

Improvement of Administrative Management Warehouse at PT BHJ Using Fishbone Diagram

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Abstract:- TBB one of the biggest stores in PT BHJ or PT SBP which is a supplier of accessories products in Indonesia. Products at TBB are finished and semi-finished goods that are imported in large quantities, so they require more space. TBB has various types and sizes of products that are stored in limited warehouses. The buying and selling process often experiences problems when searching for products, one of the reasons is the WMS that has not been running well. The first step in improving WMS is to find the root of the problem using a Fishbone diagram and then analyzing it using 5W1H. the results of the study stated that there was no Jobdesk and work SOPs because there was no special leader for warehouse operations which causes WMS not to run.

Keywords:- WMS; Fishbone; Warehouse; Stock.

I. INTRODUCTION

The business world, which is engaged in the sale and distribution of goods, is expected to always have sufficient supplies to meet market needs. Business people are ready to make every effort to maintain the continuity of business activities and are required to prepare themselves optimally and are ready to be competent. Toko Bintang Baru (TBB), one of the largest stores in PT Bintang Hartono Jaya (BHJ), which is currently changing its name to PT Sumber Bintang Perkasa (SBP). The existence of a company, either a distribution company or a manufacturing company, is seen from the availability of goods and the quality of product information. It aims to support a superior system by prioritizing the efficiency of the company's resources (Wibisono, 2006).

According to Chopra & Meindl, (2015), there are 6 decisive parts whether or not the quality of a company's supply chain is: factories, warehouses, information, transportation, pricing & sourcing. BHJ warehousing management activities are divided into 3 main activities, namely: receiving, handling, and shipping (James A. Tompkind, et al, 2010). Handling warehousing management is closely related to information systems/administration, layout/layout and product control. Warehouse management is very necessary so that the supply chain flow can run well (Rahardjo, 2017).

The following is some information obtained from the team of workers in the warehouse which is quite diverse:

1. Warehouse conditions are not tidy, some items do not have identity codes
2. The arrangement is stacked in layers making it difficult workers when searching for goods.
3. The same goods are in several places
4. Slow moving goods and even more than the last 3 years there is no demand to make the warehouse full
5. Inventory data system and physical do not match.
6. The rules will change if the warehouse leader changes

Products that enter the warehouse are arranged according to the FIFO (*First In First Out*) system, so that the products to be sent are in the lowest order and the ones at the top must be removed first (*out of block*). The manual *handling* process takes about ± 20 minutes per item to move the items to be released. Inventory Management Information System is a system to find out the stock of goods in a warehouse where the inventory is (Fahrizal, Hidayatullah, Marhaeni, 2016). In fact, the inventory recording system has not been implemented perfectly. This was marked by the discovery of several technical and non-technical errors. Technical errors that often occur are misplacement of the location of goods resulting in a buildup of goods in one area or the placement of goods that are not good and neat.

Fishbone diagram or causal diagram is a visual tool used to identify and analyze a process or situation and find possible causes of a problem / problem that occurs (Tjiptonono and Diana, 2001). Fishbone analysis was invented by a Japanese scientist in the 60s. Named Dr. Kaoru Ishikawa, a scientist born in 1915 in Tokyo Japan who is also alumni of chemical engineering at the University of Tokyo.

From the problems above, then formulate the problem as follows:

1. How to Group and Place Items in
2. What are the steps and improvements made in implementing the *Warehouse Management System* strategy at PT.BHJ Warehouse?

The aim of this research is:

1. Create and implement a standard that regulates activities in the warehouse that has been agreed upon by company management in the form of a *Standard Operating Procedure* (SOP).
2. Made some changes to support the efficiency of activities in the warehouse

II. LITERATURE REVIEW

A. Warehousing Management

Warman (2012), warehouse is a building used to store merchandise. Warehouse is a place that is used to store goods in the form of raw materials, semi-finished goods and finished goods. The following types of warehouse categories are based on the type of goods:

1. Raw material warehouse
2. Warehouse for semi-finished goods or *work in process*
3. Warehouse of finished goods or *finished goods*

The understanding of the warehousing management system itself according to Warman (2012) is an information system regarding warehousing management that is used to control the activities in the warehouse starting from receiving (*receiving*), storing goods (*putaway*), moving (*moving*), picking (*picking*), and shipping (*shipping*). The main purpose of the warehousing management system is to control the movement of entry, entry, storage and retrieval of goods effectively and efficiently, with the ease and accuracy of stock information in the warehouse.

