

SUPPLY CHAIN MANAGEMENT at MISKI AGH Nia CORPORATION

Ganjar Kurnia1, Rani Susanto2

Information Engineering - University Computer Indonesia

Jl. Dipatikukur 112-114 Bandung

E-mail: ganjarpandai@gmail.com, rani.susanto@email.unikom.ac.id2

ABSTRACT

Miski aghnia corporation.snow is a company engaged in the manufacturer, where the company makes its own products such as raw material procurement process sepatu.Saat head of the supply difficulties in determining the amount of raw materials in order to assist suppliers. In the production process execution in one order according the wishes of consumers, the problem arises when the late delivery of raw materials resulting in the production process for consumer demand becomes constrained and limited production capacity so that the delivery of the product becomes too late. In the process of shipping for delivery in the city and jabodetabek company car and car GranMax Minibox, while for the outer bead using the JNE, TIKI, or POS. The obstacles that upon delivery of products to consumers is done in the estimation of time and a different amount each period and delivery capacity is limited, so that the delivery had difficulty in determining when a product should be sent. Pursuant to the problems that exist in Miski aghnia corporation we need an information system development Supply Chain Management.Berdasarkan blackbox and beta testing results can be concluded that the system can facilitate inventory heads in determining the amount of raw materials are ordered, allowing the head of production provided information estimated completion of the product to consumers, and facilitate the delivery head in managing the scheduling delivery of products to customers who have placed orders for products.

Keywords: *Supply Chain Management, make-to-stock, catalog, special order, jabodetabek*

1. PRELIMINARY

Miski company Aghnia Corporation is a company engaged in manufacturing, where the company makes its own products like shoes. But the company is featured in the shoe (MP). Miski company Aghnia Corporation has three different stores including: Rendorz Shop, Shop Catenzo and Catenzo Junior. In this company in the production process using the make-to-stock to meet these shops and make-to-order for orders from consumers or reservations that are not from a store

owned. Shoes are manufactured for the needs of the store include MP 002, MP 006, MP009, MP 064, MP072, MP091, MP185, MP 187 and MP 190 while the shoe demand from kosnumen very diverse shoe Mountains, loafers and boots outside the shoe size catalog. Aghnia Miski Corporation has supply chain management activities from the upstream to downstream. the upstream conducted by Miski Aghnia Corporation is the process of ordering raw materials to suppliers, receiving raw materials and to process raw materials into products Shoes. Miski Aghnia Corporation in collaboration with several suppliers of raw materials, Miski Aghnia Corporation has 15 categories of suppliers of raw materials, among others supplier Leather, supplier, supplier Elastic, suppliers Lapis, suppliers glue magnetism, supplier glue soles, suppliers glue pc, suppliers washers, supplier TA 2 mm, 1.5 mm TA suppliers, suppliers of sponge, Yarn Supplier, Supplier Latek etc. Downstream activities is the delivery of finished products to consumers, in Miski Aghnia Corporation has three types of consumers, namely Individuals, Agencies and Resellers.

The company has two raw material procurement process, first make to stock to meet the needs of products in stores. In determining the amount of product that will be in production the company still refers to the previous week consumer demand. Based on data obtained Aghnia Miski Corporation has a number of product sales from the month of July 2016 to July 2018 as many as 12 006 Replace Shoes with the highest number of sales is the product Leather Shoes (MP) by the number of sales reached 9132 (Appendix F). Based on the facts obtained in the time period every month bookings resulting erratic supply section chief difficulties in determining the amount of raw materials to be ordered to the supplier for the next week. It becomes a problem when ordering shoes increased occurrence of advantages and disadvantages for the delivery of raw materials from suppliers sometimes late as the first week of August 2016 (Appendix F) inventories of raw materials Sol 039 is 8 pairs, while necessary in August 2016 is 10 pairs, as well as 7 pairs Sol Cowboy is required while in the first week of August 2016 was only 6 pairs resulting in the production process is not running lancar.Jika booking

untargeted so many shoes into unsold stock and sold cheaply to individual consumers which resulted in the company loss. While the second procurement of raw materials to the supplier to meet the needs of the customer ordered product. The problem arises when the consumer is an order and production schedules had to be made but the delivery of raw materials from suppliers through to raw material received by the company needs time to Sol 7 days and 10 days for the skin. Long waiting times result in delays in the production process so that the late delivery of products to consumers.

