DEVELOPMENT OF INFORMATION SYSTEM USING SUPPLY CHAIN MANAGEMENT APPROACH IN ANEKA RAGAM

Fery Prasetio[1], Richi Dwi Agustia., S.Kom, M.Kom[2]

Program Studi Teknik Informatika
Fakultas Teknik dan Ilmu Komputer – Universitas Komputer Indonesia
Jl. Dipatiukur No 122-116 Bandung 40132
E-mail : feryprasetio21@gmail.com[1], richi@email.unikom.ac.id[2]

ABSTRAK

Aneka Ragam is a company engaged in the sale of the products screen printing, ink on white ink that is why rubber, ink and ink color rubber pigment. The current Aneka Ragam likely to influenced the existence of inventory in the warehouse in determining the products that will be in production. Problems that occur in the procurement section of the Aneka Ragam doing procurement of raw materials each month with the same quantity of these pose a problem when demand for bookings from customers increased shortage of raw materials in warehouses, While head of the warehouses are often experiencing difficulty monitor products and raw materials that are in the warehouse. The purpose of this research was to ease the head of procurement in determining the amount of raw material that should be in a message to the supplier for production and ease the head shed monitor products and raw materials in the warehouse. Supply chain strategies used are push supply chain, because based on the supply chain that occurs in companies currently using the make-to-stock. The method of forecasting the needs of raw materials used is a single exponential smoothing. Based on the test results it can be concluded that this system has helped in determining the amount of the procurement section needs raw materials that must be reserved to the supplier to meet the requirements of the production process and ease the head of warehouse in monitor raw materials and products that are in the warehouse.

Keywords *: Supply Chain Management, SCM, make-to-stock, single exponential smoothing, push supply chain, Sistem Informasi, Aneka Ragam.*

1. INTRODUCTION

Aneka Ragam is a company engaged in the sale of ink screen printing located in JL. Ibrahim aji No. 73 Aneka Ragam Bandung. began pioneering his efforts in 1988. The resulting products to date include the white rubber ink, ink color and ink rubber pigment. Aneka Ragam has a series of work ranging from the purchase of raw materials to the supplier, receive raw materials from suppliers, processing raw materials into finished products, accept reservations directly from the customer and product delivery to customers who have ordered products. Raw material supplier to the booking made via telephone or sometimes part of procurement procurement section in Diverse go to directly to the supplier. Aneka Ragam has a partnership with 6 suppliers include PT. Bratachem, PT. Kharindo Prakasa, PT Prime SPS and others. Aneka Ragam tends in influence the existence of inventory in the warehouse and the company determine the products in production before the existence of orders that are guaranteed to make a stock of products.

Based on the results of the interview with Mr. Agus as part of procurement, he sets forth that the booking process the raw material procurement section which done to suppliers is done via telephone, to process payment from us to the supplier done when the item was received and made in cash or transfer in accordance with the policy of each supplier. At this time, the procurement of raw materials is carried out each month with the same quantity, it would cause problems. When booking requests from customers surged, shortage of raw materials which resulted in the production process of tehambat so that bookings from customers decreased, then the excess of raw materials resulted in a buildup of the amount of raw materials in the warehouse too much so that raw materials can be damaged.

Based on the results of the interview with Mr. Ade as part warehouse, part warehouses are often experiencing difficulty in monitor products and raw

materials in warehouses in preparation products and raw materials are experiencing the emptiness, the impact of estimates of raw materials will lead to the production of finished products is hampered in the warehouse so the product will become a bit and lead to problems in the distribution of products to the customer.

See the above condition packed in support of existing activities in the company needed a system with the concept of SCM (Supply Chain Management). Based on a consideration of several problems that have been presented then needed an information system "approach to information system Development Supply Chain Management in Aneka Ragam".

