The Development of a Car Accessory Processing System for The SSR Enterprise Co., Ltd.

by

Mr. Komkrit Kavinakarathiti

A Final Report of the Three - Credit Course
CS 6998 System Development Project

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Science
in Computer Information Systems
Assumption University

March 2000

The Development of a Car Accessory Processing System for The SSR Enterprise Co.,Ltd.

by
Mr. Komkrit Kavinakarathiti

Final Report of the Three-Credit Course
CS 6998 System Development Project

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Science
in Computer Information Systems
Assumption University

March 2000

Project Title	The Development of a Car Accessory Processing System for The SSR Enterprise Co., Ltd.
Name	Mr. Komkrit Kavinakarathiti
Project Advisor	Dr. Suphamit Chittayasothorn
Academic Year	March 2000

The Graduate School of Assumption University has approved this final report of the three-credit course, CS 6998 System Development Project, submitted in partial fulfillment of the requirements for the degree of Master of Science in Computer Information Systems.

Approval Committee:

(Assoc.Prof.Dr. Suphamit Chittayasothorn)
Advisor

(Prof.Dr. Srisakdi Charmonman)
Chairman

(Air Marshal Dr. Chulit Meesajjee)
Dean and Co-advisor

(Asst.Prof.Dr. Vichit Avatchanakorn)
Member

(Assoc.Prof. Somchai Thayarnyong)
MUA Representative

March 2000

ABSTRACT

This project is implemented to improve efficiency of the existing system of SSR Company Ltd. The company grows in terms of size, sales, and work then the requirements for reliable and accurate information are very important. The existing manual system can't support new requirements for business. The company needs new improved system to cope with the new business environment, especially in today information age.

The proposed system is developed to improve efficiency and effectiveness of the existing system. This proposed system is the Car accessory inventory and ordering system for SSR company Ltd. The proposed system cover all required orders that are related to product such as production, purchase delivery, customer order, and invoice. The proposed system also handle inventory information management to make sure that information will reliable, timely and accuracy. The proposed system will reduce existing problems and also reduce cost in the long term too.

ACKNOWLEDGEMENTS

Several people have made important contributions to this project, whose efforts the writer would like to acknowledge and whom he would like to thank.

First, he would like to thank Dr. Suphamit, his advisor for his assistance and suggestion for this project. He would also like to thank all his lecturers in MS(CIS) course for their knowledge and expertise, which he found useful in developing this project.

Secondly, He would like to thank Mr. Kittichai R. Manager of SSR Co., Ltd, for the information, which he has provided me with about the company and thank the other officers who have give him collaboration to study the company system. He also thanks to his friend in MS(CIS) course for their suggestion and help.

TABLE OF CONTENTS

LIST OF FIGURES

Figure		Page

Figure	Page

Figure	Page

LIST OF TABLES

I. INTRODUCTION

1.1 Background

Project Background

This project is taken in as partial fulfillment of System development project for my graduation. In the project, the existing ordering information system in SSR company is studied and analyzed and all the business requirement in ordering system is identifies with a view to and designing a new system based on those requirement.

Today, SSR understands the economic condition and tries to cope with this situation. SSR tries to increase competitive advantage by adopting speedy delivery and billing system, improving response time for customer order and reducing a cost of the ordering system. Now SSR Company faces a lot of competition from competitor and also general competition for consumer's money. However, SSR lacks competitive and effective information management and distribution within the organization. SSR Company's ordering system still uses manual system for processing an order.

Now, SSR Enterprise faces a lot of problems, especially in ordering system. If SSR can eliminate these problems or reduces them then it will able to reduce cost and provide more customer satisfaction

The problem in ordering system causes limitation to customer service such as limitation in time of delivery, accuracy of order and speed of processing an order. Now, SSR tries to find the system. And this is the main focus of this project. This ordering information system can't use existing package because of the nature of raw materials that have a recursive relationship to each other and also the nature of production that has an outsourcing function, which existing software package doesn't support. Then we need to develop a custom program for this system.

1.2 Objective of Project

The objectives of project can be classifies as following:

(1) To study and analyze the existing ordering information system

(2) To identify the problem in existing system

(3) To identify the business requirement of ordering information system

(4) To identify the Information system requirement

(5) To design and develop a new ordering information system based on requirement, which can solve the existing problem and improve efficiency of ordering information system

1.3 Scope of the Project

This project covers a design of a proposed system for SSR's ordering information system, which covers the following functions

(1) Customer order processing

This function is related to receiving a customer's order and retrieving all necessary information to verify and process an order and to produce a sales report

(2) Inventory control

This activity includes checking available stock, update an inventory level and maintain all inventory information. It also produces an inventory level report

(3) Production order

To produce a production order, when it has an order from customer

(4) Order raw material from suppliers

To produce an immediate raw material order when it's below an inventory standard level

(5) Delivery order information

To produce a delivery order to delivery department

This project will cover following basic requirement for the above system:

(1) To create a system which automate the above system

(2) To create a system which integrates with other department

(3) To create a system which automates a report processing

1.4 Project Plan

The Schedule plan of this system development project and the related Gantt Chart of the project are shown in Figure 1.1

II. THE EXISTING SYSTEM

2.1 Background of the Company

SSR Enterprise Limited Partnership was established in March 1980, and founded by Mr. Sanchai Pingsomboonying. SSR Company produces and sells more than 80 types of product, which include car accessory and car decoration product. SSR Company is located on Suriwong road, which is in a central area of Bangkok.

Business of Company

Business activities of SSR include ordering fabricating parts and assembling them into finished product and also outsourcing the production of products to other company. The company sells its product mainly to department stores, warehouse clubs (such as Macro) and retail stores.

SSR company currently employs more than 40 peoples in the company with an average sales of about 100 millions Baht per year.

2.2 Analysis of the Existing System

Organization

The organization of the SSR Company consists of 2 levels of Top-Down Hierarchy. SSR Company is consists of 7 departments. Sales department, Delivery department, Accounting department, Production department, Purchasing department, Warehouse, Central office (control all order processing) department.

(1) Management level →In this level, there is only general manager who controls all the operation.

(2) Operational level → This includes all the staff of 7 departments such as sales person, accountant, purchasing delivery staff, production worker.

The Figure 2.1 shows the Organization Chart of SSR Company.

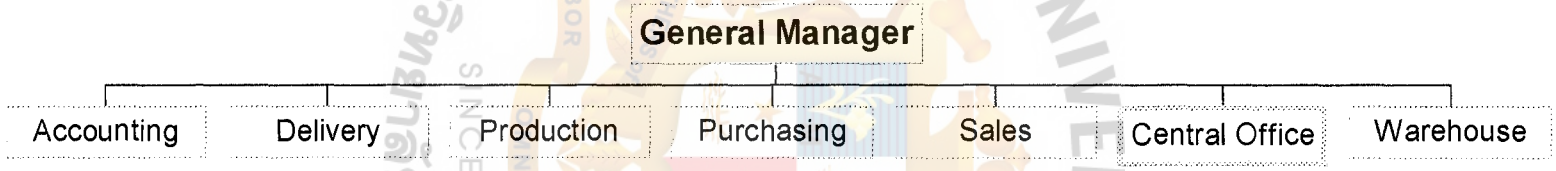

Figure 2.1. SSR Company's Organization Chart.

Existing SSR Company's Ordering and Inventory Information System

The ordering information of SSR company has the following functions

(1) Customer order processing

(2) Purchase order planning

(3) Delivery schedule

(4) Production order planning

The steps for processing orders are as follows:

(1) When receiving an order from the customer, the sales officer sends the customer's order to order officer who will check the customer's data and open an invoice

(2) The order officer requests inventory information from warehouse.

(3) Warehouse checks for available product

(a) If the product is available then the warehouse sends an inventory information to the stock control officer, who will check a product.

(b) If the product is not available then the warehouse sends information to stock control officer who will send a production order to production department (in case of existing raw material is available)

(4) The stock control officer will send a purchase requisition to the purchase department for low quantity raw material or product or send product requisition to the production department

(5) The stock control officer requests information from the accounting department for verification of customer credit status.

(6) Stock control officer sends information of send product to the delivery department

(7) The delivery department send the product to the customer and gets acknowledgement back to stock control officer to confirm a delivery

(8) The stock control officer cut the number of the inventory from stock

(9) The stock control officer sends an acknowledgement back to order officer and warehouse.

(10) The warehouse and order officers update their data

The ordering system of SSR company will use inventory level report as a basis of ordering raw material from a supplier and also use it for production order. In the existing system, there is a summarized report on sales (quantity and money) for each big account every week and total sale at the end of the month. Now all of the activities is manually performed.

Figure 2.2 show the context diagram of the existing system and Figure 2.3 show data flow diagram level 0 of the existing system.

2.3 Current Problems of Existing System and Area for Improvement

SSR Company is one of the companies, which still uses manual system in an ordering and inventory system and for other systems in the company. SSR faces the following problems from existing ordering and inventory information system.

(1) The inventory information is not accurate. This problem causes many subsequence problems

(a) Very hard to order a suitable number of raw material for production.

(b) Take a long time to check inventory information

(c) Hard planning for purchasing and production

(d) Loss of customer trust due to inaccurate information

(e) Waste of productivity and working time.

(2) Data organizing

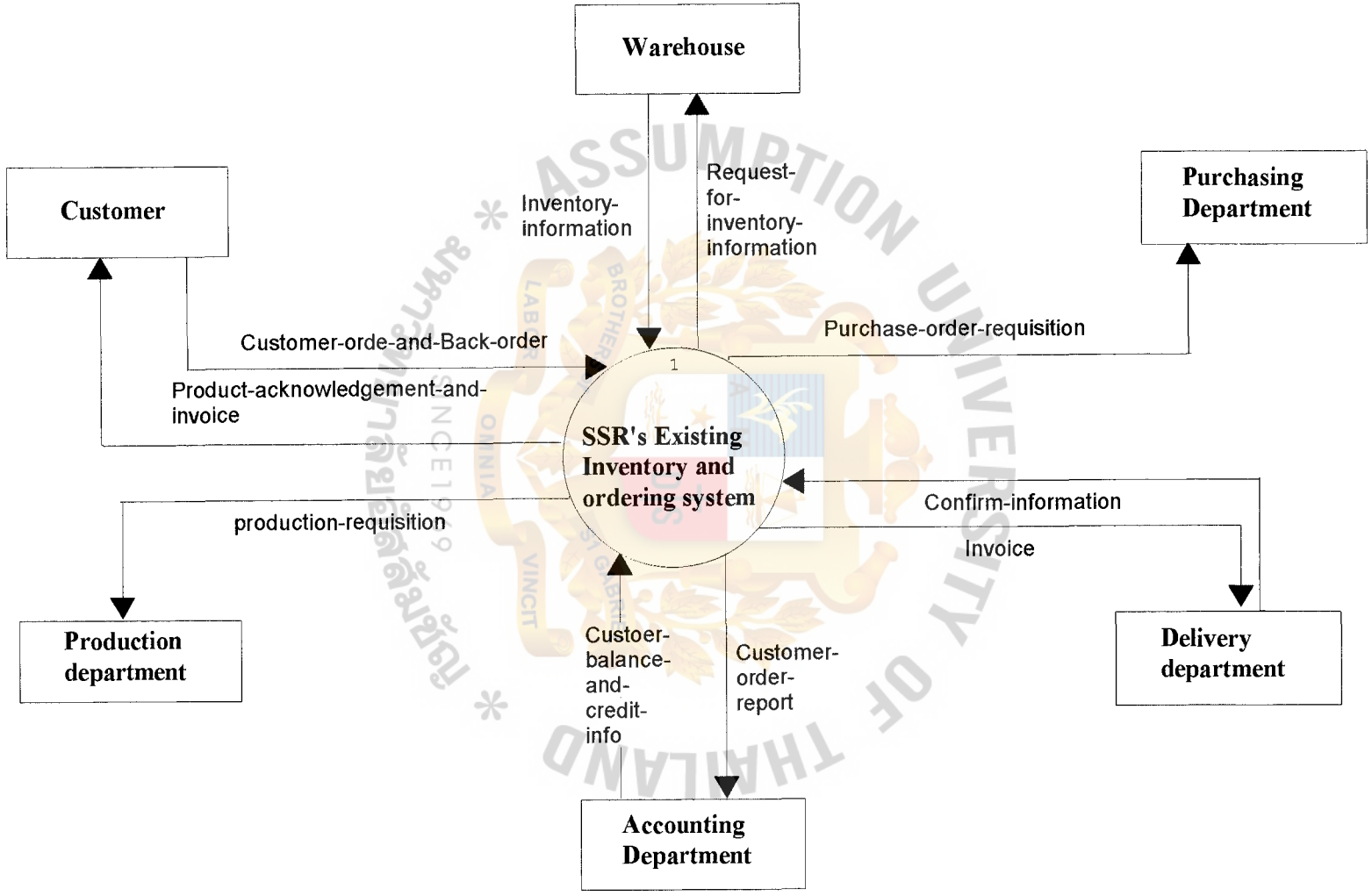

Figure 2.2. The SSR's Existing Car Accessory Inventory and Ordering Information System.

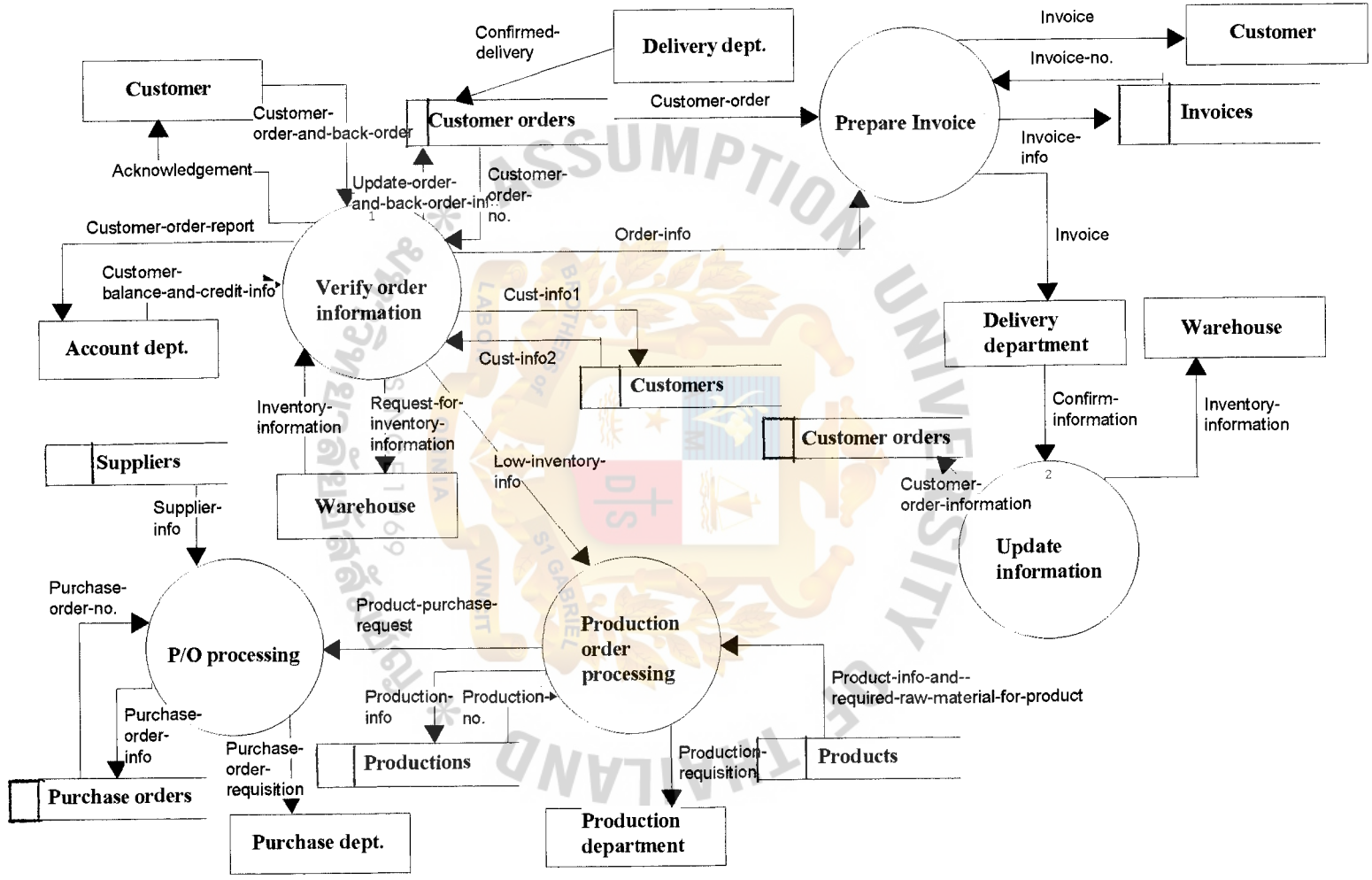

Figure 2.3. SSR's the Existing System Data Flow Diagram Level O.

In the existing system, data is in a paper form and hard to organize then it takes a long time to organize them to produce a desired report and search for desired information.

(3) Information exchange Inside Company with existing manual system. It takes a long time to prepare necessary documents to outside systems.

(4) Processing work and time

The unnecessary workload increases because of the incorrect information from human mistakes and unorganized data. Those cause unnecessary inventory control and unnecessary verification of information. This problem increases work cycle time that affects overall efficiency of company system.

The above problems can be solved by implementing a computerized system to replace existing manual system. The proposed system will improve efficiency in all area of the company and also solve the existing problems.

III. THE PROPOSED SYSTEM

3.1 User Requirements

User requirements are very important requirements of the system. Company uses user requirements as a source of developing information system. The discovery of user requirements will guarantee that users of this system will be satisfied with the proposed system.

3.1.1 Functions in the Propose System That Are Needed to Improve

The following functions are the functions that users want to improve in the proposed system.

(1) Customer order processing

(2) Invoice processing

(3) Delivery order processing

(4) Purchase order processing

(5) Production order processing

(6) Inventory information controlling.

3.1.2 Requirement for the Proposed System

The requirement of SSR ordering and inventory information system is to solve the problem in the existing system and improve work efficiency. The following are the requirements of system.

(1) To remove unnecessary data redundancy in system

(2) To reduce unnecessary work and increase speed and response time for process an order

(3) To reduce paper work

(4) To reduce mistakes from collecting, reading, updating, deleting data.

(5) To improve the speed and accuracy of gathering required data from the system for better decision making.

(6) To smooth the information exchange process between departments in the company

(7) To provide better information for planning in purchasing raw material and production plan

3.2 System Design

3.2.1 Process in the System

The Proposed system consists of 5 processes

(1) Verification of order information

(2) Preparation of invoice

(3) Production order processing

(4) P/O processing

(5) Delivery of order processing

Figure 3.1 Shows context diagram of the proposed system and Figure 3.2 shows data flow diagram level 0 of the proposed system.

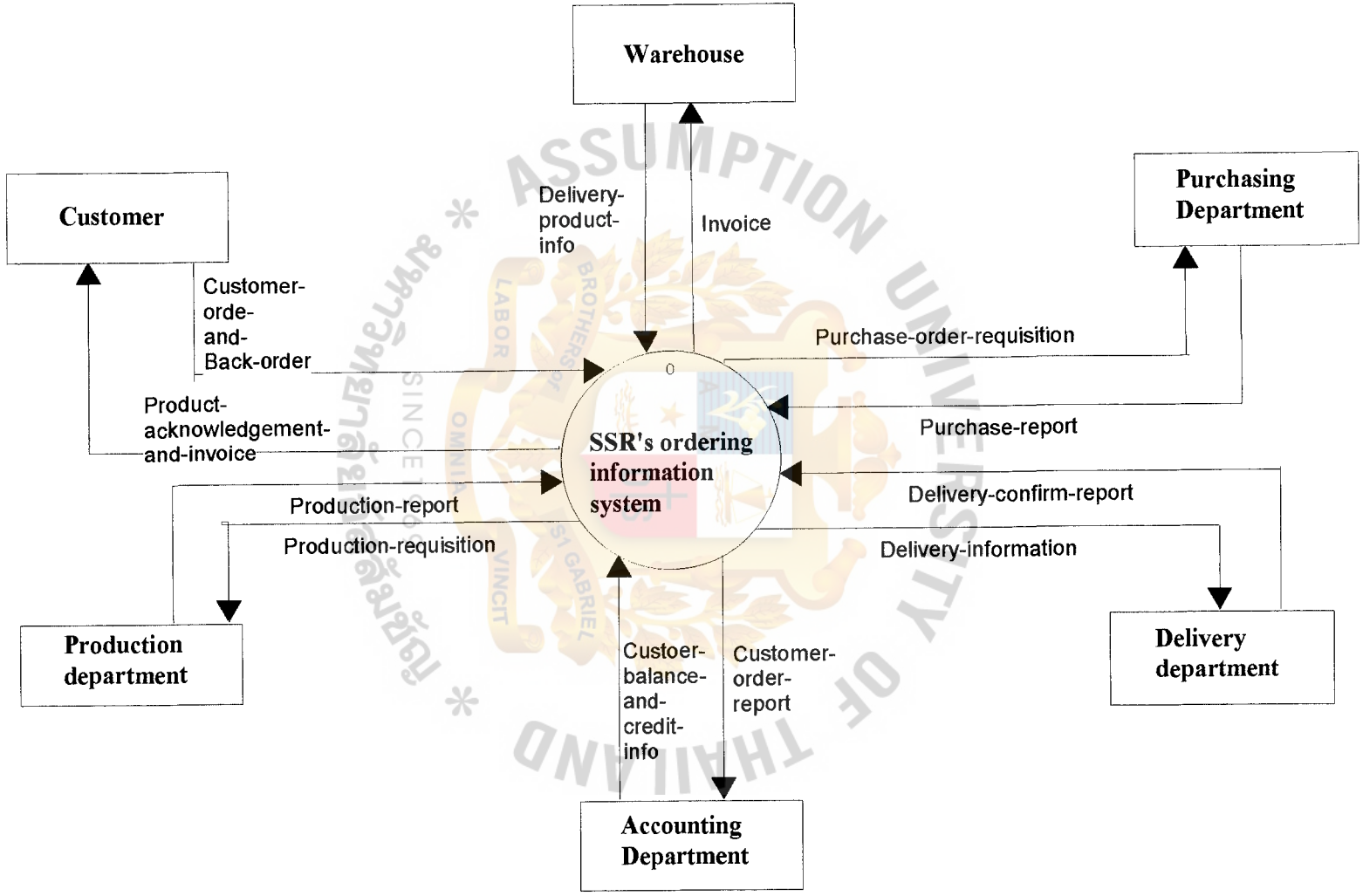

Figure 3.1. The SSR's Car Accessory Inventory and Ordering Information System.

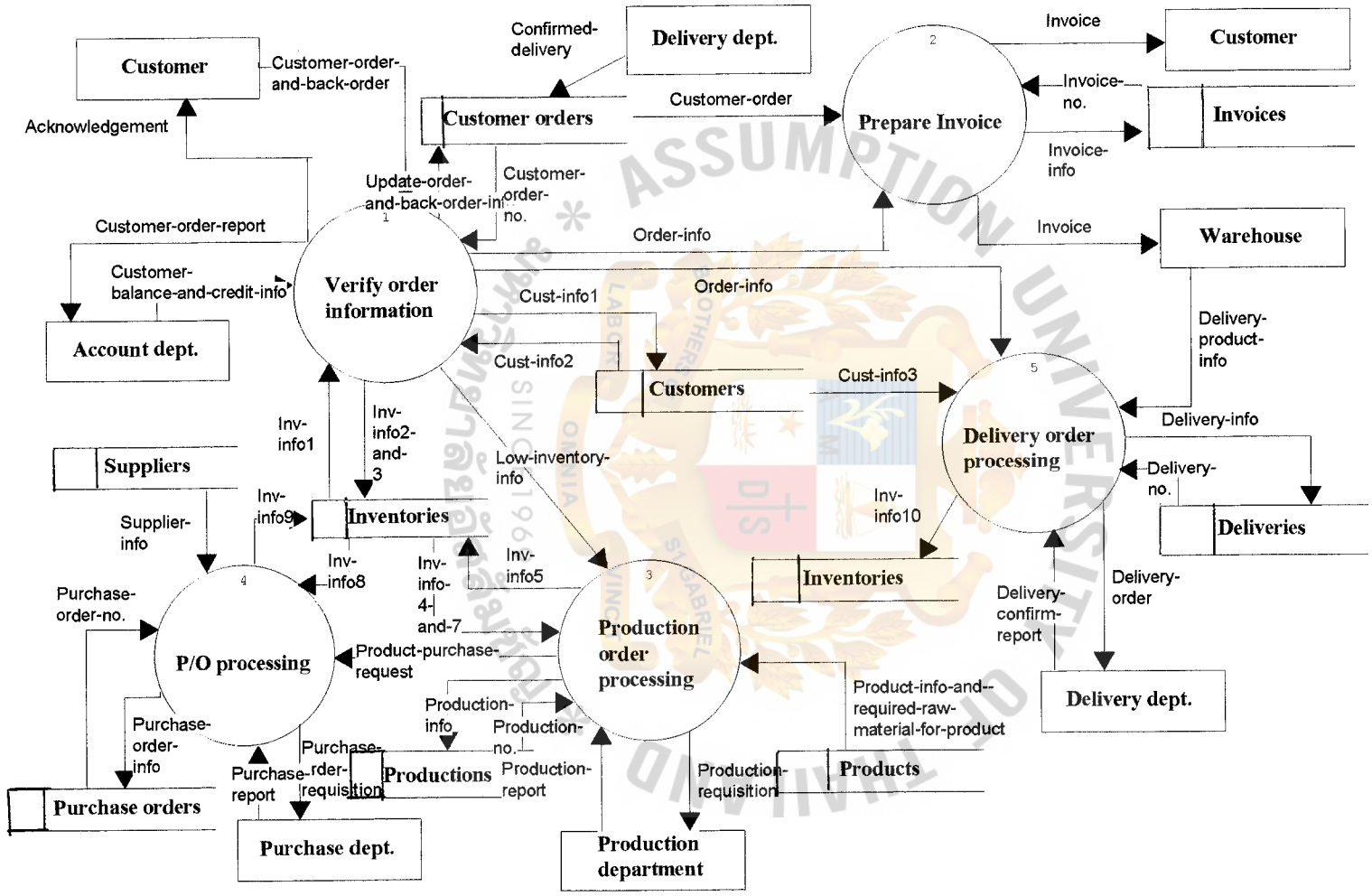

Figure 3.2. SSR Data Flow Diagram Level O.

