ANALYZING THE WAREHOUSE MANAGEMENT SYSTEM AT PT. POS MANADO

ANALISA SISTEM MANAJEMEN GUDANG DI PT. POS MANADO

By:
Susi Indriyani[1]

[12]Faculty of Economics and Business, Management Department
Sam Ratulangi University, Manado

Email:
[1]Susi.indryni@gmail.com

Abstract: Activities in warehouses are very important in implementing a warehouse management system. Warehouse management is concerned with ensuring that all activities involved in warehousing are carried out efficiently and effectively by those who work in warehouses. Warehouse is an activity to place goods from the process of receiving goods until they are issued for the process of shipping to consumers. This study aims to analyze the implementation of the warehouse management system. The purpose of this study is to analyze the process of implementing warehouse management system at PT. POS Manado.

Keywords: *Warehouse, Warehouse Management System, Implementation, Activities.*

Abstrak: Aktivitas gudang sangat penting dalam menerapkan sistem manajemen gudang. Manajemen gudang berkaitan dengan memastikan bahwa semua aktivitas yang terlibat dalam pergudangan dilakukan secara efisien dan efektif oleh mereka yang bekerja di gudang. Gudang adalah kegiatan menempatkan barang mulai dari proses penerimaan barang sampai dengan dikeluarkannya untuk proses pengiriman kepada konsumen. Penelitian ini bertujuan untuk menganalisis implementasi sistem manajemen gudang. Tujuan dari penelitian ini adalah menganalisis proses penerapan sistem manajemen gudang pada PT. POS Manado.

Kata Kunci: *Gudang, Sistem Manajemen Gudang, Implementasi, Aktivitas.*

INTRODUCTION

Research Background

A rapid development of technology windowed opportunities to any company to start improving globally. Every existing business entity for instance, whether it is in the form of a manufacturing or a service is definitely wants to make a profit. The ultimate goal of creating profit is to fulfill the needs and successfully delivering it to the consumer. This could build working system in terms of logistic. This function lead to distribute goods to the prospective consumer.

A warehouse is any location where stocks of material are held on their journey through supply chains (Waters, 2009). Warehousing is concerned with management of space to hold inventories and it involve such issues as site selection, space determination, layout and design, receipts issues and storage and preservation. In a warehouse that is located in a company, there are several activities that often occur, including such as acceptance and handling of materials, storage, expenditure, control or control and maintenance. In industrial warehousing, warehouses are stops for finished products before the marketing or distribution process is carried out, this relates to stocks or supplies that are in the warehouse.

Warehouses in a company must be adjusted to the conditions and intensity of production in the industry. Meanwhile, warehousing is an important route in the trading business, because there are industrial goods and productions existed, such as, receiving raw materials from suppliers, handling of goods, sending goods to the destination. Currently the warehouse has a broad meaning and is more than just a storage place. The warehouse itself does not add value directly, there is no change in flavor, shape, and packaging unless the custom packaging service done by the company. It is anything that concerns work that has to do with storing raw materials that are in the production. In other words, it is anything that requires storage, maintenance, distribution, control and destruction as well as reporting logistics and logistics equipment so that quality and quantity are guaranteed. Warehousing management system is a science that regulates the storage and release of goods in the warehouse. The implementation of this management is a process in the regulation and supervision of goods which enter the warehouse and goods that come out of the warehouse. When companies buy raw materials, the storage process goods are carried out in warehouses with certain administrative records. Warehouse is clearly a big influence on companies even without a warehouse shopping and production of any goods will be difficult to control.