The company will do if it has any production orders from customers. Each one order amount varies according to the catalog in the company. If the consumer has his own design or size it can be produced in accordance with orders from customers. Production workmanship in one order according the wishes of consumers, the company set minimal production time is 3-4 days depending on the number of orders and the level of difficulty of the design of the consumer and the company has a production capacity of 150 pcs for one week. The problem arises when the late delivery of raw materials resulting from the production process for consumer demand becomes constrained and limited production capacity of 150 pcs / week so that product delivery has been delayed,

Based on the results of interviews have been conducted with Mr. Sidiq as Head of the Expedition in company Miski Aghnia Corporation, he explained that the delivery is done after the product is produced and in the packing until the product is ready to be sent to the consumer. For delivery of products in the city and Jabodetabek company uses GranMax capacity Mobil and Mobil 400 pcs 1000 pcs Minibox capacity while out of town perusahaan use The JNE, TIKI, and Pos. The obstacles that upon delivery of products to consumers is done in the estimation of time and a different amount each period and delivery capacity is limited, so that the delivery had difficulty in determining when a product should be sent.

Based on the problems that exist today in Miski Aghnia Corporation is required an information system construction supply chain management that the management of the flow of raw materials or products and the flow of information in the company from the start ordering raw materials, processing of raw materials and delivery of products to consumers can sync and consistency.

Based on the problems studied, the purpose of this research is to build a supply chain management in Miski Aghnia Corporation

Objectives to be obtained from this study are:

1. Inventories Section Head facilitate in determining the amount of raw materials to be ordered to the supplier.

2. Facilitate Head of Production in determining the estimated time until the finished product in production to consumers for special order products.

3. Facilitate Head of Shipping in determining the schedule of deliveries to customers.

2. ISI RESEARCH

2.1. Theoretical basis

The theoretical basis of this thesis will explain the theories relating to the development of Supply Chain Management in Miski Aghnia Corporation

2.1.1 Information Systems.

The information system is a system within an organization are managerial and strategic activities of an organization [1]

2.1.2 Supply Chain Management

supply Chain is a system where an organization distributing goods production and services to its customers. This chain is also a network or networks of interconnected organizations that have the same goal, which is the best possible conducting procurement or distribution of the goods. [2]

2.1.3 Supply Chain Process

On Supply Chain proses there are 3 kinds of streams that must be managed include:

1. The flow of goods flowing from upstream to downstream.

2. The flow of money and the like flowing from downstream to upstream.

3. The flow of information flowing from upstream to downstream and vice versa. [3]

2.1.4 Push and Pull Supply Chain

Existing approaches in Supply Chain Management is composed of a push-pull supply chain and supply chain. Here is an explanation of pull and push supply chain in Supply Chain Management (SCM) [4]

2.1.5 Forecasting (Forecasting)

Forecasting (forecasting) is predictive values of a variable based on the known value of the variable or variables related. Predict can also be based on skills assessment, which is in turn based on historical data and experience [5]

2.1.6 Single Exponential Smoothing Methods

Forecasting is based on exponential smoothing method (exponential smoothing) is generally used to estimate sales of individual products [6]

The formula for single exponential smoothing can be seen in equation 2.2.

$$F(t + 1) = Axt + (1a) Ft \quad (2.2)$$

Information :

F (t + 1) = Result forecast for the period t-1

- a = Constant smoothing
- xt = Actual demand data for the period t
- Ft = Forecast in period t

Measurements can use the forecasting error Mean Absolute Error, Mean Absolute Deviation, Mean Square Error, Mean Absolute Error percentage.

1. Mean Absolute Error (MAE)
2. Mean Absolute Deviation (MAD)
3. Mean Squares Error (MSE)
4. Mean Absolute Error PERCENTAGE

2.1.7 monitoring

Monitoring is monitoring that can be described as consciousness (awareness) of what is to be known, high-level yield monitoring carried out in order to make measurements over time shows movement toward or away from the goal. Monitoring will provide information on the status and trends that the measurement and evaluation of completed repeated from time to time [7].

