CONSTRUCTION OF INFORMATION SYSTEM OF DISTRIBUTION OF THE PRODUCTS IN THE CV. SARI BLOOM USED THE APPROACH TO *SUPPLY CHAIN MANAGEMENT (SCM)*

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ABSTRACT

CV. Sari bloom is an industrial company that is engaged in the manufacture of soy sauce, Chili Sauce and minced. In the company there are two business processes upstream and downstream, also on the upper reaches of this perushaaan have problems relating to procurement of raw materials to the supplier. And the lower reaches of the company was experiencing difficulties in the process of distribution of the products to the customer.

Based on existing problems at the moment in the CV. Sari bloom, then needed a Supply Chain Management with the goal of IE makes it easy to determine the amount of the filing of the raw materials to the Supplier and ease in scheduling the distribution of products to the customer. The methods used for forecasting raw material is a single exponential smoothing and prediction of the availability of raw materials in the warehouse using the method of safeguarding inventory (safety stock). Based on the test results it can be concluded that the system that has been developed can facilitate the head part of the warehouse and procurement in determining the amount of the filing of the raw materials to the supplier, and facilitate the marketing section head in the menjadawalkan distribution with vehicles that are used at the same time can determine which customers sent in advance with the nearest distance considerations.

Keywords: Supply Chain Management, Single Exponential Smoothing, Safety Stock.

1. Introduction

1.1 Background

CV. Sari bloom is an industrial company that is engaged in the manufacture of sweet soy sauce, chilli sauce and minced. CV. Sari bloom was founded by Mr. h. NENDI EFENDI in the year 2007. Types of products produced by CV. Sari bloom is a sweet soy sauce, chilli sauce and minced. All products issued by the CV. Sari bloom named DOVE STAMP. Soy sauce is the flagship product of CV. Sari bloom, soy sauce is also the most products ordered by the customer.

CV. Sari bloom has a series of work system from upstream to downstream, upstream from the CV. Sari bloom do the booking process the raw materials to the supplier, the reception of the raw materials have been ordered from the supplier, do the processing of raw materials into products. CV. Sari bloom implementing systems make to stock where production is carried out prior to the reservation from customers. CV. Sari bloom worked with some suppliers, such as CV. Jaya Mandiri, PD. Produce, PT. Gita Solar and others. While the lower part of the CV. Sari bloom do the booking acceptance process products from customers to the CV. Sari bloom and the process of distributing the products of CV. Sari bloom to the customer.

Based on the results of the live interview with Mr. Rusdiat as the head of a section of the warehouse and procurement, he sets forth that the booking process the raw materials do the head part warehouse and procurement to suppliers is done over the phone, to process payment of YOUR CV. Sari bloom to the supplier of the goods is done when received and made in cash or transfer in accordance with the policy of each supplier.

At the moment of the booking of the raw materials is done every 2 months once with the same amount, it would result in the occurrence of a problem while booking request from customers is high, so the shortage of raw materials in the warehouse which resulted in the production process was hampered and ordering products from customers can not be fulfilled. So also when booking requests from customers to decline, then the excess raw materials often occur and result in the buildup of the amount of raw materials in the warehouse too much so that raw materials can be damaged, it can be seen from the sales data has been attached. When the raw materials come from the supplier directly done checking in advance before entering the warehouse, if there are raw materials that are not feasible then done returns to the supplier and the supplier usually determines the time to replace it with a new raw materials.

Based on the results of the interview with Mr. Iyus Yusufi as head of marketing, he sets forth that the product ordered by the customer in a bottle, the product of a customer booking accepted by

marketing, customers may make a booking telephone melului or come directly to the Office, all the booking process from the customer will be noted in the memorandum and order book. The process of payment from the customer to the CV. Sari bloom is done in cash. The process of returns of CV. Sari bloom to customers do when the goods have been damaged so that it is not feasible for sale, returns done within 1-2 days. The process of distributing products to customers every working day in accordance with the number of requests from customers. The company has 1 unit car truck box, 2 units of the car pick up to distribute the product to the customer. The marketing section several times experienced constraints in the process of distributing products to customers, it occurred at a time when raw materials are experiencing the emptiness at the warehouse, causing the production process being obstructed and the impact on the process of distribution of products which do not comply with what has been previously agreed upon with the customer. marketing is also often mengalamai the difficulty at the moment to determine the kind of vehicle and the nearest location of customers.

