# INVENTORY MANAGEMENT INFORMATION SYSTEM IN PT. TRENGGINAS JAYA

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## ABSTRACT

PT. Trengginas Jaya is a company engaged in the procurement of general trading, office equipment, school equipment, and services, such as tables, chairs, books, blackboards, lockers, PT. Trengginas Jaya in conducting its business activities in cooperation with vendors to meet customer orders, problems that occur in the company of PT. Trengginas Jaya is a return of goods from consumers to PT. Trengginas Jaya. The existing problem of goods returned from the consumer is not all can be returned to the vendor, resulting in the rest of the goods in the warehouse that can not be issued because the state of the goods are not in good condition. On the staff of logistics difficulties in managing the procurement of goods in and out, due to the rest of the goods in the company warehouse that does not come out of the company warehouse, sehinggan companies suffered losses.

From the problems that occurred at PT. Trengginas Jaya, solving the solution is how to build inventory management information system to deal with stock return problems by using POAC analysis, POAC results can determine the vendor after the company qualification. And can monitor goods in and out, so as to reduce the possibility of accumulation of goods.

Based on the results of *blackbox* testing and beta testing has been done, it can be concluded that this system has passed the test and was able to help the management of procurement of goods in and out of procurement management in PT. Trengginas Jaya in looking for solutions to solve the problem of doing business rules.

**Keywords: Management Information System (MIS), Procurement, POAC, monitoring**

## 1. PRELIMINARY

PT. Trengginas Jaya is a company engaged in the procurement of general trading, office equipment, school equipment, and services, such as tables, chairs, books, blackboards, lockers, PT. Trengginas Jaya in conducting its business activities in cooperation with vendors to fulfill customer orders. The purchase of goods to the vendor is adjusted by the number of ordering goods from the customer therefore the selection of the vendor is very important because it must be able to meet customer orders in quick time so that it can deliver the goods to the customer on time. Increasingly tight competition from year to year makes the company's current challenges because it is required to be able to provide the needs of customer desires so that customers feel satisfied in the service company so as to increase the number of customers.

Based on the interview with Product & Service Manager of PT. Trengginas Jaya stated that the procurement process of goods such as desks, chairs, laptops, projectors, pc all in one, teacher desk, teacher chair, locker, white board is now after the ordering of goods from consumers. After the ordering of goods from consumers, the company will conduct a search vendor who sells goods in accordance with consumer demand.After getting a vendor who mejual goods according to customer orders the company will order goods to the vendor in accordance with the type of goods and prices that have been determined by consumers. After ordering the company will receive the goods from the consumer in accordance with the reservation. Goods that the company receives from the vendor, the company kana deliver goods to the consumer. The problem is the return of goods from the consumer to the company that can not be returned to the vendor, so the occurrence of the rest of the warehouse that can not be issued by the company because the condition of the goods is not in good condition that dampen the accumulation of goods in the company warehouse.

As consumers order goods PC ALL in one as much as 45 pieces, consumers return the goods as much as 1 piece because there are conditions not good. So that goods returned by consumers will be stored in the company warehouse. Goods returned by consumers, the company can not return to the vendor again. Because the goods received by the previous company in good condition and have made agreements with vendors. At the time of vendor

selection process at this time the company only see from the aspect of price and quantity only. So the company suffered losses because the goods returned are stored in the company warehouse.

The purpose of inventory management information system in PT. Trengginas Jaya

1. Assisting Product & Service Manager to minimize the return of goods causing the accumulation of goods at the company warehouse.
2. Assist the Product & Service Manager in the selection of the right vendor to fulfill the ordering of the goods from the consumer.

## 2. RESEARCH CONTENTS

### 2.1 Company

PT. Trengginas Jaya is located at Jalan Sumur Bandung no. 12, Lb. Siliwangi, Coblong, Bandung City, Java 40132. PT. Trengginas Jaya is a company that has been established since 2012 and is engaged in the distribution of goods and services outsoucing for the field: academical assistant, network project supervisor, security, cleaning servce, building maintenance, car rental, drivers, parking service, and catering, procurement.

The value we highly value is the satisfaction and benefits that can be obtained by customers. This value is what we make the guidelines that make us move and always improve our service from time to time.