2.1.8 Raw material requirements

Raw material requirement calculations performed to determine the amount of raw materials needed for the production process in accordance with the number of customers ordering products [8].

As for some formula for calculating raw material requirements in Miski Aghnia Corporation will be described in equation (2.3)

$\text{Total Raw Materials} = \text{Product Composition} \times \text{Number of Orders}$ <p>2.3</p>

The company's policy to make a reservation of raw materials to the supplier in determining the need for raw materials that can be calculated using equation (2.4)

$\text{Number Booking} = \text{Total Raw Materials} \times 5\%$ <p>2.4</p>
--

2.1.9 The purchasing Raw Materials

Purchases of raw materials is an activity carried out mainly manufacturing companies in the production process to obtain raw materials, supplies or equipment. The ultimate goal is obtaining raw materials by minimizing the cost as low as possible in accordance with the standards prescribed quality. [9]

2.1.10 Estimated Production

The calculation of the estimated production is done to determine the estimated time when the finished product is produced. The formula for calculating the estimated production in Miski aghnia Corporation can be seen in equation (2.5) and (2.6) [10].

$\text{Total Production / week} = \text{Old Pduksi} / \text{machine xt}$ <p>(2.5)</p>

$\text{Old Production} = \text{Number Booking} / \text{Total Production}$ <p>(2.6)</p>
--

2.2 Analysis of Problems in Miski Aghnia Corporation

Analysis of the problem is the description of the problems derived from the current system is currently underway which will be described in the procedures of data processing in Supply Chain Management program at Miski Aghnia Corporation. The following analysis of the problems of the current system date:

1. Head of Supply difficulties in determining the amount of raw materials to be ordered to the supplier for the product according to the catalog.
2. Kepala Production Department difficulty determining the estimated time until the finished product in production to the consumer to make to order products.
3. Head of Delivery difficulty in determining the schedule of deliveries to customers.

2.3 Model Supply Chain Management in Miski Aghnia Corporation

Based on the existing booking groove in Miski Aghnia Corporation, the existing model of the company is as follows:

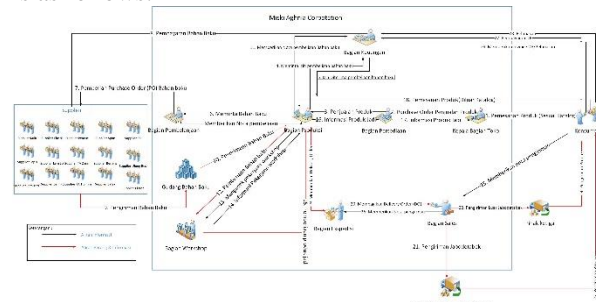


Figure 1 Model of Supply Chain Management

2.4 Analysis of Supply Chain Management Stages

Analysis of Supply Chain Management Stages will be built in Miski Aghnia Corporation based model of Supply Chain Management can be seen in Figure 2.

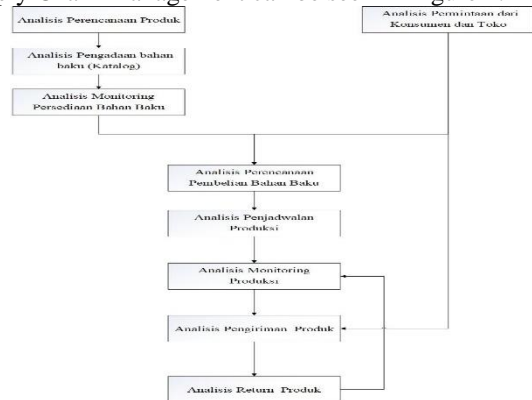


Figure 2 Stages Supply Chain Management

1. Analysis of Product Planning

Footwear products are sold in the period June 2016 - July 2018 was 091 and MP Shoes for product planning using sales data MP 091 can be seen in Table 1

