DEVELOPMENT OF SUPPLY CHAIN MANAGEMENT PT. ALGISINDO PRATAMA

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ABSTRACT

PT. Algisindo Pratama is a company producing corrugated carton box manufacturer in the field of packaging products. Algisindo PT Pratama was established August 10, 2011, which address at Jl. Raya Setu 27 Ds. Telanjung RT 001 / RW 08 district. Cikarang Barat - Bekasi. Production will only be done if there is a reservation of the customer. When the process of ordering the head of Production Planning Inventory Control (PPIC) was difficult to inform the completion of the product to the customer. In the process of material procurement to suppliers during the company uses business rules to exaggerate 10% of the total demand for material types Carton. The addition of these materials is also often leaves the material stored in the warehouse. The rest of the material will be decreased by the amount of the needs and exceeded 10% in anticipation of a material defect or material experiments. Another issue that arises is the limited number of vehicles and vehicle capacity, each vehicle has a different capacity so companies difficulties in scheduling shipments.

Supply chain Management is a series of work upstream downstream strategy Supply Chain that used in PT. Algisindo pratama is pull supply chain, or can be called a make to order for reservation *material* and only after their production orders from *customer* and really conducted at the request *customer*,Genn estimations using the reservation chart, the purchasing planning material is not stocked using business rules exceeded 10% in anticipation of product defects and product trials. and scheduling of delivery depends on the number of vehicles and capacities. Pursuant to the problems that exist in PT. Algisindo pratama it needed an information system development Supply Chain Management.

based on result examination blackbox and beta can be concluded that a system built to facilitate head Production planning inventory control (PPIC) in providing information on the estimated completion of the product to the customer, allowing the head of purchasing in determining the amount of material procurement to suppliers, and facilitate the head shipment in managing scheduling of delivery of products to customers who has placed orders for products.

Keywords: Supply Chain Management, Make to order, Pull supply chain

1. PRELIMINARY

PT. Algisindo pratama is a Manufacture of Packaging products company engaged in the manufacture Corrugated Carton Box, PT. Algisindo pratama established on August 10, 2011 located at JL. Raya Setu No. 27 Ds. Telanjung RT 001 / RW 08 district. Cikarang Barat - Bekasi. PT. Algisindo pratama use strategies Make to Order the purchasing process of Supplier Material and production processes will be carried out if there is a reservation of the customer, the manufacture of Corrugated Carton Box is a cardboard-type BF Flute, Flute CF and CB Flute. Working time in the PT. Algisindo pratama starting from Monday - Friday from 08:00 until 16:00 on Saturdays and red dates PT. Algisindo pratama not do the production.

Based on interviews conducted with Mr. Ade as the head of Marketing PT. Algisindo pratama he explained the process of ordering products at PT. Pratama Algisindo there are two types of first order using the First In First Out (FIFO) is for the Customer who've placed orders for products in advance and then the Customer will receive the first production order, while for customers who place a new order to the PT. Algisindo pratama customer contact head Marketing PT. Algisindo pratama and make an appointment, customers bring their own product design and order products to Marketing. Then the head of marketing received a design provided by the customer and handed over to the head of production for product samples made according to the design of the customer, for the kind of new order takes additional one day from the date the design was accepted, one day be used to create the product sample in accordance with the desired design of the customer. After sample the finished product then the sample product will be seen by the customer if the customer agrees with samplenya then the customer will do Approval sample as a sign that the customer approved the sample is made by PT. Algisindo pratama, the customer will be asked DP 30% of the total price of the product. Further interviews were conducted with the Head of Production Planning Inventory Control (PPIC). He explained often receive