1 ISI PENELITIAN

2.1 Cornerstone Of

The cornerstone of the theory on writing this thesis will explain about the theories related to the application of information system In Supply Chain Management CV Mekar Sari.

2.1.1 Information Systems

Information systems (information system) is a combination of people, hardware (hardware), software (software), a communications network, and data resources that collect, transform, and distribute information within an organization. People depend on information systems to communicate between each other using various types of physical tools, commands and procedures information processing, telecommunications or network channels, and data stored data or resources.

2.1.2 Supply Chain Management

Supply Chain (chain of procurement) is a system of funneling goods organization places of production and services to its customers. The chain is also a network or networks of interconnected organisations which have the same purpose, namely as best we can organise the procurement or distribution of the goods.

The concept of the supply Chain is a new concept in terms of looking at the question of logistics. In the old concept, logistics internal problems as more of each company, and a possible solution was placed on solving in intern in the company respectively. While in this new concept, the problem of logistics is seen as a broader issue which is very long, starting from raw materials to finished goods used the end consumer, which is the chain of procurement. It can be said that the supply Chain is the logistics Networks. In this connection, there are a few major players which are the companies that have the same interests, namely:

1. Suppliers;
2. Manufacturer;
3. Distribution;
4. Retail outlets;
5. Customers.

Chain 1 : Suppliers

The network at the start of the supplier, which is the source that provided the first ingredient, where the chain of distribution of goods will be started. This first material can be in the form of raw materials, raw materials, materials, auxiliary materials, spare parts, merchandise and so on. The first source is named suppliers. Number of suppliers could be many or few, but suppliers typically amount to much at all.

Chain 1 – 2 : Suppliers – Manufacturer

The first chain linked to the second, namely chain Manufacturer or plants or assembler or fabricator or any other forms that do the work of making, mengfabrikasi, mengasembling, assemble, convert, or completed goods (finishing).

Chain 1 – 2 – 3 : Suppliers – Manufakturer – Distribution

Stuff already so generated by the Manufacturer already had to start distributed to customers. Although there are many ways for channelling merchandise to customers, the public is through a distributor and is usually reached by most of the supply chain. The goods from the factory via Keflavík transmitted to warehouse distributors or wholesalers in large quantities, and large traders later in time shall transmit such items in smaller quantities to retailers or retailers.

Chain 1 – 2 – 3 - 4 : Suppliers – Manufakturer – Distribution – Retail Outlets

Wholesalers usually has its own warehouse facilities or can be also rented from other parties. The warehouse is used for stockpiling goods prior to transferring it again to the retailer. Here again there is a chance to acquire the savings in the form of the amount of inventories and the cost of the warehouse, with the way the design patterns return shipment from the Manufacturer or warehouse to the store retailers (retail outlets). Although there are some factories that directly sell its results to the customer,

but the relative amount not much and most use this pattern.
Chain 1 – 2 – 3-4-5: Suppliers – Manufakturer – Distribution – Retail Outlets – Customers
The retailers or retailers offers the goods directly to the customer or buyer or user of the item. That includes outlets are shops, stalls, Department stores, supermarkets, cooperative store, Mall, Club store, and so on, anyway the end where buyers make a purchase. New supply chain completely stopped after the goods concerned arrive at the user end of the goods or services.
2.1.3 system of supply chain
Based on the opinions of experts about the system and the authors conclude supply chain supply chain system is a system in the supply chain which has the aim of creating mutually beneficial cooperation in controlling, regulating and improving the flow of material and information of a product from supplier to end users. Development of supply chain system in CV. Mekar Sari author in development using supply chain management approach.