table 1 Sales data MP 091

SUNDAY	MONTH	SALES
Number 1	July 2016	7
2nd	July 2016	10
The 3rd	July 2016	22
To 4	July 2016	18
Number 1	August 2016	2
2nd	August 2016	0
The 3rd	August 2016	1
To 4	August 2016	8
Number 1	September 2016	10
2nd	September 2016	8
The 3rd	September 2016	15
To 4	September 2016	9
to 5	September 2016	5
Number 1	October 2016	14
2nd	October 2016	27
The 3rd	October 2016	11
To 4	October 2016	12
to 5	October 2016	12
Number 1	November 2016	14
2nd	November 2016	14
The 3rd	November 2016	19
To 4	November 2016	18
Number 1	December 2016	18
2nd	December 2016	36
The 3rd	December 2016	15
To 4	December 2016	19
Number 1	January 2017	7
2nd	January 2017	17
The 3rd	January 2017	24
To 4	January 2017	19
to 5	January 2017	28
Number 1	February 2017	35
2nd	February 2017	22
The 3rd	February 2017	21
To 4	February 2017	14
Number 1	March 2017	13

2nd	March 2017	26
The 3rd	March 2017	28
To 4	March 2017	23
Number 1	April 2017	20
2nd	April 2017	29
The 3rd	April 2017	14
To 4	April 2017	28
to 5	April 2017	23
Number 1	May 2017	27
2nd	May 2017	27
The 3rd	May 2017	14
To 4	May 2017	19
Number 1	June 2017	27
2nd	June 2017	18
The 3rd	June 2017	16
To 4	June 2017	12
Number 1	July 2017	4
2nd	July 2017	11
The 3rd	July 2017	10
To 4	July 2017	4
Number 1	August 2017	6
2nd	August 2017	18
The 3rd	August 2017	18
To 4	August 2017	17
Number 1	September 2017	15
2nd	September 2017	11
The 3rd	September 2017	8
To 4	September 2017	8
Number 1	October 2017	5
2nd	October 2017	6
The 3rd	October 2017	9
To 4	October 2017	7
to 5	October 2017	11
Number 1	November 2017	8
2nd	November 2017	8
The 3rd	November 2017	13
To 4	November 2017	18
Number 1	December 2017	11
2nd	December 2017	21
The 3rd	December 2017	18
To 4	December 2017	16
to 5	December 2017	7
Number 1	January 2018	8

2nd	January 2018	10
The 3rd	January 2018	6
To 4	January 2018	8
Number 1	February 2018	7
2nd	February 2018	9
The 3rd	February 2018	10
To 4	February 2018	18
Number 1	March 2018	6
2nd	March 2018	13
The 3rd	March 2018	7
To 4	March 2018	8
to 5	March 2018	8
Number 1	April 2018	9
2nd	April 2018	8
The 3rd	April 2018	8
To 4	April 2018	10
Number 1	May 2018	7
2nd	May 2018	6
The 3rd	May 2018	6
To 4	May 2018	8
to 5	May 2018	6
Number 1	June 2018	7
2nd	June 2018	0
The 3rd	June 2018	1
To 4	June 2018	7
TOTAL		1384

The sales data MP 091 after using a Single Exponential Smoothing forecasting, it is known that the approximate 091 MP product ordering shoes at the First Week Month July 2018 is 6 pcs. The amount was used as the basis for monitoring the procurement of raw materials.

2. Raw Material Procurement Monitoring Analysis
 After doing the forecasting stage, the next stage is to monitor the product inventory and raw material supply as well as determining the safe limit of products and raw materials that should exist in warehouse aimed to avoid shortages or emptiness products and raw materials using methods Safety Stock. The analysis in the monitoring phase is as follows:

Table 2 Product Inventory Monitoring

Product name	Forecasting Results	Remaining Stock Available	safety Stock	Status
Shoes MP 091	6 pcs shoes	5 pcs Shoes	7 pcs shoes	Not safe

3. Analisis Pengadaan Raw Materials (catalog)

Here are the raw material procurement aghnia Miski Corporation with the purchase of raw materials coupled with the addition of 4% and 50% according to the forecasting products for the production process as set forth in Table 3.