The proposed system will cover 6 functions as in the user requirement. In the proposed system, all six functions will be computerized in to the proposed system. The proposed system will cover the following input and output:

Input

(1) Customer information

(2) Inventory information

(3) Product information

(4) Supplier information

(5) Credit and balance information

(6) Delivery confirm report

(7) Purchase report

(8) Production report

(9) Customer order

Output

(1) Customer sales report

(2) Product sales report

(3) Sales person sales report

(4) Customer and product sales report

(5) Customer and sales person sales report

(6) Sales person and product sales report

(7) Order status report

(8) Yearly summary report

(9) Invoice and invoice report

(10) Customer receipt

(11) Purchase requisition and report

(12) Production request and report

(13) Delivery order and report

(14) Inventory information report

(15) Back order report

3.2.2 Database in the System

There are 9 database files in this system shown as follows:

(1) Customers—Customers file contains customer's information

(2) Customer orders—keep information of product order from customer

(3) Invoices—keep invoice information that's created from a system

(4) Production orders—keep information about products that are ordered for production

(5) Purchase orders—keep purchase requisition information from the system

(6) Delivery orders—keep delivery information of customer order.

(7) Products—keep information about product such as components and other information

(8) Inventories—keep information about inventory such as inventory level, reorder point.

(9) Suppliers—keep supplier information such as product supply.

This system uses logical data model (ERD) CASE tool version (APPENDIX D).

3.3 Hardware and Software Requirement

3.3.1 System Specification

The proposed system is a car accessory ordering and inventory information system. The expected life of this proposed system is 5 years. This system uses:

(1) One File Server

(2) Four sets of Client

(3) Uses LAN environment with Bus topology

(4) Client/Server computing

(5) Connect to internet by using 56K modem in Fileserver

(6) Use Microsoft windows NT as system operating system

(7) Use Microsoft windows 2000 as operating system on each client

(8) Use visual basic as a programming language for system program

(9) Have two sets of printer (One laser printer and one dot-matrix)

(10) Use UPS as a protection for electronic failure

3.3.2 Hardware Specification

File Server (1 set)

CPU : Pentium III 600

Memory : 256 MB

Monitor : 15 inches

Storage : 14 GB HD with tape backup (2GB)

Modem : 56K

Others : UPS (500VA), CD-ROM drives, 1.44 inch Disk drive.

Estimated price: 60,000 Baht

Clients (4 sets)

CPU : Pentium III 500

Memory : 128 MB

Monitor : 15 inches

Storage : 14 GB HD with tape backup (2GB)

Others : UPS (500VA), CD-ROM drives, 1.44 inch Disk drive.

Estimated price: 40,000 Baht

Total 60,000+(40,000x4)=220,000 Baht

Printer

Laser Printer	: 1 set of HP laser jet
Estimated price	: 17,000 Baht
Dot matrix	: 1 set of Dot matrix printer
Estimated price	: 10,000 Baht
Total	: 27,000 Baht

Network

1. Hub (8 users)	1 set
2. LAN card (100MB)	5 sets
3. Cable (Coaxial cable)	

Estimated cost = 25,000

Grand Total for Hardware: 272,000 Baht

3.3.3 Software Specification

To configure the software requirement, the following software is needed:

(1) Windows NT server edition , This operating system is used in the file server in order to control all network activities of the proposed system

(2) Windows 2000, this operating system is used in 4 sets of clients. It's needed to run program applications.

(3) MS office 2000, It's a application software package to use in business transactions. It is necessary for better business document creation and other business function such as calculation, presentation and etc.

(4) MS visual basic, This program is used for creating a SSR ordering and inventory information system. This programming language can create a user-friendly program and also able to handle and store large number of data.

(5) Virus protection program

Cost of Software:

MS Windows 2000 (5 sets)	20,000
MS Office 2000 (2 sets)	44,000
Coding and testing program	50,000
Virus protection program	5,000
Total	99,000

3.3.4 Total Cost

Total Cost of Hardware and Software 272,000+99,000 = 371,000 Baht

3.3.5 Network Architecture

The proposed system is using LAN network by connecting all clients together with server via Hub. The proposed system uses bus topology. Figure 3.3 shows network architecture of the proposed system.

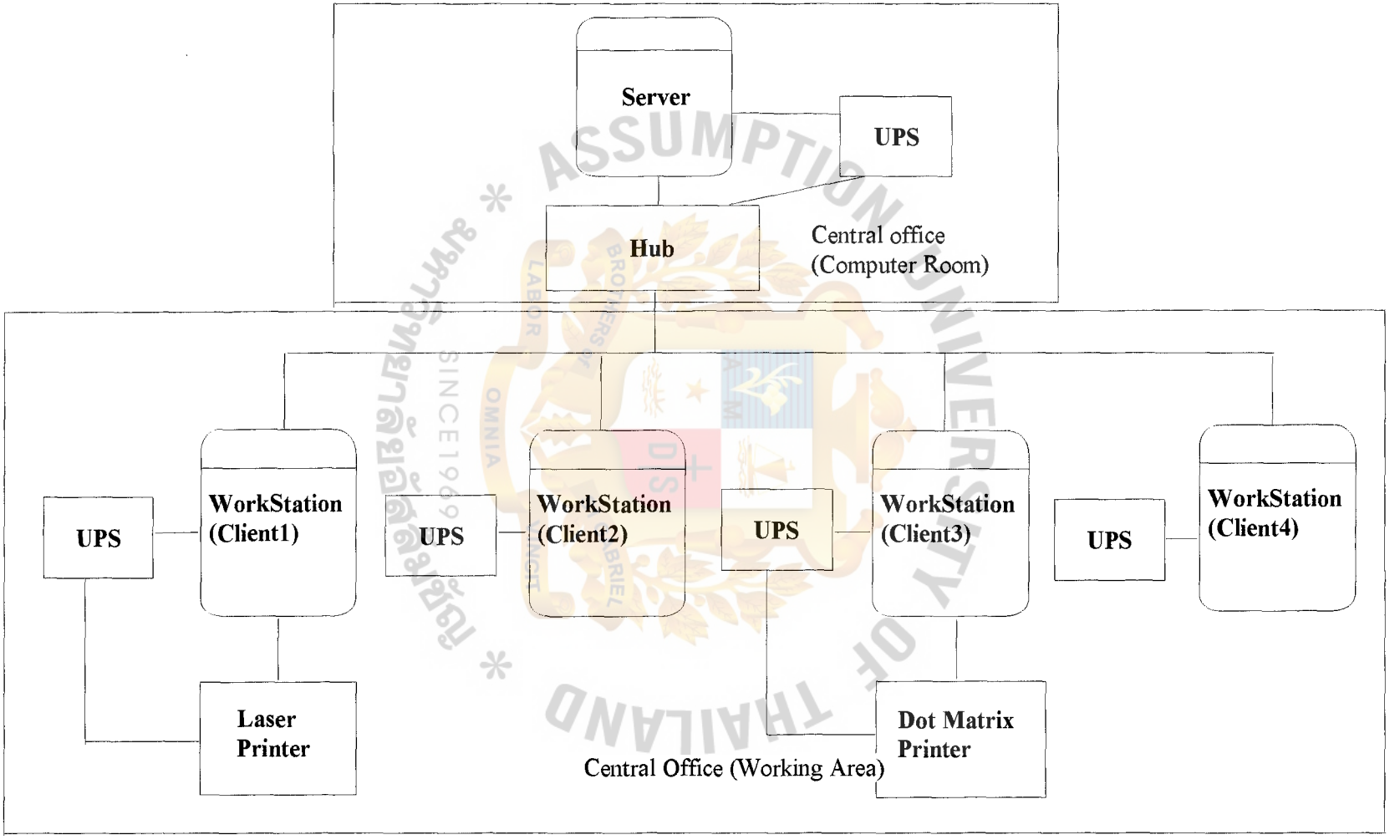

Figure 3.3. Network Architecture For Car Accessory Inventory and Ordering Information System.

3.4 Security and Controls of the Proposed System

3.4.1 Security of the System

Security is one of the concerns here. The system requires security system and procedure to protect it from:

(1) Inaccuracy of data from outsider or unauthorized person

(2) Error from system failure, which comes from program failure, electronic failure, Hardware failure

(3) Virus Intrusion

The following security and control methods are proposed in this system

(1) Use name and password for software security and for limited authorized users to given area

(2) Use UPS to prevent loss from electronic power failure.

(3) Use tapes backup to backup data daily and keep it at a safe and secure place.

(4) User must attain adequate training session for system usage

(5) Lock computer and place a lock key in a safe place and use password protection to open a computer too.

(6) Use software detection algorithm to check accuracy of an input data.

3.4.2 System Control

(a) Input controls – Use software built-in function to check validity of input and keep original document in storage place for future reference

(b) Output control - Software setting already controls output control, which standardizes output report.

(c) Physical security – The hardware should be checked quarterly each year to protect a system hardware from failure.

3.5 Cost and Benefit analysis

3.5.1 Cost Analysis

Cost comparison between existing system and proposed system will be considered here. The cost includes:

(1) Implementation cost

Which includes investment in buying Hardware and Software for the proposed system and cost for developing of the proposed system such as programming cost.

(2) Operating cost

Which includes personal (Employee cost) and maintenance cost

(3) Training cost

This cost includes training session and educational program for system users.

(4) Stationary cost and miscellaneous cost

This cost includes paper cost, office supplies, operation supplies and others.

3.5.2 Benefit Analysis

(1) Tangible benefit

Cost reduction is the main benefit of the proposed system. The resource utilization will be more efficiency. Company also can handle more jobs and more customers.

The following will show cost reduction for

(a) Personal cost (Employee), Company expects to recruit two more employees to handle more work in the existing system, anyway by implementing the proposed system we can cut this cost.

Staff salary = 8500 x 2 x12 = 204,000/year

(b) Stationary cost

Expected saving 5000 x 12 = 60,000/year

Total Expected saving per year = 204,000+60,000=264,000 Baht

(2) Intangible Benefit

Company will get the following benefits from implementing the proposed system.

(a) Better respond time for customer order

(b) Better processing speed of information

(c) Quicker information and workflow

(d) More accuracy and proper document and report than the existing system

(e) More customer satisfaction

(f) Reduction of work load of employee

(g) More accuracy and information planning for purchasing and production

(h) More ease and speed in searching for required information

3.5.3 Cost Comparison

We use break even analysis to compare cost and benefit for the proposed system The cost of both existing and proposed systems are shown in Table 3.1. The difference between the system, is shown by using break-even analysis with the help of a graph, which is shown in Figure 3.4. In two and eight months, the cost of the new system will reach the break-even point; thereafter, it will become more economical to operate than the current system.

3.5.4 Payback Analysis

Payback period for Development of the proposed system, can be calculated by using tangible benefit after break-even point to cover the cost that occurs before break-even point.

Before break-even point, the proposed system's cost is more than the existing system about 202,400 Baht in the first 2 years and the company start to gain benefit in the 3rd year.

Calculation

(1) From 3rd year, we gain 18,410 Baht

(2) From 4th year, we gain 105,061 Baht

(3) From 5th year, we gain 196,204 Baht

(4) Total Benefit = 319,675 Baht

(5) Then Payback period will be in between 4th year and 5th year.

(6) 202,400-(18,410+105,061) = 78,929

(7) 78,929/196,204 = 0.4

(8) 0.4*12 = 4.827 = 5 months

Then Payback period for the system is 4 years and 5 months

Table 3.1. Cost Comparison between the Existing System and Proposed System.

Cost Items	Years				
	1	2	3	4	5
Existing System:					
Staff (7 Staffs)	714,000	749,700	787,185	826,544	867,871
Stationary Cost	50,000	52,500	55,125	57,881	60,775
Office Equipment Cost	10,000	10,000	10,000	10,000	10,000
Utility Cost	60,000	63,000	66,150	69,458	72,930
Total Cost (Baht)	834,000	875,200	918,460	963,883	1,011,577
Cumulative Cost (Baht)	834,000	1,709,200	2,627,660	3,591,543	4,603,120
Proposed System:					
Development Cost:					
Hardware Cost	54,400	54,400	54,400	54,400	54,400
Software Cost	19,800	19,800	19,800	19,800	19,800
Office Equipment Cost	14,000	14,000	14,000	14,000	14,000
Operating Cost:					
Staff (5 Staffs)	714,000	535,500	562,275	590,389	619,908
Maintenance Cost	10,000	11,000	12,100	13,310	14,641
Stationary Cost	70,000	73,500	77,175	81,034	85,085
Training Cost	20,000	10,000	10,000	10,000	10,000
Utility Cost	80,000	84,000	88,200	92,610	97,075
Total Cost (Baht)	982,200	802,200	837,950	875,543	915,075
Cumulative Cost (Baht)	982,200	1,784,400	2,622,350	3,497,893	4,412,968

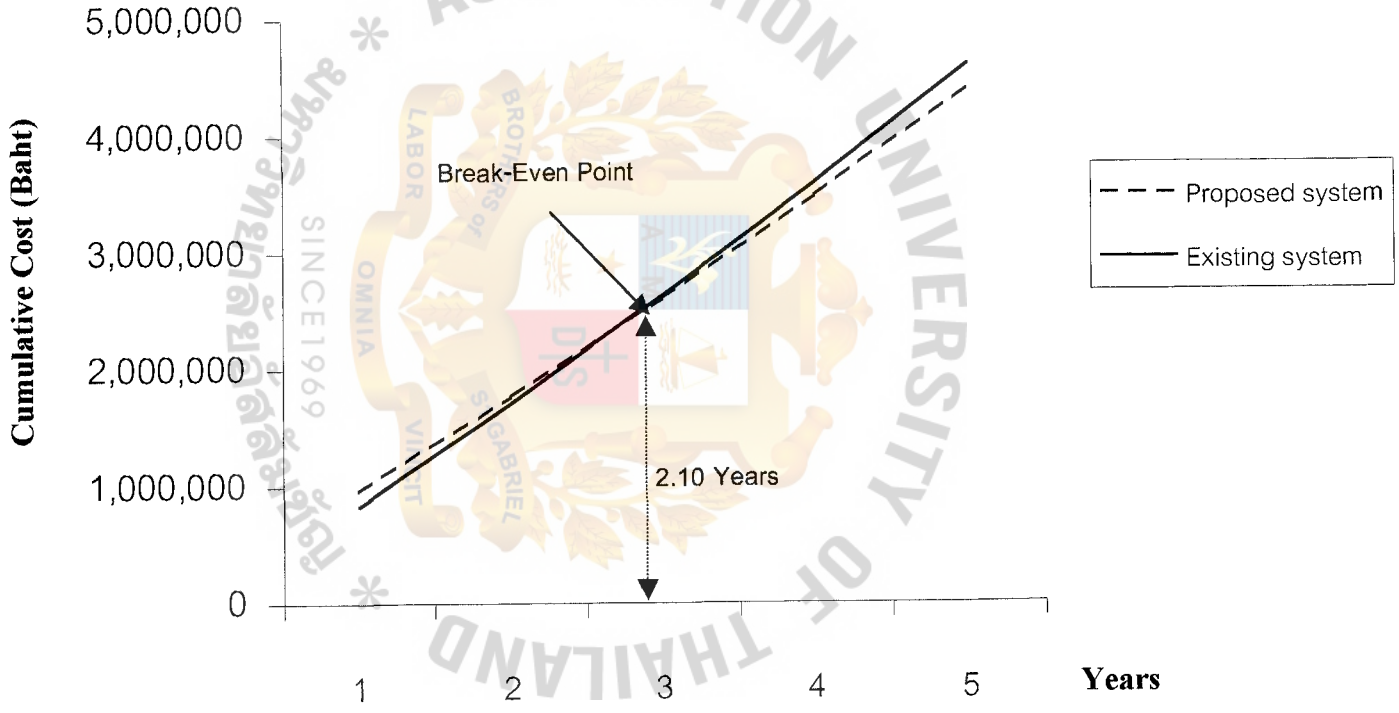

Figure 3.4. Break-Even Chart for the System.

IV. PROJECT IMPLEMENTATION

The implementation of the proposed system will start after presenting this proposed system to the manager and getting his approval. There are three steps in order to implement this system

(1) Building

This step includes programming all required modules and combineing them into a full program to satisfy user requirements.

(2) Testing

Testing all modules in the system software and also testing backup system and all hardware.

(3) Installation

Installing a finished system software and hardware and operating it.

4.1 Building the System

The proposed system starts with programming a desired program. It requires transforming all designs in the previous section into a real program.

This system uses Microsoft visual basic in order to program the proposed system, With the ability to handle large amount of data and flexibility of visual basic, the system will also use visual basic to handle all database.

All required hardware, software and all office equipment must be brought and connected together to create the proposed system and prepare it for the next step of development.

4.2 Testing the System

Testing is very important for the development of the proposed system because it can be used to discover hidden failure, bug, error and any needed requirement that can not be discovered at the design stage.

The followings are required steps for testing

(1) Test program logic

In this step, the programmer will check all program functions to see any error or bug in any function of the program. The programmer will test the program in 3 levels.

(a) Test individuals object in program to see how well they perform on their functions.

(b) Test each page of program to see whether pages have any error or not and how well each object in program page works with each other.

(c) System testing, this level will ensure that our system program is working properly when integrated with hardware and other system software

(2) Test program with sample data and invalid data

This step will test the program by simply input sample data to see how the program will process them. Programmer and user will look at output of the program and compare it with prepared correct result.

This step will test the correctness of data processing in the system.

(a) Test with individual object

This test level will discover how each object in the system process of a sample data

(b) Test with individual page

This test level will discover how all objects in each program page process of a sample data and to see a new requirement for the user. System development team can use this requirement in order to improve this program. Also see how each object in each page are linking together in data processing process.

(c) Link testing within a system.

This testing is implemented to ensure that each object linking is working as a requirement. And see how each individual pages in the system are interdependent linking as a requirement or not. All sample data will input into the system to ensure there is no problem and we also test by entering invalid data to see whether the program can detect it or not.

(3) System testing

All users and programmer will test the proposed system by opening full system operation. In full operation, both hardware and software will be tested with a sample data to see how the proposed system works and to ensure that there are no error or malfunction occuring in the system. Also checking all required output is needed to see correctness and test all mistakes that may occur in the system to see whether the error detection procedure can detect it or not and how the system will detect and correct it.

Testing an operation procedure is required for users in the system to ensure that all users are clear and familiar with the procedure.

(4) Backup and recovery testing

This testing is an important testing for the proposed system. User must test backup procedure for the system to see any difficulty that may occur in

the system and to test some errors that can occur during backup process such as power failure, program error, data error and etc.

(5) Concurrent Testing

Before replacing the existing system with the new one, it is require that both the existing system and the proposed system are run concurrency for one month to see any effects of the proposed system on the company and ensure that the proposed system can replace the existing system. This testing also can discover more user's needs in a real working environment and if an error occurs, so that the development team can continue to correct them to ensure smoothness of operation.

4.3 Implementing the System

After testing the proposed system, we start to implement it in the company. The proposed system will be implemented along with the existing system for one month in order to allow users to adapt to the proposed system.

In adoption periods (First month), The system requires:

(a) Training and educating the users in order to ensure that they can use the system without the intervention of programmer and analyst.

(b) Transforming the existing document into computer-based document in order to run a full-scaled proposed system

(c) System analysts and programmers still keep the system under observations to make sure that the proposed system is able to run on a real business transactions.

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Degree of Achievement of the Proposed System Compared with the Existing System

Table 5.1. shows the time spent on each process of the Proposed system compared with the Existing System. It shows that each process of the Proposed System spends less time than each process of the existing system, which has to pass many manual work steps. This table shows that the Proposed system is more efficient than the Existing system.

Table 5.1. Degree of Achievement between the Proposed System and the Existing System.

Process	Existing System	Proposed System
Verify Order Information	1 Hour	30 Minutes
Prepare Invoice	30 Minutes	25 Minutes
Production Order processing	1.5 Hours	50 Minutes
P/O Processing	1 Hour	40 Minutes
Total	4 Hours	2 Hours and 25 Minutes

The car accessory ordering and inventory system is developed for SSR co. Ltd. This system covers 6 areas of ordering and inventory system, handle of customer order, invoices processing, production order, purchase order, delivery order and inventory information control. The existing manual system is not efficient enough to handle increasing information. Existing order processing takes a long time and causes a delay of the order cycle. There are a lot of problems in the existing manual system. It's hard to search for desired information in the existing system especially where the inventory information is not accurate with the existing inventory information. This problem is

caused by unorganized data. Information exchange is a problem too. It takes a long time for the existing system to update the redundancy data in different department. It is also very difficult to planning for production, purchasing and sales because the history data are in a paper-based form, which is very difficult to summarize, as well as wasting a lot of space to keep then to throw them away every month.

The above mention problems can be solved by implementing the proposed system. The proposed system is a computerized system that can eliminate human mistakes, increase data processing speed and improve system efficiency. The proposed system can provide better information for the planning of purchasing, production and sales than the existing system and it also provides necessary report to the user.

The proposed system uses 2 years 10 months to reach break-even point and payback period is 4 years and 5 months.The proposed system requires hardware and software to serve the current and future business expansion. The development for the proposed system will involve programming, testing, inputting information and training. The program will be tested in the real working situation together with the existing manual system for a month to see the effect of the new system. This will allow user to adapt to the new system more smoothly and will be able to any error that may occurs..

5.2 Recommendations

After implementing the proposed system, the existing system should be kept running for a while until we make sure that there is no problems occuring in the proposed system.

The company can use the information from the proposed system in many ways. It can use historical data in mathematical function in order to forecast sales in the future or to use it for general planning purpose.

The company can extent the business to the Internet by implementing e-commerce technology. This technology will increase sales potential for the company and also reduce some cost especially when it connects with the inside company's computer system.

Employee training is very important too. The company needs to train the existing users in many areas such as English usage and computer literature in order to prepare them for future expansion of the business and also new program in the future.

The company may adapt the computerized system to other departments in the company. This will increase the speed of work processing especially if the new system is connected with the existing computerized system. The company will move to an automated level that will reduce work cycle time and eliminate unnecessary paper work. The company can reduce lead-time. Marketing and sales will be easier to operate and faster to process their orders.

User authorities should be a major concern in the system. The system must enable the user to set a password with the user's needs for security. The company needs to set a schedule to revise the existing system to meet the needs for improvement and to do the necessary adjustment to fit in with the existing work situation.

APPENDIX A

DATA FLOW DIAGRAM (THE PROPOSED SYSTEM)

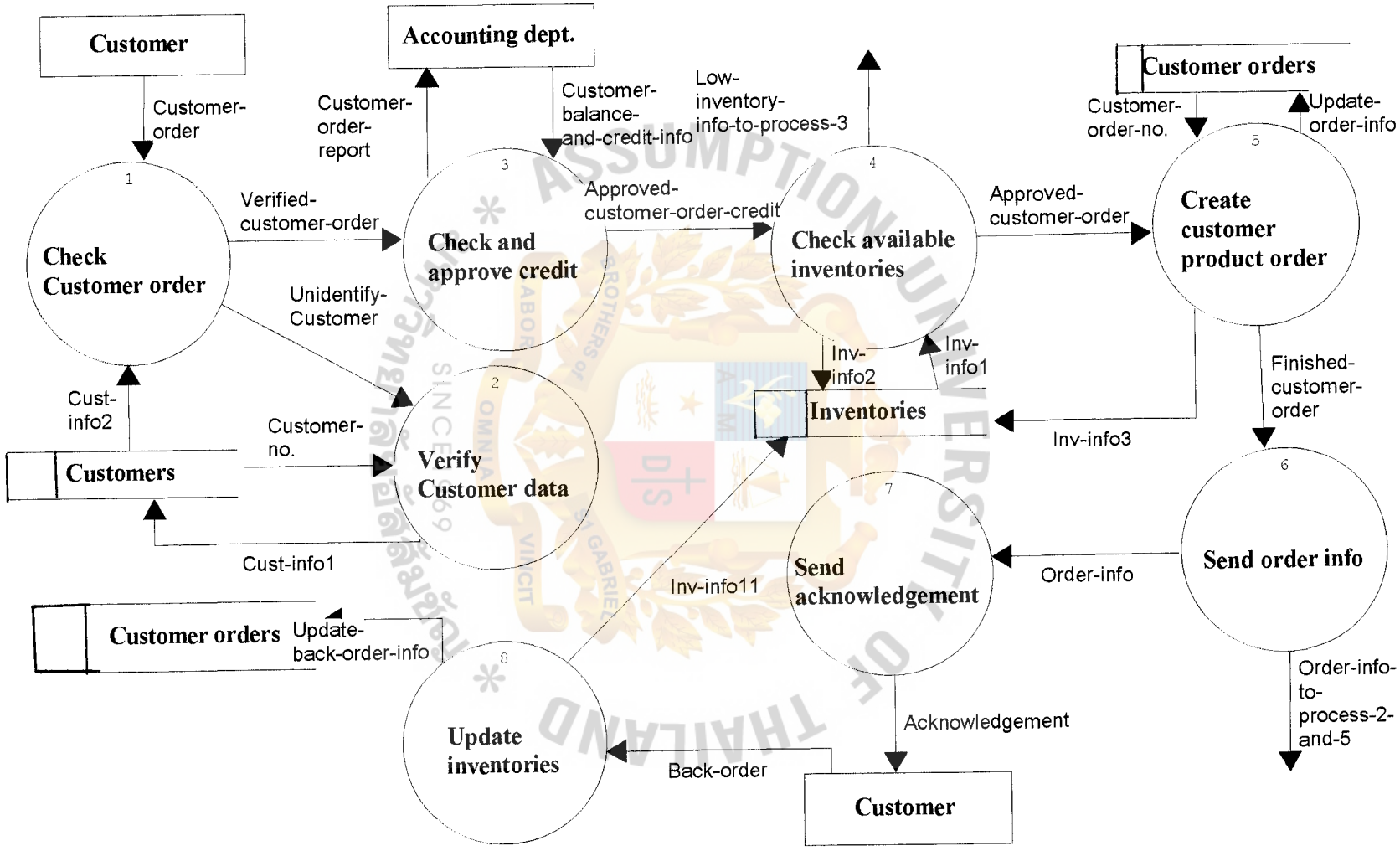

Figure A.1. Process 1 Level 1 Verfiy Order Information.