complaints from customers because of not reaching the finish time of production in accordance with the promised date, because the head of the PPIC provides complete time production information by estimating based on the size and quantity, so that the customer will feel disappointed to the company if the order completion time does not correspond to the date promised. Further interviews were conducted with the Head of Purchasing, he explained would make the purchase of materials if the customer has already paid DP by 30% purchase of material exceeded 10% of the required amount of material to be manufactured into products on customer orders the purpose of the additions is to anticipate product defects and product trials, he also said the waiting time of arrival of materials from suppliers bias until two or three days due to queues at the supplier. Further interviews were conducted with the delivery head he explained shipping products to customers conducted in accordance weekdays. The problem that exists is the difficulty in regulating the delivery schedule to customers who order products resulting from the uncertainty of the finish time of production, so that the delivery of the product to the customer order is not timely, PT. Algisindo pratama has three units of vehicles consisting of one car Truck Cargo and two cars Box with different capacities delivery of the products is done in time and a different amount so that the delivery had difficulty in determining when a product should be sent and which car is available, resulting in the delivery of products the customer is not timely.

Pursuant to the problems that exist today, the PT. Algisindo pratama require something with establishment information system which can determine the estimated time of completion of production to the customer, providing ease of procurement of materials for the head of purchasing in the purchase of materials using business rules, namely the purchase of materials carried by the overhead of 10% of the total material required to manufacture the products the customer, delivery scheduling and vehicle diseseuaikan with the capacity of existing vehicles in the company to send the product to the customer

Berdasarkan consideration of several issues that have been described we need an Information System "Development of Supply Chain Management at PT. Algisindo pratama ".

based on commentary background back on top, then the problem which exists PT. Algisindo pratama is how to build information systems Supply Chain Management.

, The intent and the purpose of this research is:

1. Helping head *Production Planning Inventory Control (PPIC)*in providing information estimated completion time for customer orders
2. Facilitate the Delivery Head PT. Primary Algisindo to schedule delivery of products to*Customer* and determine the date of the order to send the product to the customer who has made the order to be on time

2. RESEARCH

2.1. Theoretical basis

The theoretical basis of this thesis will explain the theories relating to the information system will be built at PT. Algisindo pratama

2.1.1. Information Systems

a. System is a network or a network of procedures that exist and interconnected, gathered together to perform an activity or activities to accomplish a goal that is specific, while information is data that is processed into a form that is more useful and more meaningful for those who receive it. The source of information is data. Data is the plural of the singular form datum or data item. Data is a fact that illustrates an events and real unity. [4]

b. The system could be interpreted as a union of elements that have relevance. Some elements can be combined into one unit, group, or component system with a particular function while bearing the information meaning the benefits, if we can use it. Information connotes the meaning of effort, to get it, understand it, use it, pass it, store it, and so an other information into a new information. [2]

With reference to the meaning of the two sources can be concluded that the information system is a unity of interrelated elements to accomplish a specific goal in which there is a data summarized or processed into a form that is more useful if we can use it well

2.1.2. Supply Chain Management

a. *Supply Chain Management*(Supply Chain Management) as an approach used to achieve an efficient integration of the supplier, manufacturer, distributor, retailer and customer. This means that the goods are produced in the right quantities, at the right time and at the right place with the aim of achieving an overall cost of a system of minimum and also achieve the desired service level. [6]

b. According to I Nyoman Pujawan and Mahendrawati "Supply Chain is a network of companies - companies that collectively - working together to create and deliver a product into the hands of end users. Company - the company usually including suppliers, manufacturers, distributors, or retail store, as well as companies - companies support such as logistics services company. "[5]

c. According Siahaya Wilen, *Supply Chain Management*(SCM) began with the military logistics activities were very instrumental in determining the war victory. Logistics

techniques later used in the shipping of goods and happened cooperation between companies shipping goods to the warehouse. The company began looking for ways to reducing small production costs. Multinational companies to move factories to other countries that have cheaper production costs. In the advent of information technology, logistics develops more rapidly and more efficiently through communication and collaboration so that it can reduce production costs, improve quality and reduce human error. Science developed into one eye logistics supply chain approach through integral system, including component suppliers, procurement, production, storage,

Based on the above opinion can be concluded that the Supply Chain Management is a tissues Companies that cooperate and mutually benefit from each other in control, manage and improve material flow and information from suppliers to user. An important principle in SCM is transparency of information and collaboration between functions internal the company or with parties the company along the supply chain

On *supply chain* usually There are three kinds of flow must be managed. Three kinds of flow that must be manageable on *supply chain* is as follows: [6]

1. First is barag stream which flows from upstream (upstream) downstream (Downstream).
2. Second is Flow money and like flowing from downstream to headwaters
3. Third is Flow information which can occur from headwaters downstream or otherwise.