Table 3 Raw Material Procurement Catalog

Name of Raw Materials	Total Raw Materials	name of Supplier	number of Orders	The amount of raw materials that must be purchased	Unit price
Napa leather	3	CV Timeless Skin	3	Napa leather 18	18,500
Sol Tiger ply	1	CV Blessing		6 sol tiger	15,000
Yarn	0.05	PD Trijaya Sentosa		1 meter	23,000
TA 2 mm	0.056	PD Kawani		1 pcs	4,000
TA 1.5 mm	0.04	PD Kawani		1 meter	19,500
Latek	0.25	PD Trijaya Sentosa		1 meter	14,750
glue Pull	0.005	CV Partners		2 meters	15,000
glue Pc	0.005	CV Jumbo		1 tin	267 000
glue Sol	0.007	CV Partners		1 gallon	146 500
Washer	0.003	CV Partners		1 tin	600,000
pleter	1.5	Eagle Leather PD Resources		1 gallon	29.500
Iron tip	1	PD Peace		9 meters	6,000
spoon	0.033	Eagle Leather PD Resources		6 pairs	3,000
				1 meter	24,000

4. Analysis of Demand From Customers and Stores
 a. Analysis of Consumer Demand

Here is an example of ordering products from two customers who book on the same date ie on 17 April 2017. Details of the reservation data can be seen in Table 4

Table 4 Data Booking Consumer

No. consumers	dESCRIPTION Shoes	Consumer name	total	Product Pricing	Pay Status
COSUS160417	Pantofel Men's Shoes	Ato Pernalang	34	Rp.170.000	DP
COSUS160417	Men's Shoes 212 Pantofel	Orsus Mr. Danang	3	Rp.82.500	DP

b. Demand Analysis Store
 Berikut is an example of ordering a product from the store. Details of reservation data can be seen in Table 5

Table 5 Booking Data Store

Month	Sunday	Year	code Shoes	dESCRIPTION Shoes	Consumer name	total	Product Pricing
April	2nd	2017	MP 002	Boot Men's Shoes	Shop Catenzo	8	Rp.175.000
April	2nd	2017	MP 091	shoes Pantofel	Shop Catenzo	26	Rp.140.000
April	2nd	2017	MP 152	Casual shoes	Shop Catenzo	5	Rp.112.000
April	2nd	2017	MP 093	Casual shoes	Shop Catenzo	35	
April	2nd	2017	MP 185	Pantofel Men's Shoes	Shop Catenzo	2	Rp.141.000
April	2nd	2017	MP 006	Boots	Shop Catenzo	21	Rp.172.000
April	2nd	2017	MP1 72	shoes Pantofel	Shop Raindoz	25	Rp.138.000
April	2nd	2017	MP 064	Casual shoes	Shop Catenzo	13	150,000
April	2nd	2017	MP 072	Pantofel Men's Shoes	Shop Catenzo	30	Rp.112.000

April	2nd	2017	MP 141	Boots	Shop Raindoz	24	Rp.155.000
April	2nd	2017	MP 126	shoes Pantofel	Shop Catenzo	19	Rp.147.000
April	2nd	2017	MP 133	Casual shoes	Shop Catenzo	3	Rp.160.000
April	2nd	2017	MP 002	Pantofel Men's Shoes	Shop Raindoz	10	Rp.175.000
April	2nd	2017	MP 091	Boots	Shop Raindoz	14	Rp.140.000
April	2nd	2017	MP 187	shoes Pantofel	Shop Catenzo	26	Rp.185.000
April	2nd	2017	MP 142	shoes Pantofel	Shop Catenzo	25	150.000
April	2nd	2017	MP 170	Casual shoes	Shop Catenzo	35	Rp.174.000
April	2nd	2017	MP 190	Pantofel Men's Shoes	Shop Raindoz	14	Rp.177.000
April	2nd	2017	MP 009	Boots	Shop Catenzo	15	200.000
April	2nd	2017	MP 102	shoes Pantofel	Shop Catenzo	27	Rp.195.000
April	2nd	2017	MP 161	Casual shoes	Shop Raindoz	23	Rp.180.000
April	2nd	2017	MP 162	Casual shoes	Shop Catenzo	15	Rp.182.000

5. Planning Analysis of the purchasing Raw Materials

After the analysis of consumer demand further planning for the purchasing of raw materials to the supplier, the following details of the purchasing of raw materials to suppliers of products loafers men can be seen in Table 6