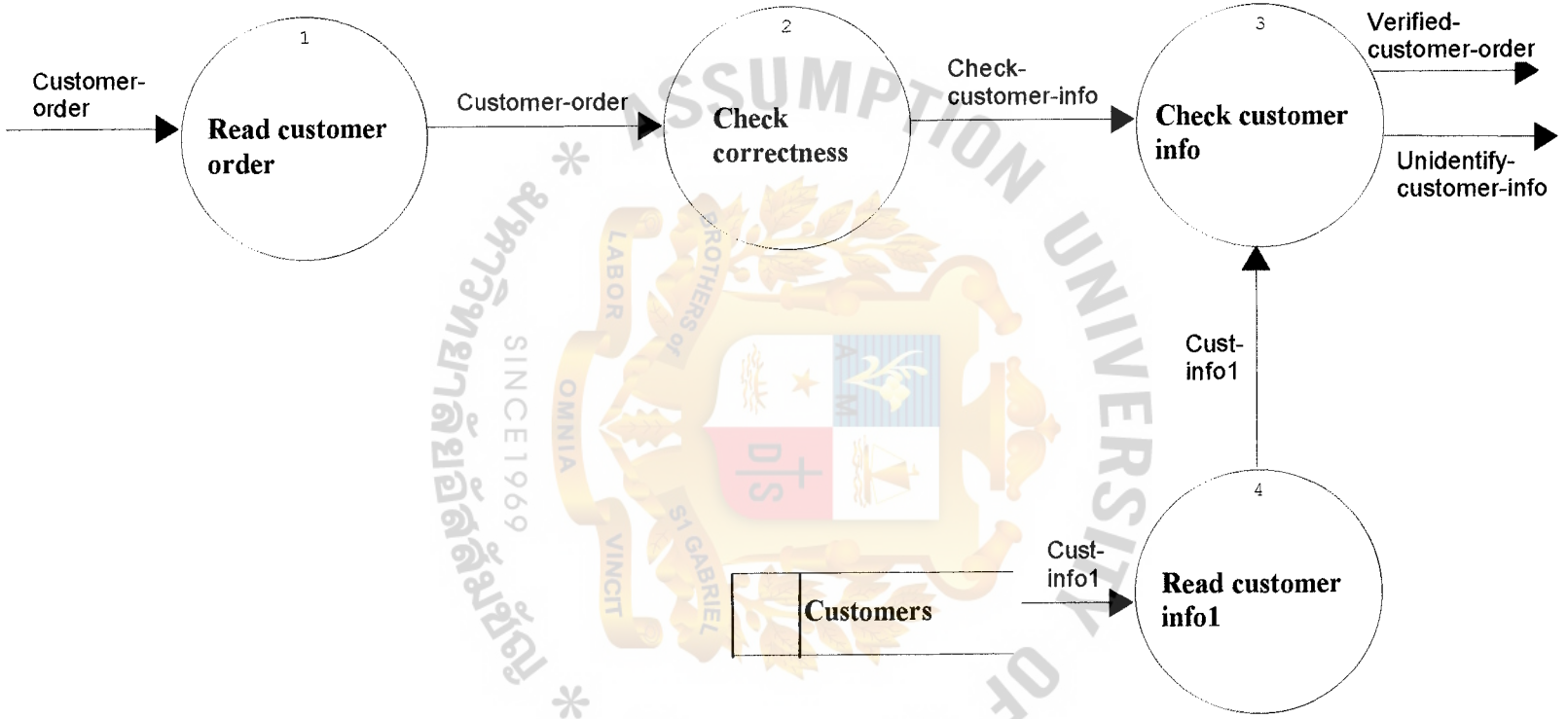

Figure A.2. Process 1.1 Level 2 Check Customer Order.

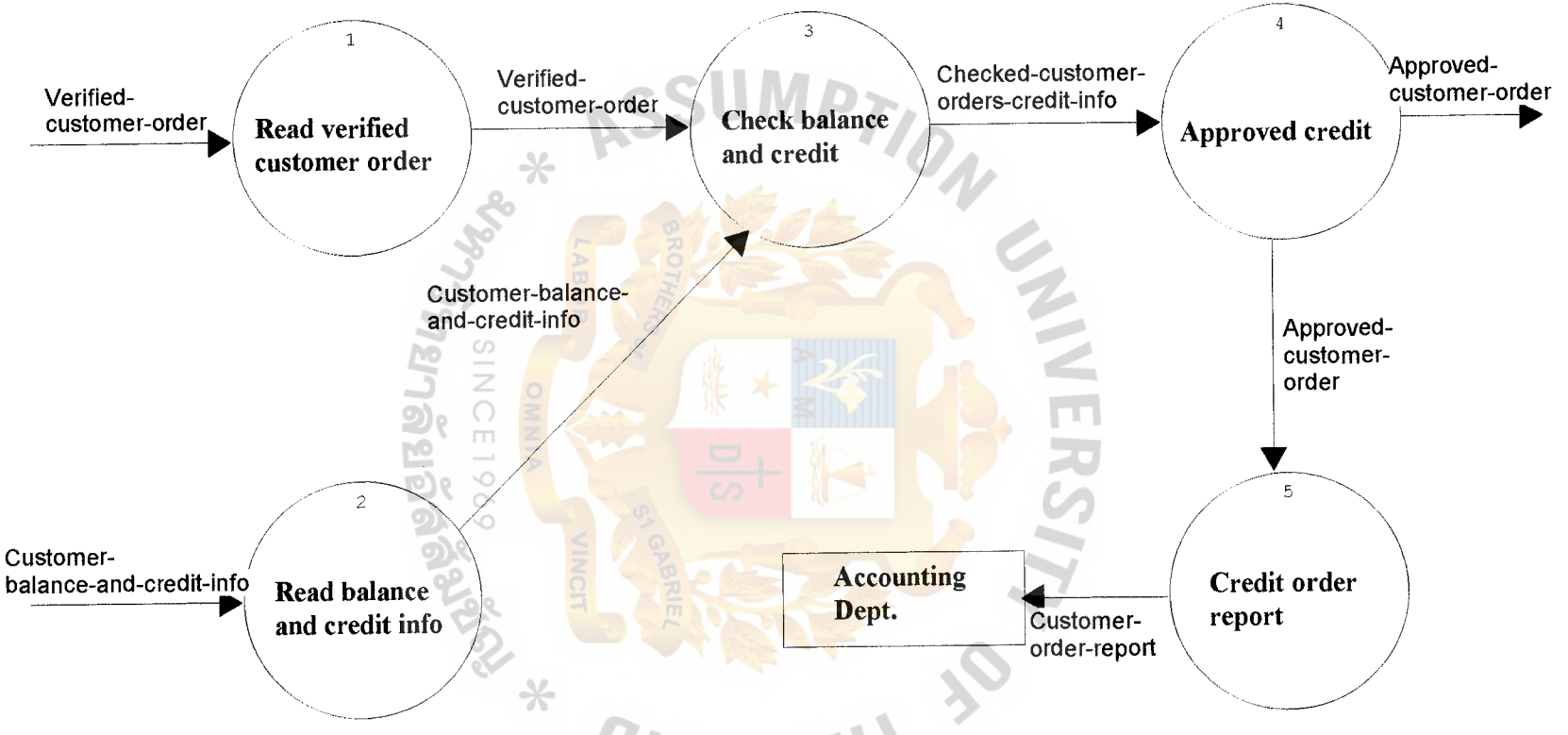

Figure A.3. Process 1.3 level2 Check and Approve Credit.

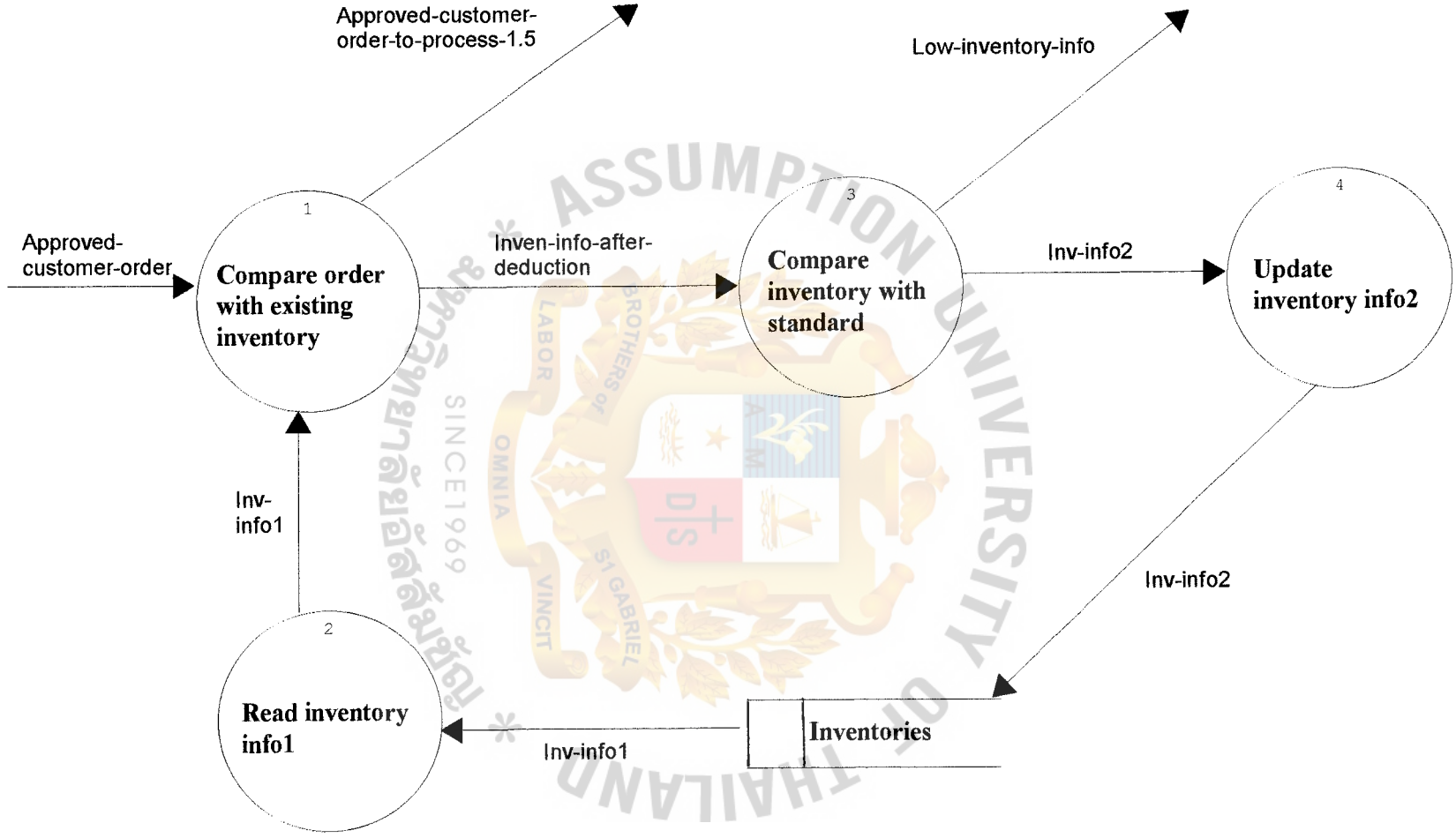

Figure A.4. Process 1.4 level 2 Check Available Inventories.

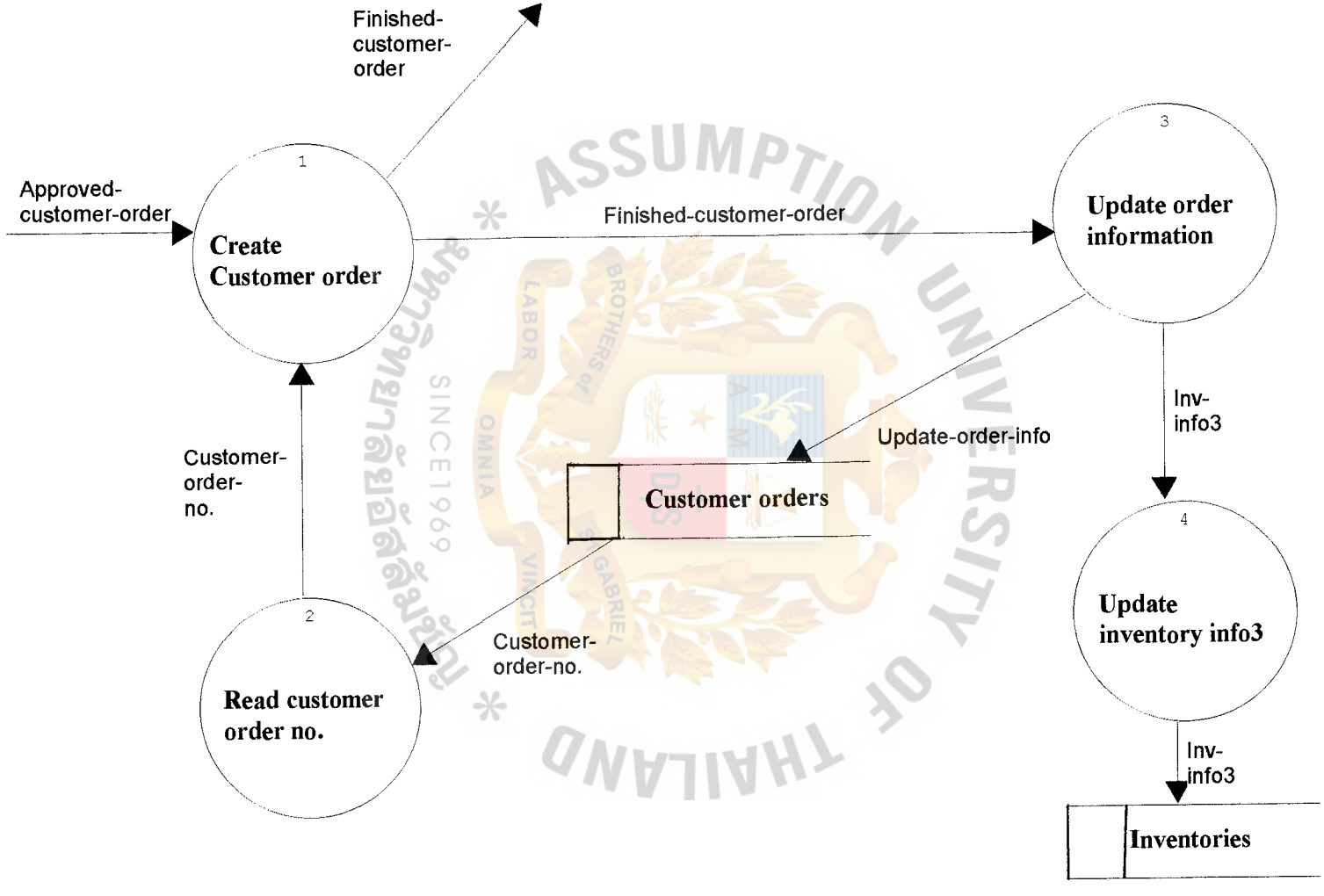

Figure A.5. Process 1.5 level 2 Create Customer Product Order.

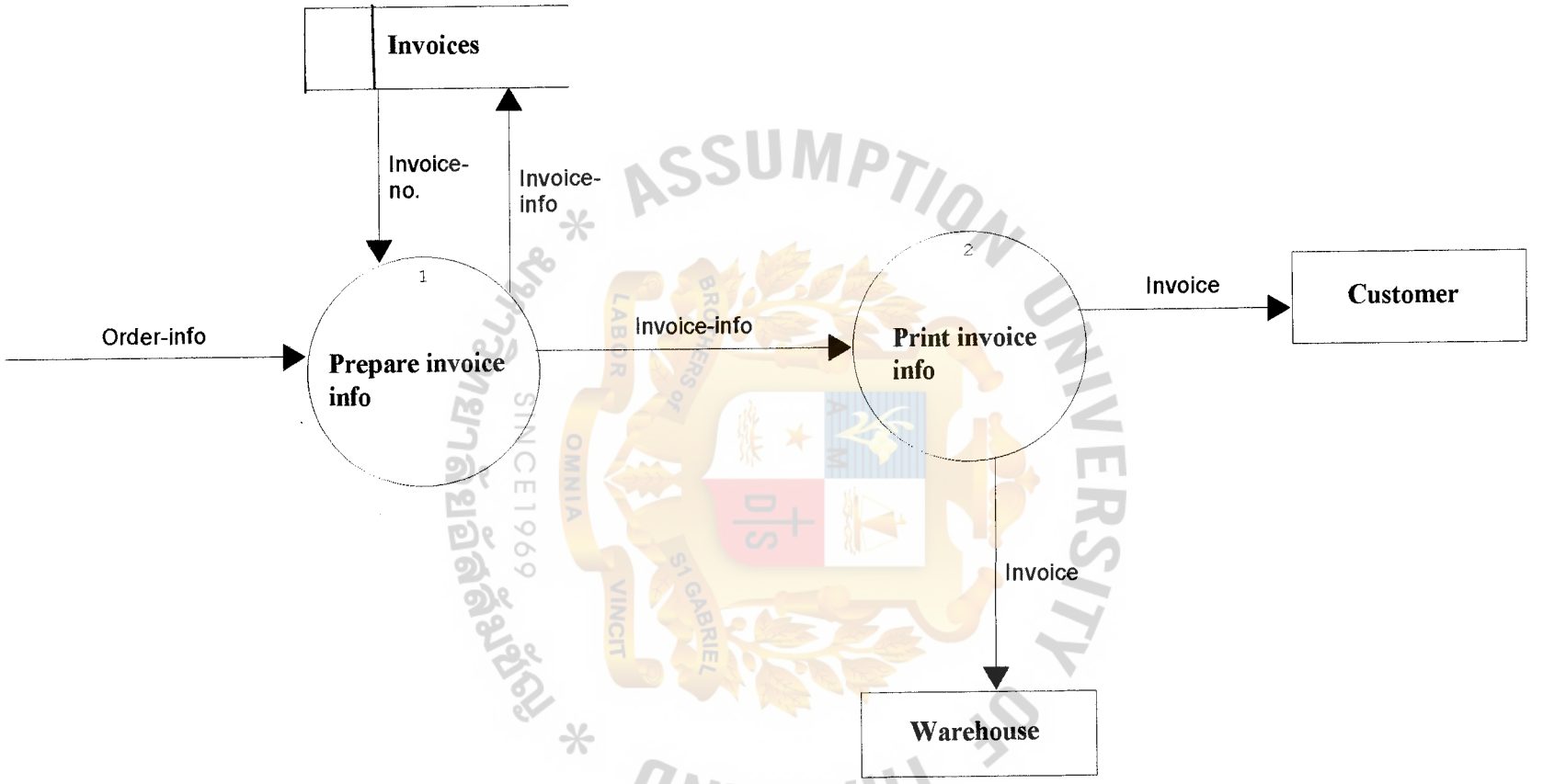

Figure A.6. Process 2 Level 1 Prepared Invoice.

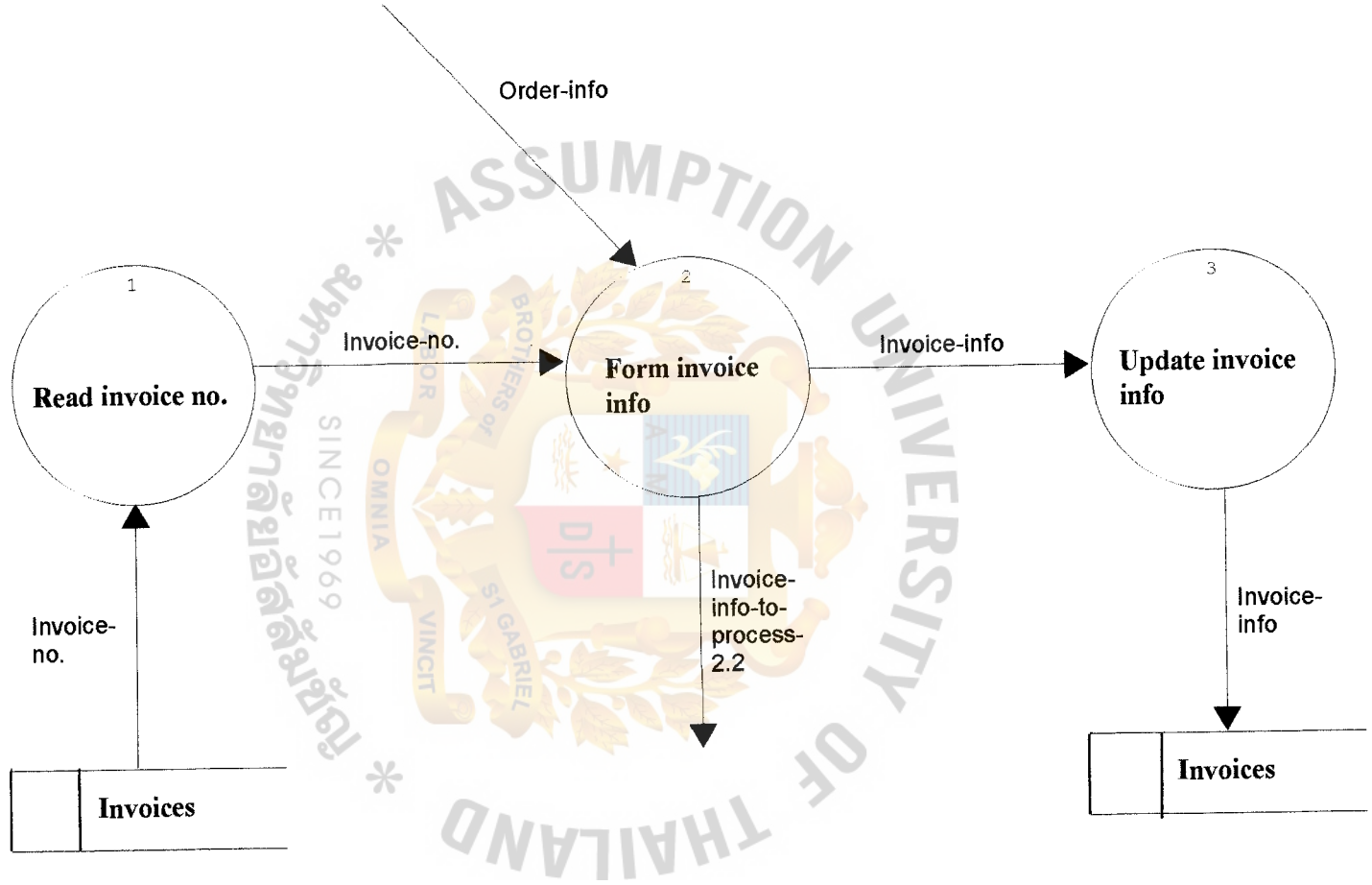

Figure A.7. Process 2.1 Level 2 Prepare Invoice Info.

