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Analysis and Design of Information System for Supply Chain Management
Case Study: PT. Raja Bearindo Aditama

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Abstract:

Every company as an organization must be able to realize their unique Supply Chain Model in order to chain processes from both suppliers and customers. The need for fast and integrated information sharing has increased so much that Information Systems have become an important advantage. This model is made in such a way as to provide a dynamic picture of the process production and presentation of the company's inventory system in stages. The Supply Chain Management System covers all activities starting from the preparation of material procurement, then the material is processed into semi-finished or finished products, until the product is distributed to consumers. To support all the processes above to be integrated and to maximize company performance, it is necessary to implement a Supply Chain management system. With a good Supply Chain Management system, the performance of the company will be more focused and provide benefits, both for the company, suppliers, and consumers.

Keywords — **Customer, Distribution, Supply Chain Management**

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I. INTRODUCTION

Application is a technology that is developing rapidly at this time, technological advances in helping the processing of available data or information can take place quickly and efficiently and accurately. According to Andi, the notion of application is a program that is ready to use which is made to carry out a function for application service users as well as the use of other applications that can be used by a target to be addressed[1]. Processing management applications are very helpful in processing natural data if the application is a tool that is growing rapidly. According to Syamsudin, management is the process of implementing management functions, namely planning, organizing, implementing and controlling within the organization to achieve goals effectively and efficiently[2]. This development has had a positive impact on developing companies. With the development of this application, it is natural that many companies really need data processing applications to process existing data within the company. Likewise with PT. Raja Bearindo Aditama.

PT. Raja Bearindo Aditama is a company engaged in the manufacture and sale of bearings and bushings. PT. Raja Bearindo Aditama produces bushings for the heavy equipment industry,

fabrication industry, sluice gates, shipping and heavy equipment. The following is a diagram of the sales target and realization of PT. Raja Bearindo from 2017 to 2019.

The main principle of supply chain management is the synchronization and coordination of activities related to the flow of materials / products, both within the organization and between organizations. A simple supply chain has components called channels consisting of suppliers, manufacturers, distribution centers, wholesalers, and retailers who all work to meet the end consumer[3].

Basically, supply chain management integrates supply and demand management (supply and demand) within and across the company. Supply Chain Management is an integrated function and has the main responsibility to link the functions of the main business and business processes within and across the company to realize a cohesive and high-performance business model. Includes all of the logistics management activities mentioned above, as well as manufacturing activities, which promote coordination of processes and activities across marketing, sales, product design, finance and information technology[4].

II. RESEARCH METHOD.

A. Data Collection Method

1. Literature Study

The form of data collection uses the process of reading, searching for, processing the contents of several references to scientific works, books and journals that can be used as references in the process of making the development of the system.

2. Documentation

This technique is used to collect documents related to the problems of the human resources management system of PT. Raja Bearindo

3. Interview

Conducting interviews directly with the parties involved in working on a project. The interview process is carried out to get all the details of the process carried out, so that the research carried out can produce the right solution with the actual situation.

B. Research Method

The research method used is applied research. Applied research takes less time to find the eventsnalys being researched. Researchers only focus on the design and implementation of research using contemporary phenomenal[5].

III. DESIGN ANALYS

A. Analysis of Current Process

in the system design process, diagrams are needed that are used as a communication tool. use case describes the activities of each actor in this application. actors in this application are Admin, Sales, Staff Warehouse, Staff Purchasing, Staff Production, Staff Logistic, Head of Production, Head of Logistic, Staff Finance, Head of Sales, Head of Finance, Head Purchasing. The use case diagram can be seen on Figure 1.