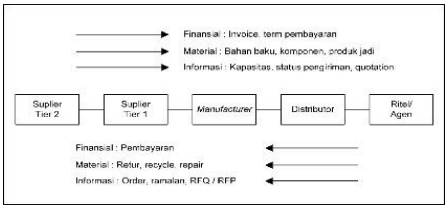


Figure 1.Simplifikasi Model Supply Chain And Three kind flow Yang managed

2.2. Model Supply Chain Management at PT. Algisindo pratama.

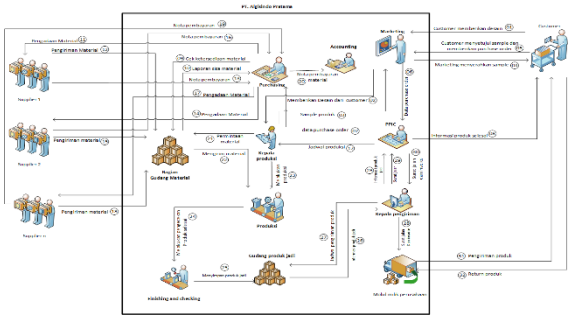


Figure 2. Model supply Chain Management at PT. Algisindo pratama

Description perpetrators Supply Chain contained in Figure 2 Model of Supply Chain Management at PT. Good Taste Perkasa is as follows:

PT. Algisindo pratama have multiple streams of information, the first of which is in the form of information flow from the customer product orders to marketing PT. Algisindo pratama can use the phone or face to face to the next company shipping information flow using the flow of information via telephone and procurement conducted by the head of purchasing at PT. Algisindo pratama to the Supplier conducted via telephone