2.1.4 the process of Supply Chain Management (SCM)
Supply chain management process is a process of processing of products from raw material still start, semi-finished products to finished product is obtained and then sold through a wide range of facilities which are connected by chains along the flow of products and materials. When depicted in the form of a chart will appear as follows:

Figure 1. Model simplification supply and 3 kinds of streams run
Figure 1 shows that the supply chain management is the coordination of materials, information and financial flows between the participating companies.
a. flow of material involving the flow of physical products from the supplier to the consumer through a chain, as well as feedback from returns a product, service, recycling and disposal.
b. information flows include forecast demand, transmission of orders and order status report.
c. financial flows include credit card information, credit terms, payment schedules, assignment of ownership and delivery.

2.1.5 Push and Pull Supply Chain

Pull supply chain is a strategy of production make-to-order "that the main benefit is avoiding waste or inventory is a strategy the company mainly manufacturing companies where new production done always after the market demand and actually done at the request of the customer.

Push the Supply Chain is a strategy of production Make-to-Stock. The push system is essentially a system of planning and controlling production-based material requirments planning (MRP) [8]. The pull strategy more popular compared to the production system because the pull system based upon forecasting or forecasting and generating large amounts of output that would later go into inventory before it is transmitted to the customer.

2.1.6 Metode Peramalan Single Exponential Smoothing

Forecasting based on refinement method exponential (exponential smoothing) is generally used to estimate sales of products individually. This method is often considered better than the previous two methods, namely simple average and a single moving average because of its ability to use past data by administering the weighting based on the present data. More data is now being given greater weight in comparison with previous data. The assumption is that more data is now always have a stronger influence against the results of the forecast compared with the more obsolete data [8]. Single exponential smoothing formula to be
views on the equation 2.3

2.1.7 Mean Squares Error (MSE)

Counting errors of forecasting used to know the accuracy of forecasting results that have been made against actual data. There are many models for forecasting errors doing the calculations. The method used to calculate the fault forecasting (forecast error) is a method of MSE (Mean Squared Error). MSE is the average of the difference in the squares of the values predicted with observed [5]. MSE is used by generating an existing error indicates how large the difference results estimation with the destinations. This makes it different due to the randomness in the data or because it does not contain a more accurate estimation. The formula for the MSE can be seen in equation 2

Where,
At = Actual Demand in the period t
FT = demand forecasting in the period t
n = the number of forecasting period involved

2.1.8 Inventory

Supplies along the supply chain have implications on the financial performance of a company. The amount of money that are embedded in the form of supplies is usually so great that supplies is one of the largest asset owned by the supply chain. Many companies have a value of persediaanya melibihi 25% of the overall value of owned assets. This means that the cost of capital that is stuck in the form of supplies in an enterprise/supply chain is very large
. [5]

2.1.9 Teknik Safety Stock

Based on the classification of the preparation which is already explained earlier the author uses techniques of Safety stock to mngakomodasi requests that the uncertainty effect on supplies [5]. Safety inventory (Safety stock) is useful to avoid shortages of raw materials at a particular moment or moment of lag time (lead time) in the process of booking the next security, inventory (safety stock) is useful to protect the company from risks running out of [5].

Formula safety stock (SS) to find the value of safety stock can be seen in Equation 3.

Safety Stock = Z x S_{dl}

Z = Service Level (the ability of the company to serve the request or translated from decision management)
SDL = determined from the request with conditions of uncertainty can be seen in Figure 2

variabel		
Permintaan	Sdl = Sd x $\sqrt{(l)}$ *Safety Stock* ditentukan oleh ketidakpastian permintaan.	Sdl = $\sqrt{(d^2 \times Si^2 + l \times sd^2}$ *Safety Stock* ditentukan oleh interaksi dua ketidakpastian.
konstan	Tidak diperlukan *safety stock*, situasi deterministik (S_{dl} = 0).	Sdl = d x sd *Safety Stock* ditentukan oleh ketidakpastian *lead time*.
	konstan	variabel

Lead Time

Gambar 2. Interaksi antara permintaan dan lead time
pada penetuan safety stock

2.2. Analysis Problem

Analysis of the problem is an assumption of the problem which will be outlined in the procedure of data processing procedures on the development program of information system in Supply Chain Management CV Mekar Sari. Analysis of the problems of the system that is running at the moment is:

1. The head of the Production difficulties determining the amount of production to fit the needs of the sales agents.

2. The head of the Production difficulties determining the amount of raw materials should be available, to meet the supply of finished product inventory to meet the demand of the agents.