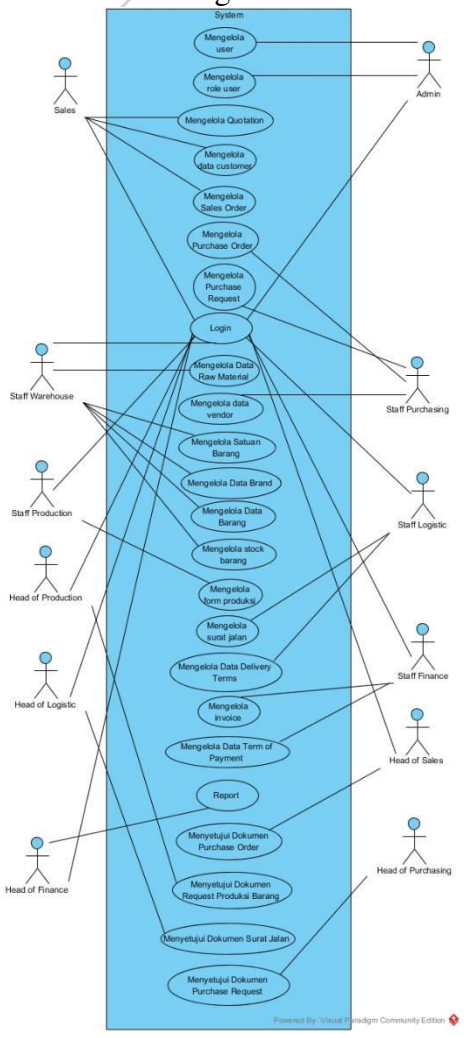

Figure 1 Use Case Diagram

B. Problem Analysis

To be able to explain the problem, the author who made a mistake from the running process is then detailed by the Fishbone method as the cause and effect data that occurs. Following are the results of the system analysis that the process is running

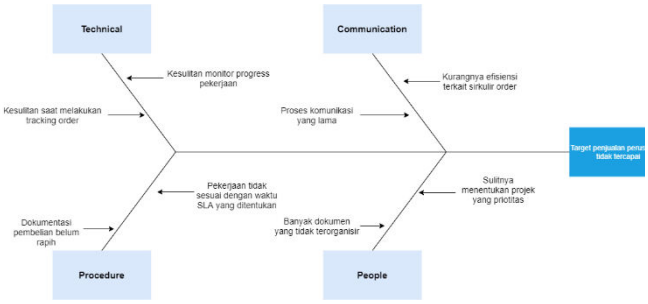

Figure 2 Fishbone Analysis

C. Application Design

UML diagram, interface design and database specification are needed in application design stage. Here is some examples of activity diagram shown in figure 3 and figure 4