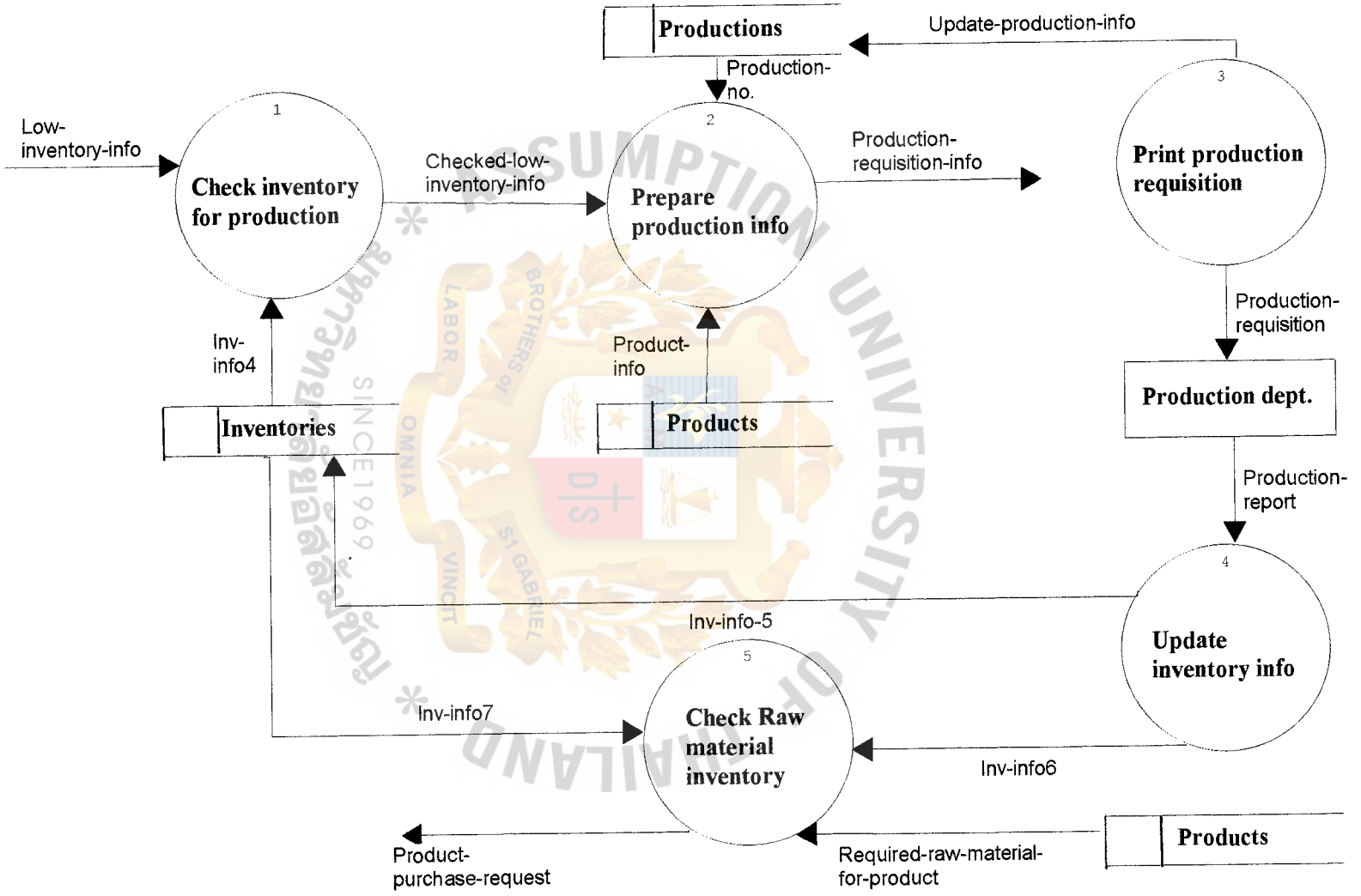

Figure A.8. Process 3 level 1 Production Order Processing.

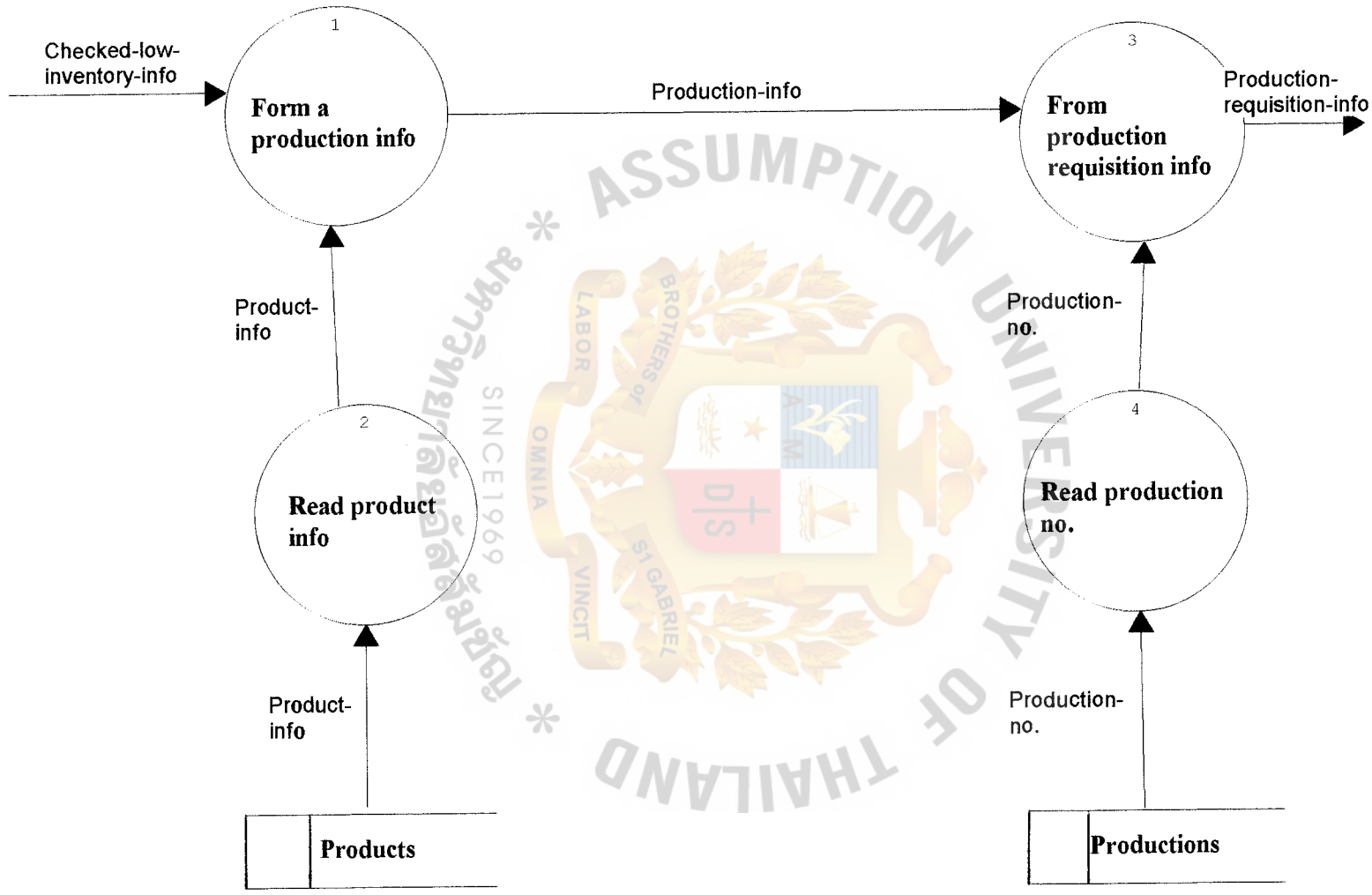

Figure A.9. Process 3.2 Level 2 Prepare Production Info.

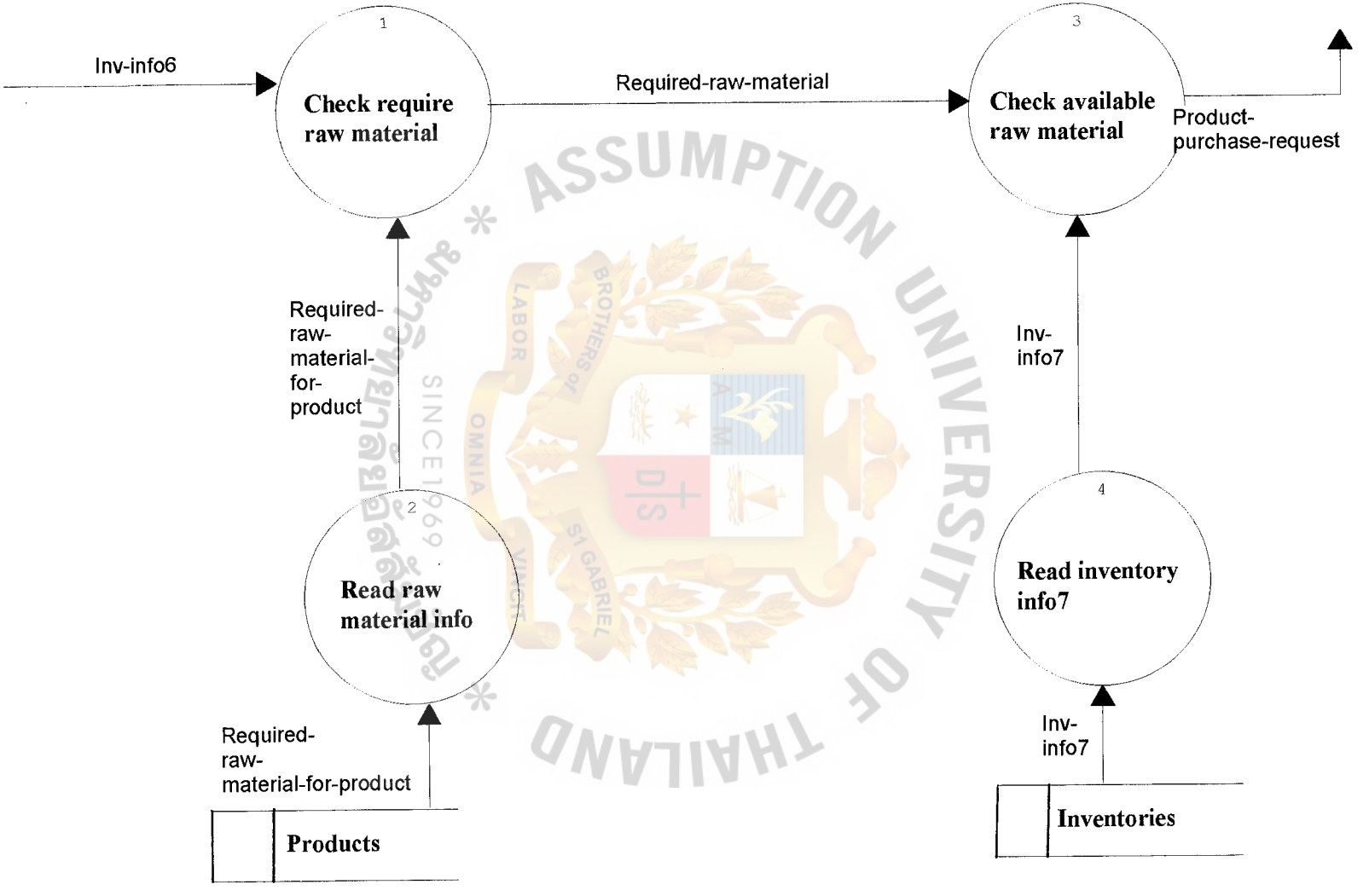

Figure A.10. Process 3.5 Level 2 Check Raw Material Inventory.

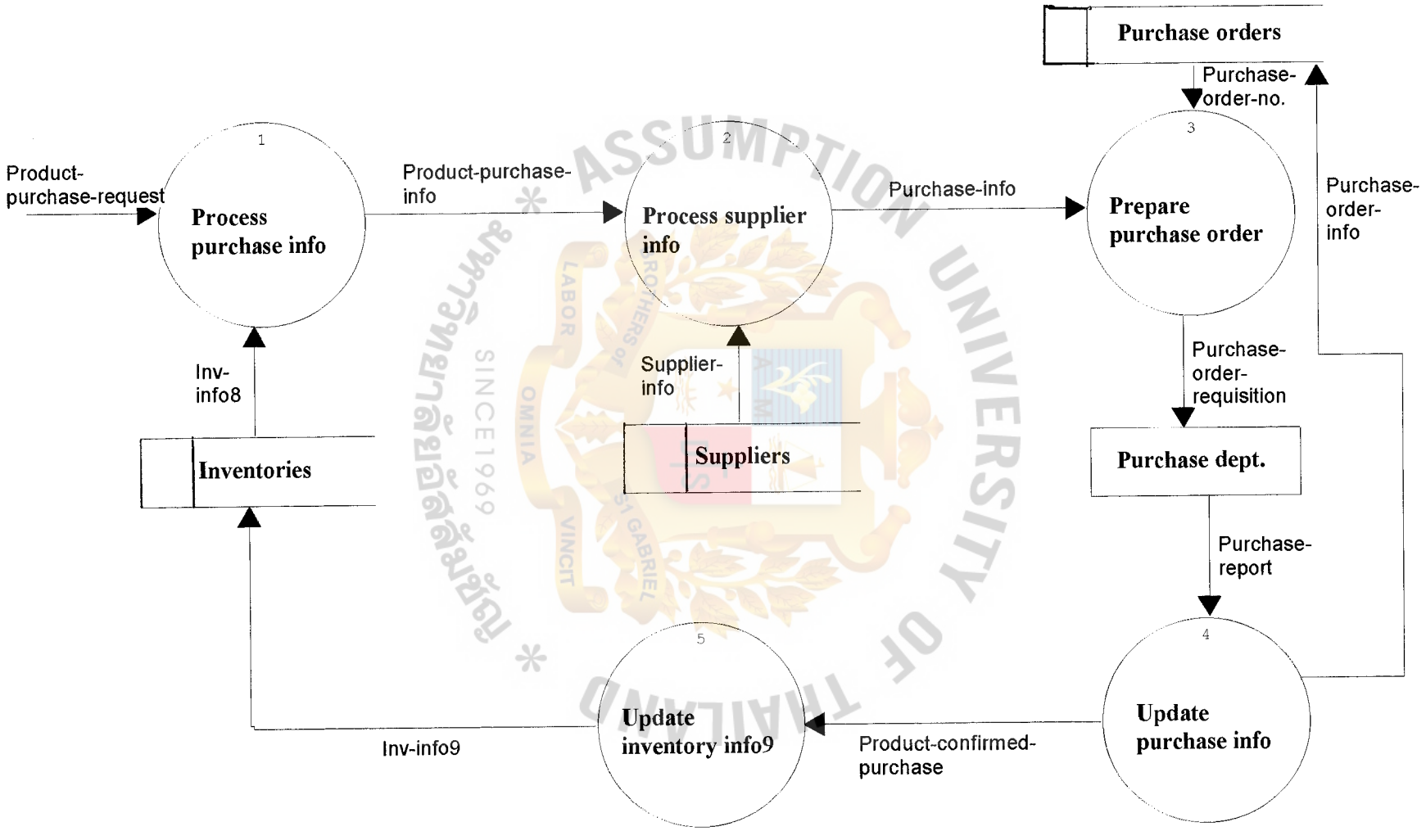

Figure A.11. Process 4 Level 1 P/O Processing.

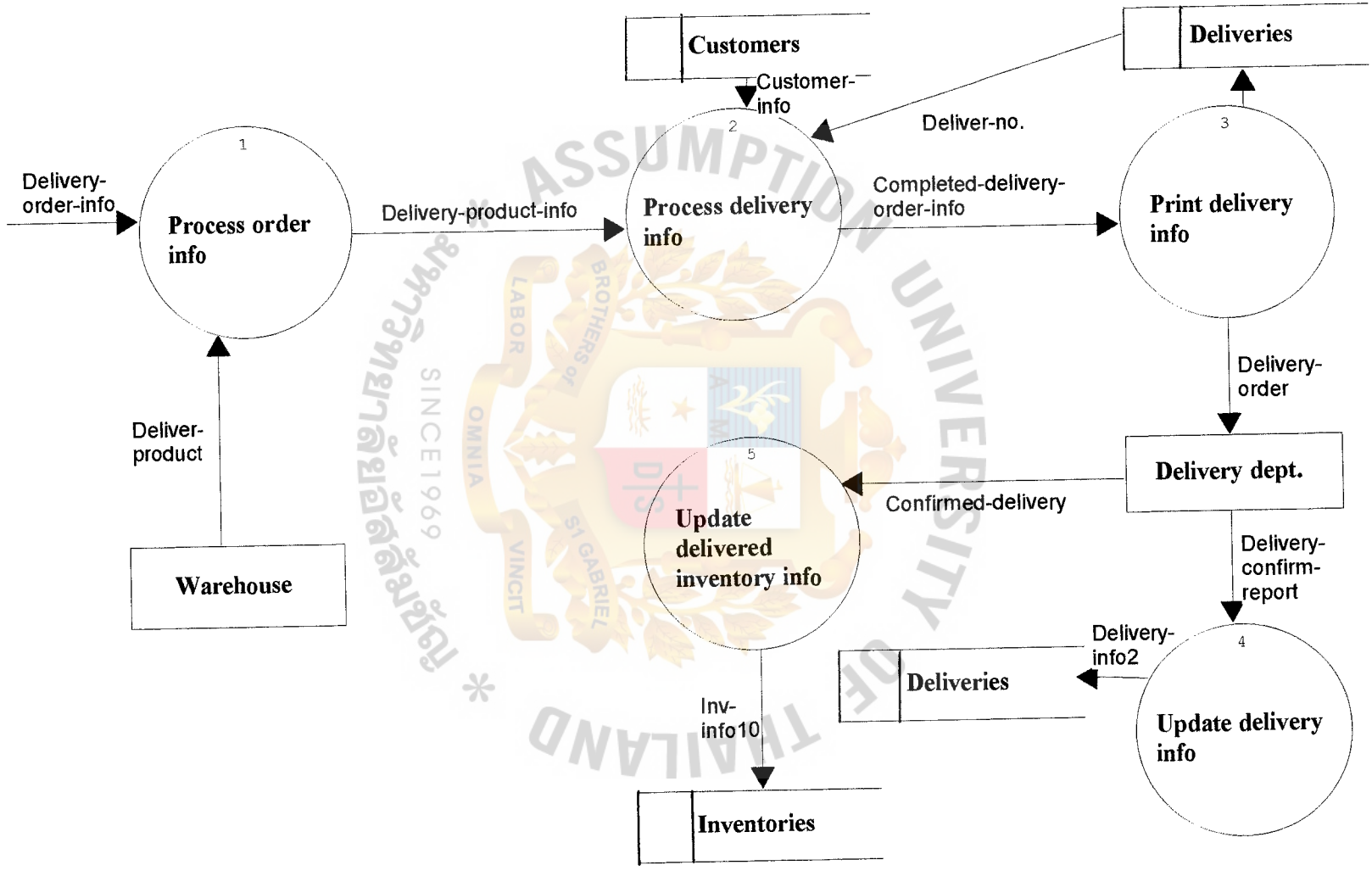

Figure A.12. Process 5 Level 1 Delivery Order Processing.

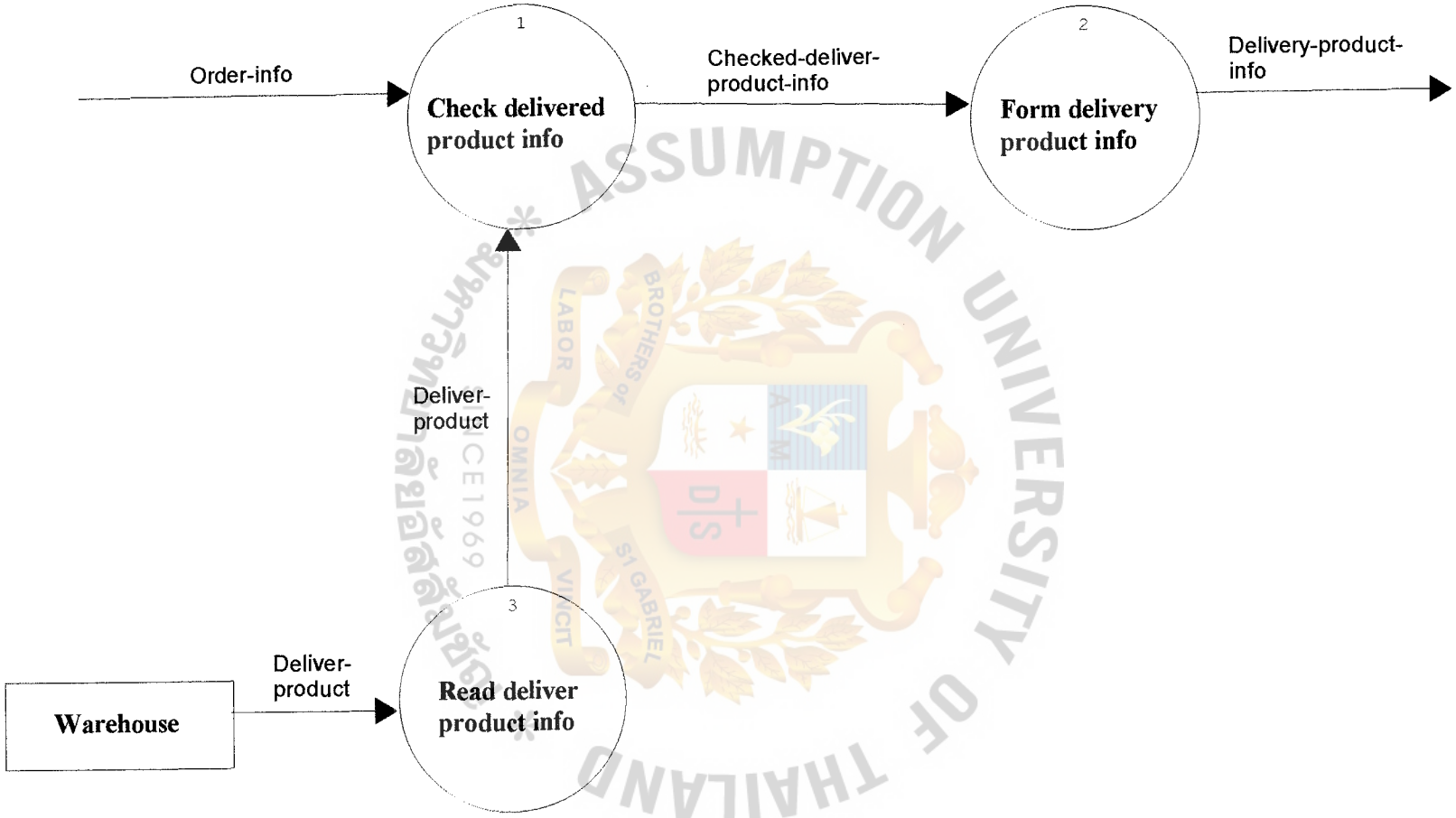

Figure A.13. Process 5.1 Level2 Process Order Info.

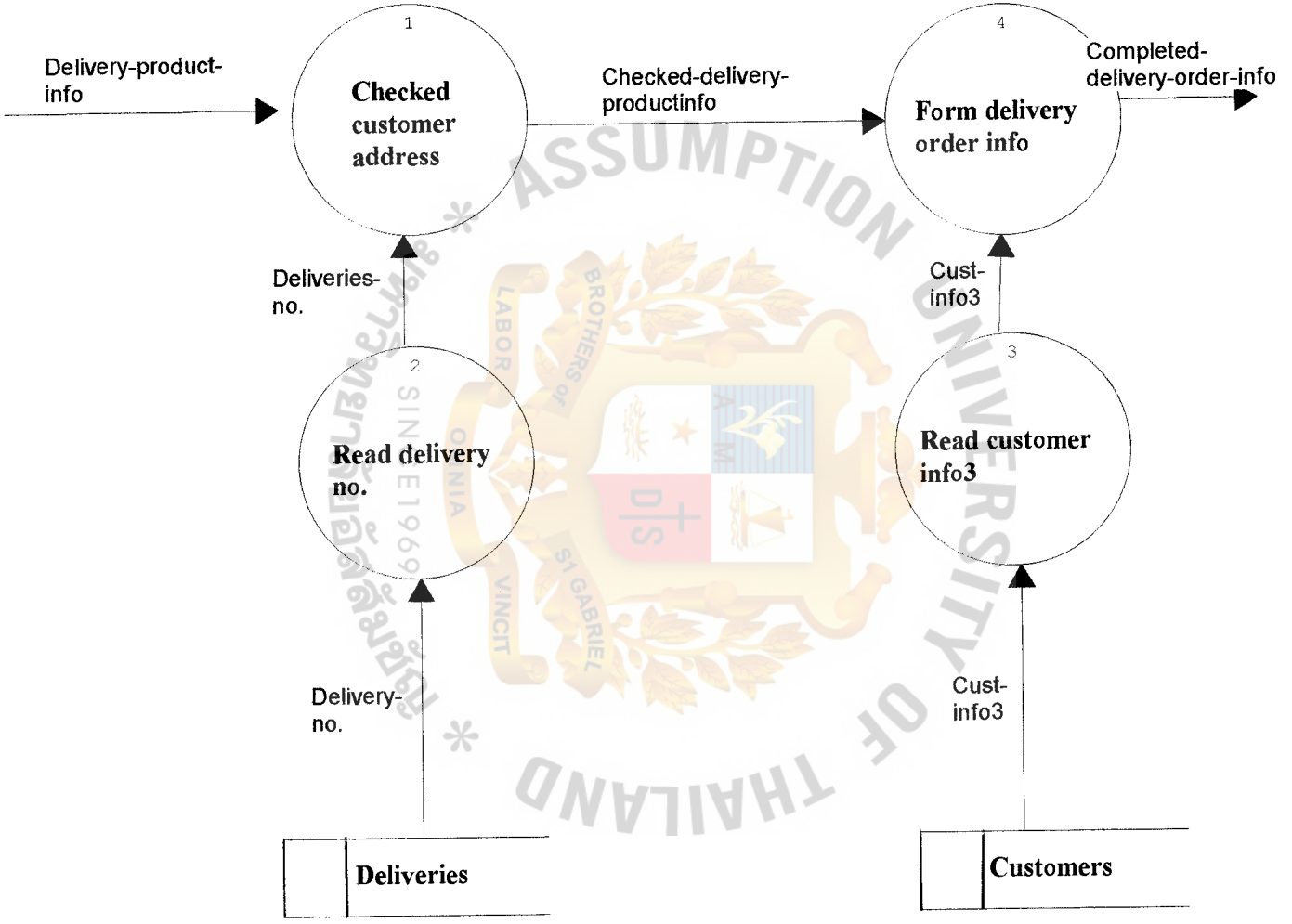

Figure A.14. Process 5.2 Level 2 Process Delivery Info.