### 2.2 Management Information System (MIS)

The term Management Information System (MIS) has been largely defined by management and computer experts with different perspectives. The term has been known since the 1960s. The concept of Information Management System when it developed along with the development of the focus of the use of computer technology. The development of computer technology at that time has given a new awareness that computer applications should be applied for the primary purpose of generating information for management decision making. [1]

Management Information System can be defined as a collection of subsystems inter-related, gather together and form a unity, mutual interaction and cooperation between the parts to one another in a particular way to perform data processing functions, receive inputs *(input)* in the form of data , then process *(processing)*, and produce output *(output)* in the form of information as a basis for a decision that is useful and has real value can be felt as a result either at that time or in the future, support operations, managerial and organizational strategy, utilizing The various data sources available and available for the purpose of achieving the goal. [2]

Model Risk Management Information System can be seen in Figure 2. 2 Model Management Information System (MIS) below:

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*Http://darmansyah.weblog.esaunggul.ac.id*

**Figure 1 Model of Management Information System (MIS)**

Processing information resides on the left includes a computer with a *database* containing data and information from internal and environmental as well as *software* libraries. Another important element, though not visible in the model, is the information specialist staff.

The information processor provides information in three basic forms to the SIM user. Users, displayed in the middle with organizational charts are placed at the organizational level and in all function areas.

The right side of the model shows how the information is used in troubleshooting. The arrow that connects the three forms infrmasi with troubleshooting steps show how users implement SIM *output.* The information provides information to the problem, not to a particular decision, and it is intended for the manager to determine how the information will be used. [3]

#### 2.2.1 Inventory *(Inventory)*

Inventory is a stored material or item that will be used to meet a particular purpose, for example: for use in the production / assembly or resale process. Inventories may be raw materials, auxiliary materials, in-process goods, finished goods or parts. If a large inventory of inventory and inventory costs will arise, there will be a shortage of inventory. Inventory is an unemployed source of funds, because before inventory is used the associated funds in it can not be used.

Supply function to meet company needs:

a. Eliminate the risk if the goods ordered are not good so must be returned.
b. Benefit from rebates
c. Providing services to consumers

The purpose of inventory is:

a. Order of goods ordered as desired

b. To get a discount so the price per unit so small

c. In order to meet consumer / customer demand as best as possible. [4]

Inventory by type and position of goods in the order of product workmanship, among others:

a. Raw materials *(Raw Materials)*

Tangible goods such as steel, wood, clay or raw materials obtained from natural sources, or purchased from suppliers, or processed by the company for use by the company in its own production process.

b. Component

The goods consist of parts *(parts)* obtained from another company or own production for use in the manufacture of finished or semi-finished goods.

c. Semi-finished goods *(Work in Process)*. Output items from each production or assembly operation that already have more complex shapes than components, but still need further processing to become finished goods.

d. Finished goods *(Finished Good)*

Goods that have been processed and ready to be distributed to consumers.

e. Adjuvant *(Material Supplies)*

Goods required in the process of manufacture or assembly of goods, but not components of finished goods. Including auxiliary materials are fuel, lubricants, electricity and others. [5]

**2.3 Analysis POAC *(Planning Organizing Actuating Controlling)***

POAC, the English abbreviation of *"Planning, Organizing, Actauating, Controlling"* ( Planning, Organization, Implementation, Testing), is a four-step problem-solving process is iterative commonly used in quality control. POAC cycle shown in Figure 2 Cycle P OAC

**Figure 2 POAC Cycle**

Planning *(Planning)*

Is an activity related to the selection of alternatives, policies, procedures, and programs as a form of effort to achieve the objectives to be achieved.

Organizing *(Organizing)*

It is an action or activity to incorporate all the potential of all parts of a group of persons or bodies or organizations to work collectively to achieve mutually determined goals, whether for personal or group and organizational purposes.

Implementation or application *(Actuating)*

It is an implementation of planning and organizing, where all the components that are together in accordance with their respective fields to be able to realize the goal.

Supervision *(controlling)*

It is the control of all activities of the planning, organizing and execution process, whether all activities provide effective and efficient results and useful and effective value.

**2.4 Problem Analysis**

Problem Analysis is an assumption of the problem that will be described in the procedures - data processing procedures on Inventory Management Information System at PT. Trengginas Jaya. The problem analysis of the current system is:

1. Difficulties of the Logistics Staff

The process of ordering goods to vendors starts from the stage of the demand for goods from consumers received by Logistics Staff and to check the stock of goods in the warehouse. When the type and quantity of goods no stock available at the warehouse, the *logistics staff* should set the amount, type of goods, and the price to be ordered to the vendor.

2. *Staff Logistics* difficulty selecting the right vendor, causing the return of goods that can not be reversed and occurrence menyembabkan hoarding goods in the warehouse.