Warehouse management system is very important for business continuity, because the warehouse is directly related to sales. When warehouse inventory does not match sales, it will have an impact on losses, whether because of failed sales or too much inventory available in the warehouse. Warehouse management system which is the main goal is to control all the processes that occur in it such as receiving, put away, process customer order, order picking, checking and packing and shipping. With a warehouse management system, we can better control the movement and storage processes, more optimal use of space in the warehouse, increasing the effectiveness of the process of receiving and shipping as well as knowing the amount of stock more accurately over time. But sometimes there is an implementation process at PT. Pos that are not in accordance with procedures so that package delivery results in certain losses for service users of PT. Pos, for example, goods that are sent have been delayed to the destination or goods that have been sent are damaged or goods that have been opened before when the goods sent are still in good condition and when they arrive at their destination are different from the situation or it may even happen that the shipment does not arrive at the destination address of the recipient because the package is lost or there may be differences in tracking website information.

Technological developments have made possible transactions between sellers and buyers who settle in different places. For instance, expedition services generally serve the delivery of goods between regions within a country. In addition, there are also expedition service companies that have expanded their business to international trade, which requires them to deliver goods between countries. Traders can now freely choose land, sea or air cargo services offered by many freight forwarding companies, with a variety of service and tariff options. Along with this dynamic development and the increasing of demand for goods and services according to consumer needs is expectedly occurred. Information technology persuading the increasing of logistic demand. This condition could lead to the profitable integration of logistic, warehousing and information system for company.

Research objectives

The research objectives are to identify the effect of:

1. To analyze to process of warehouse activities in PT. Pos Manado
2. To know the implementation of warehouse management system PT. Pos Manado

THEORETICAL REVIEW

Operational Management

(Heizer and Render, 2006) in (Evans and Collier, 2008) state that production is the creation of goods and services. Operation Management is the set of activities that creates value in the form of goods and services by transforming inputs into outputs. Operations management is the science and art of ensuring that goods and services are created and delivered successfully to customers. Operations Management is a design, operation and system improvement to create main products and services (Jacobs et al., 2009). According to Russell and Taylor (2011:2), operations management is the design, operation, and improvement of productive systems.

Warehousing Management System

Warehouse Management System is defined as an activity involving a series of measures, organizational, technical and economic operations, associated with storage of warehouse stock (Dudzinski, 2002). Warehouse management is concerned with ensuring that all the activities involved in warehousing are carried out efficiently and effectively by those employed in the warehouse.

Warehouse

(Heragu, et al. 2005) state that warehouse is means of providing functions of temporary storage, protection of goods, fulfillment of individual customer orders, packaging of goods, after sales services, repairs, testing, inspection, and assembly. A warehouse is more than just a place where inventory is stored. The aims of warehouse management are to increase productivity and accuracy, and reduce and control the cost of inventory and shipping while providing good customer service (Richards, 2011). Meanwhile, Warehousing is all warehouse management efforts which include the receipt, storage, maintenance, distribution, control and destruction, and reporting of materials and equipment so that quality and quantity are guaranteed (Pengaturan Kepala Badan Nasional Penanggulangan Bencana/BNPB, 2009) and requires labour, capital (land, storage, and handling equipment) and information systems, all of which are expensive (Bartholdi et al., 2011).

Warehouse Activities

A warehouse can be defined as a place used for the storage or accumulation of goods. Warehouse activities itself is so important, and because of that the function of storage can be carried out successful with the help of warehouses used for storing the goods. Warehousing can also be defined as assumption of responsibility for the storage of goods. By storing the goods throughout the year and releasing them as and when they are needed, warehousing creates time utility. According to (De Koster and Warffemius, 2005), the complexity of the warehouse activities depend mainly on:

1. The number and variety of items to be handled;
2. The amount of daily workload to be done; and
3. The number, the nature and the variety of processes necessary to fulfill the needs and demands of the customers and suppliers.

(Bartholdi and Hackman, 2011) illustrate the normal physical activities and flows in a warehouse. The inbound processes are represented by receiving and put-away whilst the outbound processes includes picking, packing and shipping.