2.3. stages supply Chain Management at PT. Algisindo pratama

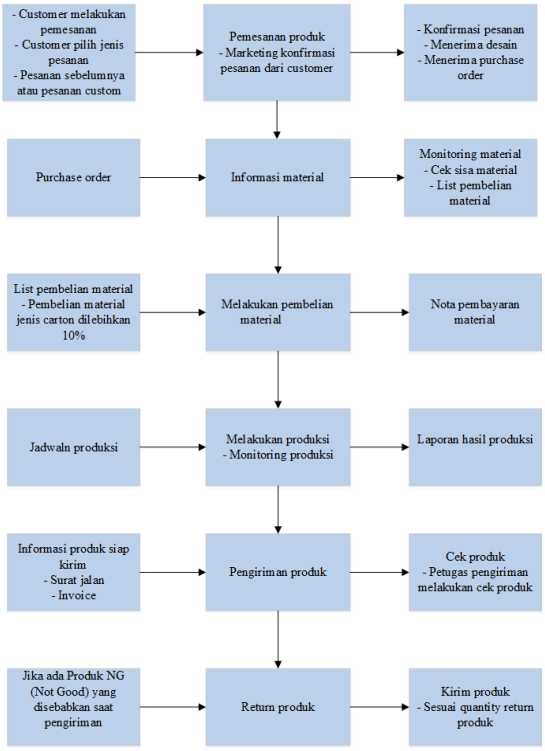


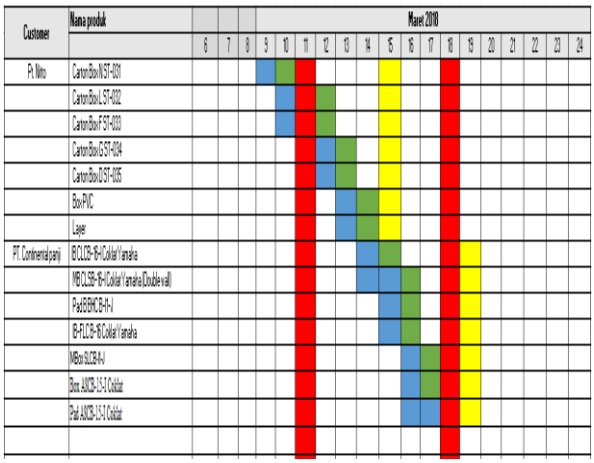
Figure 3.Stages supply Chain Management at PT. Algisindo pratama

1. stages *Supply Chain Management*

Bersadarkan Figure stages Supply chain management actors involved in the stage of the booking that is between the customer with the head of Marketing, Customer will order products to the marketing, the next head of Marketing will confirm the booking of the Customer and head of Marketing will inform the Purchase Order from the customer to the head of the PPIC from PPIC head will be given the estimated time of completion of production to customers, estimates production time is displayed using ganchart

The following is the results of the calculation of estimated production:

Table 1. Calculation of Estimated Production



Information :

	Libur
	Rule, pewarnaan, pemotongan, penggabungan
	Selesai, finishing, pengecekan, pangemasan
	Distribusi

2. Stages monitoring inventories of raw materials

Based on Figure 3 actors involved in the monitoring of raw material inventory is the company's internal parts are parts warehouse. Monitoring of raw materials is performed to determine whether there is residual production of raw materials in the warehouse or not .. Monitoring of raw materials is also to understand the needs of raw materials for production purposes.

material requirements Raw determined by the number of incoming product orders like these booking

Table 2. Subscribers product from customers

Tanggal Order	Nama Customer	Nama Produk	Quantity	Ukuran	Jenis material	Harga	Type	Total Harga
06-Maret-2018	PT. Nitto	Carton Box N ST-031	2000	25 x 160 x 400	K150/M125/K150	Rp. 3.600	Carton sheet (CF)	Rp. 7.200.000
		Carton Box L ST-032	1400	380 x 270 x 87	K150/M125/K150	Rp. 3.850	Carton sheet (CF)	Rp. 5.390.000

Based on existing bookings in Table 2 is required as a raw material requirements following:

Table 3. Calculation of Materials

No	Nama Barang	Material	Kebutuhan carton sheet sesuai quantity pemesanan	Satuan
1	Carton Box N ST-031	K150/M125/K150 Carton sheet (CF)	2000	lembar
		Lem Aica	8	Kaleng
		Cat warna hijau 35	20	Kg
		Cat warna hitam	20	Kg
2	Carton Box L ST-032	K150/M125/K150 Carton sheet (CF)	1400	lembar
		Lem Aica	3	Kaleng
		Staples	20	pack
		Cat warna hijau 35	14	Kg
		Cat warna hitam	14	Kg
3	Carton Box F ST-033	K150/M125/K150 Carton sheet (CBF)	400	lembar
		Lem Aica	2	Kaleng
		Staples	6	pack
		Cat warna merah 132	4	Kg
		Cat warna hitam	4	Kg
4	Carton Box G ST-034	K150/M125/K150 Carton sheet (CBF)	1150	lembar
		Lem Aica	5	Kaleng
		Staples	16	pack
		Cat warna hijau 35	12	Kg
		Cat warna hitam	12	Kg

3. Stages Material procurement

Based on Figure 3 Actors involved in material procurement stage is part of Purchasing at PT. Algisindo pratama head of purchasing will check the rest of the material production to the head of the warehouse and head of the warehouse will inform the rest of the material what is digudan, then the rest of the material will be decreased by the amount of material products to be ordered and the addition (exaggeration) of 10% of interest Extra tersebuh in order to anticipate defects in material and anticipation for the purposes of trial products customer orders, after the head of purchasing will book material to the supplier usually timeout material from suppliers one to two days, but if there is a queue ordering of materials from suppliers waiting time can be three to four days,