**2.8 Analysis of Order Management of Consumer Goods**

Analysis of Goods Planning Planning

1. This stage is the stage when consumers order goods to the company, what kind of goods ordered by consumers in accordance with the type of goods, quantity, and price. Plan to check the stock of goods in the company warehouse, what is available goods desired by consumers. PT. Trengginas Jaya Receive order goods from consumer as follows.

Table of Consumer Ordering

| No | Date | Consumer Name | Types of goods | amount |
|---|---|---|---|---|
| 1 | January 14, | Telkom Universit | Desk | 280 |

| | | | | |
|---|---|---|---|---|
| | 2016 | y | | |
| 2 | January 18, 2016 | TK TU | Desk | 120 |

From the table above, then explained on January 14, 2016 Telkom University consumers order goods to PT. Trengginas Jaya is a study table with specification 65x45x74 cm, iron pipe frame, peoder coating, melamine finishing base with the number 280. On January 18, 2016 TK TU consumer goods order to PT. Trenggins Jaya table study with specification 65x45x74 cm, iron pipe frame, peoder coating, finishing base with the amount of 120.

2. Organizational Analysis of Ordering of Consumer Goods

This stage organizes the ordering of consumer goods of the type and quantity of goods ordered to the company in accordance with the planning stage. Logistics staff make adjustments to the remaining stock in the warehouse, make customer order adjustments in accordance with the demand, make vendor selection.

3. Analysis of Customer Ordering of Goods

This stage Logistics Staff do receipt of goods order on 14 January and 18 january.

Order Receipt Table

| No | Consumer Name | Name of goods | The amount of goods |
|---|---|---|---|
| 1 | Telkom University | Desk | 280 |
| 2 | TK TU | Desk | 120 |

4. Stock Checking Analysis of Goods In Warehouse

This stage performs checking by mebandingkan number of ordering goods from consumers with stock of goods in the company warehouse. If the type of goods and stock in accordance with the warehouse then the company will remove goods from the warehouse and send to the consumer, if the goods are not contained in the warehouse or the number is less then the company will conduct a vendor search by choosing the appropriate vendor and ordering goods.

Table of Consumer Ordering

| No | Name of goods | The amount of goods |
|---|---|---|
| 1 | Desk | 280 |
| 2 | Desk | 120 |

Table Goods In Warehouse

| Name of goods | amount |
|---|---|
| Desk | 15 |
| Laptop | 6 |
| Projector | 5 |
| PC All In One | 14 |
| Teacher's desk | 1 |
| Teacher's chair | 2 |
| Student Chair | 78 |
| Lockers | 1 |
| White Board | 1 |

From the consumer demand then PT. Trengginas Jaya will order the vendor's goods.

**2.9 Vendor Election Management Analysis**

1. Analysis of Vendor Selection Planning Management

PT. Trengginas Jaya receives demand from consumer goods as follows.

Table Demand of goods from consumers

| No | Date | Consumer | Types of goods | amount |
|---|---|---|---|---|
| 1 | 14 january 2016 | Telkom University | Desk | 280 |
| 2 | 18 january 2016 | Tk TU | Desk | 120 |

From the table above, explains on 14 January 2016 university consumer telkom order goods to PT.Trengginas Jaya the study table with specifications 65x45x74 cm, iron pipe frame, poeder coating, melamine finishing base with the number 280. On 18 januari 2016 consumer Tk TU order goods to PT. Trengginas Jaya study table with specification 65x45x74 cm, iron pipe frame, poeder coating, finishing base with the amount of 120.

From the consumer demand then PT. Trengginas Jaya will look for vendors to order goods with the number of 265 tables for consumers of Telkom University and 120 for Tk TU. From the vendor search there are several vendors selected.

Vendor table selected

| Vendor Name | Types of products | Price | Maximum Capacity |
|---|---|---|---|
| Charisma Profile | *Furniture* | 700,000 | 120 |
| PD.Thanks to | *Furniture* | 730,000 | 160 |

Of the two selected vendors will be ordering goods. First to be ordered to Charisma Profile vendor

with capacity 120 for Telkom University and the rest will be message to PD. Thanks to the amount of 145, total subscribers 265 for consumers of Telkom University. For Tk TU orderers with order number 120 ordered to Charisma Profile vendor. After making a reservation for Telkom University PT. Trengginas made a booking for Tk TU to Charisma Profile. Explained in table form.

2. Organizational Analysis of Vendor Selection

This stage organizes the selection of vendors of the type and amount of goods from the company to the vendor in accordance with the stage of planing. Logistics staff do ordering goods to the vendor in accordance with the number and type of goods.