Table 6 Total the purchasing Raw Materials

Name of Raw Materials	Total Raw Materials	name of Supplier	number of Orders	The amount of raw materials that must be purchased	Unit price
Bamby Leather Brown	3.5	CV Timeless Skin	34	119 brown leather Bamby	18,500
Sol Safety ply	1	CV Blessing		34 soles safety	15,000
	0.2			7 meters	23,000
Yarn	0.05	PD Trijaya Sentosa		2 pcs	4,000
TA 2 mm	0.18	PD Kawani		7 meters	19,500
TA 1.5 mm	0.3	PD Kawani		11 meters	14,750
Latek	0.25	PD Trijaya Sentosa		9 meters	15,000
glue Pull	0.01	CV Partners		1 tin	267,000
glue Pc	0.02	CV Jumbo		1 gallon	146,500
glue Sol	0.01			1 tin	600,000
Washer	0.03	CV Partners		1 gallon	29,500
pleter	1.5	Eagle Leather PD Resources		51 meters	6,000
Iron tip	1	PD Peace		34 pairs	3,000
spoon	0.4	Eagle Leather PD		14 meters	24,000

		Resources			
--	--	-----------	--	--	--

6. Production Monitoring Analysis

After procuring raw materials to suppliers, then go into the production monitoring phase loafers men. There are four sections of existing production in Miski Aghnia corporation. Following the calculation of the production time of four sections thereof:

- a. Old Production Patterns (Photo)
 - = 34 pcs shoe / 360 patterns per day
 - = 0.0944 Day
- b. Production old Upper (Advance)
 - = 34 pcs / upper 5 per day
 - = 6.8 Day
- c. Production old Sol
 - = 34 pcs shoe / 10 soles per day
 - = 3.4 Day
- d. Old Production Finishing
 - = 34 pcs shoe / 30 pcs per day
 - = 1.1333 Day

Lama Lama Total Production = production patterns (Figure) + Old Production upper (face) + Sol + Lama Lama Production Finishing Production

Total Duration of Production = 0.0944 Day + 6.8 + 3.4 + 1.1333 Day
= 11.4277 days (12 days 1 hour)

If the production process begins at 08.00 dated 21 April 2017 the Ato Pematang orders less finished at 09.00 dated May 5, 2017 as a production company is 9 hours / day.

7. Analysis of Product Delivery

This stage describes the delivery of products that occur in Miski Aghnia Corporation. Product delivery through courier service is used in its distribution. The purpose of this step in order to monitor the product has reached the outlet and the delivery status is accepted or not.

2.5 Entity Relationship Diagram (ERD)

Here is an Entity Relationship Diagram (ERD) which can be seen in Figure 3.

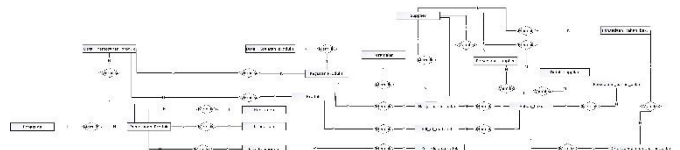


Figure 3 ERD In Aghnia Miski Corporation

2.6 Data Flow Diagram (DFD)

Here is a Data Flow Diagrams (DFD), which is built on a system of supply chain management in Miski aghnia corporation that can be seen in Figure 4

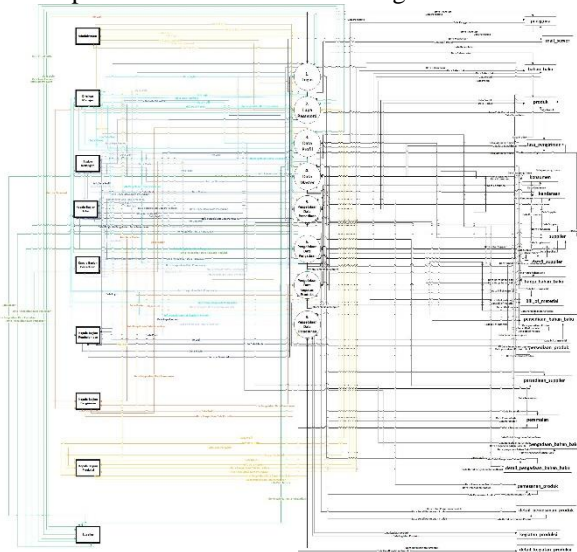


Figure 4 Data Flow Diagram (DFD)

2.7 Interface Design

The design is based on the interface display both input and output to be generated when the application is implemented.