B. Warehouse Management

According to Sanders (2012), the traditional role of the warehouse is to provide space for storing goods, as well as transportation in and out of goods. This is because warehouse efficiency is inseparable from innovation in the storage and distribution of goods. In traditional warehouse management, each item received is not grouped according to its characteristics but based on its arrival. Thus, storage costs can be more expensive and the time required for delivery becomes longer.

Meanwhile, in modern warehouse management, goods are grouped based on their characteristics so that delivery is based on their needs. Thus, storage costs are relatively lower and the time required for delivery is faster. Warehouse *Inventory* management plays an important role in warehouse handling, such as: how to estimate the average inventory that will affect the value of future products or the value of existing products (Eddy Nugroho, R., & Resodiharjo, M. (2021).

Rahardjo (2017) explains that *warehouse management system* and distribution have an important role in the supply chain. Apart from the effectiveness obtained from all supporting activities, warehouse and distribution management has an influence in determining the level of service to customers.

C. Goods Storage

In the storage of goods in the warehouse there are 2 techniques which consist of the layout of goods and a *racking system*.

1. Layout

Heizer dan Render (2014) say that layout is an important design that tries to minimize total cost by finding the best guide between space area and material handling. Layout is an

important decision that determines the efficiency of an operation in the long run. layout has many strategic impacts because the layout determines the competitiveness of the company in terms of capacity, process, flexibility, and cost, as well as the quality of the work environment, customer contacts, and company image.

Layout is an integrated system among all facilities that support all production activities from raw materials or input to (output) so that during the process it can achieve an added value in the form of efficiency and effectiveness of the company's operations so that the production process can run smoothly. The classification of the flow velocity of the flow of goods where the goods will be divided into 3 kinds, namely:

- a. *Slow Moving*. Goods are placed in the most difficult part of the warehouse to reach, with the reason that this item rarely experiences goods movement
- b. *Medium Moving*. Goods with moderate flow of goods, not too fast and not too slow. Usually this item is in the warehouse longer when compared to other items
- c. *Fast Moving*. Items are placed in a fairly open section so that it can be easier to take goods.

2. Racking System

According to Warman (2012), the shelf serves to increase warehouse capacity without the need to widen the warehouse.

Many shelves take advantage of the multilevel concept with a certain height to increase capacity items that can be stored. The purpose of the shelving system is to increase warehouse capacity without widening the warehouse. There are two kinds of shelves, namely:

- a. Permanent Shelf is a shelf that has a fixed building construction that cannot be moved to another section.
- b. Temporary Shelves consist of rack construction that can be moved or dismantled when not needed.

III. RESEARCH METHOD

A. Fishbone Diagram

Fishbone diagram or causal diagram is a visual tool used to identify and analyze a process or situation and find possible causes of a problem / problem that occurs (Tjiptonono and Diana, 2001). To obtain data in this information system used several methods, including:

1. Observation method. The observation method is carried out by observing the activities that occur from incoming goods to outgoing goods. In addition, it also records data regarding the general characteristics of the categories of goods in the warehouse.
2. Interview method. The interview method was carried out with questions and answer method to dig in depth information by the researcher personally with the source or helper / admin and supervision
3. Literature method. This literature method is carried out by conducting a literature study through reference books to obtain data related to the title of the final project that the author took.

The benefits of using the fishbone diagram include:

1. Looking for root cause information from the closest team or executor
2. Make a summary / summary or description of the problem.
3. Determine the most influential problem topics
4. Describe in more detail the problems found

B. Root Cause Analysis

Root Cause Analysis (RCA) is a problem solving method that aims to identify the root cause of a problem or event. The practice of *Root Cause Analysis* (RCA) is based on the belief that problems – problems are best solved by fixing or eliminating the root cause, not just for the immediate overcoming obvious symptoms. The causal factors obtained as a result of identification with RCA are several problems that have the potential to create waste (Habib, 2012).