3. Analysis of Vendor Selection Implementation

This stage of ordering goods in accordance with the selection of goods, quantities, and the appropriate price of the selected vendor. Logistics staff do check the stock of goods in the warehouse, if there is no stock in the warehouse, the logistics staff make reservations. Request for table item specification 65x45x74 cm, iron pipe frame, poeder coating, finishingmelamine base 120 pieces.

Table Planning Ordering goods

| Date | Consumer | Types of goods | amount | The name of the vendor |
|---|---|---|---|---|
| 18-1-2016 | Telkom University | Desk | 145 | Charisma Profile |
| 18-1-2016 | Telkom University | Desk | 120 | PD. Thanks to |
| 22-1-2016 | Tk TU | Desk | 120 | Charisma Profile |

4. Check Vendor Selection Analysis

This stage checks the selection of vendors who will do pengesana goods. What suits the type of price and the amount to be ordered. Of the two consumers who ordered there are two selected vendors namely Charisma Profile and PD. Thanks to.

**2.10 Procurement Inventory Management Analysis**

1. Analysis of Procurement Planning

This stage is the stage of making procurement management planning. Plan the amount and type of goods to be entered in the company warehouse. Plan the types and quantities that enter in the company warehouse in accordance with the request.

2. Organizational Analysis of Procurement of Goods

This stage organizes the procurement of goods and types of goods entered from the vendor to the company, in accordance with the planning of goods entered. Logistics staffs make procurement of goods into the warehouse in accordance with the number and type of goods to order.

3. Analysis of Procurement of Goods Entry

This stage of procurement of goods in accordance with the selection of goods, quantities, and the appropriate price of the selected vendor.

3.10 Table of goods procurement

| Date | Consumer | Type goods | Number of requests | Satus |
|---|---|---|---|---|
| 23-1-2016 | Telkom University | Desk | 280 | Incoming goods |
| 25-1-2016 | | | | Incoming goods |
| 29-3-2016 | Tk TU | Desk | 120 | Incoming goods |

4. Anaisis Pengecekkan Pengdaan Barang Masuk

This stage checks the procurement of incoming goods that the message to the vendor, what according to the type and quantity of goods ordered.

Table. 3.11 Checking Incoming Goods

| Date | Consumer | Type goods | Number of requests | Satus |
|---|---|---|---|---|
| 23-1-2016 | Telkom University | Desk | 280 | Incoming goods |
| 25-1-2016 | | | | Incoming goods |
| 29-3-2016 | Tk TU | Desk | 120 | Incoming goods |

**2.11 Procurement Management Analysis Exit**

1. Analysis of Procurement Planning Out

This stage is the stage of making outgoing procurement management planning. Plan the number and type of goods that will come out in the company warehouse. Plan the types and quantities that come out in the company warehouse in accordance with the demand.

2. Organizational Analysis of Procurement of Goods Out

This stage organizes the procurement of goods out of the type and amount of goods that come out in the company, in accordance with the outgoing goods plan. Logistics staff procure goods in the warehouse in accordance with the number and types of goods to order.

3. Analysis of Procurement Exit Implementation

This stage of procurement of goods out in accordance with the ordering of goods from Consumers, quantities, and types of messages.

Table procurement of goods out

| Date | Consumer | Type Goods | Number of issued | Satus |
|---|---|---|---|---|
| 25-1-2016 | Telkom University | Desk | 280 | Exit item |
| 29-1-2016 | Tk TU | Desk | 120 | Exit item |

4. Analysis of Checking Procurement of Goods Out

This stage checks the procurement of goods ordered out consumer, what according to the type and quantity of goods ordered.

Table Check Out Goods

| Date | Consumer | Type goods | Number of requests |
|---|---|---|---|
| 26-1-2016 | Telkom University | Desk | 280 |
| 30-1-2016 | Tk TU | Desk | 120 |

**2.12 Procurement Return Management Analysis**

1. Procurement Planning Analysis of Returns

This stage is the stage of making procurement management planning returns. Planning the number and type of goods that are returned in the company warehouse. Plan the types and amounts that are returned in the company warehouse.

2. Organizational Analysis of Return Goods Procurement

This stage organizes the procurement of goods returns type and amount of goods returned in the company, in accordance with the outgoing goods plan. Logistics staff procure goods in the warehouse in accordance with the number and type of goods issued.

3. Procurement Implementation Procurement Analysis

This stage of procurement of goods returns in accordance with the ordering of goods from consumers, quantities, and types of messages.

Table 3.16 procurement of goods returned

| Date | Consumer | Type goods | Number of returns |
|---|---|---|---|
| 30-1-2016 | Telkom University | Desk | 15 |

4. Analysis of Checking Procurement Goods Returns

This stage checks the procurement of goods out in the message consumer, what according to the type and quantity of goods ordered.