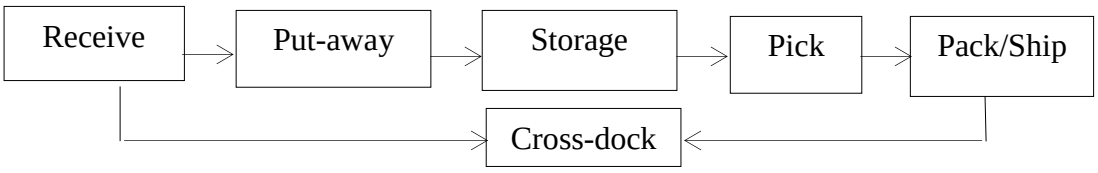

Figure 1. Warehouse Activities
Source: Bartholdi and Hackman (2011)

First In First Out (FIFO) Method

(Syakur, 2009:136) state the definition of the FIFO valuation method, namely: The FIFO method assumes that the first purchased merchandise is the first sold merchandise, because the cost of goods sold is valued based on the first entry cost of inventory, the remaining cost of inventories from the final cost of inventories entered. FIFO is, according to (Comiskey, et al. 2008), a valuation method of inventories allowed under both IFRS (International Financial Reporting Standards) and US GAAP (Generally Accepted Accounting Principles). Within FIFO, companies account for selling the products in their inventory that were purchased first, which means that the COGS is small assuming that prices increase.

Previous Research

Levistone et al. (2016). The study aimed to describe the improvements provided by the deployment of a WMS system of Warehouse Management in a distributor and wholesaler of the segment of personal hygiene and cleaning products in Cordilheira Alta/SC. In the methodology, it was decided to perform a descriptive research with a qualitative case study with a qualitative approach of the data. Finally, it can be concluded that the deployment of the WMS has brought improvements to the decision-making process of the organization concerning the agility, the improvement in reporting and the accuracy in the measurement of the items.

Suvittawat (2016). The objective of this study is to examine the direct relationship of effective warehouse space utilization, specific product handling methods, different product feature handling methods, effective warehouse management system, effective inventory management system, effective inventory picking system, warehouse management for cost reduction, regular problems of inventory management, effective IT system and benefits of specific soft ware for warehouse management have direct influence on effective warehouse management and competitive advantage. The survey was conducted on 53 entrepreneurs who are doing the warehousing business by using the questionnaires. The research resulted effective warehouse management is becoming important for new supply chain management performance evaluation as it directly effects to organization business performance and customer satisfaction level.

Au (2009). This paper examines Warehouse Management System (WMS) practices and their effects on operations. This study analyses the relationship between adoption of WMS to its impacts on business performance and competitive advantage of a regional distribution centre. It is concluded that WMS has a positive impact on operations measures. Investments in WMS enable the distribution centre to compete successfully against other rivals in the market.

Conceptual Framework

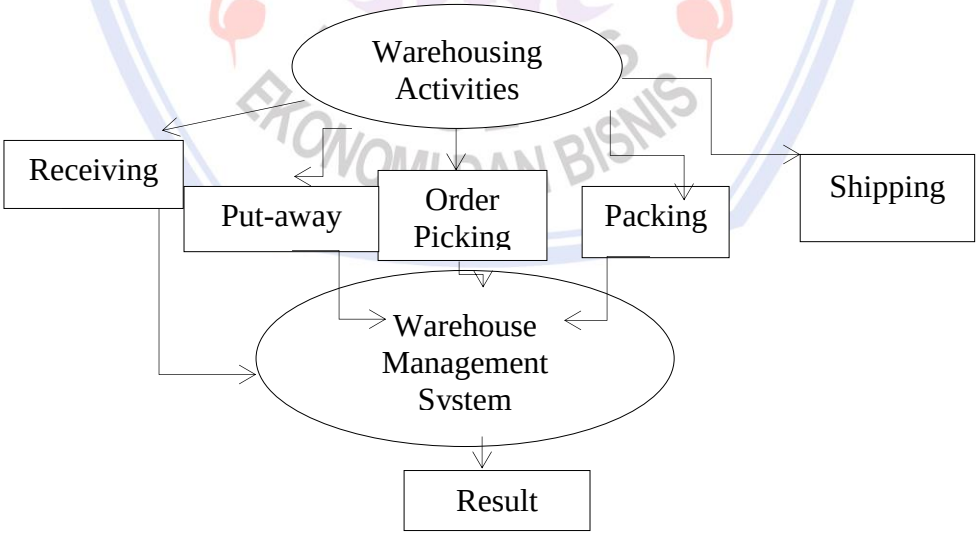

Figure 2.3
Source: Data Analysis Method (2018)