C. Operations Variabel

This research is included in descriptive research, considering that the descriptive design of this study aims to describe the layout that is being applied to the research subject along with the variables that are considered to be related to the warehouse layout, as follows:

Variable	Indicator
5W1H	Space requirement
Goods Storage	Ranking System

Table 1:- Variable

IV. RESULTS AND DISCUSSION

A. Analysis & Data Collection

1. Primary Data

Primary data obtained through discussions and interviews through FGD (*Focus Group Discussion*):

• Fish bone

The purpose of Fishbone diagram is to define the problem using (man, machine, method, materials).

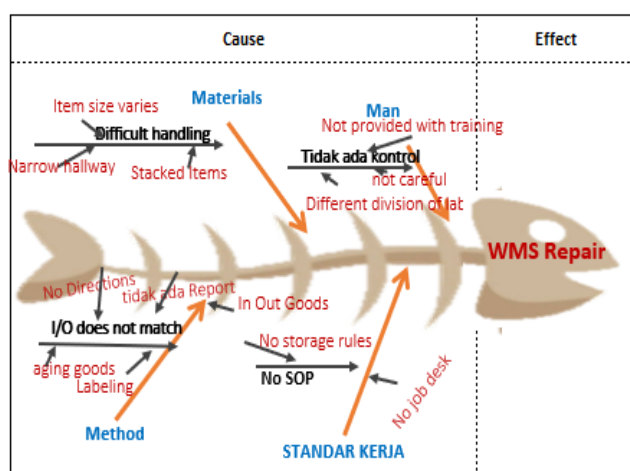


Fig 1:- Fishbone Diagram

After knowing the outline of the main factors causing the warehouse management system not to work well, then proceed to dig deeper information to find out the root cause of the problem with *5 why analysis*.

• 5 why:

The purpose of the 5 why analysis is to find all the root causes of the problem, by asking the cause 5 times. As in the following table:

Sub-Cause	Man Worker Mentality	Materials Too much inventory	Method Inaccurate I/O data	Machine Difficult Handling
Why-1	Not careful	Some seasonal products	Process Flow is not clear	Stacked goods
Why-2	Work hard	Prices tend to be constant	No group labeling	The position of the item is not neat
Why-3	Not provided with training	Storage too long	No goals/sanctions	Item sizes vary greatly
Why-4	No directions/briefings	Poor product quality	Work without rules	Random layout
Why-5	No permanent leader	FIFO not working	There is no Jobdesk / work SOP	No cubic calculation
Root Cause	No permanent leader	FIFO not working	There is no Jobdesk / work SOP	No cubic calculation

Table 2:- 5 Why Analyst

The main factor causing the *mans* or the worker caused by worker mentality, machine factor caused too much inventory, method factors caused by inaccurate In Out data and material factors in.

• Root Cause analysis

From the results of the Root Cause analysis, the following actions. The improvements to be made are as follows:

Cause	Sub-Cause	Root Cause	Repair proposal
Man	Worker Mentality	No permanent leader	Looking for experienced workers in warehouse
Materials	Too much inventory	FIFO not working	Doing a warehouse cleaning promo
Method	Inaccurate I/O data	There is no Jobdesk / work SOP	Make SOP and Jobdesk for workers
Machine	Difficult Handling	No cubic calculation	Procurement of shelves and handling aids

Table 3:- Root Cause Analyst

2. Secondary Data

Secondary data is obtained from company data:

Year	Cont	Request	Selling	Stock	UOM
2019	31	17.042	16.735	3.088	Koli
2020	15	8.260	5.861	2.707	Koli
2021	33	18.268	17.102	3.873	Koli