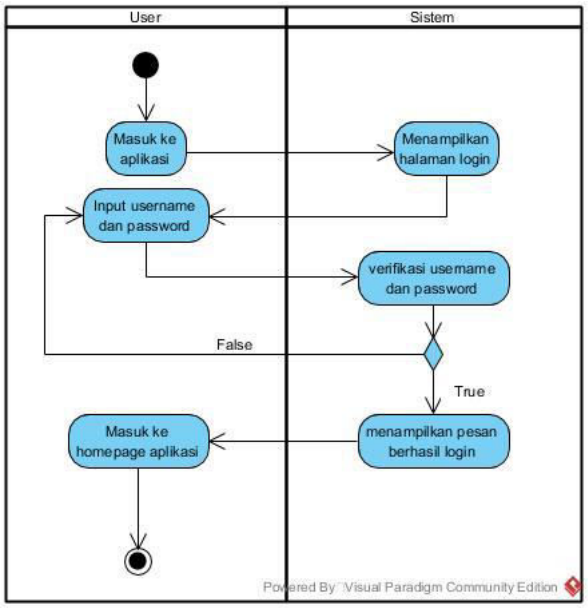

Figure 3 Activity Diagram of Login

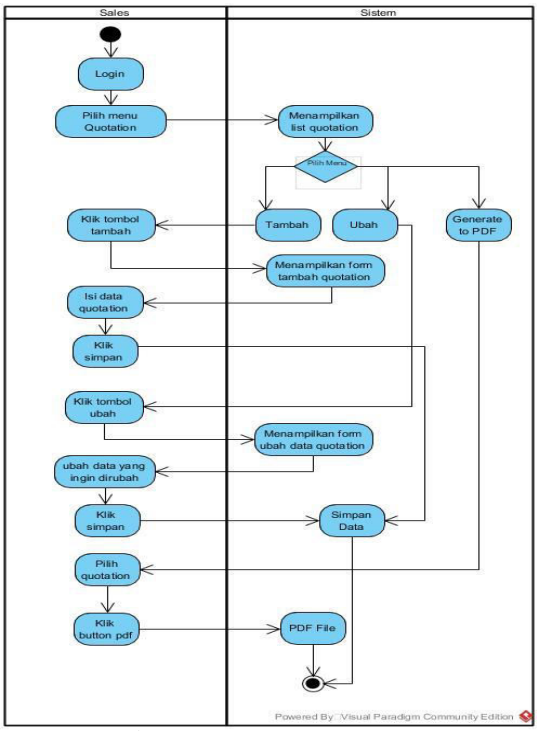

Figure 4 Activity Diagram of Quotation

Also some examples of sequence diagram shown in figure 5 and 6

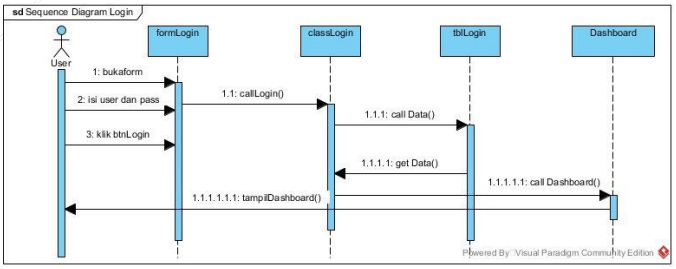

Figure 5 Sequence diagram of Login

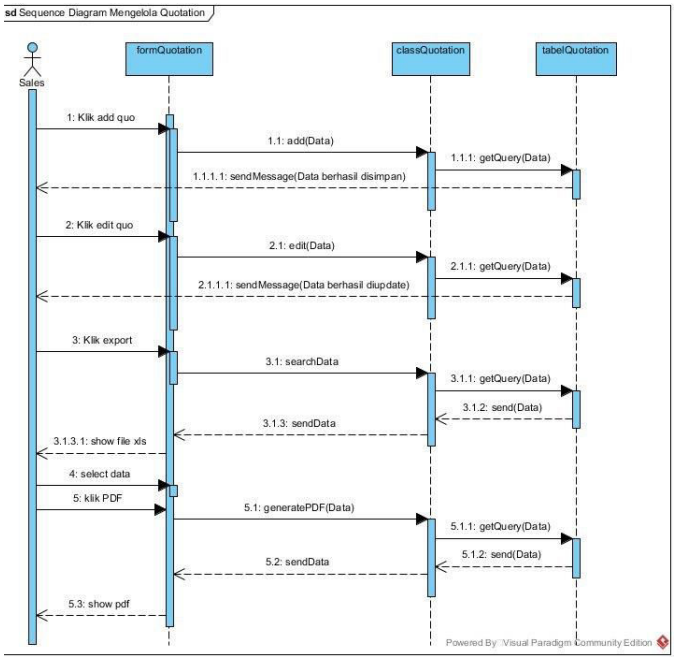

Figure 6 Sequence diagram of Quotation

Some examples of database specification. 4 of the 24 table are shown in table 1, table 2, table 3, and 4

TABLE I
TABLE ROLE

No	Field Name	Data Type	Length Data	Remarks
1.	role_Id	Int	3	Primary Key, autoincrement
2.	role_Code	varchar	5	Role code
3.	role_Name	varchar	30	Role name