Interface design for Supply Chain Management System in Msiki Aghia Corporation can be seen in Figure 4

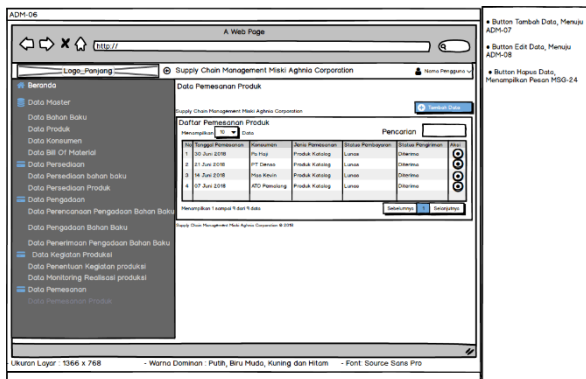


Figure 4. Design Pemesnan Data Interface Products

2.8 testing Systems

2.8.1 Conclusion Testing Back Box

The conclusion that can be drawn from previous functional testing has been done is in this system is correct and error process is already well

2.8.2 Conclusion Beta Testing

Based on the responses from the Interview to users in Miski aghnia corporation regarding this system can be

concluded, the system helps the head of the supply in determining the amount of raw materials to be ordered to the supplier, to help head of production in determining the estimated time of finished products to consumers, and assist the head of the shipping department in determining the schedule of delivery of products to consumers.

3. COVER

3.1. Conclusion

After going through the stages of analysis, design and testing in this thesis, it can be concluded as follows:

1. Supply Chain Management In Aghnia Miski Corporation Helps Head of inventory in the procurement of raw materials to suppliers.
2. Supply Chain Management In Aghnia Miski Corporation Helps Head part of doing determines the estimated production of finished products to consumers.
3. Supply Chain Management In Aghnia Miski Corporation Helps Head of the shipping department in conducting the product delivery schedule ..

3.2. Suggestion

In order for a system that can be obtained with an optimal, it should be done adding some of the following:

1. An increase in the more detailed analysis of the development of Supply Chain Management In Aghnia Miski Corporation.

BIBLIOGRAPHY

- [1] Widiarti, Utami Dewi, "Asset Information System Development in PT.Industri Telekomunikasi Indonesia (Persero) Web-based", Komputa, Vol.1, No. 2, ISSN: 2089-9033, 2012
- [2] Hutahaean J. 2014. INFORMATION SYSTEMS CONCEPT. Yogyakarta: DEEPUBLISH
- [3] Indrajit, Richardus Eko ., Djokopranoto, Richardus. (2002). The concept of Supply Chain Management: New Ways of Looking at Goods Supply Chain. Jakarta: PT. Gramedia Widiasarana Indonesia.
- [4] IN Pujawan and M. ER, "Supply Chain Management Second Edition," Surabaya, Widya Guna, 2010, p. 5.
- [5] Pangestu. Harijanto, The Importance of Supply Chain Management in Business Processes, <https://sis.binus.ac.id>, October 15, 2018 20:28
- [6] Makridakis, S., Wheelwright, SC, & McGee, VE (1999). Forecasting Methods and Applications Volume 1. Jakarta: Binarupa Script. Chopra, S., & Meindel, P. (2001). Supply Chain Management: Strategy, Planning, and Operation. New Jersey: Pearson Prentice Hall

- [7] Chopra, S., & Meindel, P. (2001). Supply Chain Management: Strategy, Planning, and Operation. New Jersey: Pearson Prentice Hall.
- [8] Sinulingga, Sukarya. (2009). Planning and Production Control. Yogyakarta: Graha Science
- [9] Mahardika, et al., "Analysis of Raw Material Inventory Control Approach Method of Economic Order Quantity (EOQ) and Kanban Method," Journal of Industrial Engineering of UB, pp. 7, 2012
- [10] A. Nasution and Y. Prasetyawan, Production Planning and Control, Yogyakarta: Graha Science 2008