2. THE CONTENT OF RESEARCH

2.1 Information System

Information system is a set of components are interconnected and work together to collect, process, store and distribute information related to decision-making, coordination and control in it. As for the purpose of the system is to provide information and mensistemasikan information from all events or activities that are needed to control the operations of an organization. The activities referred to in this information system including pick up, manipulate, store and convey the information required in the Organization's activities throughout operte is concerned. [1]

2.2 Supply Chain Management (SCM)

Supply Chain Management is the method or approach to integrative managing the flow of products, information and integrated money involving parties rangin from upstream to the hlir consists of a supplier, factory, distribution network or service logistics.[2]

2.3 *Safety Stock*

Safety Stock is done based on the basis of mathematics, statistics and optimization as the main tool to answer quantitative issues that occur on a system. [3]
Formula Safety Stock:
Safety Stock = average consumption the previous period x Lead Time
Where:
Lead Time = waiting time

2.4 *Single Exponential Smoothing*

In pemulusan this historical values, random errors in Align-Align to produce a forecast of "smooth" that seem to work well in certain circumstances. The simplest case of a single exponential smoothing can be developed from the equation or from a variation on the following equation: [3]

$$F_{t+1} = F_t + \left(\frac{X_t}{N} - \frac{X_{t-N}}{N}\right)$$

2.5 Analysis Of The Problem

Analysis of the problem is the assumption of the problem which will be outlined in the data processing procedures on supply chain management development programs in diverse. Analysis of the problems of the system that is running at the moment is:

1. the Procurement Section in the Diverse experience difficulties in determining the amount of raw materials that must be reserved to the supplier to meet the requirements of the product in the customer's mailbox.

2. Part of the warehouse have difficulty in raw material and monitor existing products in the warehouse.

2.6 Analisis Supply Chain Management (SCM)

Analysis of Supply Chain Management in implementing Supply Chain Management approach to systems that are built. Supply chain management framework in aneka ragam can be seen in table 1.

Tabel 1. Supply Chain Management framework in Aneka Ragam

No	Elemen Kerangka Kerja	Sub Elemen Kerangka Kerja	Penerapan Dalam Penelitian
1	Struktur Jaringan *Supply Chain*	Struktur Vertikal	Hubungan Internal Antara : 1.Pemilik Perusahaan 2.Bagian Pemesanan 3.Bagian Gudang 4.Bagian Pengadaan 5.Bagian Produksi 6.Bagian Pengiriman Hubungan Eksternal Antara : 1.*Supplier* 2.Pelanggan
		Posisi Horizontal Perusahaan	Aneka Ragam berada diposisi sebagai sumber untuk memproduksi sedangkan dalam mengirimkan produk kepada pelanggan menggunakan jasa pengiriman
2	Proses Bisnis *Supply Chain*	Demand Management	Mengelola pesanan produk yang masuk dari pelanggan
		Procurement	Proses pengadaan bahan baku dilakukan pada saat bahan baku di gudang sudah mendekati stok minimal debgan menghubungi supplier
		Finance	Proses verifikasi pengadaan bahan baku saat pengajuan pengadaan dilakukan
		Distribution	Mengelola jadwal pengiriman melalui jasa pengiriman
3		Metode Peramalan dan Pengendalian	1.Meramalkan permintaan produk untuk mengetahui pengadaan bahan baku yang di butuhkan setiap produk 2.Melakukan monitoring persediaan bahan baku untuk mengetahui persediaan bahan baku yang habis
		Struktur Aliran Kerja	1.Kerjasama antara Aneka Ragam dengan *supplier* untuk pengadaan bahan baku, *supplier* yang terlibat lebih dari satu *supplier* untuk setiap bahan bakunya 2.Kerjasama antara Aneka Ragam dengan pelanggan berupa permintaan pesanan produk tinta rubber
		Struktur fasilitas	Komunikasi dan informasi

		aliran komunikasi dan informasi	antara Aneka Ragam dengan pelanggan maupun dengan *supplier* terjalin melali tatap muka langsung atau via telefon

2.7 Model Supply Chain Management (SCM) in Aneka Ragam

The model of Supply Chain Management in Diverse is a description of the delivery of the activities performed in upstream to downstream activities performed. As for the supply chain management model contained in Aneka Ragam can be seen in Figure 1.