RESEARCH METHOD

Research Approach

The purpose of this research is to know the processes of warehousing activities and the implementation of warehouse management system at PT. Pos Indonesia, Manado. The research also using qualitative research method. According to (Sugiyono, 2011: p.15) concluded that qualitative research method is based on the philosophy post positive, is used to examine the condition of the object that is natural, where researchers are as instrument key, sampling data source is purposive and snowball, collection techniques by triangulation (combined), data analysis inductive/qualitative and qualitative research result further emphasize the significance of the generalization**.** This research method is conducted to find the facts on the surface and identify also get information about process activities warehouse management. According to (Sekaran and Bougie, 2010:105) suggest that a descriptive study is undertaken in order to ascertain and be able to describe the characteristics of the variables of interest in any situation".

Sample and Sampling Technique

(Sugiyono, 2007) stated that in qualitative research there is no population term but only social situation, which consists of three elements: place, actors and activity. The social situation of this research is the employees of PT. Pos Manado. This sampling technique identifying and selecting individuals or groups of individuals that are especially knowledgeable about experienced with a phenomenon of interest (Cresswell and Clark, 2011). This technique widely used in qualitative research for the identification and selection information-rich cases for the most effective use of limited resources (Patton, 2002).

Data Collection Method

The data used in this research consist of two types of data, which is primary and secondary data. Primary data are gained from in-depth interview and observation and from secondary data are taken from several books, journals, and previous research.

Research of Instrument

The instrument of this research is the research itself. The research was equipped with camera in order to conduct interview with the informants, noted, laptop, and recorder.

Data Analysis Method, Validity and Reliability

The data analysis method in this research is a guide in the process of analyzing data to find the final result of the research. The validity of qualitative research is different from quantitative research, validity does not have the same connotation as qualitative research, nor is it aligned with reliability.

RESULT AND DISCUSSION

Result

The interview is conducted from the informants who are employees in PT. Pos Manado. The second part of this chapter explains about the discussion after the interview.

Informant 1

a. Receiving (Inbound Process). Informant 1 who worked as a Human Resources (HR) Manager for 3.5 years. He explained that the goods that are going to enter the warehouse have been notified first to the warehouse staff, there is already a schedule and it takes 1 hour to load and unload postal goods, in one day there are 4 times the postal vehicles enter the airport.
b. Put-away (Inbound Process). For storage of these goods, there is already available specifically for goods that come from outside. The product unloading process is carried out per Express Package product and Special Express package. For goods that are first in, they must first go out using the FIFO system, and all bags that are entered are recorded in the manifest.
c. Process Customer Orders (Outbound Processes). Manado Post Office does not have a warehouse. The Puri section procession officer is responsible for receiving goods to the regions and immediately sorted when the bag of goods has entered for the branch office and for the Manado regional office, for immediate delivery.

d. Order Picking (Outbound processes). Sharing of the work order picking. He explained that there was only 1 employee on duty in the field to pick up goods at the small branch post office unit, as a driver as well as for pickups to other offices. There are 3 routes consisting of: there is a route to Bitung, Belang, and Gorontalo.
e. Checking and Packing (Outbound processes). There are 3 employees who are in charge of checking the goods to be sent to consumers. There are 3 shifts in the work schedule, each shift has 2 employees. In addition, there are employees for the airport section, namely airport traffic officers. Of the total, it means that there are 3 employees who control. For the packing section (packing) and the Puri section there are 4 employees. Each bag has a regional destination, when the outbound officer collects all the goods into small pieces, then they are put together again into a large bag. There is no special officer in the packaging of fragile or perishable goods at the Manado Post Office.
f. Shipping (Outbound processes). For package items that have been scheduled to be delivered at this time, they must be done on time because the SOP must be completed H + 0. For packaging that does not meet the requirements, the airport will later refuse to send the goods, and the inappropriate type of contents in the package is an obstacle faced by employees.