Table 4. List of materials purchased

Tanggal Order	Nama Customer	Nama Produk	Quantity	Ukuran	Jenis material	Harga	Type	Total Harga
06-Maret-2018	PT. Nitto	Carton Box N ST-031	2000	25 x 160 x 400	K150/M125/K150	Rp. 3.600	Carton sheet (CF)	Rp. 7.200.000
		Carton Box L ST-032	1400	380 x 270 x 87	K150/M125/K150	Rp. 3.850	Carton sheet (CF)	Rp. 5.390.000

if there is a shortage of material at the time of ordering the material to the main supplier of material shortage will be paid back by the way did the booking to the second supplier to purchase the number of visits from

No	Nama Barang	Material	Kebutuhan carton sheet sesuai quantity pemesanan	Satuan
1	Carton Box N ST-031	K150/M125/K150 Carton sheet (CF)	2000	lembar
		Lem Aica	8	Kaleng
		Cat warna hijau 35	20	Kg
		Cat warna hitam	20	Kg
2	Carton Box L ST-032	K150/M125/K150 Carton sheet (CF)	1400	lembar
		Lem Aica	3	Kaleng
		Staples	20	pack
		Cat warna hijau 35	14	Kg
		Cat warna hitam	14	Kg
3	Carton Box F ST-033	K150/M125/K150 Carton sheet (CBF)	400	lembar
		Lem Aica	2	Kaleng
		Staples	6	pack
		Cat warna merah 132	4	Kg
		Cat warna hitam	4	Kg
4	Carton Box G ST-034	K150/M125/K150 Carton sheet (CBF)	1150	lembar
		Lem Aica	5	Kaleng
		Staples	16	pack
		Cat warna hijau 35	12	Kg
		Cat warna hitam	12	Kg

material shortages that exist in the material ordering to suppliers utamaberikut supplier selection table in the PT. Algisindo pratama.

Table 5. Selection of suppliers

NO	Material	Jumlah material yang dibutuhkan	Sheet	Jumlah Material yang tersedia	
				PT. Cakrawala Megah indah	PT. Guna Paramitha Primasatya
1	K150/M125/K150	2169	2105 x 918	1250	1000
2	K150/M125/K150	1523	1120 x 680	2000	730
3	K150/M1253/K150	418	1083 x 622	600	500
4	K150/M1253/K150	1204	1055 x 466	1300	1050
5	K150/M1253/K150	1078	1183 x 542	900	1100
6	K150/M125/K150	841	1403 x 798	100	900
7	K150/M125/K150	2376	650x465	2000	800

4. Stages of Production Monitoring

Based on Figure 3 are involved in the monitoring phase of production is head of production, production monitoring is the analysis conducted for the production scheduling of customer orders. the order of the customer will be in production when the customer has an order, approving the sample and pay DP, production monitoring will be applied for the purpose of knowing how many products have been produced and how to order products which have been completed. Production scheduling is divided into to several production processes. The first material of the rule-making process, then the process of painting, after going through the process of painting into the porses cuts after the cutting process will enter into a merger, final product enters the finishing stage and the product ready for shipment.

Table 6. Monitoring production

No PO	Tanggal pesan	Waktu mulai produksi	Produk	Qty	Status produksi
PONT001	06-Maret-2018	09-Maret-2018	Carton Box N ST-031	2000	Sedang produksi
			Carton Box L ST-032	1400	Menunggu
			Carton Box F ST-033	400	Menunggu
			Carton Box G ST-034	1150	Menunggu
			Carton Box D ST-035	1000	Menunggu
			Box PVC	800	Menunggu