TABLE II
TABLE CUTOMER

No	Field Name	Data Type	Length Data	Remarks
1	cust _Id	Int	4	Primary Key, autoincrement
2	cust _Code	varchar	7	Cust code {format : autonumber}
3	cust _Name	varchar	25	Cust name
4	cust _Addr	varchar	50	cust Address
5	cust _Telp	varchar	12	Cust phone
6	cust _Email	varchar	20	Cust email
7	cust _NPWP	int	20	Cust NPWP

TABLE III
TABLE INVENTORY

No	Field Name	Data Type	Length Data	Remarks
1.	inven _Id	Int	5	Primary Key, autoincrement
2.	item _Id	varchar	4	Id Item, Foreign Key
3.	stok	varchar	6	Total stock in inventory

TABLE IV
TABLE QUOTATION

No	Field Name	Data Type	Length Data	Remarks
1.	quo_Id	Int	4	Primary ket, autoincrement
2.	quo_Date	DATE	10	Creation date
3.	quo_No	Varchar	7	Quotation number
4.	rfq_Date	DATE	10	Quotation requested date
5.	rfq_No	Varchar	8	Quotation requested number
6.	project_Name	Varchar	25	Project number
7.	cust_Id	Int	4	Customer Id, Foreign Key
8.	cust_Pic	Varchar	20	Customer PIC
9.	cust_Pic_Telp	Varchar	12	Customer phone
10.	devterm_id	Int	3	Delivery terms Id, Foreign Key
11.	top_id	Int	3	Term of payment id, Foreign Key
12.	project_Value	Float	15	Project price
13	emp_Id	Int	3	Employee Id, Foreign Key
14.	supp_Doc	Blob	65535	Document