Informant 2

a. Receiving (Inbound Processes). Informat 2 who works as a distribution & process manager and has worked for 30 years. He explained that there are officers who are responsible for receiving each item in the number of coli based on the regional area. In 1 day there are 4 times (10 am, 4 pm, 10 pm, and 3 am the next morning) goods enter the airport and must be recorded in the delivery book. Officers make a match one by one, check it, the entry is based on the system in an automatic office scan. Process based on the manifest received, separated by delivery area. The packages that come have been adjusted according to the type of product, type of content, etc. The amount of goods (letters and post packages) is also recorded immediately using a computerized system.
b. Put away (Inbound processes). The process of activities carried out using the appropriate FiFO method. Existing items must be sent on the same day. Even though you have used the system, control will still be carried out in the form of a Module in every item that comes. It is hoped that with this system, it will be easier and more efficient because the search for the layout of existing items can be found through the system.

Informant 3

a. Process customer orders (Outbound processes). Informant 3 who worked in the Shipping section for 1 year 5 months. He explained the work system process from picking up goods from the counter, creating a letter of delivery, received after that was selected based on the type of goods and products. Priority products are Express, Special Express, and Regular Post. EMS products are categorized the same as Express products. All delivery estimates are in the receive and send manifest. Each package contains a barcode to facilitate inspection of goods and uses a receipt that must be signed by the consumer, with the exception of ordinary mail using postage as a receipt for the package.
b. Checking and packing (Outbound processes). For computerized inspection of goods. The receipt label for Express product bags is yellow, for special expresses it is orange and for ordinary ones the label is white blue. Just like before, the colors in the label aim to make it easier to separate items. At a minimum, there must be a telephone number that can be contacted. The search process can be seen through the recipient's telephone number to make it easier to contact. Besides that, you can also check on the website there is a telephone number. Because the important thing is we can contact the recipient if everything is not there, we will return the goods. It is necessary to rewrap it if the item is fragile or the item is liquid. If from PT. Pos Manado must be repacked and adjusted to the type of goods, this is done to avoid damaged or broken goods.

Informant 4

a. Order-picking (Outbound processes). Informant 4, who worked in the Assistant Distribution Manager for 12 years. He explained that there are 3 employees for taking goods. The travel time for the Tondano-Belang area takes 5-6 hours as seen from the total, at 6 in the morning leaving to deliver goods and returning to Manado to pick up goods from the post office branch to Manado around 9-10 at night.
b. Shipping (Outbound processes). He explained that there were 2 cars at the post branch office for the Bitung post area and the Belang post area. Then for the number of motorbikes following employees at the branch post office, if outsourcing could be more than that, but using private vehicles but used for rent. There are

operational employees in the field, there are about 25 employees. The distribution division work schedule has 3 shifts. Sometimes the overload causes delays in delivery to consumers. The problem of moving to a place of residence, unclear address, and empty house of goods or a letter returned with a statement of moving address or not wanting to receive goods. Sometimes you can do COD (cash on delivery) with an additional fee, a maximum of 3 times delivery to the destination address.

Discussion

Inbound process

The term in inbound is (entering goods). Inbound processes are a process for entering goods into a warehouse. Inbound processes describe the received of the goods sent based on the recipient's location. The inbound process in the warehouse begins with dismantling and checking the incoming goods. When items are checked, items can be temporarily stored in the warehouse.