5. Stages delivery of products to consumers

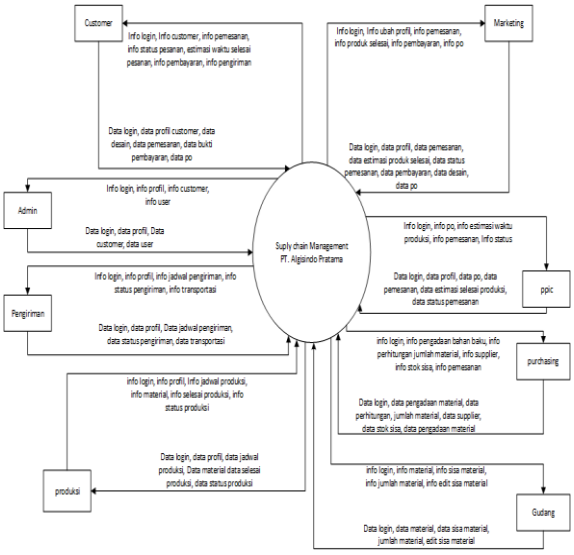
In the supply chain are the product delivery activities. Coverage in shipping activities include monitoring products that are ready to send, shipment status monitoring, scheduling delivery and type of vehicle. Monitoring is done so that the product delivery to the end user at the right time and place, shipment status monitoring is performed to determine the delivery status of the product is up to the customer or are still in the process of delivery. Then the company determines that the vehicle used to deliver customized products with the capacity of the vehicle at the time of distribution.

Table 7 Vehicles PT. Algisindo pratama

No Polisi	Type	Panjang bak	Lebar bak	Tinggi bak	Kapasitas muat produk (Kardus)	
					Truck cargo	Box
B 9316 TCE	Mitsubishi Colt Diesel (Box)	350 cm	173 cm	200 cm		3500
B 9011 FVU	Mitsubishi Colt Diesel (Box)	350 cm	173 cm	200 cm		3500
B 9444 KB	Mitsubishi Colt Diesel Engkel (Truck Cargo)	560 cm	200 cm	220 cm	4500	

Once known which vehicle tersedian The company then will do delivery of the finished product to the customer.

Table 8 scheduling delivery of products



2.4. Analysis of the data base

Analysis of data on the basis infornasi system will be built using the ERD. Analysis of data on the basis infornasi system will be built using the ERD. ERD is a data model that uses notations to describe the data in the context of the entities and relationships described by the data. 4

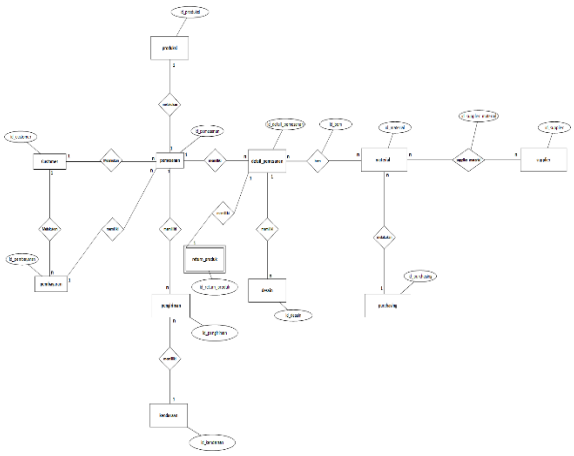


Figure 4.Diagram ERD

2.5. diagram Context

Context diagram explaining how data is used and transformed for the process in the form of data flow into and out of the system using the information in the supply chain management approach PT. Algisindo pratama .. Diagram context of this system can be seen in Figure 5