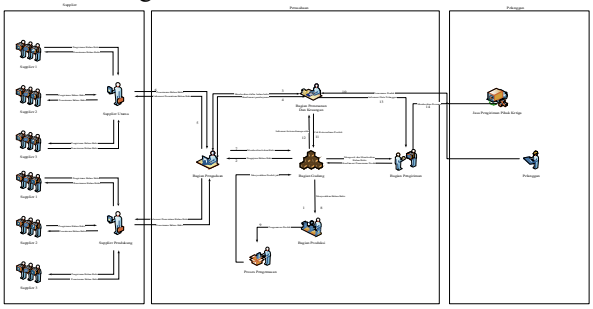


Figure 1 Model Supply Chain Management in Aneka Ragam

2.8 Stages Supply Chain Management in Aneka Ragam

Stages of the Supply Chain Management was conducted to describe the supply chain management process that will be built in aneka ragam supply chain based on Figure 2.

Figure 2 Stages Supply Chain Management In Aneka Ragam

2.9 Forecasting Amount Of Production Needs

Forecasting calculations needed data products ordering some of the earlier period. The data that will be used as an example of that is the type of white rubber ink product, recap of the white rubber ink product booking period April – August 2017 is described in table 2.

Tabel 2 Booking data products in April – August 2017

No	Periode	Pemesanan
1	April	525
2	Mei	435
3	Juni	560
4	Juli	315
5	Agustus	615

Based on the data that has been elaborated to produce a chart to figure out the pattern of the data product ordering. It aims to find out the methods that will be used in accordance with the pattern of the data produced. Graphs from data ordering products can be seen in Figure 3.

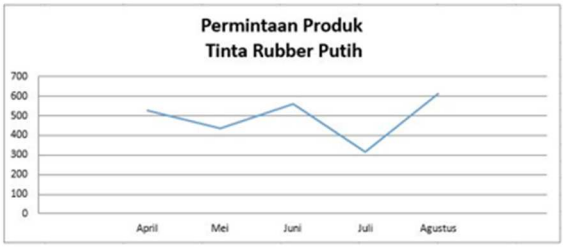


Figure 3 Graph Product Booking

Based on the pattern of data from data ordering type white rubber ink products, then forecasting methods used in forecasting supplies products in the Aneka Ragam is the single exponential smoothing method because data showed a pattern of movement of pol fluctuates by a regular basis. Forecasting is done after knowing the patterns from the data presented on the diverse features stages as follows:

1. prepare data for the reservation from the previous period to be processed as data input. The data that made the booking data that is sampled in April-August 2017.
2. Calculate the value of the forecasted the booking data by using single exponential smoothing forecasting techniques.
3. find the values of MSE engineering forecasting to know the smallest results.
4. Compare the smallest value of the calculation result of MSE alpha 0.1 to 0.9.
5. forecasting Results of the techniques of forecasting with the smallest MSE.

Examples of calculations for $\alpha = 0.1$

Note that the white rubber ink in april was as much as 525 kg ((Xt) = 525) and forecasting results of April (Ft) = 525, due april 2017 yet bias is calculated so instantly calculate for the month next may with the booking data and forecasting in april. The results of the calculations are as follows:

Fmei = (0,1 * 525) + (1 – 0.1) * 525

= (52.5) + (472.5)

For the calculation of the next month is the month of June, judging from the number of booking months in advance is the month of may (Xt) = 435 and forecasting in may invalidated (Ft) = 525, so that the obtained sample calculation as follows:

F*June* = (0,1 * 435) + (1 – 0,1) * 525
= (43,5) + (472,5)
= 516 Kg

For the calculation of the next month is the month of July as seen from amount the previous month is the month of June (Xt) = 560 and forecasting in June obtained (Ft) = 516 so obtained by the following calculation example:

F*July* = (0,1 * 560) + (1 – 0,1) * 516
= (56) + (464,4)
= 520,4 Kg

The results of the forecasting product demand ink rubber white with alpha value of 0.1 to 0.9 dapan views on table 3.