Table 4:- Goods Movement

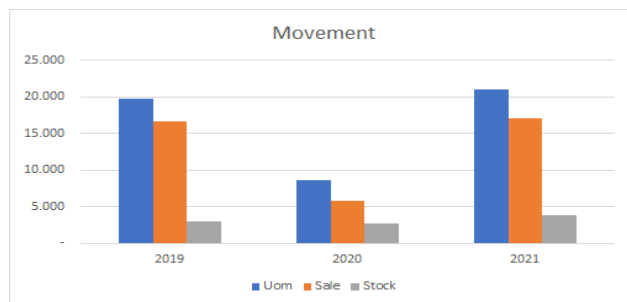


Fig 2:- Goods Movement Chart

From the graph above, it can be seen that goods from 2019 to 2020 have decreased, this is caused by the *Covid-19 pandemic*. In 2021 business conditions began to improve, so that the position of the movement of goods was almost the same and balanced with 2019.

B. Store or Warehouse Area

The position of the Store Warehouse is arranged as shown in the picture. Each item is neatly displayed on the floor and some are arranged in layers with the aim of saving space and space.

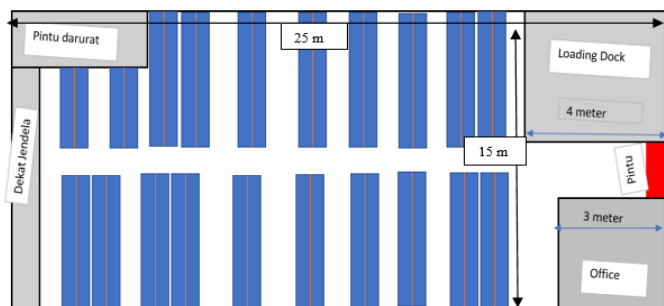


Fig 3:- Storage Layout

Warehouse area $\pm$ 375 meters. Inside the warehouse there is an office space, a *loading dock* area, a display area/storage of goods and an empty line separating displays.

C. Request for goods within 1 week

The number of product sales in a 1 week period is as shown in the table below:

Category	Description	2021	UoM	Dimensions (m)			Large (meter)
				L	W	T	
Brooch	Women's fashion	114	Koli	0,60	0,45	0,35	31
Patch	Crown/head decoration	34	Koli	0,90	0,70	0,55	22
Pinch	Hairpin	208	Koli	0,85	0,50	0,40	88
Rubber	Hairband	175	Koli	0,85	0,70	0,45	104
Necklace	Necklace	34	Koli	0,60	0,45	0,35	9
General	General Products	69	Koli	0,85	0,60	0,45	35
Total		634	Koli				289

Table 5:- Space Requirement

Sales in 1 week $\pm$ 634 koli with a total space requirement of 289 m outside the aisle requirement.

V. CONCLUSIONS AND SUGGESTIONS

A. Conclusions

From the results of the discussion in this study, it can be concluded that:

1. *Warehouse management system (WMS)* has not been running well due to:
 - a. *Man / worker*: because the workers are not experienced in the warehouse
 - b. *Materials*: due to the diverse number of products where the FIFO release system is not yet running
 - c. *Method*: due to incoming goods data and goods out inaccurate
 - d. *Machine*: because the goods arrangement system is still manual and space or space is limited
2. Total goods sold in 1 week, estimated $\pm$ 634 koli with a total space requirement of 289 m (excluding hallway requirements). With a total warehouse area of 375 m², it is assumed that the area of this warehouse is insufficient, where in addition to goods sold, the store or warehouse must keep a stock of approximately half of the average sales in a week. This is so that the store does not run out of goods when there are buyers who come to visit the store

B. Suggestion

From the results of the discussion in this study, the suggestions Authors:

1. To improve the *Warehouse management system (WMS)* which is not running well, it is hoped that:
 - a. *Man / worker*: looking for experienced workers and provide training Machine
 - b. *Materials*: holding a warehouse cleaning promo
 - c. *Method*: make SOP and Jobdesk
 - d. *Machine*: Propose Handling equipment procurement and warehouse area expansion
2. The arrangement and storage of goods in a multilevel way in the Shelf system will make it easier for workers to organize their bodies and make it easier to handle.

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