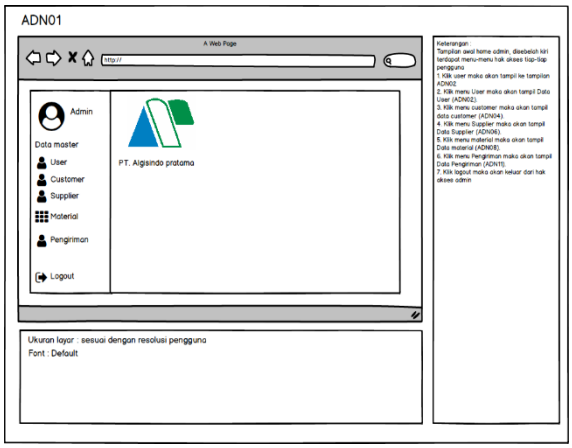


Figure 5 Diagram Context

2.6. Data Flow Diagram (DFD)

Data flow diagrams show how the flow of data and break them down into several processes that exist and occur in the system until the process in more detail. The process that occurs in the system until the process in more detail. In the context of the information system diagram like Figure 5 can be broken down into several DFD. DFD will be explained from DFD Level 1.

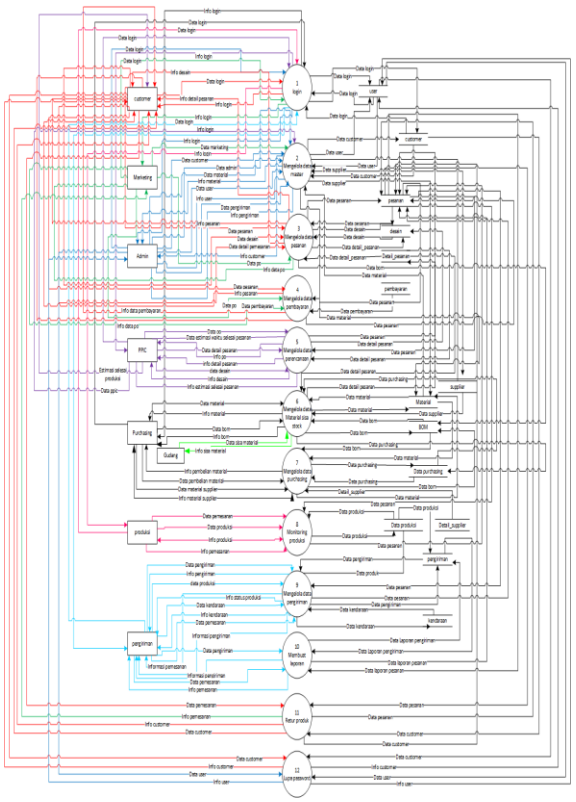


Figure 6.DFD Level 1

2.7. relationship scheme

Relationship scheme is a picture that shows the relationship between data, meaning data and limits. Process relationships between attributes with the combined entity is an attribute that has the same primary key, so that the existing attributes into a single entity that is connected and interconnected by the key field. Here is a table relation in Figure 7.

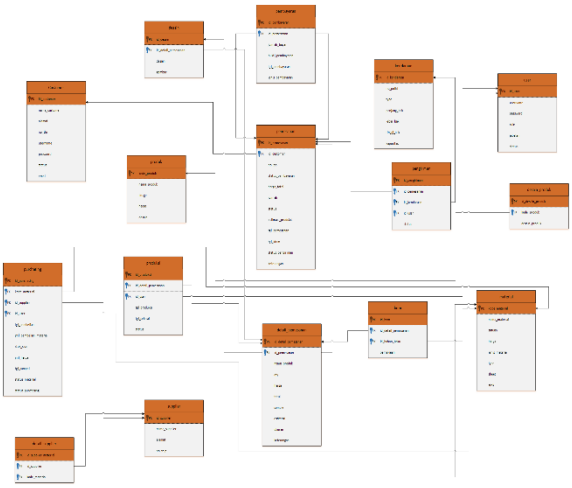


Figure 7. Relation Scheme

2.8 The design of the interface

The design of the interface is made to describe the look of the program will be made from the home screen, log customer, admin login, ordering and so forth, will be used by the users to interact and place an order by the customer, the following interface design in information systems supply chain management in PT. Algisindo pratama.