Table 3 Demand Ink Rubber White

Bulan	Permintaan	Nilai Alpha								
		0,1	0,2	0,3	0,4	0,5	0,6	0,7	0,8	0,9
April	525									
Mei	435	525	525	525	525	525	525	525	525	525
Juni	560	516	507	498	489	480	471	462	453	444
Juli	315	520,4	517,6	516,6	517,4	520	524,4	530,6	538,6	548,4
Agustus	615	499,86	477,08	456,12	436,44	417,5	398,76	379,68	359,72	338,34
Peralaman September		511,374	504,664	503,784	507,864	516,25	528,504	544,404	563,944	587,334

After calculating the alpha value of α = 0.1 to 0.9 'll generate graphs forecasting results for white ink rubber products can be seen in Figure 4.

Figure 4 Graphs The Result Forecasting

After the whole calculation of α = 0.1 to 0.9 done the next step specify the forecasting results which can be used to calculate the value of the smallest error from forecast because the smaller the error value then the calculation of the forecast the more precise. The calculation of the value of the error using the MSE (Mean Squared Error).

Example calculation of the MSE to α = 0.1 is as follows:

MSE = (X*may* – F*may*) ^{2}
= (435 - 525) ^{2}
=(-90) ^{2}
=8100

The results of the MSE may 2017 is 8100.

After calculating the MSE for all α = 0.1 to 0.9 then obtained a table calculation the overall value of the MSE can be seen in table 4.

Tabel 4 overall value *MSE*

MSE								
0,1	0,2	0,3	0,4	0,5	0,6	0,7	0,8	0,9
8100	8100	8100	8100	8100	8100	8100	8100	8100
1936	2809	3844	5041	6400	7921	9604	11449	13456
42189,16	41046,76	40642,56	40965,76	42025	43848,36	46483,36	49996,96	54475,56
13257,2896	19021,9264	25242,8544	31883,6736	39006,25	46759,7376	55375,5024	65167,8784	76840,7556
261503,3679	254685,7529	253798,3187	257925,8425	266514,0625	279316,478	296375,7152	318032,8351	344961,2276
Nilai Keseluruhan MSE								
65397,1495	65132,68786	66325,54661	68783,25522	72409,0625	77189,11512	83187,71552	90549,33471	99506,70863

2.10 The Production Number Of The Product Needs Monitoring

After doing the forecasting for the next stage of the control product is determining how the boundaries of safe products in order not to a vacancy by using method products safety stock.

Example of calculation of safety stock white rubber ink products for the month september 2017 is as follows:

The number of forecasting September 2017 = 505 Kg

The number of days in September 2017 = 30 days

Procurement lead time from reliable = 1 day.

Solution:

Safety Stock untuk produk tinta rubber putih	= $(\frac{505}{30}) \times (1)$
	= 16,83 =17 kg

Monitoring the inventory products will be presented in the form of tables, where the monitoring process will be performed against which products are to be done to meet the production needs of the customer based on the results of forecasting has been done before. From the results of calculation of safety stock calculation results obtained then that can be seen in table 5.

Tabel 5 Inventory Monitoring Products

Nama Produk	Hasil Peramalan	Sisa Stock Yang Ada	Safety Stock	Status
Tinta rubber putih	505 kg	30 Kg	17 kg	Aman

Based on table 5 can be aware that supplies products to the white rubber ink still in the status of the secure tetaoi when viewed from the results of inventory forecasting products can not meet the needs of the month of September is therefore the company should commit production:

Total production = results forecasting – the rest of the existing stock = 505 – 30
= 475

Based on the above calculation then the company should do the production as much as 475 kg.

