance Attributes	Points	Matrix	Points	Score	Score X Points	Total of Each Dimension Points
					product information				
20	*Return*	0.139791			Number of complaints received by the company	0.833333333	100	83.3333333	100
21			*Reliability*	0.66666667	Number of defective products returned to the company	0.166666667	100	16.6666667	
22			*Responsiveness*	0.33333333	Return time of defective products	1	100	100	100

Source: Author (2023)

SCOR Final Score
After calculating each matrix above, then calculate the final value of performance using SCOR, but previously the calculation of the final value of performance attributes was carried out which aims to determine the value of each metric scope. To calculate the final value of performance attributes is to multiply the scores and weights of each performance attribute, the following stages are seen in the Table.

Tabel 6. SCOR Final Score

No	Score	Points	Performance Attributes	Points	Total of Each Dimension Points	Nilai Akhir Atribut Kinerja	Total Nilai Atribut Kinerja	SCOR Final Score
1	*Plan*	0.42604618	*Reliability*	0.66666667	93.68790716	62.45860509	95.79193811	40.81178931
2								
3								
4								
5								
6			*Responsiveness*	0.33333333	100	33.333333		
7	*Source*	0.20815296	*Reliability*	0.58888889	86.0600737	50.67982127	75.86500636	15.79152563
8								
9								
10								
11								
12								
13								
14			*Responsiveness*	0.25185185	100	25.185185		
15			*Flexibility*	0.15925926	0	0		
16	*Deliver*	0.2260101	*Reliability*	0.75	100	75	100	22.60101
17								
18								
19			*Responsiveness*	0.25	100	25		
20	*Return*	0.13979076	*Reliability*	0.66666667	100	66.666667	100	13.979076
21								
22			*Responsiveness*	0.33333333	100	33.333333		
			Total					93.18340094

Source: Author (2023)

Each metric has a different value so normalization must be done to equalize the scale of values. The value of the normalization result ranges from 0-100 with the lowest value is 0 and the highest value is 100. In addition, there are the best values (maximum) and worst values (minimum) which are determined through interviews with *experts* and obtained from data contained in the Company on several metrics.

The results obtained based on calculations using the *supply chain operations reference* approach, Fish Landing Ports (PPI) have a value of 93.183401 from a scale of 0-100 where the value is included in the very good category (*excellent*). Although the overall value of Fish Landing Ports (PPI) is very good, there are several performance metrics that still have performance that is only in the average category, which is as follows:

Tabel 7. SCOR Approach Fish Landing Ports

No	Matrix	Performance Score	Target	Gap
1	Inventory inaccuracy	57	100	43
2	Show the number of requests that suppliers can fulfill.	57	100	43
3	The presentation of missing units sent by suppliers	58	100	42
4	Supplier Availability	0	100	100

Source: Author (2023)

The supplier availability metric *has* the lowest value of 0, this is because in certain products, the company only has 1 *supplier* such as daily fisherman and domestic distributor, which are companies used for research. The *inventory inaccuracy* metric has the lowest value of 57, this is likely due to *human error* or product impastation errors when the warehouse department receives products due to too many products received. Then for the next two metrics, namely the percentage of the number of requests that can be met by *suppliers* and the percentage of lack of units sent by suppliers, and the accuracy of planning has performance values of 57, 58, and 75. This is because *suppliers* are not always able to fulfill product orders because the products ordered are not always available or are out of stock so *suppliers* cannot fulfill orders from the company.

Furthermore, there are metrics that have a perfect value of 100 from a scale of 0-100, the first is *warehouse utilization* metric has a performance value of 100, this is because companies can utilize warehouses very well. Both halal certification checks, and *expiration* times are because the company always checks and ensures that the products it will buy have MUI halal certification and have a long *expiration* period so as not to harm consumers and not harm the company. The third halal product sold, the metric has a performance value of 100 because the company has ensured and guaranteed that the product it sells is the supplier availability metric *has* the lowest value of 0, this is because in certain products, the company only has 1 *supplier* such as daily fisherman and domestic distributor, which are companies used for research. The *inventory inaccuracy* metric has the lowest value of 57, this is likely due to *human error* or product impastation errors when the warehouse department receives products due to too many products received. Then for the next two metrics, namely the percentage of the number of requests that can be met by *suppliers* and the percentage of lack of units sent by suppliers, and

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Fourteenth the number of complaints received by the company, the number of defective products returned to the company and the time of returning products from consumers to companies these metrics have a performance value of 100 because so far the company has never received complaints or product returns from consumers which means the services provided by the company through Fish Landing Ports (PPI) are satisfactory, Then for the time it takes by the company to return the defective product that is right at the time the consumer makes a return.

Conclusion

Based on measurements using the normalization process that has been carried out, there is a metric that has the lowest value, namely *supplier* availability with a value of 0. In this metric, the company only has 1 *supplier*, meaning the company often does not have a specific product. In addition, the supplier availability metric also has an impact on the percentage of procurement fulfillment from *suppliers* with a value of 57. This study took the 3 largest *fishery suppliers*, daily fisherman and domestic distributor. Then the next is the *inventory inaccuracy metric* where there is a deviation in the number of products recorded in the system and the actual number of products in the warehouse. This happens because there are various reasons, one of which is human *error* due to too many products in the warehouse and system, this can be improved by improving employee performance by dividing work according to product types, so that each employee can be more focused and more thorough. Then inputting using *barcodes* can also be an alternative to be able to reduce input errors in the system.

Acknowlededgment

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