1. Receiving. The receive process is the first activity within warehouse operations and involves an orderly receipt of all materials entering the warehouse. This process starts by notification of the arrival of goods. Then begins process of unloading, counting, identifying, quality control, and goods acceptance (incoming inspection) related to a type and quantity by unloading staff according to the company rules. When the goods are accepted, the receipt is issued.
2. Put-away. Put-away is a process which requires a strictly determined storage location. This is very important, because the information system has to know all the time what storage locations are available, what is the location of a specific type of goods and where each particular pallet is stored.

Outbound Process

Outbound is the process of removing goods from the warehouse, in the process of releasing goods, the main activity is to send goods to consumers according to the order or delivery of goods to the customer's distributor and the goods/shipping direct transit process to be sent to the airport. This process is carried out to process customer orders, order picking, checking and packing, and shipping.

1. Process Customer Order. Process customer order is one of the elements in the outbound process. The term customer order process is generally used to describe a process or workflow related to picking, packing and shipping goods to the customer. Customer Order Processing is used to enter orders placed by a customer and to administrate them throughout the entire customer order flow. Order processing is important because it has a large impact on the customer satisfaction and their perception of the service (Baltacioglu et al., 2007).
2. Order Picking. The process of order picking in a warehouse involves selecting and gathering specified amount of right stock keeping unit in accordance with the order and it is com-posed of lifting, moving, picking, putting, packing, and other related activities (Lee J. A et al., 2015).
3. Checking and Packing. Checking of an order is a process that checks if the order is complete and accurate. Packing ensures that the picked and consolidated goods, also checked for the completeness of an order, are packed for transportation and given to the shipping department. Packing can also be ensured by an autonomous packing department in the warehouse, then the consolidation and checking are usually part of this department.
4. Shipping. The process of shipping is the final process amongst warehouse processes. After packing and preparing units for shipping (consolidation), the first step is loading into transportation vehicles with the assumption that the shipping methods have been pre-viously arranged.

Summarized of the Data Information

It was concluded that warehouse management primarily refers to the coordination of the movement and storage of materials within a warehouse and processes associated and transactions, including shipping, receiving, put-away and picking. Warehousing is one of the important auxiliaries to trade. It creates time utility by bridging the time gap between production and consumption of goods. The effective and efficient management of any organization requires that all its constituent elements operate effectively and efficiently as individual / facilities and together as an integrated whole corporate.

The main objective of the supply chain is to provide products to the end customer continuously and in cost-effective way possible. At the same time, a supply chain can add value to the end costumer by delivering products in the least amount of time, which means that it could result cutting costs and increasing revenue and customer satisfaction. Warehouse are very important nodes in a supply chain network as they

perform valuable functions that support the movement of materials, storing goods processing products, de-grouping vehicle loads, creating stock keeping unit collections, and assembling shipments (Langevin and Ripopel, 2005).

CONCLUSION AND RECOMMENDATION

Conclusion

Through the process of collecting data and analysis of informants' statements at PT. Pos Manado, the researcher concluded that the implementation of warehouse management system at PT. Pos Manado has improved enough, although it still has several things that need to be upgraded. Because of the high level of efficiency of the warehouse management system carried out by PT. Pos Manado makes no items held in the storage room, even though there are customers who complain when sending packages usually occur not at the warehouse but rather at the airport or the obstacles during the shipping process which are overloaded at certain times before Ied, Christmas and New Year. At PT. Pos Manado itself has no problems with the number of staff and vehicles used for package delivery.

Recommendation

1. The researcher suggests further research related to the warehouse management system used at PT. Post. Especially now that it will launch warehouse rental services to entrepreneurs. As for what later WMS used in these services according to researchers is an interesting thing to study later.
2. The researcher realizes that there are still many shortcomings in the implementation of this research such as the lack of detailed data and time spent in conducting research. Therefore researchers suggest for further studies to verify data more thoroughly and make more in-depth observations related to WMS at PT. Post
3. In the digital era like now, the existence of WMS has become a necessity for the smooth distribution of goods for the company. The researcher suggests that the application of WMS also involves warehouse design since the construction of the layout to its information system in order to get a far more maximum output.