Tabel 6 Monitoring product that should be in production

Nama Produk	Hasil Peramalan	Sisa Stock Yang Ada	Harus di Produksi
Tinta Rubber Putih	505 kg	30 kg	475 kg

2.11 The Purchase Of Raw Materials

The purchase of raw materials to the supplier will be made after the procurement of raw material inventory monitoring has been done before. For the purchase of raw materials based on the stock of raw materials in need of raw materials in the first supplier shortages then part procurement will order or buy raw materials to the supplier based on the need for raw materials in production due to supplier the first message in the raw materials are experiencing shortages. Supplier selection table based on a stock can be seen in table 6 and table the amount of raw materials should be purchased can be seen in table 6.

Table 6 The Selection Of Suppliers Based On Stock

Nama Bahan Baku	Supplier	Jumlah Stok di Supplier	Jumlah Bahan Baku Yang Dipesan
Binder	PT.Kharindo Prakasa	500kg	200kg
	PT.Bratachem	150kg	
Biocide	PT.Perdana SPS	400kg	90kg
	PT.Singa Terbang	200kg	
Titanium	PT.Bratachem	350kg	70kg
	PT.Kharindo Prakasa	100kg	
Pigmen Warna	PT.Apollo	500kg	50kg
	PT.Rudolf	200kg	

Table 7 The Amount Of Raw Material To Be Bought

Nama Bahan Baku	Jumlah Bahan Baku Yang Dipesan	Supplier
Binder	200kg	PT.Kharindo Prakasa
Biocide	90kg	PT.Perdana SPS
Titanium	70kg	PT.Bratachem
Pigmen Warna	50kg	PT.Apollo
Pengental	47,5 kg	PT.Singa Terbang
Amoniak	47,5	PT. Bratachem

2.12 Ordering products from Customers

Reservations will receive orders from customers along with product number and the address of the customer who will continue to process the delivery of products. Here is a list of orders made by customers on August 15, 2017 can be seen in table 8.

Table 8 Ordering products from Customers

Nama Pelanggan	Tanggal Pemesanan	Nama Produk	Banyaknya	Alamat
Cv. Handal Mandiri	15 Agustus 2017	Tinta Rubber Warna	70 kg	Jakarta
		Tinta Rubber Putih	20 Kg	
		Tinta Pigmen	30kg	
Pak Riswanto	15 Agustus 2017	Tinta Rubber Putih	50kg	Bandung
		Tinta Rubber Warna	35kg	
Pak Deni	15 Agustus 2017	Tinta Rubber Putih	35kg	Bandung
Pak Endang	15 Agustus 2017	Tinta Rubber Putih	45kg	Bandung
		Tinta Rubber Warna	20kg	
		Tinta Pigmen	15kg	

2.13 Product delivery to the customer

In the supply chain there are activities of product delivery. The scope of which is in the delivery activities include monitoring the products ready to be shipped, monitoring the status of the delivery. Here is the data product orders in August 2017, the number of products ordered bias is best on table 9.

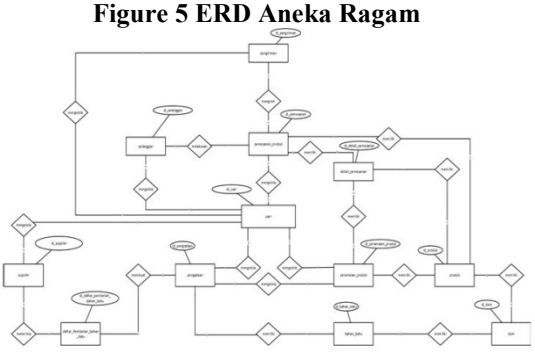
Table 9 Product delivery in August 2017

Tanggal Pengiriman	Jasa Pengiriman	Nama Pelanggan	Nama Produk	Banyaknya	Alamat
15 Agustus 2017	JNE	Cv.Handal Mandiri	Tinta Rubber Putih	70kg	Jakarta
			Tinta Ruber Warna	20 kg	
			Tinta Pigmen	30 kg	
15 Agustus 2017	JNE	Pak Riswanto	Tinta Rubber Putih	50kg	Bandung
			Tinta Rubber Warna	35 kg	
15 Agustus 2017	JNE	Pak Deni	Tinta Rubber Putih	35kg	Bandung
15 Agustus 2017	JNE	Pak Endang	Tinta Rubber Putih	45kg	Bandung
			Tinta Rubber Warna	20 kg	
			Tinta Pigmen	15 kg	