Also some examples of user interface design shown in figure 7, 8 and 9

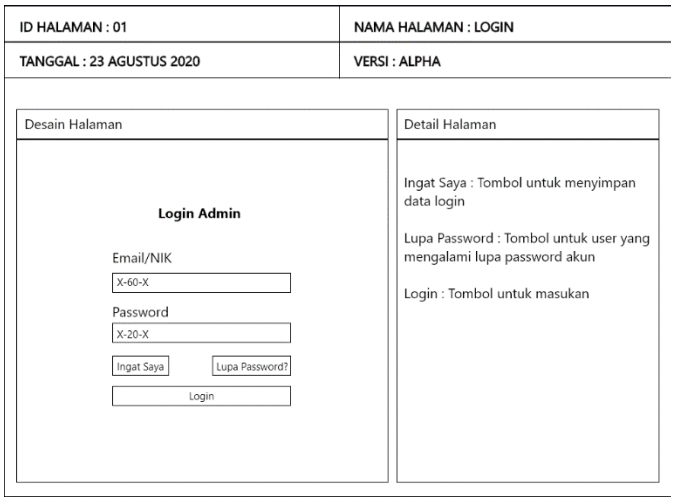

Figure 7 user interface design of Login

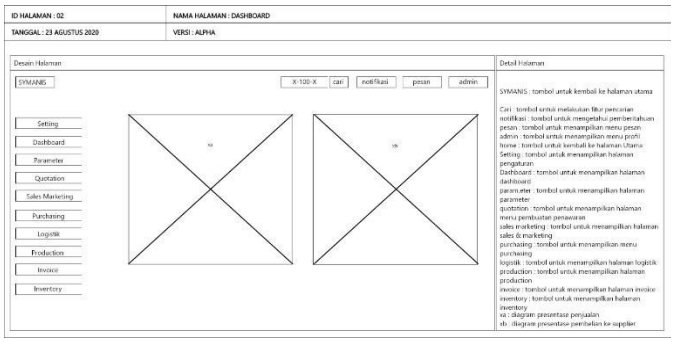

Figure 8 user interface design of Dashboard

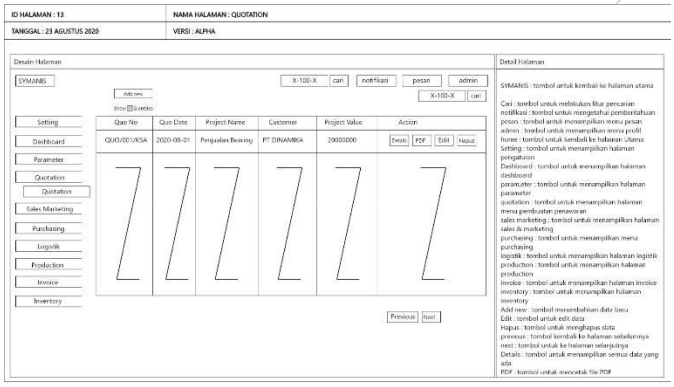

Figure 9 user interface design of Quotation

After the user interface design, the following is class diagram shown in figure 10

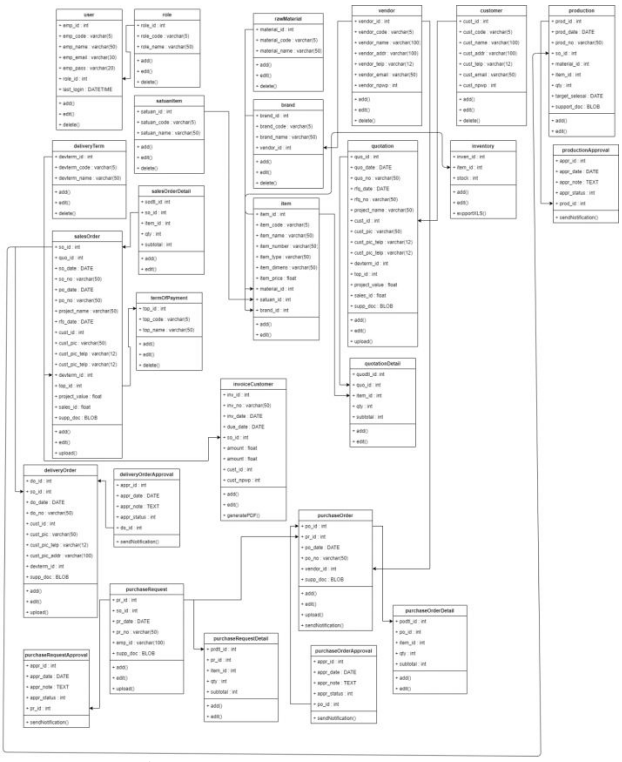

Figure 10 Class Diagram

IV. RESULT

The interface of implemented application is based on the user interface design

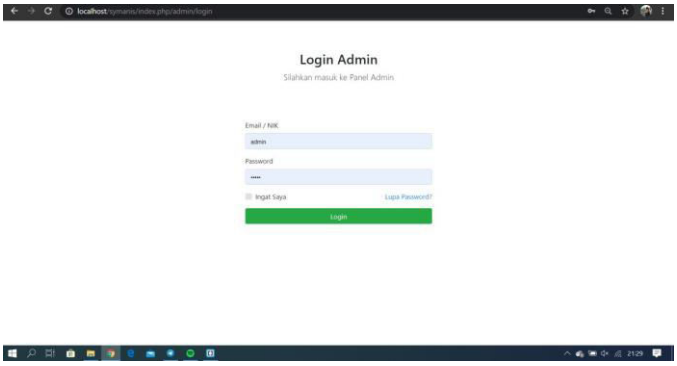

Figure 11 Login Page

Login page contains username and password to enter the system.