APPENDIX B

DATA DICTIONARY

DATA DICTIONARY

Data Flow

- Acknowledgement = Customer acknowledgement to confirm that customer order is correct and company will fulfill this order as the requirement. If there are any errors occur then company will notice in this acknowledgement too.
- Approved customer order = Approved customer order credit which is able to fulfill (Check available inventory for customer order)
- Approved customer order credit = Verified customer order information, which is passed the approval of credit.
- Approved customer order to process 1.5 = Approved customer order credit that is send to process 1.5
- Back order = Return product from customer.
- Check customer order = Customer order information that had been checked for correctness in input information
- Checked customer orders credit info = Verified customer order, which pass the balance and credit checking
- Checked deliver product info = Order information that has enough inventory (Check inventory level from warehouse)
- Checked delivery product info = Delivery product info that had been check for address
- Checked low inventory info = Checked low inventory information, which is compared with inventory information in inventories database
- Completed delivery order info = Completed product information that will be send to customer

- Confirmed delivery = Customer order that is fullfilled (Completely deliver to customer) (Same as delivery confirm report)
- Cust info 1= update unidentified Customer information which is verified (All customer information)
- Cust info 2=Send Customer information (All) or verified customer order information to Check again (All customer information)
- Cust info 3=Customer information that's used for delivery
- Customer balance and credit info= Credit and balance information of customer who send a customer order to the company. It uses for approved further credit for customer order
- Customer order = Product order from customer to buy a product
- Customer order no. = Assigned customer number of each different customer in the database
- Customer order report = Customer order's information about approved credit, which is send to accounting department
- Delivery no. = Assigned delivery number to create a delivery order for delivery department.
- Deliver product = Information that warehouse send to the system. It is a information about inventory information of the product that will be delivered.
- Deliver confirm = Confirm from delivery department that the customer order is completelt deliver.
- Delivery confirm report = Report on completed delivery order from delivery department
- Delivery info = Delivery info 1,2

- Delivery info1 = completed delivery information (not yet fulfilled)
- Delivery info2 = fulfilled delivery information (Already send to customer)
- Delivery no. = assigned Delivery number to create delivery order
- Delivery order = Completed information that require to fulfill delivery, which uses to order delivery department to deliver product to customer.
- Delivery order info = Order information for delivery process (Order info)
- Delivery product info = inventory information about the products that are required to deliver (From warehouse)
- Finished customer order = Customer order which is passed all verification process in process 1
- Inv info 1 = Inventory level that uses to fulfill customer order (Inventory number+quantity available)
- Inv info 2 = Inventory, which is required to fulfill customer order (Inventory number) (Status: reserved)
- Inv info 3 = Inventory level, which is needed in customer order (Inventory number) (Status: Ready to send)
- Inv info 4 = Inventory information that's in low inventory list
- Inv info 5 = Finished product from production (Use for update)
- Inv info 6 = Finished product level from production (Use for purchasing)
- Inv info 7 = Existing inventory level (Before include Finished product from production)
- Inv info 8 = Inventory information about required product for purchasing
- Inv info 9 = New inventory from purchasing
- Inv info10 = New inventory level after deliver product to the customer.

- Inv info 11 = Inventory level from back order
- Inven info after deduction =Inventory level after deduct request inventory for customer order
- Invoice = Invoice for customer
- Invoice info = Invoice information for updating invoice database
- Invoice no. = Assigned invoice number for creating an invoice
- Low inventory info = Inventory that has a lower rate than standard
- Order info = Complete information about customer order that is verified.
- Product confirmed purchase = Information about inventory that had been purchased by purchase department (use to update inventories database)
- Product info and raw material for product = Information that is needed in productions such as components of finished product.
- Product purchase info = Information about required product to purchase and number
- Product purchase request = Request to purchase low level inventory
- Production info = Requirement for production of low level inventory.
- Production no. = Assigned number for production order
- Production report = Report on finished product from production department
- Production requisition = Production order to production department
- Production requisition info = Information to form production requisition
- Purchase info = Required information to from purchase order for purchase department.
- Purchase order info = Purchase information from purchase department, which shows detail about purchasing in each purchase order.
- Purchase order no. = Assigned number to form a purchase order

- Purchase order requisition = Purchase order to purchase department.
- Purchase report = Information about purchased product.
- Required raw material = Information on number of required raw material on production.
- Required raw material for product = number of required raw material for each product
- Supplier info = Information on supplier who supplies the product.
- Unidentified customer = Information on customer who can't be identified by existing information
- Update order info = Customer order information, which is verified by process 1 (Update to customer orders database)
- Update production info = Update production order information to productions database
- Verified customer order = Customer order, which is checked for correctness of data

File

- Customer orders = This file includes information about order from customer, which includes (Customer order no.+ customer number +order date+order due+term payment+sales person)
- Customers = This file includes information about customer (Customer no.+customer name+customer address+Customer telephone+shipping address+contact personal)
- Deliveries = This file includes information about delivery order (delivery number+invoice number+delivery date+delivery lead time+supervisor+status+note)

- Inventories = This file includes information about inventory (Inventory number+ product number+reorder point+unit available)
- Invoices = This file includes information about inventory (Invoice number+Customer order no.+issue date)
- Inventory order = This file includes information about inventory order for customer (Inventory order number+Inventory number+invoice number+quantity order+cost)
- Productions = This file includes information about production order, which the system send to production department (Production order number+product number+order date+order due+quantity+status)
- Products = This file includes information about product such as product description, component of the product (Product nuumber+inventory number+product name+description+component1+quantity1+component2+quantity2+component3+quantity3+component4+quantity4+component5+quantity5+leadtime). If product has more than 4 components then use the four components to show other raw material with special description that will show more components for the product.
- Purchase orders = This file includes information about purchase order, which the system send to purchase department (Purchase order number.+supplier number+Inventory number+p/o order date+p/o order due+p/o term+status)
- Suppliers = This file includes information about suppliers (Supplier number+supplier name+supplier address+supplier telephone+supplier delivery address+supplier type+contact personal)

APPENDIX C

PROCESS SPECIFICATION

PROCESS SPECIFICATION

Process 1

Process name: Verify order

Description : This process will verify customer information and prepare customer order for other processes in the system

Input : Customer order, Customer balance and credit info, Inv info 1, Custinfo 2, Customer order no.

Output : Acknowledgement, Update order info, Order-info (To process 2,5), Cust info1, low inventory info, inv info 2 and 3, customer order report

Process logic:

Open customer orders file

Do until EOF

Get customer order and back order

Call process 1.1

Call process 1.2

Call process 1.3

Call process 1.4

Call process 1.5

Call process 1.6

Call process 1.7

If get back order then

Call process 1.8

Else

End do

Close customer orders file

Process 1.1

Process name: Check Customer order

Description : Check correctness of customer information by comparing with cust info2 from Customers File and screen out unidentified customer to process 1.2

Input : Customer order, Cust info2

Output : Verified customer order, Unidentified customer

Process logic:

Get customer order

Call process 1.1.1

Call process 1.1.2

Call process 1.1.4

Call process 1.1.3

Close files

Process 1.1.1

Process name : Read Customer order

Description : Read information about order from customer order

Input : Customer order

Output : Customer order

Process logic :

Get Customer order

Send customer order to process 1.1.2

Process 1.1.2

Process name : Check correctness

Description : Check correctness of input data by using software detection and human detection

Input : Customer order

Output : Check customer order

Process logic:

Get Customer order

Do while not EOF

If input's type = default then

Send to process 1.1.3

Else

Inform Error message

ENDDO

Process 1.1.3

Process name: Check customer info

Description : Check customer information of customer order, Screen out unidentified customer.

Input : Check customer order, Cust. Info1

Output : Verified customer order, unidentified customer order

Process logic:

Get checked customer order

Do while not EOF

Get cust info1

Set Cust = Cust info1's customer order

If customernumber = Cust or Customername = Customername of Cust

or Customer telephone = Customer telephone of Cust

Then send verified customer order to process 1.3

Else send unidentified customer info process 1.2

Process 1.1.4

Process name : Read customer info1

Description : Read customer information for checking

Input : Cust info1

Output : Cust info1

Process logic :

Open customers file

Do while not EOF

Get cust info1

Send cust info1 to process 1.1.3

ENDDO

Close file

Process 1.2

Process name: Verify customer data

Description : Check unidentified customer information and create new customer information for customer file

Input : Unidentified customer information

Output : Cust info1

Process logic:

Get unidentified customer

Open customers file

Get customer no.

Create newcustomer file

Save newcustomer file to customer file

Close file

Process 1.3

Process name : Check and approved credit

Description : Check credit and balance of customer and approved against standard

Input : Customer balance and credit info, Verified order

Output : Approved customer order credit, customer order report

Process logic:

Get verified customer order

Get customer balance and credit info

Call process 1.3.1

Call process 1.3.2

Call process 1.3.3

Call process 1.3.4

Call process 1.3.5

Send Approved customer order credit

Send Customer order report

Process 1.3.1

Process name : Read verified customer order

Description : Read verified customer order information for process 1.3.3

Input : Verified customer order

Output : Verified customer order

Process logic:

Reading verified customer order from process 1.1

Send it to process 1.3.3

Process 1.3.2

Process name : Read balance and credit info

Description : Read customer balance and credit info for process 1.3.3

Input : Customer balance and credit info

Output : Customer balance and credit info

Process logic:

Read customer balance and credit info from accounting department

Send it to process 1.3.3

Process 1.3.3

Process name : Checked balance and credit

Description : Check balance and credit of customer who send an order to the company

Input : Verified customer order, customer balance and credit info

Output : Checked customer orders credit info

Process logic:

Get verified customer order

Get customer balance and credit info

Do while not EOF

If verified customer order's cust no. = customer balance and credit info's cust no.

Then (If customer order's total cost < customer balance and credit info's credit limit

then

Send Checked customer orders credit info to process 1.3.4)

Else Report Error message

Process 1.3.4

Process name : Approved credit

Description : Approved credit for customer order

Input : Checked customer orders credit info

Output : Approved customer order

Process logic:

Get checked customer orders credit info

Send approved customer order to process 1.4 and 1.3.5

Process 1.3.5

Process name : Credit order report

Description : Report approved customer order information to accounting department

Input : Approved customer order

Output : Customer order report

Process logic:

Get approved customer order

Add approved customer order to customer order report

Send customer order report to accounting department

Process 1.4

Process name: Check available inventories

Description : Compare customer order's product requirement number with existing inventory and cut the inventory level when company can satisfy it. Also send a low inventory flag to process 3

Input : Approved customer order credit, Low inventory info, inv info1

Output : inv info2, approved customer order

Process logic:

Open inventories file

Get approved customer order credit

Call process 1.4.1

Call process 1.4.2

Call process 1.4.3

Call process 1.4.4

Send Approved customer order

Close file

Process 1.4.1

Process name: Compare order with existing inventory

Description : Compare customer order's required inventory with existing inventory level and deduct required inventory from existing

Input : Approved customer order, inv info1

Output : inven-info-after deduction, approved customer order to process 1.5

Process logic:

Get approved customer order

Get inv info1

If existing inventory is available then

"Send approved customer order to process 1.5 and

Deduct number of inventory usage from existing inventory"

Send deducted inventory to process 1.4.3

ELSE

Report Error

Process 1.4.2

Process name : Read inventory info1

Description : Read inv info1 from inventories file

Input : Inv info1

Output : Inv info1

Process logic:

Read inv info1 from inventories

Send inv info1 to process 1.4.1

Process 1.4.3

Process name: Compare inventory info with standard

Description : Compare inventory level with minimum inventory level if low inventory is under minimum inventory level (Reorder point) then sends low inventory info to process 3

Input : Inven info after deduction

Output : Low inventory info, inv info2

Process logic:

Get inven info after deduction

If inven info > min. standard then Send inv info2 to process 1.4.4

ELSE

Send low inventory info to process 3 and send inv info2 to process 1.4.4

Process 1.4.4

Process name : Updated inventory info2

Description : Update new inventory status inventories file

Input : Inv info2

Output : Inv info2

Process logic:

Read inv info2 from process 1.4.3 update inv info2 to inventories file

Process 1.5

Process name : Create customer product order

Description : From customer product order from in computer form

Input : Approved customer order, customer order no.

Output : Update order info, finished customer order, inv info3

Process logic:

Get approved customer order

Open inventories file

Open customer order file

Call process 1.5.1

Call process 1.5.2

Call process 1.5.3

Call process 1.5.4

Send finished customer order to process 1.6

Process 1.5.1

Process name: Create customer order

Description : Create Customer order form by input assigned number to customer order

Input : Approved customer order, customer orders n.

Output : Finished customer order

Process logic:

Get approved customer order

Get customer order no.

Create customer order file

Send customer order file as finished customer order to process 1.6 and 1.5.3

Process 1.5.2

Process name : Read customer no.

Description : Read assigned customer order no from customer orders file.

Input : Customer order no.

Output : Customer order no.

Process logic:

Read assigned customer order from customer oder file

Send customer order no. to process 1.5.1

Process 1.5.3

Process name : Update order information

Description : Update new inventory

Input : Finished customer order

Output : Update order info, inv info3

Process logic:

Get finished customer order

Save finished customer order to customer orders file

And send used inventory in customer order as inv info3 to process 1.5.4

Process 1.5.4

Process name : Update inventory info3

Description : Update inventory info3 to inventories file

Input : Inv info3

Output : Inv info3

Process logic:

Read inv info3 from process 1.5.3

Update inv info3 to inventories file

Process 1.6

Process name : Send order info

Description : Send order info to proces 1.7, 2, 4, 5

Input : Finished customer order

Output : Order info

Process logic:

Read finished customer order

Send finished customer order ad order info to process 1.7, 2, 4, 5

Process 1.7

Process name : Send acknowledgement

Description : Send acknowledgement about product fulfillment to customer

Input : Order info

Output : Acknowledgement

Process logic:

Read order info

If order info = True then Send acknowledgement to customer ELSE exit

Process 1.8

Process name : Update inventories for Back order

Description : Read back order inventories and update it

Input : Back order

Output : Inv info11

Process logic:

Read back order info

Update inventories to inventories file

Process 2

Process name : Prepared invoice

Description : Prepare invoice for customer, warehouse

Input : Customer order, invoice no.

Output : Invoice, invoice info

Process logic:

Open invoices file

Get order info

Call process 2.1

Call process 2.2

Send invoice to warehouse and customer

Close file

Process 2.1

Process name : Prepared invoice info

Description : Form an invoice

Input : Order info, invoice no.

Output : Invoice info

Process logic:

Get order info

Call process 2.1.1

Call process 2.1.2

Call process 2.1.3

Send invoice info to process 2.2

Process 2.1.1

Process name : Read invoice no.

Description : Read assigned invoice number from invoices file

Input : Invoice no.

Output : Invoice no.

Process logic:

Read invoice no. from invoices file

Send invoice no. to process 2.1.2

Process 2.1.2

Process name : Form invoice info

Description : Form an invoice for process 2.2 and process 2.1.3

Input : Invoice no., order info

Output : Invoice info

Process logic:

Get order info

Get invoice no.

Create invoice file

Send invoice file as invoice info to process 2.1.3 and 2.2

Process 2.1.3

Process name : Update invoice info

Description : Update a new invoice info invoice file

Input : Invoice info

Output : Invoice info

Process logic:

Read invoice info from process 2.1.2

Update invoice info to invoices file

Process 2.2

Process name : Print invoice info

Description : Print invoice info to customer and warehouse

Input : Invoice info

Output : Invoice

Process logic:

Read invoice info

If invoice flag = true then print invoice ELSE Exit

Process 3

Process name: Production order processing

Description : Process production order for production department

Input : Low inventory info, Production no., Production report, Product info and raw material for product, inv info4

Output : Inv info5 and 7, product info, product requisition.

Process logic:

Get low inventory info

Call process 3.1

Call process 3.2

Call process 3.3

Call process 3.4

Call process 3.5

Send product purchase request

Process 3.1

Process name : Check inventory for production

Description : Check inventory level for low inventory flag

Input : Low inventory info

Output : Inv info4

Process logic:

Get low inventory info

Open inventories file

Get inv info4

Read inventory level information from inv info4

Compare inventory level with low inventory info

If low inventory info = inventory level then

Send low inventory as checked low inventory info

ELSE

Show warning message and ask for confirmation

Close file

Process 3.2

Process name: Prepared production info

Description : Prepare production order information

Input : Checked low inventory info

Output : Product no., product info, production requisition info (Production order info)

Process logic:

Get checked low inventory info

Open productions file

Call process 3.2.2

Call process 3.2.1

Call process 3.2.4

Call process 3.2.3

Send production requisition info

Close all file

Process 3.2.1

Process name : Form production info

Description : Form a production information for creating production

Input : Checked low inventory info., product info

Output : Production info

Process logic:

Get checked low inventory info

Get product info

Create production info

Send production info to process 3.2.3

Process 3.2.2

Process name : Read product info

Description : Read product information from products file

Input : Product info

Output : Product info

Process logic:

Read product info from products file

Send product info to process 3.2.1

Process 3.2.3

Process name : Form production request info.

Description : from production requisition info

Input : Production info, production no.

Output : Production requisition info

Process logic:

Get production info

Get production no.

Create production requisition

Send production requisition to process 3.3

Process 3.2.4

Process name : Read Production no.

Description : Read assigned production no. from productions file

Input : Production no.

Output : Production no.

Process logic:

Read production no. from productions file

send production no. to process 3.2.3

Process 3.3

Process name : Print production requisition

Description : Print production requisition to production department

Input : Production requisition info

Output : Update production info, production requisition

Process logic:

Get Production requisition info

Print production requisition

Send production requisition to productions file and production department

Process 3.4

Process name : Update inventory info5, 6

Description : Update inv info 5 to inventories file and inv info6 to process 3.5

Input : Production report

Output : Inv info5

Process logic:

Read production report

Send inv info5 to inventories file

Send inv info6 to process 3.5

Process 3.5

Process name: Check raw material inventory

Description : Check raw material level for production and required product to purchase

Input : Inv info 6,7 required raw material for product

Output : Product purchase request.

Process logic:

Get inv info6

Open products file

Open inventories file

Call process 3.5.2

Call process 3.5.1

Call process 3.5.4

Call process 3.5.3

Send product purchase request

Close all files

Process 3.5.1

Process name : Check required raw material

Description : Check required raw material that uses in production

Input : Inv info 6, required raw material for product

Output : Required raw material

Process logic:

Get inv info6

Get required raw material for product

Check required raw material for product in inv info6

Send required raw material to process 3.5.3

Process 3.5.2

Process name : Read Raw material info

Description : Read required raw material for a product that uses in production

Input : Required raw material for product

Output : Required raw material for

Process logic:

Get required raw material for product

Send Required raw material for product to process 3.5.1

Process 3.5.3

Process name: Check available raw material

Description : Check number of raw material in stock and decide to purchase if it is lower than standard

Input : Required raw material, inv info7

Output : product purchase request

Process logic:

Get required raw material

Get inv info7

Check available inventory for raw material

If it is enough then exit

ELSE

Send number of required raw material to buy as product purchase request to process 4

Process 3.5.4

Process name : Read inventory info7

Description : Read inv info 7 from inventories file

Input : Inv info 7

Output : Inv info7

Process logic:

Read inv info7 from inventories

Send inv info7 to process 4.5.3

Process 4

Process name: P/O processing

Description : This process will create purchase order to purchasing department

Input : Inv info8, purchase order no., purchase report, supplier info, Product purchase request

Output : Inv info9, Purchase order info, Purchase order requisition

Process logic:

Get product purchase request

Open inventoried file

Open supplier file

Open purchase orders file

Call process 4.1

Call process 4.2

Call process 4.3

Call process 4.4

Call process 4.5

Close all file

Process 4.1

Process name : Process purchase info

Description : Check inventory level for purchase request

Input : Product purchase request, inv info8

Output : Product purchase info

Process logic:

Get product purchase request

Get inv info8

Check inventory level for product purchase request

Create inventory information for product purchase

Send product purchase info

Process 4.2

Process name : Process supplier info

Description : Check product supplier for purchase order

Input : Product purchase info, supplier info

Output : Purchase info

Process logic:

Get product purchase info

Get supplier info

Check supplier no. who supplies the required product

Create purchase info

Send purchase info to process 4.3

Process 4.3

Process name : Prepare purchase order

Description : Prepare purchase order for purchasing department

Input : Purchase info, purchase order no.

Output : Purchase order requisition

Process logic:

Get purchase info

Get purchase order no.

Create purchase order

Send purchase order as purchase order requisition to process 4.4

Process 4.4

Process name : Update purchase info

Description : Update purchase orders information and also inventory level

Input : Purchase report

Output : Purchase order info, product-confirmed purchase

Process logic:

Get purchase report

Save purchase order info to purchase orders

Send product confirmed purchase as product confirmed purchase to process 4.5

Process 4.5

Process name: Update inventory info9

Description : Check for purchased inventory and update inventory information 9 to inventories files

Input : Product confirmed purchase

Output : Inv info9

Process logic:

Get product confirmed purchase

Update product confirmed purchase's level as inv info9 to inventories file

Process 5

Process name: Delivery order processing

Description : Process delivery order for customer order.

Input : Order info, cust info3, delivery product info, delivery no. Delivery confirm

Output : Inv info 10, delivery order, delivery info,

Process logic:

Get order info

Open customers file

Open inventories file

Open deliveries file

Call process 5.1

Call process 5.2

Call process 5.3

Call process 5.4

Call process 5.5

Close file

Process 5.1

Process name: Process order info

Description : Check product in order information for available inventory in warehouse

Input : Delivery info, delivery product

Output : Delivery product info

Process logic:

Get order info

Call process 5.1.2

Call process 5.1.1

Call process 5.1.3

Send delivery product info

Process 5.1.1

Process name : Check delivered product info

Description : Check inventory level from warehouse

Input : Order info, deliver product

Output : Checked deliver product info

Process logic:

Get order info

Get deliver product

Check product information and number from warehouse

Create checked deliver product info

Send checked deliver product info to process 5.1.3

Process 5.1.2

Process name : Read deliver product info

Description : Reading deliver product information from warehouse

Input : Deliver product

Output : Deliver product

Process logic:

Get deliver product

Send deliver product to process 5.1.1

Process 5.1.3

Process name : Form delivery product info

Description : Create necessary delivery information for delivery order

Input : Checked deliver product info

Output : Delivery product info

Process logic:

Get checked deliver product info

Create delivery product info

Send delivery product info

Process 5.2

Process name : Process delivery info

Description : Create all inventory delivery order information for delivery department

Input : Delivery product info, Cust info3

Output : Checked delivery product info

Process logic:

Get delivery product info

Call process 5.2.2

Call process 5.2.3

Call process 5.2.1

Call process 5.2.4

Send completed delivery order info

Process 5.2.1

Process name: Checked customer address

Description : Add all necessary information about delivery order (cust info3, delivery no.)

Input : Delivery product info, Delivery no.

Output : Checked delivery product info

Process logic:

Get delivery product info

Get delivery no.

Create Checked delivery product info

Send checked delivery product info to process 5.2.4

Process 5.2.2

Process name : Read delivery no.

Description : Read assigned delivery no. from deliveries file for process 5.2.1

Input : Delivery no.

Output : Delivery no.

Process logic:

Get delivery no.

Send delivery no. to process 5.2.1

Process 5.2.3

Process name : Read customer info3

Description : Reading cust info3 from customers file

Input : Cust info3

Output : Cust info3

Process logic:

Get cust info3

Send cust info3 to process 5.2.4

Process 5.2.4

Process name : Form delivery order info.

Description : Form Completed delivery order information for printing

Input : Checked delivery product info

Output : Completed delivery order info

Process logic:

Get checked delivery product info

Create delivery order information

Send delivery order information as completed delivery order info to process 5.3

Process 5.3

Process name: Print delivery info

Description : Print delivery order for updating information and for delivery department

Input : Completed delivery order info

Output : Delivery info1, delivery order

Process logic:

Get completed delivery order info

Print delivery order to delivery department

Send delivery order as delivery info1 to deliveries file

Process 5.4

Process name : Update delivery info

Description : Update information to deliveries file

Input : Completed delivery report

Output : Delivery info2

Process logic:

Get completed delivery report

Update delivery information as delivery info2 to deliveries file

Process 5.5

Process name : Update delivered inventory info

Description : Update new inventory level information to inventories file

Input : Confirmed delivery

Output : Inv info10

Process logic:

Get confirmed delivery

Save delivery's inventory information as inv info1 to inventories file

APPENDIX D

ENTITY RELATIONSHIP DIAGRAM

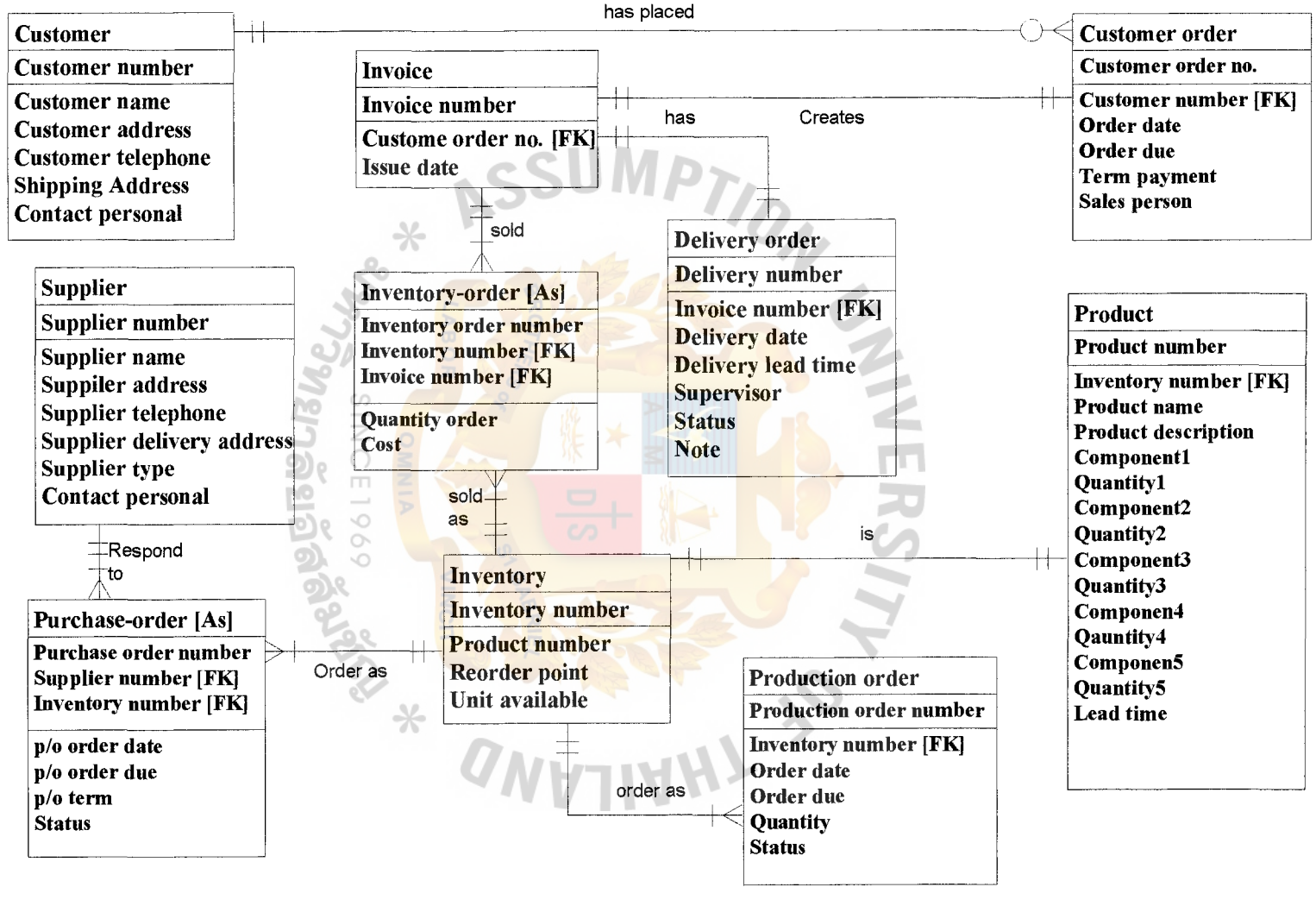

Figure D.1. SSR Enterprise Entity Relationship Diagram.