2.14 Analysis Database

Data base analysis on information system will be built using the ERD can be seen in Figure 5.

Figure 5 ERD Aneka Ragam



2.15 A Context Diagram

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

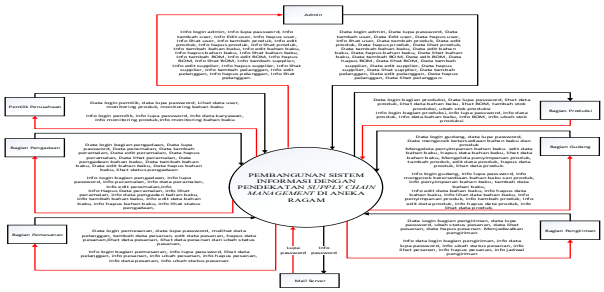


Figure 6 Context Diagram

2.16 Table Relation

Table relation describes the relationship between the data and the limit. Table relationships can be seen in Figure 7.

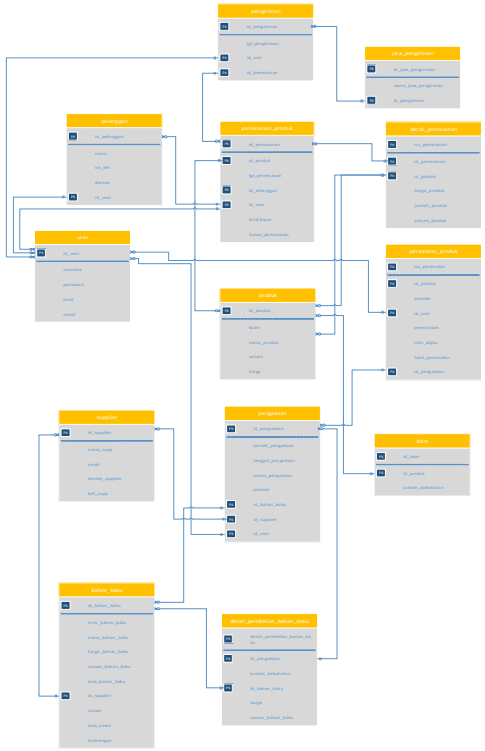


Figure 7 Table Relation

2.17 System Implementation

The hardware specifications used in the construction of information system in subparagraph can be seen in table 10

Table 10 Hardware Specifications

No	Perangkat Keras	Spesifikasi
1	Processor	Intel Dual Core 2,5 Ghz
2	Monitor Resolution	1024 x 768
3	RAM	4 GB
4	Hard disk	250 GB
5	VGA	1 GB
6	Perangkat Pendukung Lainnya	Mouse, Keyboard, Printer

The specifications of the software used in the construction of information system in subparagraph can be seen in table 11.

Table 11 Software Specifications

No	Perangkat Keras	Spesifikasi
1	Processor	Intel Pentium 4 1,5 GHz
2	Monitor Resolution	1024 x 600 (32 bit) (60 Hz)
3	RAM	2 GB
4	Hard disk	80 GB
5	VGA	512 MB
6	Perangkat Pendukung Lainnya	Mouse, Keyboard, Printer

2.18 The Design Of The Interface

The design of the interface is a description of the appearance of the program that will be created. The following is an example of the design of the interface of supply chain management in the Aneka Ragam:

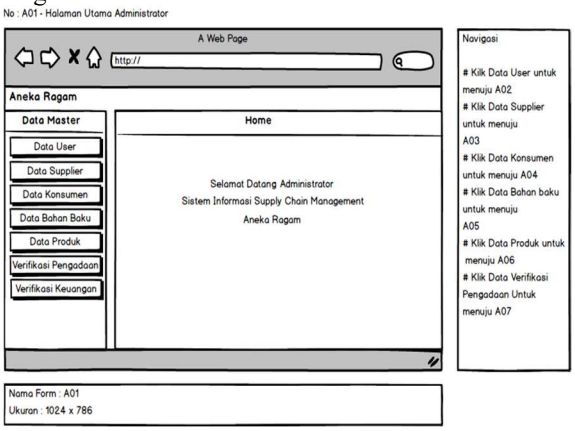


Figure 8 Administrator Interface

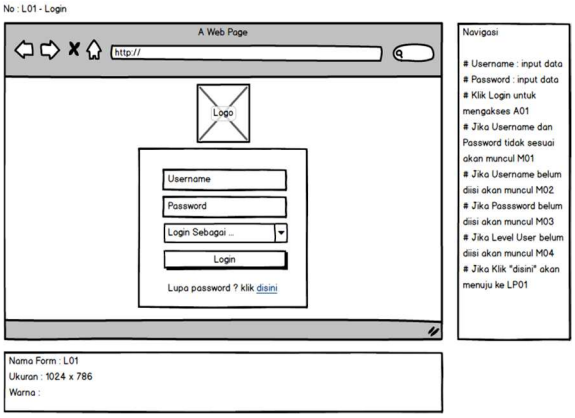


Figure 9 Interface login

2.19 Testing The System

Testing system is the most important thing that aims to determine the mistakes or shortcomings in the system information that is tested. Testing intends to find out the information system has been created in accordance with the tujuaan of performance meets the design.

Testing is used to test the new system is a black box testing methods. Black box testing terfikus

requirements on testing the functionality of the information system.

2.19.1 Blackbox Testing Scenarios

Blackbox testing scenarios using test data based on the data that is given of some of the data that has been provided, the plan more testing can be seen in table 12.

Table 12 Scenario Testing

Proses	Butir Uji	Jenis Pengujian
Login	Login pengguna	*Black Box*
Lupa Password	Lupa kata sandi pengguna	*Black Box*
Pengolahan Data User	Tambah data *user*	*Black Box*
	Ubah data *user*	
	Hapus data *user*	
Pengolahan Data Konsumen	Tambah data konsumen	*Black Box*
	Ubah data konsumen	
	Hapus data konsumen	
Pengolahan Data Supplier	Tambah data *supplier*	*Black Box*
	Ubah data *supplier*	
	Hapus data *supplier*	
Pengolahan Data Pengiriman	Tambah data pengiriman	*Black Box*
	Ubah data pengiriman	
	Hapus data pengiriman	
Pengolahan Data Produk	Tambah data produk	*Black Box*
	Ubah data produk	
	Hapus data produk	
Pengolahan Data Bahan Baku	Tambah data bahan baku	*Black Box*
	Ubah data bahan baku	
	Hapus data bahan baku	
Pengolahan Data Penjualan	Penambahan data pemesanan	*Black Box*
	Pengubahan status pemesanan	

2.19.2 Cases and test results

Testing conducted by testing each process for possible errors occurred.

1. Testing Login

Login made to the administrator, Director, parts, booking, production, part warehouse, part of the production.