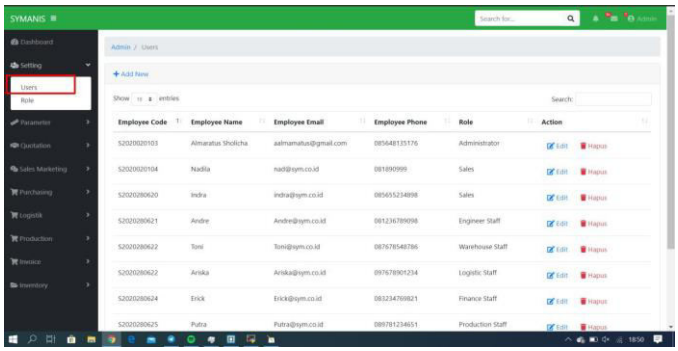

Figure 12 User Page

Figure 12, user page are used to manage the user in system

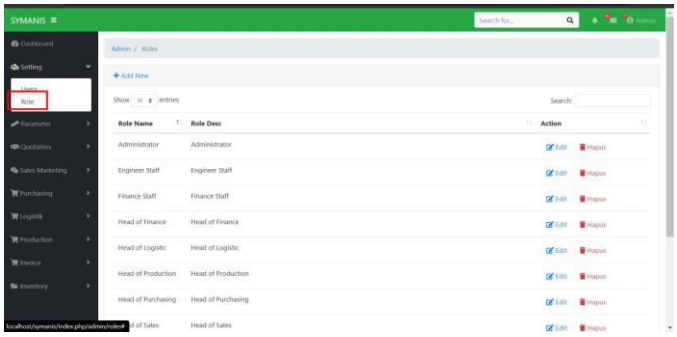

Figure 13 Role Page

Figure 13, role page are used to manage the role in system

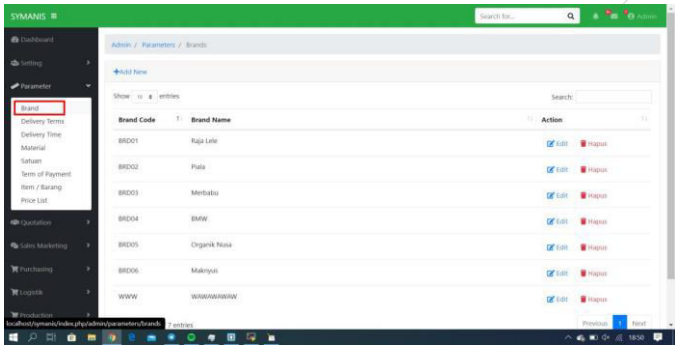

Figure 14 Master Brand Page

Figure 14, Master Brand page are used to manage the brand data in system

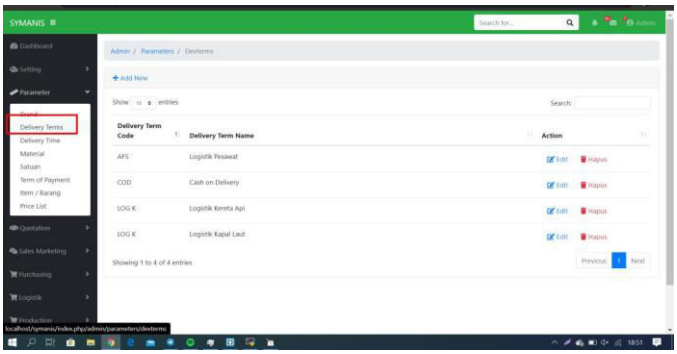

Figure 15 Master delivery term page

Figure 15, Master delivery term page are used to manage the delivery terms data in system

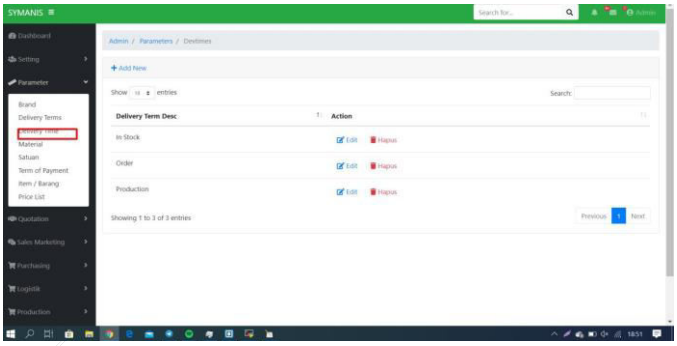

Figure 16 Master delivery time page

Figure 16, Master delivery time page are used to manage the delivery time data in system