APPENDIX E

INPUT SCREEN DESIGN

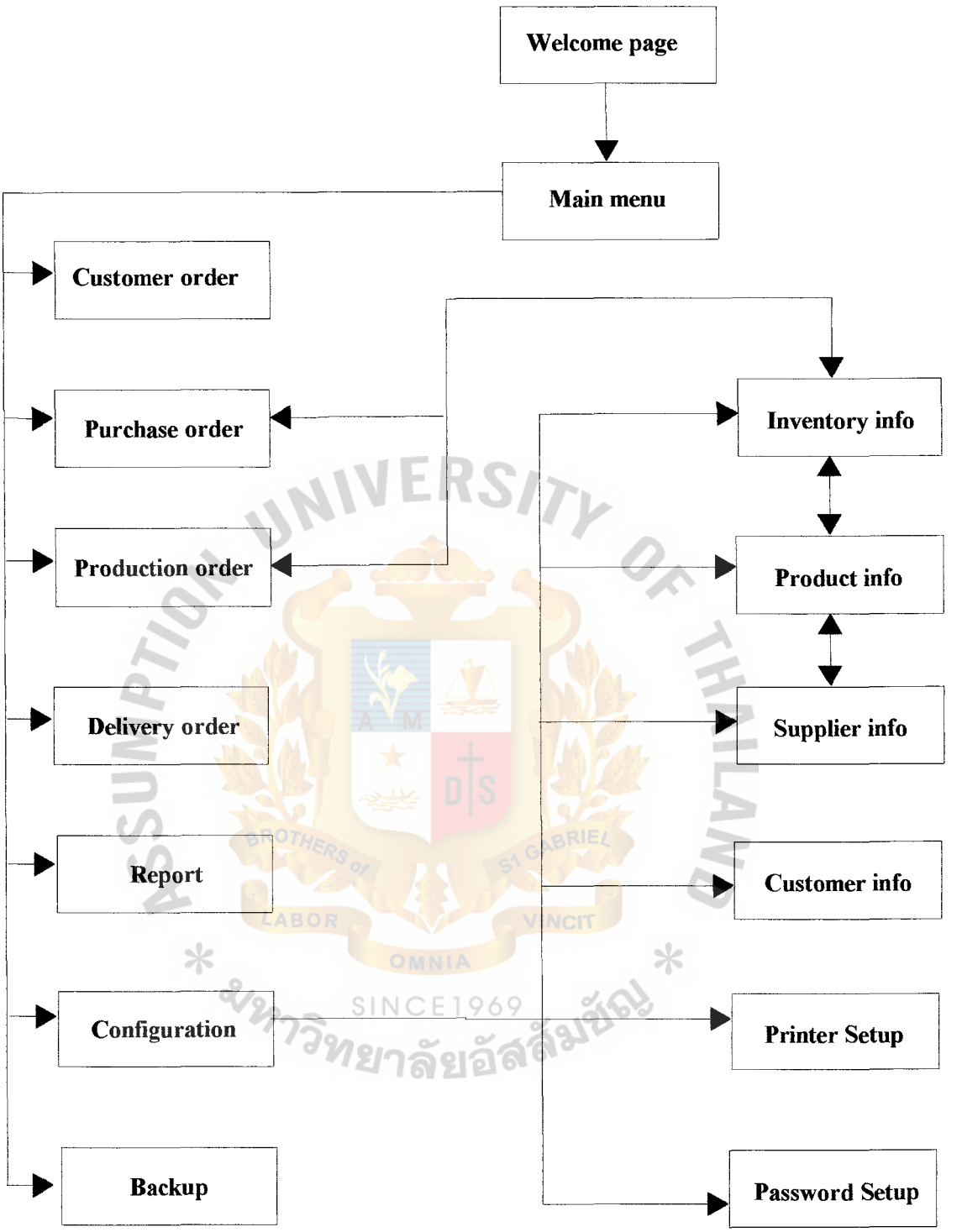

Figure E.1. Link Diagram for SSR Enterprise's Inventory and Ordering Information System.

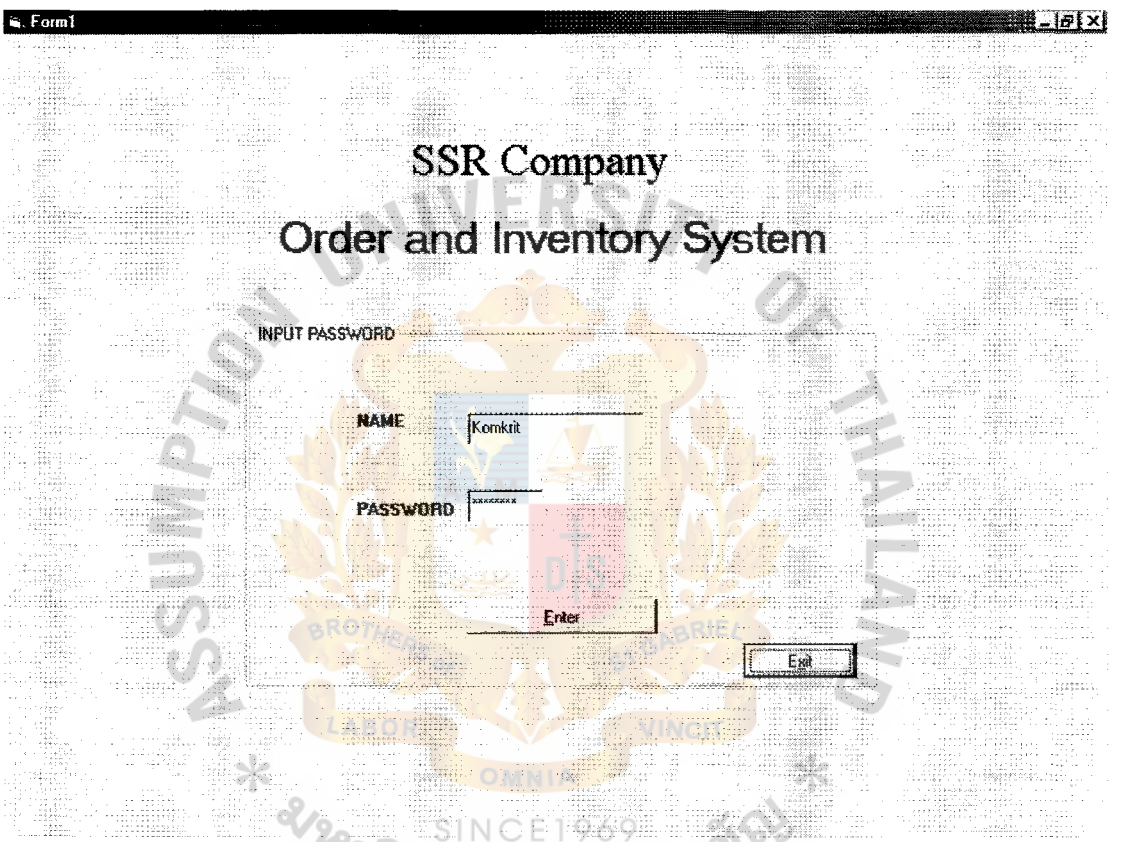

Figure E.2. Welcome Page.

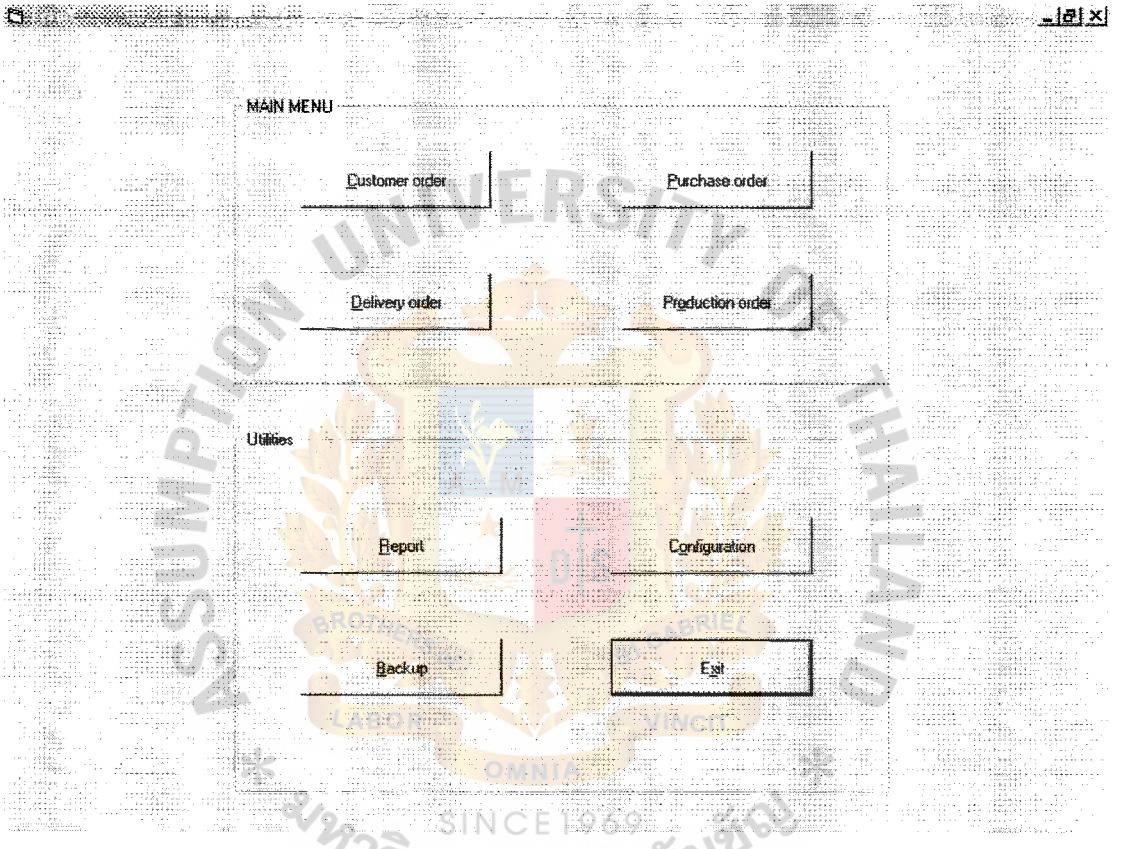

Figure E.3. Main Menu.

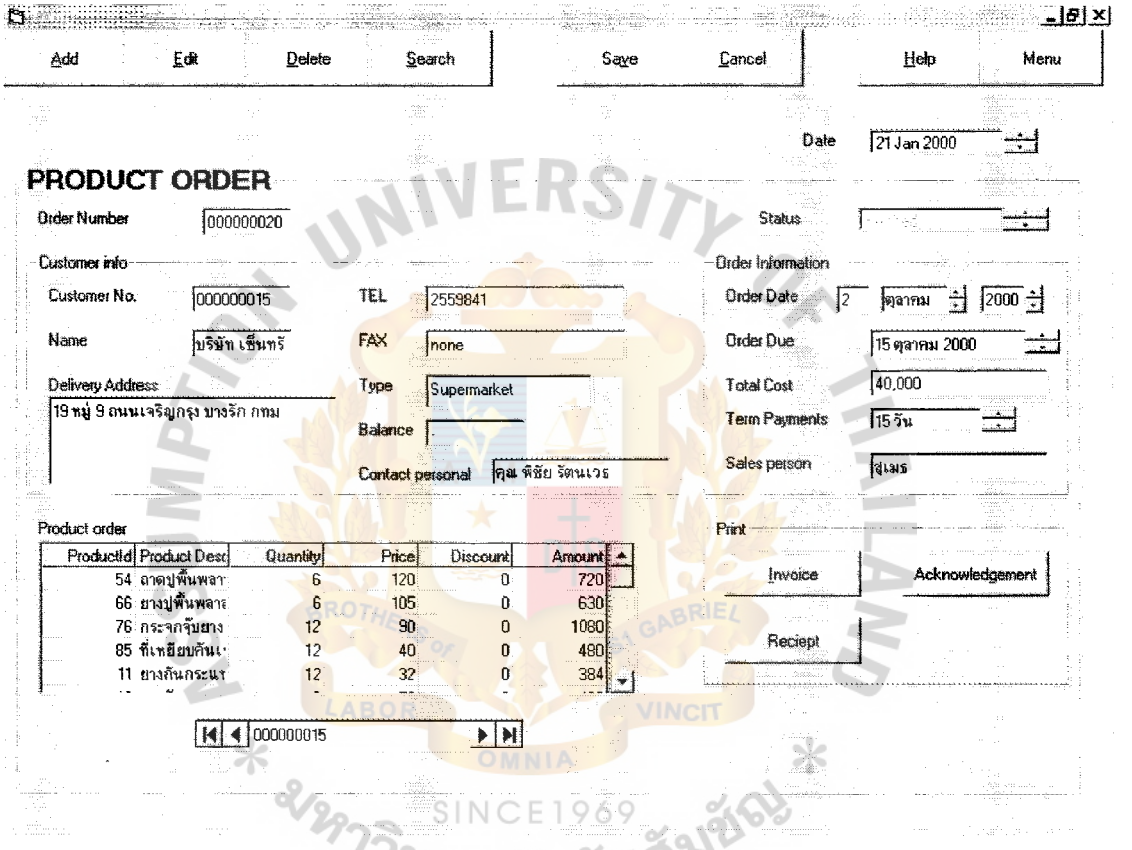

Figure E.4. Product Order.

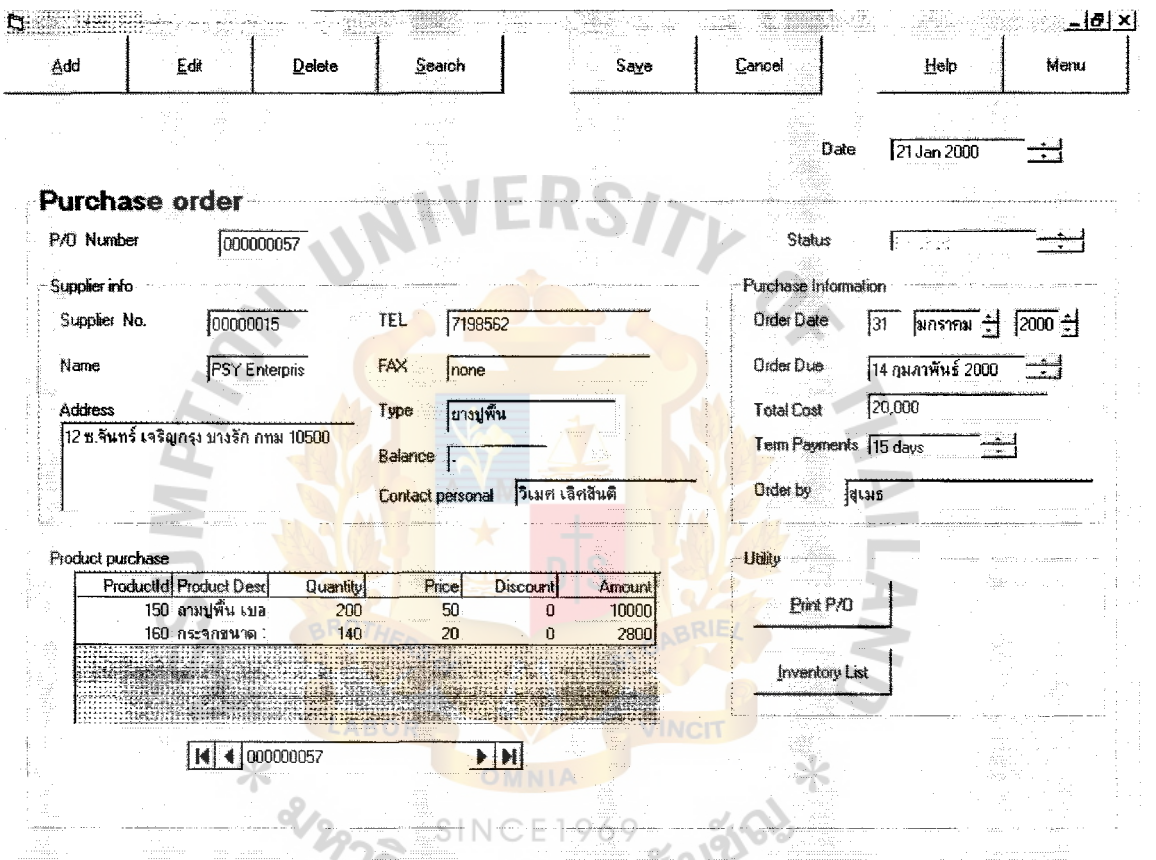

Figure E.5. Purchase Order.

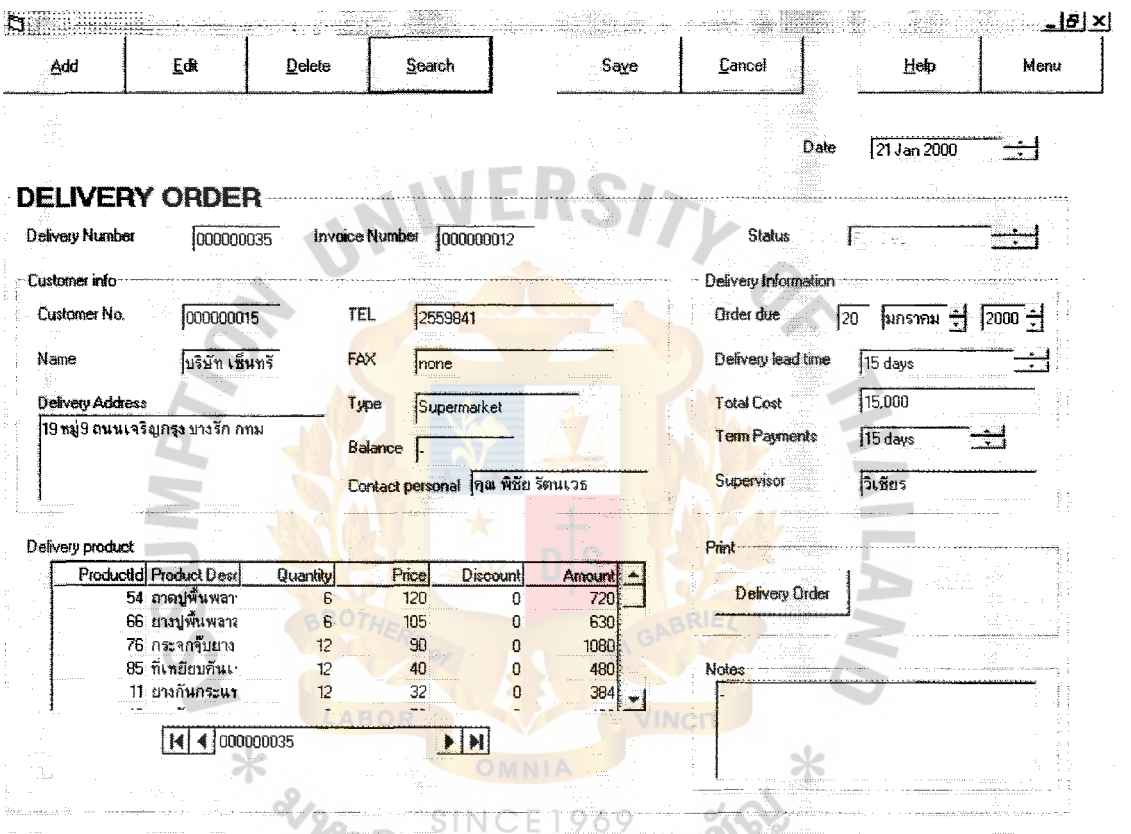

Figure E.7. Delivery Order.

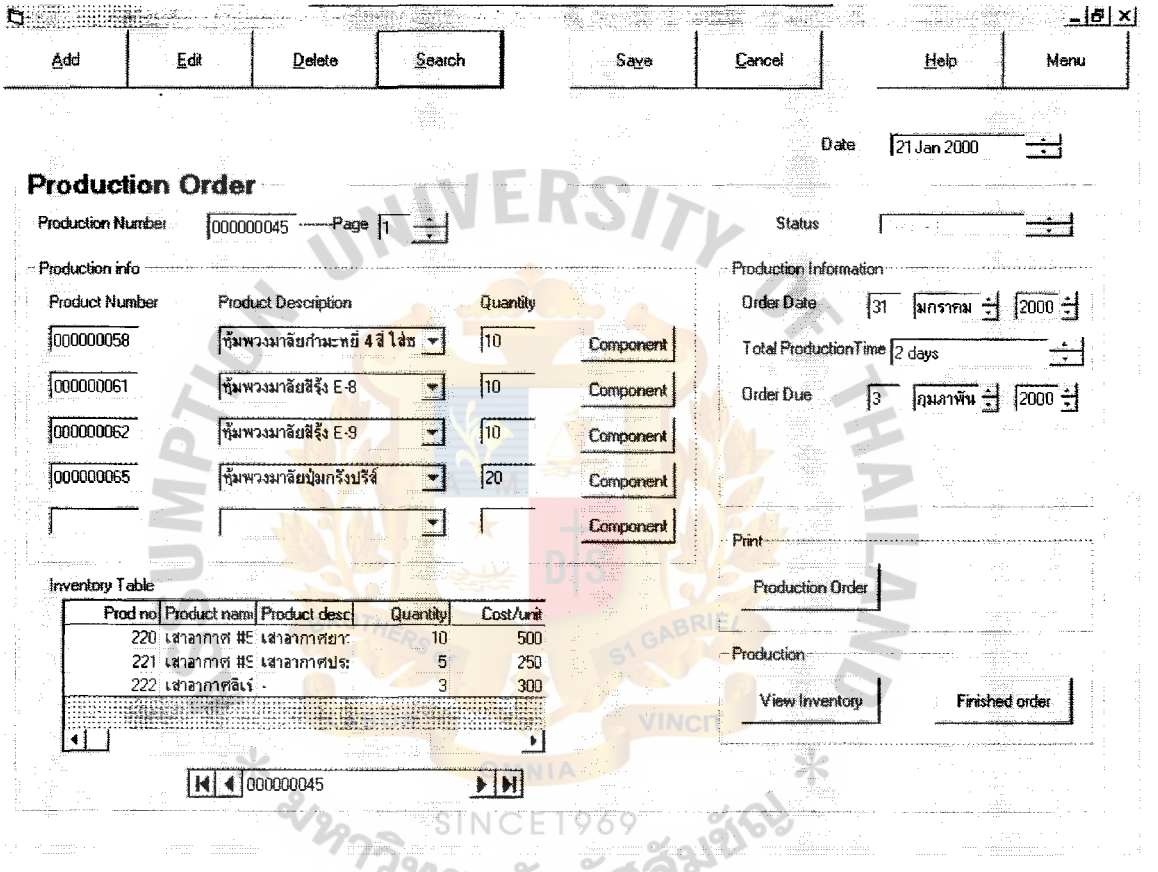

Figure E.6. Production Order.