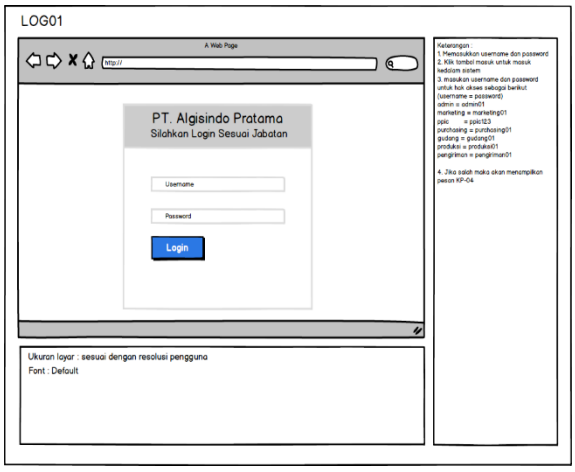


Figure 8. login interface

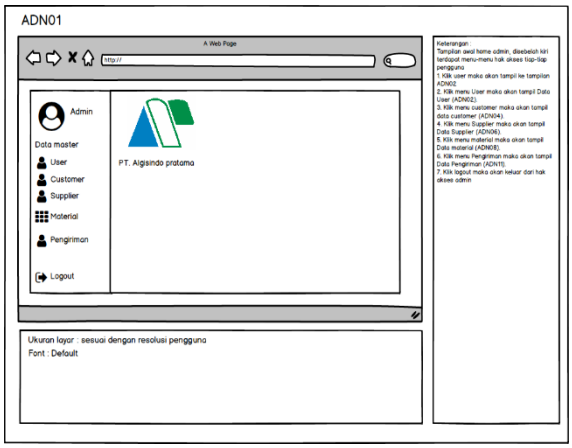


Figure 9. The design of the admin interface

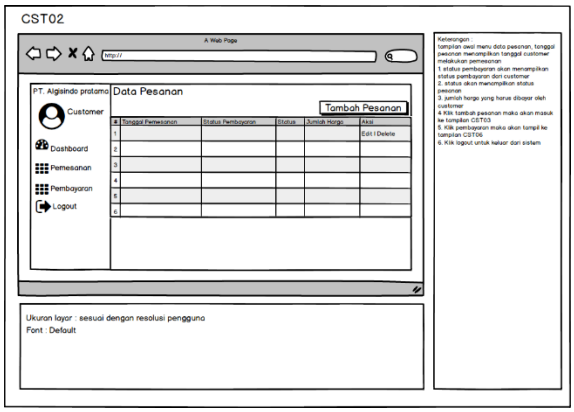


Figure 10. The design of a booking interface

2.9. Conclusion blackbox testing

Based on the results of system testing has been done on the whole it can be concluded that the existing processes in Supply Chain Management information systems is sufficient leverage and functionality system is able to produce the expected output.

2.10. Conclusions beta testing

1 These information systems are built to facilitate the Head of Marketing in processing the product ordering process of the customer.

2 The information system built to facilitate Chief monitor raw material warehouse in the rest of the production of raw materials in the warehouse

3 The information system built to facilitate head of purchasing in the purchase of materials to the supplier

4 The information system built to facilitate head of production in monitoring the production of customer orders

5 The information system built to facilitate the delivery Head in determining the transport to be used

3. COVER

3.1. Conclusion

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

1. Managemet supply chain information system built to help the head of Production Planning Inventory Control to find out information about the completion of the definite schedule any orders placed by the customer is no longer doing the estimates in calculating the completion of orders
2. Supply chain management information system that was built to facilitate the purchasing head to make the purchase of materials to the Supplier
3. Information systems supply chain managemet built to help the head of shipping in determining the schedule of shipping finished product by looking at the status of production, product delivery is done when the product orders from the customer has been completed and facilitate head delivery in choosing a vehicle that will be used and available in the company.

3.2. Suggestion

Suggestions for the development of information systems are some suggestions that can be done, among others:

1. The need for the development and maintenance of the system, so the system can be used in accordance with the needs of future
2. Future studies are expected to create a page for customer place an order such as E-Commerce, so that customers more easily in the booking transaction or payment.

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