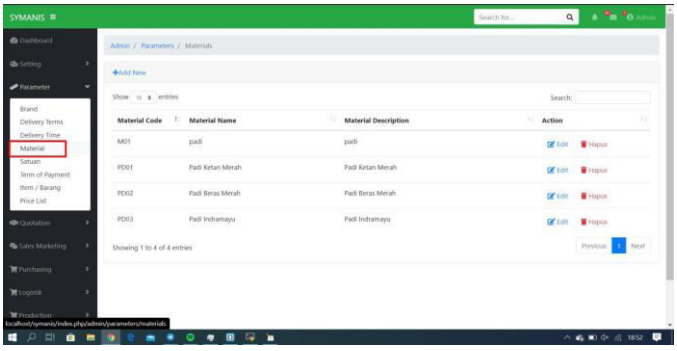

Figure 17 Master data material page

Figure 17, Master material page are used to manage the materials data in system

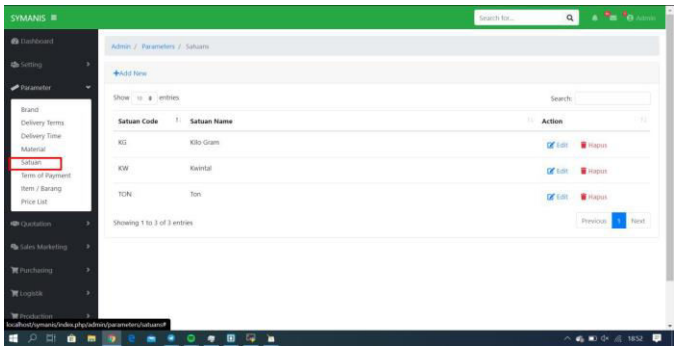

Figure 18 Master satuan page

Figure 18, Master satuan page are used to manage the satuan data in system

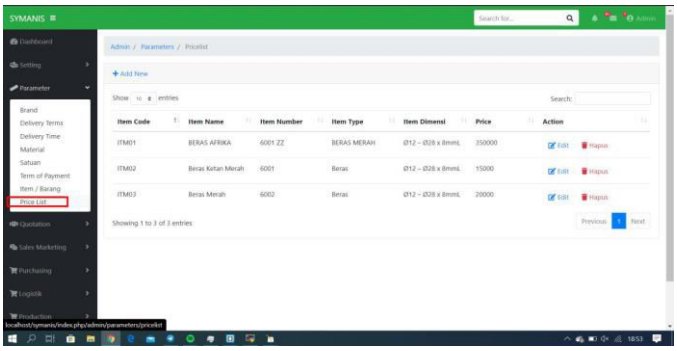

Figure 21 Master Price list page

Figure 21, Master price list page are used to manage the price list data in system

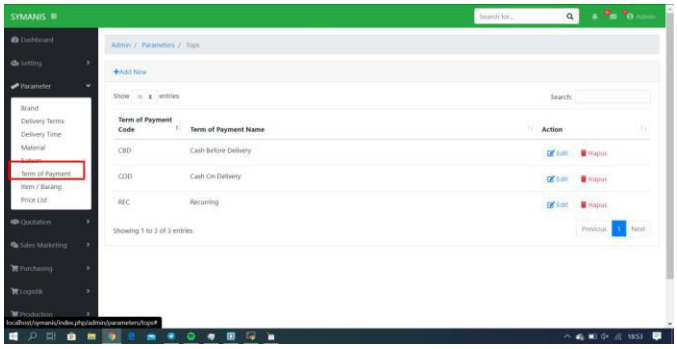

Figure 19 Master term of payment page

Figure 19, Master term of payment page are used to manage the term of payment data in system