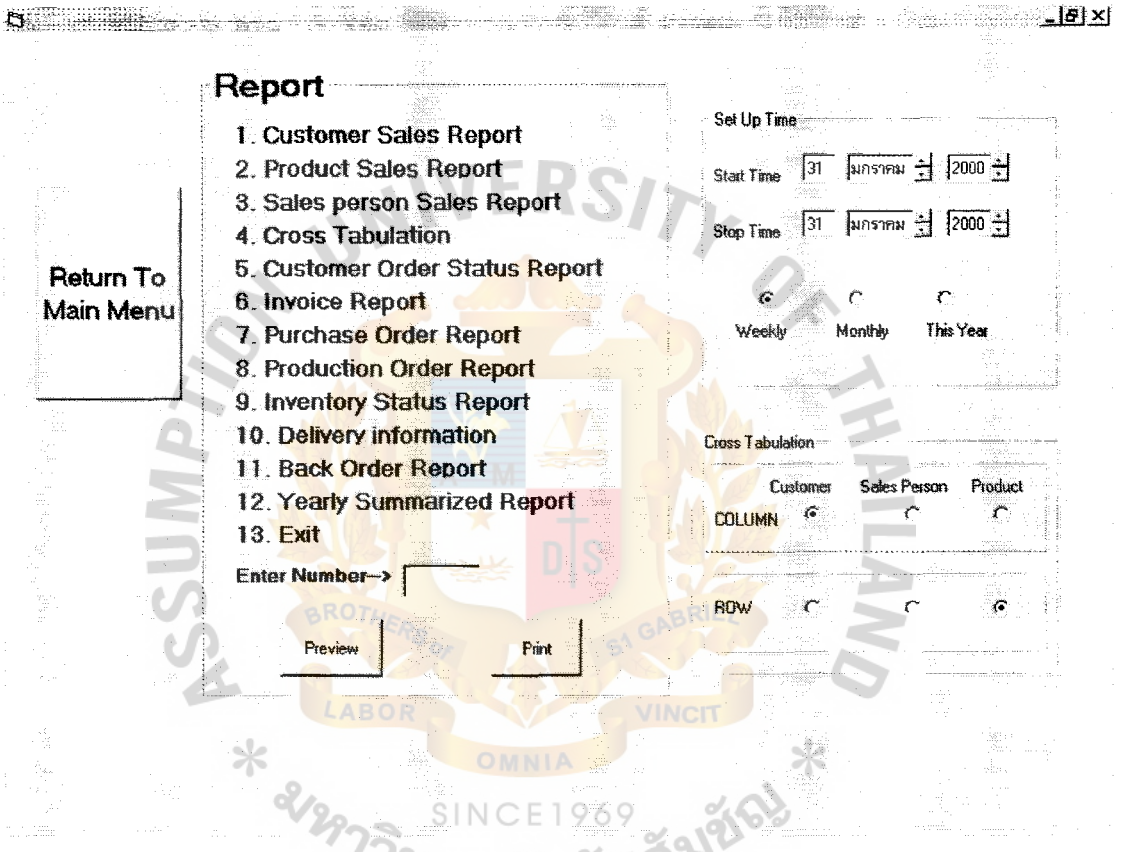

Figure E.8. Report Print Out.

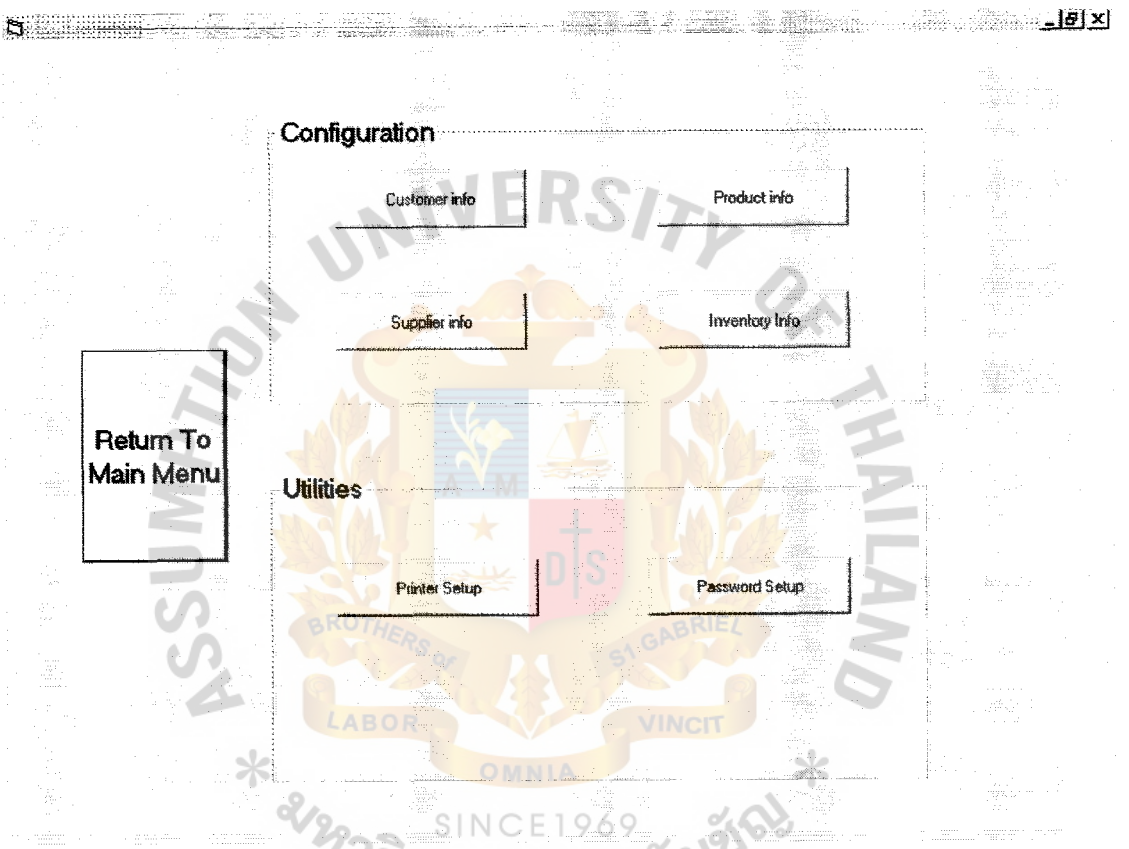

Figure E.9. Configuration.

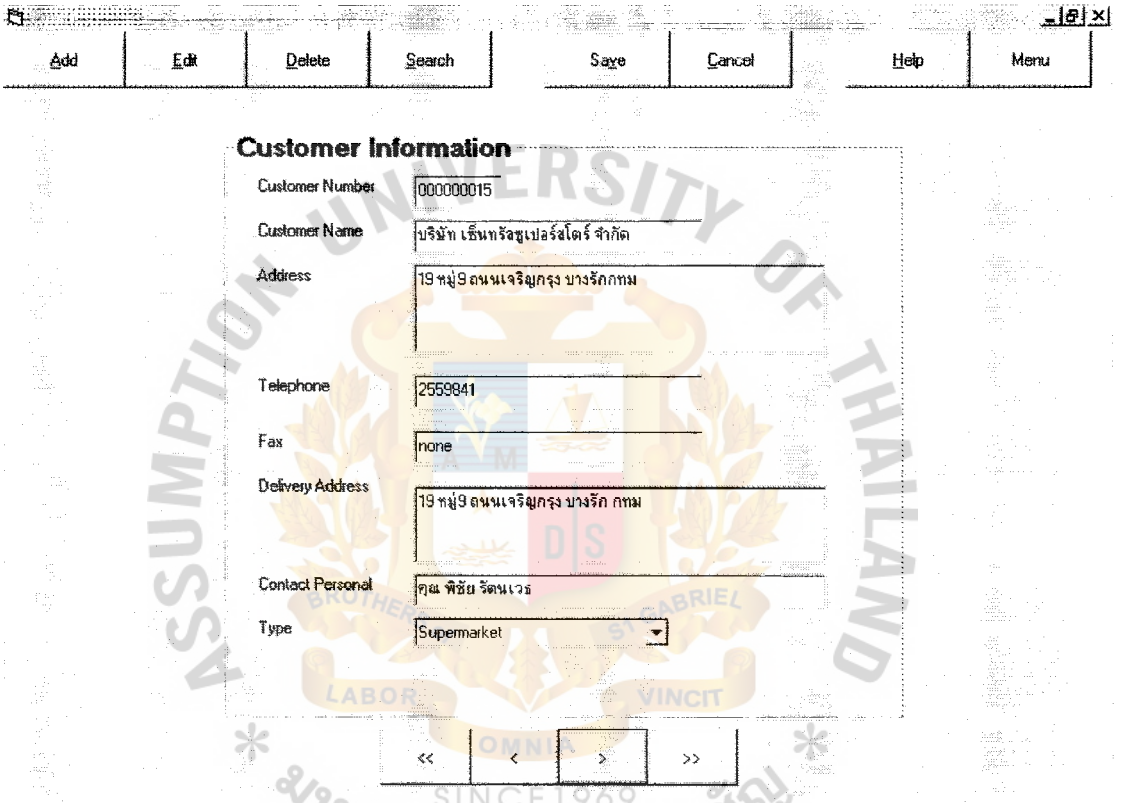

Figure E.10. Customer Information.

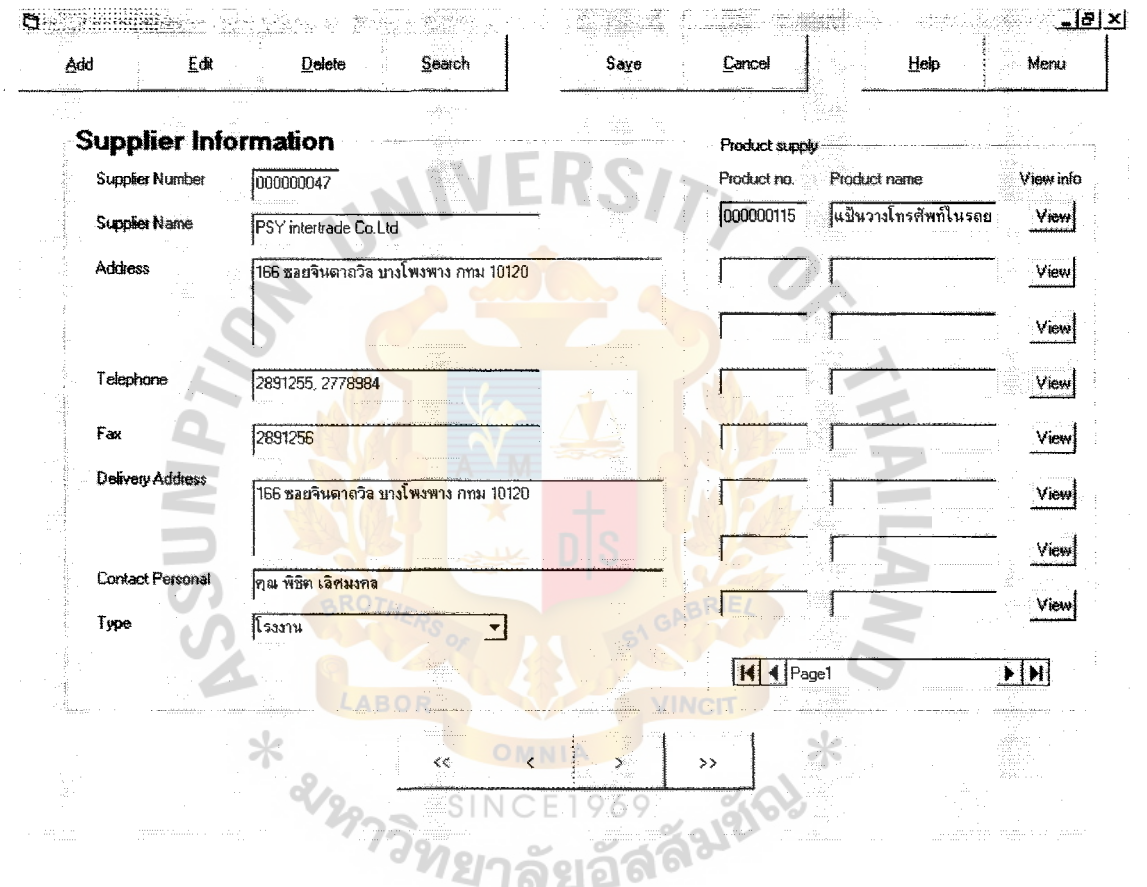

Figure E.11. Supplier Information.

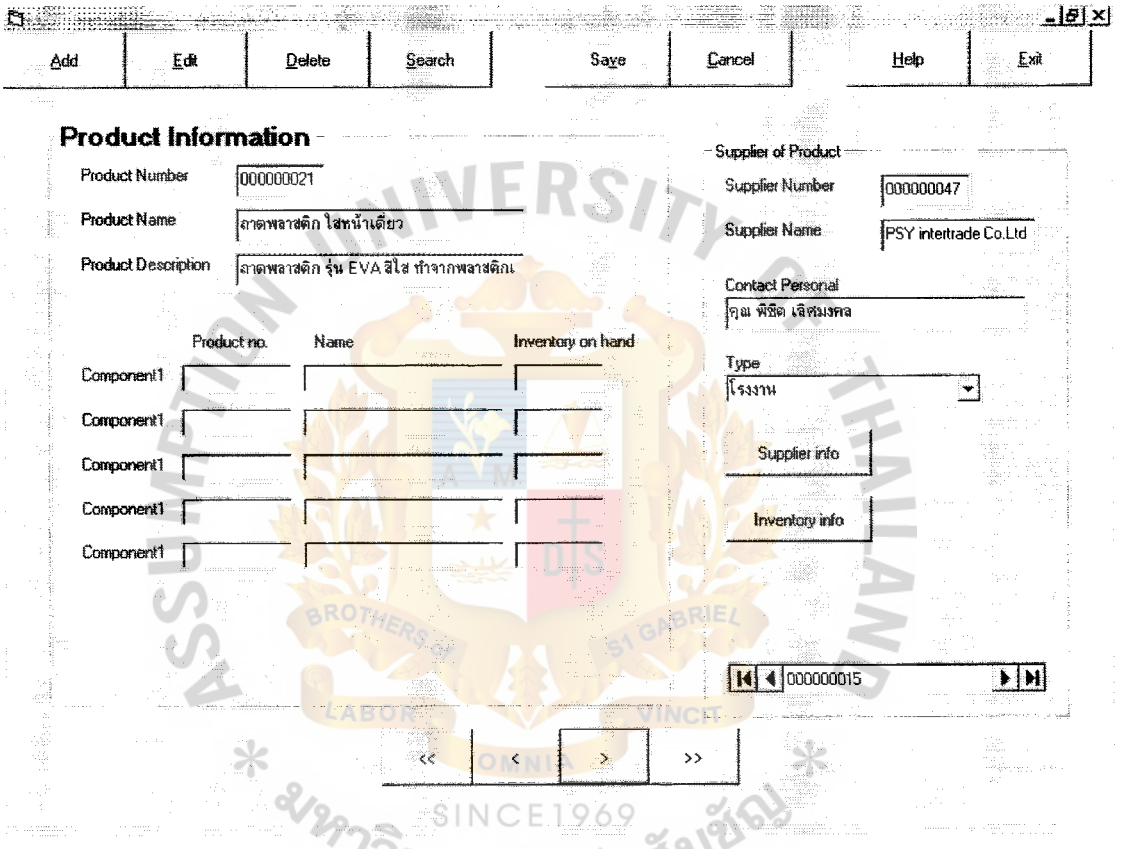

Figure E.12. Product Information.

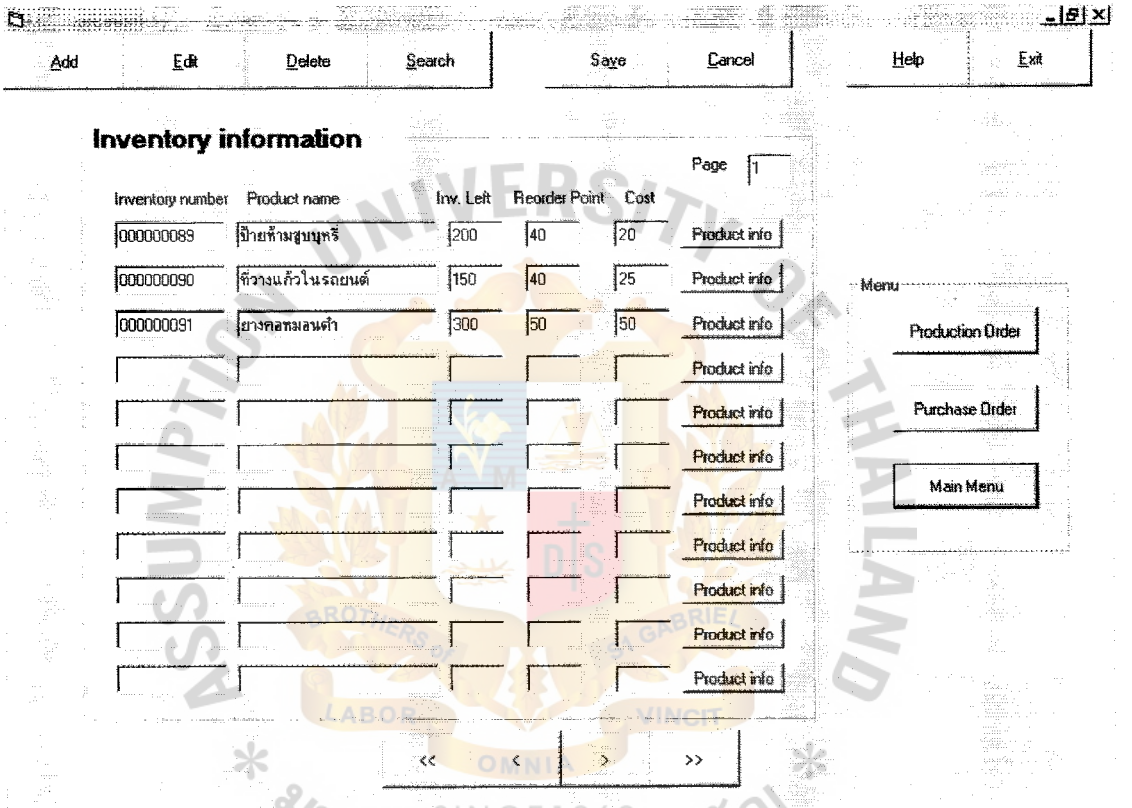

Figure E.13. Inventory Information.

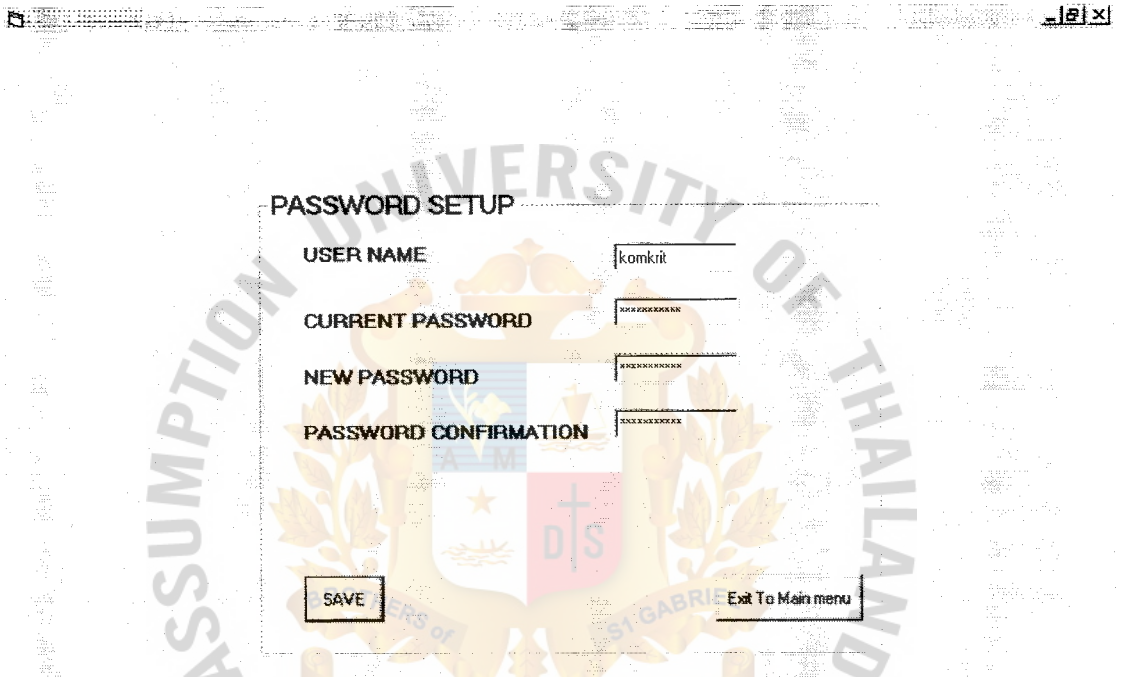

Figure E.14. Password Setup.

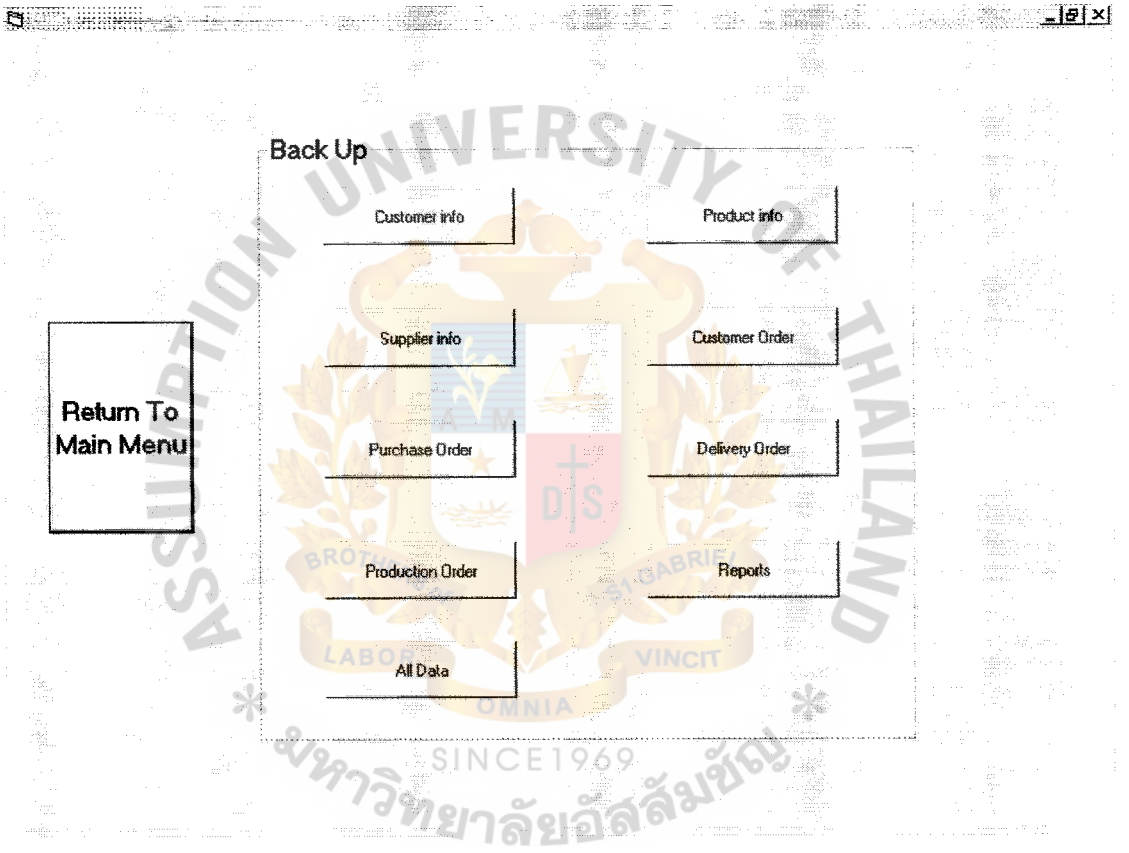

Figure E.15. Backup.

APPENDIX F

OUTPUT DESIGN

SSR enterprise Company Ltd.
170 Soi Jindathawil RaMa 4Road.
Manaputtaram, Bangrak, Bangkok 10500
Tel. 235-6591, 633-0547 Fax: 236-4503

Tax no.

3	0	1	1	0	1	0	8	5	6

Invoice (Original)

Page 1 of 1

Invoice no. 000000012 Customer no. 000000015 Customer name บริษัท เซ็นทรัลซูเปอร์โสตร์ จำกัด Contact personal คุณ พิชัย รัตนเวช Tel. 02-2559841 Address 19 หมู่9 ถนนเจริญกรุง บางรัก กทม	Issue Date. 15 มกราคม 2000 Customer orders no. 000000020 Order date 17 มกราคม 2000 Order due 20 มกราคม 2000 Term payments 15 days credit

Product ID.	Description	Units	Price	Dis	Total
000000054	ถาดปูพื้นพลาสติกไลอ้อนหน้าสีใส	6 ถุง	120.00		720.00
000000064	ถามปูพื้นพลาสติกไลอ้อนหลังสีใส (ฟ้า)	6 ถุง	105.00		630.00
000000076	กระจกจุ๊บยาง บันนี่	12 ถุง	40.00		480.00
000000085	ที่เหยียบคนเร่งกรังปรีซ์ สีชุบ	12 ชุด	45.00		540.00
000000011	ยางกันกระแทกกันชน	12 ชุด	30.00		360.00
000000015	ถาดยางกรังปรีย์หน้า	24 ชุด	90.00		2160.00

ห้าพันสองร้อยสามสิบสองบาทสามสิบสตางค์ถ้วน

Sub ToTal	**4890.00**
VAT 7%	**342.30**
Net Total	**5232.30**

Receiver signature
Date___(D)/____(M)/____(Y)

Authorizes Signature

Figure F.1. Invoice.

Production order

Production order no. 000000045
Order date 31 มกราคม 2000
Order due 3 กุมภาพันธ์ 2000
Status สั่งผลิต

Prod. no.	Product name	Description	Order Quantity
000000058	หุ้มพวงมาลัย 100-1	หุ้มพวงมาลัยกำมะหยี่ 4 สี่ ใส่ซอง	10
000000061	หุ้มพวงมาลัย 100-2	หุ้มพวงมาลัยสีรุ้ง E-8	10
000000062	หุ้มพวงมาลัย 100-3	หุ้มพวงมาลัย สีรุ้ง E-9	10
000000065	หุ้มพวงมาลัย 100-4	หุ้มพวงมาลัยปุ่มครังปรีส์	20

Manager

Date____(D)/____(M)/____(Y)

Production Supervisor

Date____(D)/____(M)/____(Y)

Figure F.2. Production Order.