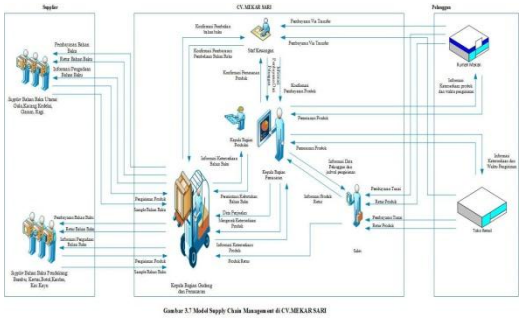
3. Head of marketing difficulties in planning for scheduling delivery of products that have not been going well and the difficulty in menentuan the distance to the delivery.

2.3 Analisis Supply Chain Management (SCM)

Analysis of supply chain management is used to work on components of the information system will be built. Supply chain management has a framework is a component
development for the system.

2.3.1 Model Supply Chain Management (SCM) In CV Mekar Sari

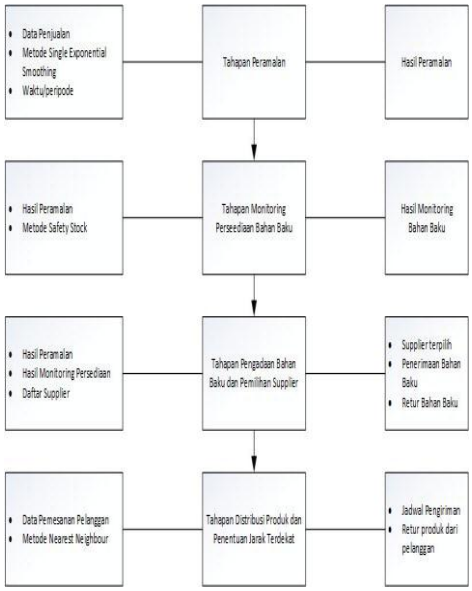
Berdasarkan analisis SCM yang dijelaskan pada bagian sebelumnya, adapun model supply chain yang terdapat di CV.Mekar Sari dilihat pada Gambar 3.



Gambar 3 Model Supply Chain di CV Mekar Sari

2.3.2 Analisis Supply Chain di CV Mekar Sari

Supply chain analysis conducted to describe the supply chain management process that will be built at CV mekar Sari model based on supply chain in Figure 3 as for the analysis of the supply chain in the CV. Sari bloom can be seen in Figure 4
.

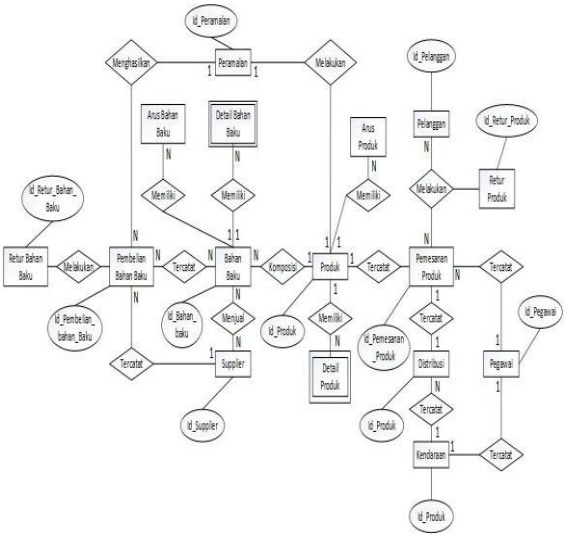


Gambar 4 Analisis SCM di CV.Mekar Sari

2.4 Database Analysis

Database analysis is the analysis of the data sets are interlinked with each other so that it can support the information system will be built. The