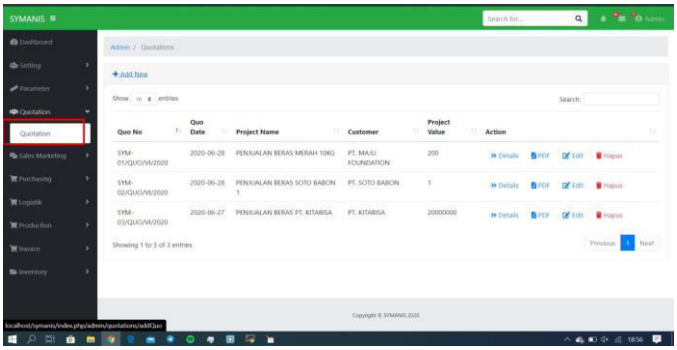

Figure 22 Quotation Page

Figure 22, quotation page are used to manage the quotation data in system

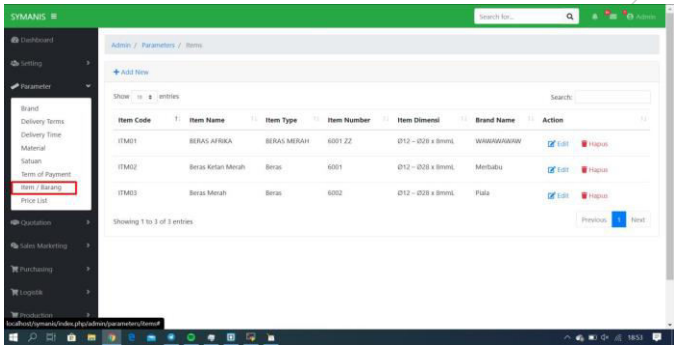

Figure 20 Master Item / Barang Page

Figure 20, Master Item/Barang page are used to manage the Item data in system

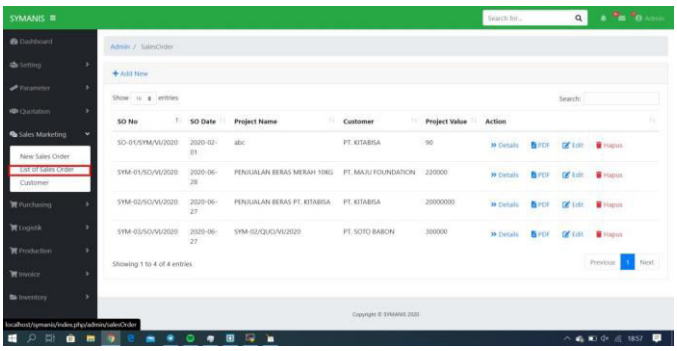

Figure 23 Sales Marketing Page

Figure 23, sales order page are used to manage the sales order data such sales order and list of customers in system

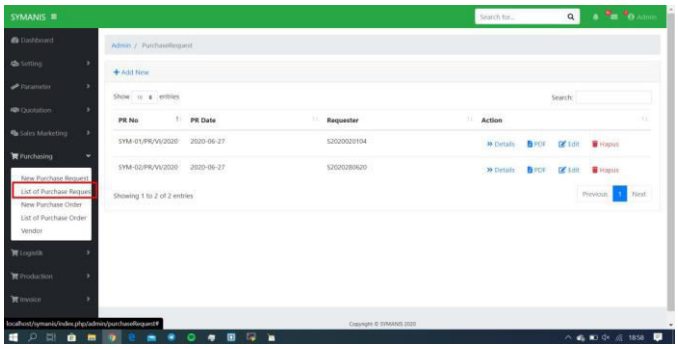

Figure 24 Purchasing Page

Figure 23, purchasing page are used to manage the purchasing data such purchase request and purchase order in system

V. CONCLUSION

Based on research and system design at PT. Raja Bearindo, it can be concluded that supply chain management can be a solution to increase work effectiveness and efficiency. features that support these solutions are :

1. The notification in the system will reduce delays in delivery of goods due to effective communication between employees
2. No duplication of documents because all documents will be integrated in the system
3. With the system, the manager will easily control the assignment of employees
4. Time efficiency

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