REFERENCE

Suvittawat, A. (2016). Majors Factors for Effective Warehouse Management: Eastern Part of Thailand. Burapha University, International College, 169 Long Hard Bangsean Road, SaenSook, Chonburi, Thailand 20131. Vol. 14, No. 6, 3757-3763. *https://www.researchgate.net/publication/313752679_Majors_factors_for_effective_warehouse_management_Eastern_part_of_Thailand_perspective*.

Au, Y. H.N. (2009). Warehouse Management System and Business Performance: Case Study of a Regional Distribution Centre. ESH Department, Hoya Electronics Malaysia, 01000 Kulim, Kedah. *http://repo.uum.edu.my/13464/1/PID31.pdf*.

Bartholdi (2011). *Warehouse and Distribution Science*. The Supply Chain and Logistics Institute School of Industrial and Systems Engineering Georgia Institute of Technology Atlanta, GA 30332-0205 USA.

Comiskey, E. E., Mulford, C. W., and Thomason, J. A. (2008). *The Potential Consequences of Elimination of LIFO as a Part of IFRS Convergence*. Georgia Tech Financial Analysis Lab. https://smartech.gatech.edu/handle/1853/26316. Retrieved on 20 November 2019

Cresswell, J W., and Plano C.V L. (2011). *Designing and Conducting Mixed Method Research*, 2nd. Sage; Thousand Oaks, CA:2011.

De Koster, M. B. M., and Warffemius, P. M. J. (2005). American, Asian and Third-party International Warehouse Operations in Europe – A Performance Comparison." *International Journal of Operations & Production Management.* 25 (7–8): 762–780. https://repub.eur.nl/pub/11886. Retrieved on 18 November 2019

Favero, L., et. al (2016). Deployment Warehouse Management System: Case study in a Distributor Center and Wholesale. *Future Studies Research Journal*. *https://www.revistafuture.org/FSRJ/article/download/250/368*

Heizer, J., and Render, B. (2006). *Operation Management: Flexibel Version*. New Jersey: Prentice Hall.

Heragu, S.S., Du, L., Mantel, R.J., and Schuur, P.C. (2005). Mathematical model for warehouse design and product allocation. *International Journal of Production Research 43, 2, 327-338.* https://www.tandfonline.com/doi/abs/10.1080/00207540412331285841. Retrieved on 18 November 2019

Jacobs, R.F., Chase, R.B., and Aquilano, N.J. (2009). *Operations and supply management.* 12th edition. Boston : McGraw-Hill Irwin

Lee, JA, Chang, YS, Shim, H, Cho, S. (2015). A study on the picking process time. *Procedia Manufacturing*, 3:731-738. https://core.ac.uk/download/pdf/82694519.pdf. Retrieved on 23 November 2019

Patton, M. Q. (2002). *Qualitative research and evaluation methods*. 3rd edition. Thousand Oaks, CA:Sage

Pengaturan Kepala Badan Nasional Penanggulangan Bencana (BNPB). No. 06 (2009) Tentang Pedoman Pergudangan. *https://www.bnpb.go.id/uploads/24/peraturan-kepala/2009/perka-6-tahun-2009-tentang-pedoman-pergudangan-1.pdf*.

Richards, G. (2011). *Warehouse Management: A Complete Guide to Improving Efficiency and Minimizing Costs in the Modern Warehouse*. Kogan Page Publishers.

Russell, R.S., and Taylor, B.W. (2011). *Operations Management Creating Value Along the Supply Chain*. Seventh Edition. John Wiley & Sons, Inc.

Sugiyono. (2007). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif dan R&D*. ALFABETA, Bandung.

Syakur, A.S. (2009). *Akutansi Keuangan Menengah Dalam Persektif Lebih Luas*, Jakarta: AV Publisher.

Waters, D. (2009). *Supply Chain Management.* An Introduction to Logistics. 2nd edition. Red Globe Press