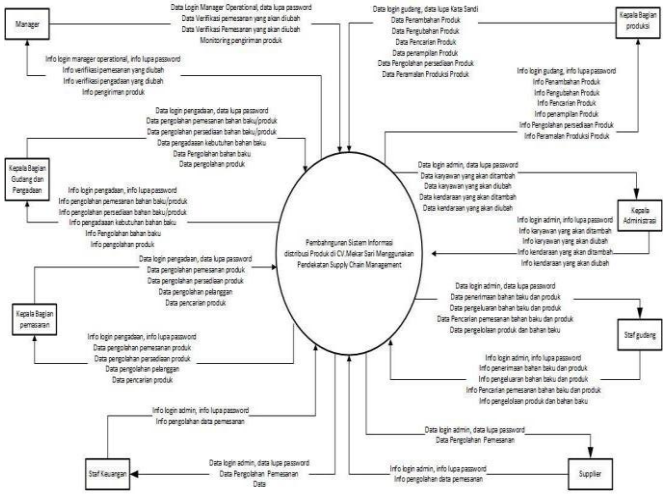
data obtained will be used to design the database accompanied by attributes-the attributes of each of the entities and the relationships between these entities. in designing the database, the data model that will be used is an Entity Relationship Diagram (ERD). Model ERD Distribution information systems Development Product in CV. Sari bloom Using Supply Chain Management Approach, can be seen in Figure 5.



Gambar 5 ERD Pembangunan Sistem Informasi Supply Chain Management di CV. Mekar Sari

2.5 Diagram Konteks

Context diagram is a model to explain how data is used globally and is transformed to the process or describe the flow of data into and out of the system. This system context diagrams can be seen in Figure 6



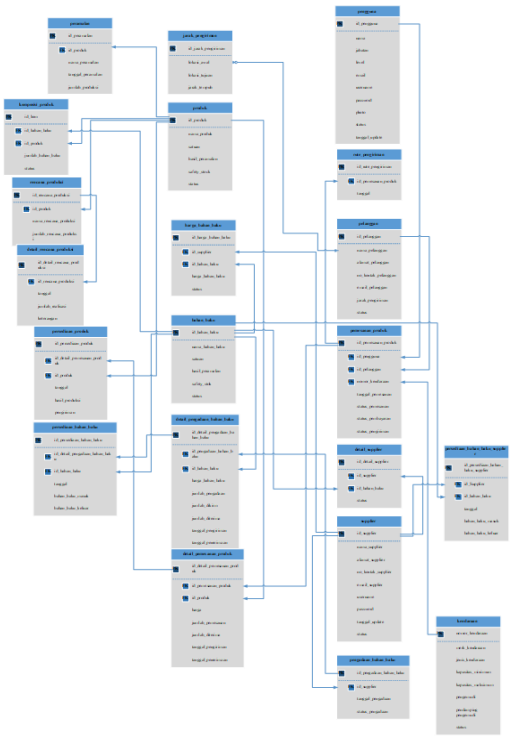
Gambar 6 Diagram Konteks SCM CV.Mekar Sari

2.6 Data Flow Diagram (DFD)

Data flow diagram shows how the flow of data and outlines the processes that occur in the system until the process in more detail. the processes that occur in the system until the process in more detail.

2.7 Table Relation

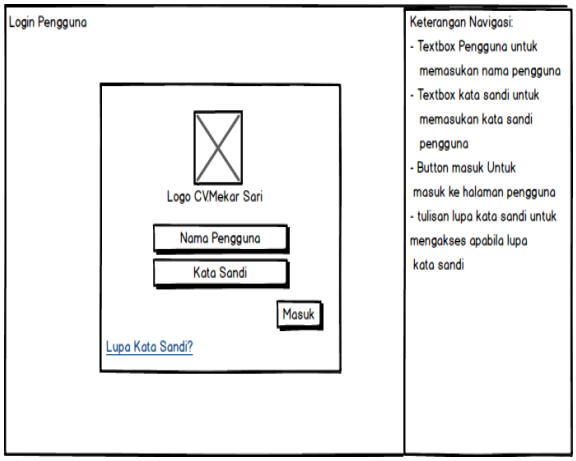
Table relation is used to describe the relationships between tables in the system in detail or clear. Table relation will be depicted in Figure 7.