Goods that are not out of 6 months will be sold third-party free. The goods are sold to consumers by consumer deal and get a discount.

**2.13 Database Analysis**

Database analysis is an analysis of data sets that are interconnected and stored in a particular storage medium without redundancy. There are data used in the process of making management information system software. The data obtained will be used to design the database along with attribute attributes of each entity as well as the relationships between the entities. In designing the database, data model that will be used is Entitiy Realationship Diagram (ERD)

Figure 3 ERD Inventory Management Information System

**2.14 Context Diagram**

Context diagram is a model to explain globally how data is used and transformed to process or describe the flow of data into and out of the system. Context diagram on this system can be seen as follows

**Figure 4** Diagram of Context on the system

**2.15 Flow Diagram diagram**

Data Flow diagram is how the flow of data and describe the processes - processes that occur in the system until the process more detail. Pross that happens in the system until the process more detail. In the previous context diagram can be described into several DFD which will be explained starting from DFD level 1 and so on

The following Level 1 DFD explains that system users can access the information system by selecting the available menus into the system as, distribution, vendor and consumer or on each system user having different menus according to the permissions on each user. Level 1 DFD can be seen as follows

Figure 4 DFD Level 1

**2.16 Relation Table**

Describe the connectedness of tables in the system in detail or clear then used table relation, Table relation will be described in the following picture

**Figure 5 Relationship Diagram**

**2.17 Procedural Design**

The procedural design transforms the procedural elements of the program architecture into a procedural description of the software components. The design of procedural added data from the menu inventory management information system at PT. Trengginas Jaya as follows

**Figure 6 Flowchart Add Data**

**2.18 System Testing**

Testing the system is done to test the system where at this stage can be known error error so that can be done repair and system development hence can be known system fitness in its requirement, Testing used to test new system is by using black box and beta testing method. Development testing uses test data based on given data.

**2.18.1 Alpha Testing**

Black Box testing is focused on the functional requirements of software built. Based on test results on test cases that have been done it can be concluded that in general inventory management information system in PT. Trengginas Jaya can run as expected

**2.18.2 Beta Testing**

After performing the balckbox test it is also necessary to test beta where beta testing is a test conducted directly to the lapanagan and the result is objective.

The beta test is done by interview or interview using the technique of interview tersenruktur megenai user satisfaction, by using open answer technique that is peneltian give full answer to people who use system.

Interviews are only 2 users who will be interviewed about kekurangn and excess system built, namely to the logistics staff

The results of interviews conducted trerhadap manager level product & service and logistics staff is that inventory management information system in PT. Trengginas Jaya built on data of incoming goods, goods out, and selection of vendors

**2.18.3 Conclusion of Beta Test Result**

Based on beta testing that has been done then can be drawn a conclusion that inventory management information system in PT. Trengginas Jaya has been built to meet the needs of users, namely the manager of product & service, facilitate the selection of vendors, and monitoring goods in and out, help in ordering goods from consumers.

## 3. COVER

This chapter will explain the conclusions that contain the results obtained after the analysis, design, and implementation of the design of the built software and have developed suggestions that will provide important notes and possible improvements that need to be made for software development

**3.1 Conclusions**

Based on the results obtained in the writing of this thesis, it can be concluded as follows

1. Inventorti Management Information System at PT. TRENGGINAS JAYA is enough to assist the produck & service manager in presenting the type and quantity of incoming goods, goods out, and goods returns.

2. Inventory Management Information System at PT. TRENGGINAS JAYA can provide assistance in pengelolahan stock of existing goods with a system monitoring the stock of goods, so as to reduce the possibility of accumulation of goods.

**3.2 Suggestions**

Suggestions for the development of this information system there are some suggestions that can be done, Make the display interface more interesting again because the display that is used now is still simple

## BIBLIOGRAPHY

1. Z. Amsyah, Management Information System, Jakarta: Gramedia Pustaka Utama, 2005.
2. EMD Suryadi, Management Information Systems, Jakarta: Gunadarma.
3. T. Sutabri, Management Information System, Jakarta, 2005.
4. R. Martono, Integrated Logistics Management, Jakarta: PPM Management, 2015.
5. Kuncoro, Mudrajad. (2001). *Quantitative Methods - Theory and Applications For Business And Economics.* Yogyakarta: YKPN AMP Publishing and Printing Unit.
6. T. Baroto, Design and Production Control, Jakarta: BPFE, 1986.