Table 13 Testing Login

Kasus dan hasil uji (Data Benar)			
Data Masukan	**Yang Diharapkan**	**Pengamatan**	**Kesimpulan**
Contoh masukan Username : gudang Password : gudang	Mengisikan data login yang sudah terdaftar.	Data login benar dan akan masuk ke masing-masing *interface* yang telah ditentukan sesuai dengan data login.	[√] diterima [ ] ditolak
Kasus dan hasil uji (Data Salah)			
Data Masukan	**Yang Diharapkan**	**Pengamatan**	**Kesimpulan**
Contoh masukan Username : guding Password : gudang	Muncul pesan "gagal, password dan username tidak cocok."	Muncul pesan "gagal, password atau username tidak cocok"	[√] diterima [ ] ditolak
Kasus dan hasil uji (Data Kosong)			
Data Masukan	**Yang Diharapkan**	**Pengamatan**	**Kesimpulan**
Contoh masukan Username : Password :	Muncul pesan "pilih item pada daftar, isi username daan password"	Muncul pesan "pilih item pada daftar, isi username dan password"	[√] diterima [ ] ditolak

2. Testing of user Data by the administrator of the test done is testing the add, change and delete user data.

a. Testing The Add User Data

Table 14 Testing Add User Data

Kasus dan hasil uji (Data Benar)			
Data Masukan	**Yang Diharapkan**	**Pengamatan**	**Kesimpulan**
Contoh Pilihan Nama supplier : Contoh Masukan Username : guding Password : guding	Mengisikan data user dan menyimpan data ke database.	Data user dapat tersimpan ke database dan menampilkan pesan "Data user berhasil ditambahkan"	[√] diterima [ ] ditolak
Kasus dan hasil uji (Data Salah)			
Data Masukan	**Yang Diharapkan**	**Pengamatan**	**Kesimpulan**
Contoh Pilihan Nama supplier : Contoh Masukan Username : Password : guding	Tidak dapat menyimpan data ke database dan menampilkan pesan "Harap isi bidang ini"	Tidak dapat menyimpan data ke database dan menampilkan pesan kesalahan "Harap isi bidang ini"	[√] diterima [ ] ditolak

b. Testing Change User Data

Table 15 Test Change User Data

Kasus dan hasil uji (Data Benar)			
Data Masukan	**Yang Diharapkan**	**Pengamatan**	**Kesimpulan**
Contoh masukan Username : guding Password : ahah123	Menampilkan form ubah data user dan data hasil pengubahan tersimpan ke database serta menampilkan pesan "Data user berhasil diupdate"	Data user hasil pengubahan dapat tersimpan ke database dan menampilkan pesan "Data user berhasil diupdate"	[√] diterima [ ] ditolak

c.Testing The Delete User Data

Table 16 Pegujian Delete User Data

Kasus dan hasil uji (Data Benar)			
Data Masukan	**Yang Diharapkan**	**Pengamatan**	**Kesimpulan**
Pilih data *user* yang akan dihapus pada kolom opsi	Menampilkan pesan "data user terhapus"	Menampilkan pesan "data user terhapus"	[√] diterima [ ] ditolak

2.19.3 Blackbox Testing Conclusions

Based on the test results to the case sample test has been done gives the conclusion that the process is correct. Error filtering process in the form of landing page views message is sufficient. In system functionality already can produce output in expected.

3. COVER

3.1 Conclusion

The conclusion that can be drawn from all of the processes that has been made in establishing this information system are as follows:

1. supply chain management System that is built it can simplify part production in determining the amount of raw material needs that must be reserved to the supplier to meet the needs of production,
2. the supply chain System in the wake of this can make it easier to monitor in the warehouse part of raw materials and products that are in the warehouse.

3.2 ADVICE

As for suggestions for the development of information systems, supply chain management is as follows:

1. Based on the results of interview research on the interface of the next expected more appealing again to the user.

2. Addition of a new user such as customers would be better off if the entered system because it can simplify the booking process will happen.

DAFTAR PUSTAKA

[1] A.Kadir, Pengenalan Sistem Informasi, Yogyakarta: ANDI, 2003.
[2] Pujawan, I Nyoman, 2010, Supply Chain Management Edisi Kedua. Surabaya : Guna Widya.
[3] Nur Bahagia, senator. 2006, Sistem Inventori.Bandung: Penerbit ITB.