Gambar 7 Tabel relasi

2.8 The Design Of The Interface

The design of the interface is created to describe the display control rogram which will be used by the user to interact with the system to be built. The design is based on the display of the input as well as output either interface to be generated when the application is implemented

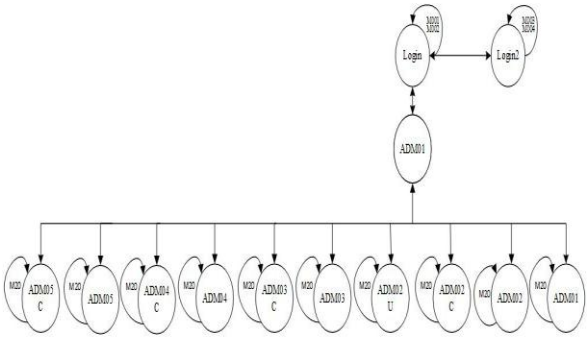


Gambar 8 Perancangan Antarmuka

2.9 The design of The Semantic

The design of the semantic network administrator describes the process of linking the menus which can be accessed by the administrator with the error messages that occur at each process. The design of the semantic network administrators can be seen in Figure 9

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Gambar 9 Perancangan Jaringan Semantik

2.10 System Testing

System testing is the most important thing that aims to find any errors or omissions in the information system tested. Testing the system in question to know the performance of information systems that have been made in accordance with the objectives of the design of information systems. Testing the system using black box testing. Black box testing focuses on the functional requirements of the software and user acceptance testing (end users).

1. System Testing Functional

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2. User Acceptance Testing (End Users)

User acceptance testing (end users) is testing undertaken where objectively tested directly onto the field that is concerned about the company's user satisfaction with the content of points i.e. the initial goal fulfillment and display interface of information system in Supply Chain Management. In the user acceptance testing (end users) there are two test scenarios that will be made of them by using the UAT (User Acceptance Testing) done software testing process involves prospective users in the company that is selected by the developer as well as chaperoned when done. This is done with the aim of finding defects (defects) that are not found by the developer. Then the end user acceptance testing done after the system is implemented in an enterprise environment by using the interview to end users who use the software.
The interview was done testing against for any users of the page consists of a section head of marketing, head of production, the head of the Pack, head of the Chief of procurement and distribution. Testing is done on the end user acceptance testing after the system is implemented in the corporate environment is done directly in the corporate environment or place of research i.e. CV. Mekar Sari ... This is done with the purpose of knowing whether software that is built can provide the solution of problems faced by the company.

2 PENUTUP

In this section, describes the conclusions contains the results obtained after the analysis, design, and implementation of the design of software built and have been developed as well as suggestions that will provide an important record of and possible improvements that need to be done for the development of the software before.

2.1 Conclusion

Based on the results obtained from the research that has been done in the writing of this final project about the construction of information system in supply chain management CV Mekar Sari, then the conclusion to be drawn as follows:

1. supply chain management information system that can facilitate this head of production in determining the approximate number of production of the product to be created by using the help of forecasting and monitoring existing stocks of the product digudang using monitoring products.

2. supply chain management information system that can facilitate this head of production in determining the approximate amount of purchases raw materials will be ordered and monitor existing stocks of raw material digudang by using the monitoring of raw materials.

3. supply chain management information system built this can ease the head of marketing in a set of scheduling the delivery of products to consumers, help determine the vehicle that will be used in shipping, helps determine the amount of product to be delivered and helps determine the distance delivery and determine the route of the delivery to the dealer.

3.2 Advice

Based on all the results that have been achieved at present, supply chain management information system in CV. Mekar Sari still has some drawbacks. It is recommended to add things that can supplement the system. As for suggestions for the development of information systems, supply chain management is as follows:

1. Information systems still need to be developed more of a side view of the interface and the language to make it more attractive and easier to use.

2. The development of information systems to implement customer relationship management which includes ordering products and customer complaint handling in order to simplify Agent in booking.

3. this information system still need to be developed more in the distribution process, namely the process of determining the distance that still haven't been fullest because of the methods used by the author is still difficult

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