SSR enterprise Company Ltd.
170 Soi Jindathawil RaMa 4Road.
Manaputtaram, Bangrak, Bangkok 10500
Tel. 235-6591, 633-0547 Fax: 236-4503

Tax no.

3	0	1	1	0	1	0	8	5	6

Purchase Requisition (Original)

Page 1 of 1

Purchase Req. no. 000000057 Supplier no. 000000015 Supplier name PSY Enterprise Co.Ltd. Contact personal สุเมธ Tel. 02-7198562 Address 12 ซ.จันทร์ เจริญกรุง บางรัก กทม.	P/O date 21 มกราคม 2000 P/O due 14 กุมภาพันธ์ 2000 Term payments 15 days credit Status ยังไม่ได้รับสินค้า

Prod.ID.	Description	Units	Price	Dis	Total
000000150	ถาดปูพื้น เบอร์54	200 ชุด	50.00		10,000.00
000000160	กระจกขนาด 3"x8"	140 ชุด	20.00		2,800.00

หนึ่งหมื่นสามพันหกร้อยเก้าสิบหกบาท

Sub ToTal	12,800.00
VAT 7%	896.00
Net Total	13,696.00

Note_____

Stock Control signature
Date___(D)/____(M)/____(Y)

Authorizes Signature

Figure F.3. Purchase Requisition.

SSR enterprise Company Ltd.
170 Soi Jindathawil RaMa 4Road.
Manaputtaram, Bangrak, Bangkok 10500
Tel. 235-6591, 633-0547 Fax: 236-4503

Tax no.

3	0	1	1	0	1	0	8	5	6

Delivery order (Original)

Page 1 of 1

Delivery order no. 000000035 Customer no. 000000015 Customer name บริษัท เซ็นทรัลซูเปอร์โสตร์ จำกัด Contact personal คุณ พิชัย รัตนเวช Tel. 02-2559841 Address 19 หมู่9 ถนนเจริญกรุง บางรัก กทม	Issue Date. 21 มกราคม 2000 Invoice no. 000000012 Term payments 15 days credit

Product no.	Product description	Quan.	Price	Dis	Total
000000054	ถาดปูพื้นพลาสติกไลอ้อนหน้าสีใส	6 ถุง	120.00		720.00
000000064	ถามปูพื้นพลาสิตกไลอ้อนหลังสีใส (ฟ้า)	6 ถุง	105.00		630.00
000000076	กระจกจุ๊บยาง บันนี่	12 ถุง	40.00		480.00
000000085	ที่เหยียบคนเร่งกรังปรีซ์ สีชุบ	12 ชุด	45.00		540.00
000000011	ยางกันกระแทกกันชน	12 ชุด	30.00		360.00
000000015	ถาดยางกรังปรีย์หน้า	24 ชุด	90.00		2160.00

ห้าพันสองร้อยสามสิบสองบาทสามสิบสตางค์ถ้วน

Sub ToTal	**4890.00**
VAT 7%	**342.30**
Net Total	**5232.30**

Deliverer _____

Supervisor_____

Collector_____

_X_Cash ___Check ___Tranfer

no._____Bank_____

Branch_____Date_____

Note

_____
Customer signature
Date____(D)/____(M)/____(Y)

_____
Authorizes Signature

Figure F.4. Delivery order

APPENDIX G

REPORT DESIGN

No.	รายชื่อลูกค้า	Week1	Week 2	Week3	Week4	Week5	ToTal
1	ศรีนครินทร์ Lotus	45,045				24785	69,830
2	สมุทรสาคร		75860				75,860
3	ขอนแก่น	22500		45860		11250	79,610
4	ชลบุรี						0
5	สระบุรี		55400				55,400
6	พิษณุโลก	42300					42,300
7	สุพรรณบุรี						0
8	นครศรีธรรมราช						0
9	บางขุนเทียน					33540	33,540
10	มีนบุรี		48720				48,720
11	เชียงใหม่	55700			22500		78,200
12	สุขาภิบาล		42305			12500	54,805
13	สุราษฎรธานี	22540					22,540
14	อยุธยา	23500					23,500
15	ฟอร์จูน		44700				44,700
Total		211,585	266,985	45,860	22,500	82,075	629,005

Figure G.1. Customer Sales Report (Weekly) (Baht).

เดือน	ศรีนครินทร์	รามคำแหง	หนองแขม	รัชโยธิน	รัชวิภา	บางใหญ่	ไมเดอร์ธรรมศาสตร์	หทัยทิพย์	ลาดพร้าว	เทียนใหม่	ลาดกระบัง	ศรีนครินทร์	บางนา	ทิพย์	ยอดรวม
1	22,000	15,000	18,000	25,500		17,000		20,000	40,000	50,000					207,500
2					20,000						50,000			40,000	110,000
3	12500					12500		20,000				25000		14500	84500
4			45000				20,000					15,000	25,000		105000
5		35480			45000			36540					25400		142420
6	30542		44500	35550		25000									135592
7									26845	33625	54326			44500	159296
8	75005	35400					65400								175805
9		12500			22100		22450					45365	17586		120001
10			44260						33345					22543	100148
11	32220			12540							44500				89260
12				22540		25560		23354		54000					125454
Total	172,267	98,380	151,760	96,130	87,100	80,060	107,850	99,894	100,190	137,625	148,826	85,365	67,986	121,543	1,554,976

Figure G.2. Customer Sales Report (Lotus Supermarket) (Month) (Baht).

ลำดับที่	Sales Person	Week1	Week 2	Week3	Week4	Week5	ToTal
1	สงคราม	245600	154620	134660	129900	123005	787785
2	เอนก	123440	166100	145200	54560	82130	571430
3	เกษม	178930	139470	114560	75630	123340	631930
4	บัณฑิต	213350	164605	129930	135690	121800	765375
ToTal		761320	624795	524350	395780	450275	2756520

Figure G.3. Sales person Sales Report (Weekly) (Baht).

No.	รายการ	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Total
1	สงคราม	756210	657700	550823	579910	687200	487965	400570	510036	446560	513300	554005	756200	6900479
2	เอนก	445300	443245	454800	513100	457230	456630	248700	348700	451993	447100	233277	571205	5071280
3	เกษม	472600	541600	510005	489600	453230	547980	756500	338564	215496	234566	454610	324500	5339251
4	บัณฑิต	650057	503230	496033	315465	547151	465890	415500	338574	469331	531033	464610	621300	5818174
ToTal		2324167	2145775	2011661	1898075	2144811	1958465	1821270	1535874	1583380	1725999	1706502	2273205	23129184

Figure G.4. Sales person Sales Report (Monthly)1999 (Baht).

ลำดับที่	รายการ	Week1	Week 2	Week3	Week4	Week5	ToTal
1	000000058 หุ้มพวงม		5400			6412	11812
2	000000061 หุ้มพวงมา	3500	2455				5955
3	000000062 หุ้มพวงมา	8550					8550
4	000000065 หุ้มพวงมา	6640		3200			9840
5	000000066 ยางกันก		6200		12555		18755
6	000000067 ยางกันก			8756			8756
7	000000068 ยางกันก	6523				5400	11923
8	000000069 ยางกันก		10055		11240		21295
9	000000070 ยางกันก	7565				22004	29569
10	000000071 ยางกันก	12010	2500	2485	7500	1150	25645
11	000000072 ถาดยาง		8550	4550	5412		18512
12	000000073 ถาดยาง	4233				2215	6448
13	000000074 ยางปูพื้น	15004					15004
14	000000075 ยางปูพื้น	2450			4550		7000
15	000000076 ยางปูพื้น			4562	1270	5411	11243
16	000000077 ยางปูพื้น	12450	2410				14860
17	000000078 ยางปูพื้น			4510		6654	11164
18	000000079 เสาอากา		4755				4755
19	000000080 เสาอากา	2110			4410		6520
20	000000081 เสาอากา						0
21	000000082 เสาอากา	4500	1220				5720
22	000000083 เสาอากา		5440		2500		7940
23	000000084 เสาอากา	16563				2465	19028
24	000000085 เสาอากา		12460				12460
Total		102098	61445	28063	49437	51711	292754

Figure G.5. Product Sales Report (Weekly) (Baht).

No.	รายการ	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	Total
1	000000058 ป	46030	31465	35641	41541	35640	23460	34654	46562	21314	46990	31749	34005	429051
2	000000061 ป	29013	21446	23300	26740	30140	21790	24730	24633	23130	21100	27990	21899	295911
3	000000062 ป	23450	31200	30324	16450	31045	16416	23640	16460	34400	6640	34946	26464	291435
4	000000065 ป	12130	23456	15463	3341	7310	16770	4110	21100	20480	9010	12450	3100	148720
5	000000066 ธ	25440	14546	24650	8210	26460	32130	21006	12120	31540	8900	9910	13450	228362
6	000000067 ธ	32100	23600	15450	14545	15132	33446	34646	23130	29900	27650	29560	23100	302259
7	000000068 ธ	15546	12540	12997	12398	8700	9870	22600	17823	18731	18220	18790	12006	180221
8	000000069 ธ	41300	52310	34645	45410	45646	61233	45640	34698	34460	24990	45660	48320	514312
9	000000070 ธ	45480	43230	34564	34690	34649	47820	23499	34970	39749	34949	46200	34600	454400
10	000000071 ธ	12412	11200	13550	8700	9140	13140	13900	12790	7959	10259	16032	16360	145442
11	000000072 ธ	23400	35651	34500	24612	24800	29330	24970	32040	23300	18990	28790	33449	333832
12	000000073 ธ	25450	23456	26540	21930	19712	17890	16790	24590	27903	16490	27920	27620	276291
13	000000074 ธ	35410	26460	26460	26462	36441	23164	34646	23465	34646	16464	34641	16464	334723
14	000000075 ธ	46555	23546	32640	39413	29123	31540	64589	34640	49530	34974	34976	46531	468057
15	000000076 ธ	24800	23463	16490	34100	24840	29110	27900	24990	32010	26710	26941	21490	312844
16	000000077 ธ	35400	28956	26410	32456	24646	36900	37891	34870	32410	34900	25490	34650	384979
17	000000078 ธ	37400	29920	34100	32400	29463	24760	34600	54120	34654	29410	30140	24600	395567
18	000000079 ป	23850	26530	32140	31324	23460	24760	23240	23690	29900	19330	23479	28530	310233
19	000000080 ป	14540	16460	13560	8530	9470	12490	15300	12400	19220	24100	19720	16400	182190
20	000000081 ป	13245	19730	12630	17990	9745	14840	16310	34446	16560	9300	16500	11330	192626
Total		562951	519165	496054	481242	475562	520859	544661	543537	561796	439376	541884	494368	6181455

Figure G.6. Product Sales Report (Monthly)1999 (Baht).

ร้าน	Week	เสาอากาศ #57	เสาอากาศ #99.1	เสาอากาศ #170.2	เสาอากาศ #73	เสาอากาศดิเนีย	หมอนอิง ใบใหญ่	หมอนอิง ใบเล็ก	ยางลิโด -หน้า	ยางลิโด - หลัง	เพลากลางลิโด	กระจก DM50	แปรงใส่อ่อน	แปรงลิตเติ้ล เบรีด	กันโคลน MG-02	ยางคอหมอนดำ	ป้ายห้างสูบุหรี่	Total
ศรีนครินทร์	1	1,500						2,000				2,000	2,000				2,000	9,500
	2																	0
	3																	0
	4																	0
	5		2,000		2,000				5,000		5,000							14000
Total		1,500	2,000	0	2,000	0	0	2,000	5,000	0	5,000	2,000	2,000	0	0	0	2,000	23,500
สมุทรสาคร	1																	
	2	2500	4850	5500			2456	2350			1365		5600			2784		27405
	3																	
	4																	
	5																	
Total		2500	4850	5500	0	0	2456	2350	0	0	1365	0	5600	0	0	2784	0	27405

Figure G.7. Weekly Customer by Product Report in (Lotus Supermarket) (Baht).

No.	รายการ	ศรีจันศรีจันทร์	สมุทรสาคร	ขอนแก่น	ชลบุรี	สระบุรี	พิษณุโลก	นครศรีธรรมราช	บางขุนเทียน	ลำพูนบุรี	เชียงใหม่	ชาญเมือง	สุราษฎร์ธานี	อยุธยา	พัทลุง	Total
1	000000058 หุ้มพวงมา				2,000		1150			2,000					545	5,695
2	000000061 หุ้มพวงมา			4,000							2545					6,545
3	000000062 หุ้มพวงมา	4,000												1125		5,125
4	000000065 หุ้มพวงมา				4,000								1240			5,240
5	000000066 ยางกันก			5000					5000	1224						11,224
6	000000067 ยางกันก		1400			5000						2500				8,900
7	000000068 ยางกันก			850				1450						1250	1250	4,800
8	000000069 ยางกันก	4000				720				630						5,350
9	000000070 ยางกันก		1150				2688							480		4,318
10	000000071 ยางกันก			1256				2520			1246		580			5,602
11	000000072 ถาดยาง	4850				360			2160			3744				11,114
12	000000073 ถาดยาง					2550									660	3,210
13	000000074 ยางปูพื้น	2520						264			360		1140		550	4,834
14	000000075 ยางปูพื้น		645	1250	2200											4,095
Total		15370	3195	12356	8200	8630	3838	4234	7160	3854	4151	6244	2960	2855	3005	86052

Figure G.8. Customer by product Sales Report (Lotus Supermarket) (Month) (Baht).

Sales Person	Week	ธเนศ ตรีนพรัตน์	ธศาสตร์ ไชยสิทธิ์	กนกกานต์ เอื้อ	ธู้ไทย ไม้	ธู้ไทย ธิ์	นพดล ใจพิพัฒ	ฟ้ารุ้ง ธรรมศักดิ์ศรี	กมลพัฒน์ ไชยปาน	ธู้ไทย ไม้	ไม่ทราบชื่อ	ชนาภัทร์ ไม้	กนกรัตน์ ศรีแก้	บลธนัส	กนธู้ยอด	**ยอดรวม**
สงคราม	1	20,000													20,000	40,000
	2							20,000								20,000
	3															
	4									50,000						50,000
	5															
	Total	20,000						20,000		50,000					20,000	110,000
เอนก	1		15,000													15000
	2				20,000				10,000							30000
	3											50,000				50000
	4													20,000		20000
	5															0
	Total		15,000		20,000				10,000			50,000		20,000		115,000

Figure G.9. Weekly September Customer by Sales person Sales Report (Lotus Supermarket) (Baht).

No.	Sales Person	ศรีนครินทร์	สมุทรสาคร	ขอนแก่น	ชลบุรี	สระบุรี	พิษณุโลก	นครศรีธรรมราช	บางพลี	ปทุมธานี	เชียงใหม่	สุขาภิบาล	สุวรรณภูมิ	อยุธยา	ภูเก็ต	ยอดรวม
1	สงคราม	20,000										30,000				50,000
2	เอนก		10,000			10,000								20,000		40,000
3	เกษม			10,000			10,000			20,000						40,000
4	บัณฑิต				20,000											20,000
5	ToTal	20,000	10,000	10,000	20,000	10,000	10,000			20,000		30,000		20,000		150,000

No.	Sales Person	ศรีนครินทร์	สมุทรสาคร	ขอนแก่น	ชลบุรี	สระบุรี	พิษณุโลก	นครศรีธรรมราช	บางพลี	ปทุมธานี	เชียงใหม่	สุขาภิบาล	สุวรรณภูมิ	อยุธยา	ภูเก็ต	ยอดรวม
1	สงคราม	20,000								40,000					50,000	110,000
2	เอนก		15,000			25,000						25,000		40,000		105,000
3	เกษม			50,000	20,000		10,000									80,000
4	บัณฑิต							20,000	10,000		20,000		10,000			60,000
5	ToTal	20,000	15,000	50,000	20,000	25,000	10,000	20,000	10,000	40,000	20,000	25,000	10,000	40,000	50,000	355,000

Figure G.10. Customer by sales person Sales Report (Lotus Supermarket) (Month) (Baht).

Sales Person	Week	เสาอากาศ #57	เสาอากาศ #99.1	เสาอากาศ #170.2	เสาอากาศ #73	เสาอากาศดิเจเมีย	หมอนอิง ใบใหญ่	หมอนอิง ใบเล็ก	ยางดีไอ -หน้า	ยางดีไอ - หลัง	เพลากลางดีไอ	กระจก DM50	แปรงน้ำเดิมติน	แปรงติดเดิม เบอร์ต	กันโคลน MG-02	ยางคอหมอนด้า	ป้ากยห้ามสูบบุหรี่	Total
สงคราม	1	720	630	1224	1080	630	720	550	7850	264	484	1050	2000					17202
	2	1050		500	1750	350					540	480	660	1020	550	2160	552	9612
	3			474		1050	550		2240	550		2520	720				552	8656
	4	2250	1150											1250	440	650	552	6292
	5				2000		1200	1500	570	360	540				550	750		7470
Total		4020	1780	2198	4830	2030	2470	2050	10660	1174	1564	4050	3380	2270	1540	3560	1656	49232
เอนก	1	525	1750	350		1250			540	455	660	1500	550		2500		1510	xxxxx
	2	474		1050	550		2240	550		2520	720				5500			xxxxx
	3	1145					650		2240			1250	440			4510	4105	xxxxx
	4		2000		1200	1500	570	360	540				550		1135			xxxxx
	5	2260		1125			1120			1154				2250			1105	xxxxx
Total		4404	3750	2525	1750	2750	4580	910	3320	4129	1380	2750	1540	2250	9135	4510	6720	xxxxx

Figure G.11. Weekly Sales person by Product Report in (Lotus Supermarket) (Baht).

Month	Sales R.	เสาอากาศ #57	เสาอากาศ #99.1	เสาอากาศ #170.2	เสาอากาศ #73	เสาอากาศดิเบีย	หมอนอิง ใบใหญ่	หมอนอิง ใบเล็ก	ยางสีใส -หน้า	ยางสีใส - หลัง	เพลากลางสีใส	Total
มกราคม	สงคราม	5780	6540	2250	1250	1785	3050				4150	24805
	เอนก	4120	3200	2000	1750	850	1500	850	500	750		15520
	เกษม	3210	4500	1750	900	1250	585	475		1520		14190
	บัณฑิต	2254	658	4756		4525		5230	1250		2000	20673
	Total	15364	14898	10756	3900	8410	5135	6555	1750	2270	6150	75188
กุมภาพันธ์	สงคราม	4450	3540	3140	2300		4450	1125	2250	3500	2240	26995
	เอนก	4450	5200	1235	4035	1128	2205		2000	850	1275	22378
	เกษม	2235	4589	3254	1105	2250	5300	550	1150	885	660	21978
	บัณฑิต	4520	1175	2340	2250	1254	1225	1125	2250	3540	5400	25079
	Total	15655	14504	9969	9690	4632	13180	2800	7650	8775	9575	96430

Figure G.12. Monthly Sales person by product (Lotus Supermarket) (Baht).

Cust. Order no.	Invoice no.	Customer no.	Order date	Order due	Total Cost	Term payment	Sales person	Status
000000001	000000045	000000020	22 มกราคม 2000	30 มกราคม 2000	20,000	15 Days	พิเชษ	Finished
000000002	000000050	000000021	22 มกราคม 2000	30 มกราคม 2000	10,000	15 Days	พิเชษ	Finished
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx

Figure G.13. Customer Order Status Report.

Invoice no.	Cust. Order no.	Customer no.	Sales person	Term payment	Total Cost	Order due	Status
000000045	000000001	000000020	พิเชษ	15 Days	20,000	22/1/2000	Finished
000000050	000000002	000000021	พิเชษ	15 Days	20,000	22/1/2000	Finished
xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx
xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx
xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx
xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx
xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx
xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx
xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx
xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx
xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx
xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx
xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx
xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx
xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx
xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx
xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx
xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx
xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx
xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx	xxxxxxxxx

Figure G.14. Invoice Report.

Purchase no.	Supplier no.	Product no.	Quantity	Order date	Order due	Total Cost	Order Person	Status
000000001	000000005	000000012	10	22 มกราคม 2000	30 มกราคม 2000	15,000	วิเชียร	Finished
000000002	000000009	000000152	20	1 มีนาคม 2000	15 มีนาคม 2000	20,000	วิเชียร	ได้ไม่ครบ
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxx

Figure G.15. Purchase order Report.

Production no.	Product no.	Quantity	Order date	Order due	Status
000000001	000000120	10	22 มกราคม 2000	30 มกราคม 2000	รอวัตถุดิบ
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx

Figure G.16. Production Order Report.

Product no.	Product name	Description	Component1	Comp2	Comp3	Comp4	Comp5	Quantit	rder P	Supplier no.
000000021	ถาดพลาสติกใส หน้าเดี่ยว	าดพลาสติกรุ่น EVA สีใสทำจาก	000000125	000000126	0	0	0	400	100	000000025
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxx	xxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxx	xxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxx	xxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxx	xxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxx	xxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxx	xxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxx	xxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxx	xxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxx	xxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxx	xxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxx	xxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxx	xxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxx	xxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxx	xxxxxx	xxxxxxxxxx

Figure G.17. Inventory Status Report.

D. no	Order no.	Cust no.	Supervisor	Order due	D. Date	D. Finish	Status
000000001	000000050	000000049	ชวลิต	30/1/2000	29/1/2000	29/1/2000	Finished
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx

Figure G.18. Delivery information Report.

Cust. Order no.	Invoice no.	Customer no.	Product no.	Quantity	Total cost	Reason	Status
000000001	000000045	000000020	000000015	2	300	ส่งเกินที่สั่ง	Finished
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx
xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxx

Figure G.19. Back Order Report.

Months	1	2	3	4	5	6	7	8	9	10	11	12	Total
Months(1995)	5,453,801	6,125,600	4,123,487	5,234,896	7,122,710	6,004,550	5,003,646	4,235,499	7,893,123	6,123,486	5,500,320	7,863,000	70,684,118
Months(1996)	6,454,036	7,467,130	8,167,304	4,159,600	6,397,100	7,388,005	4,856,000	7,658,550	8,054,600	4,563,000	4,789,000	4,697,000	74,651,325
Months(1997)	7,995,220	8,146,005	7,269,300	6,789,035	4,599,000	8,982,000	7,165,560	6,782,000	7,368,000	8,763,005	4,654,000	4,862,000	83,375,125
Months(1998)	8,045,036	7,896,045	9,460,345	7,667,000	5,466,000	8,146,690	8,470,570	7,264,000	9,751,000	7,369,000	6,789,000	7,562,570	93,887,256
Months(2000)													

Figure G.20. Yearly Summary sales.

APPENDIX H

USER MANUAL

USER MANUAL

The First Page

In this page, you must enter name and password to identify yourself to the system. This identification uses as an access key to the system program

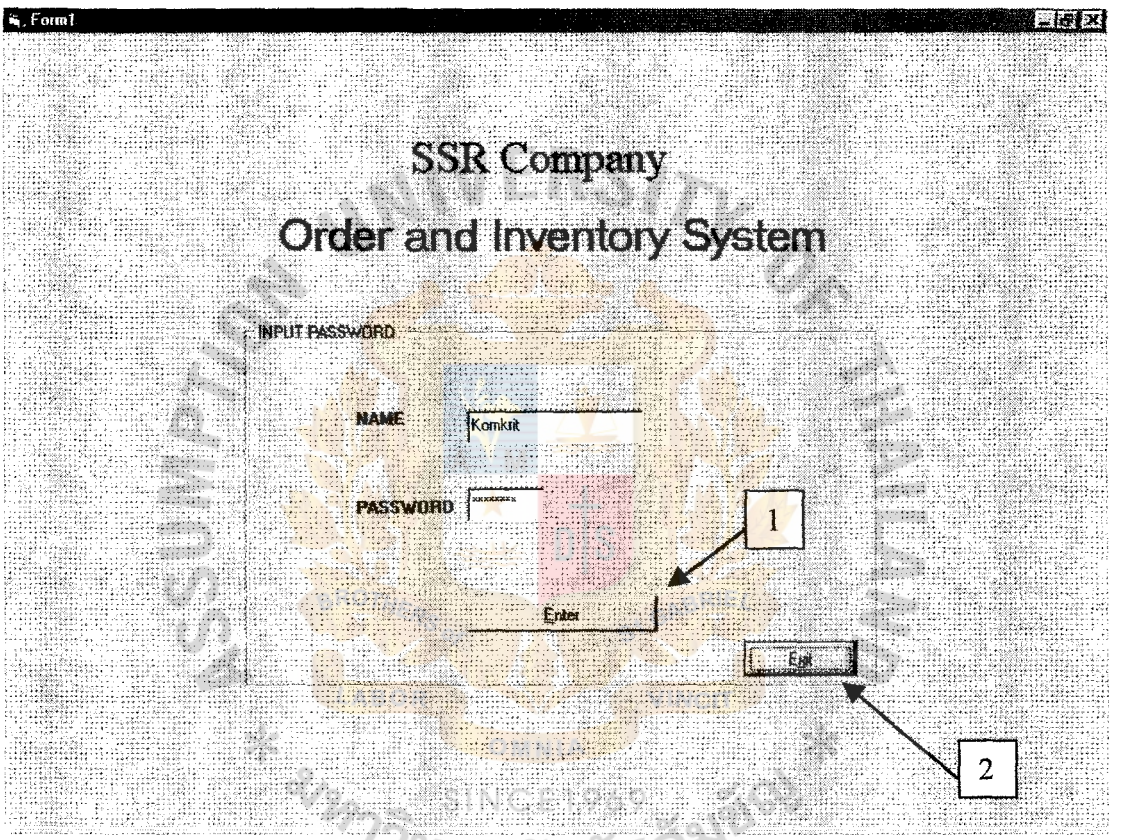

Figure H.1. User Manual 1.

1. After Input name and password You can press Enter to access into the System
2. "Exit" Button to Exit the program

Main Menu

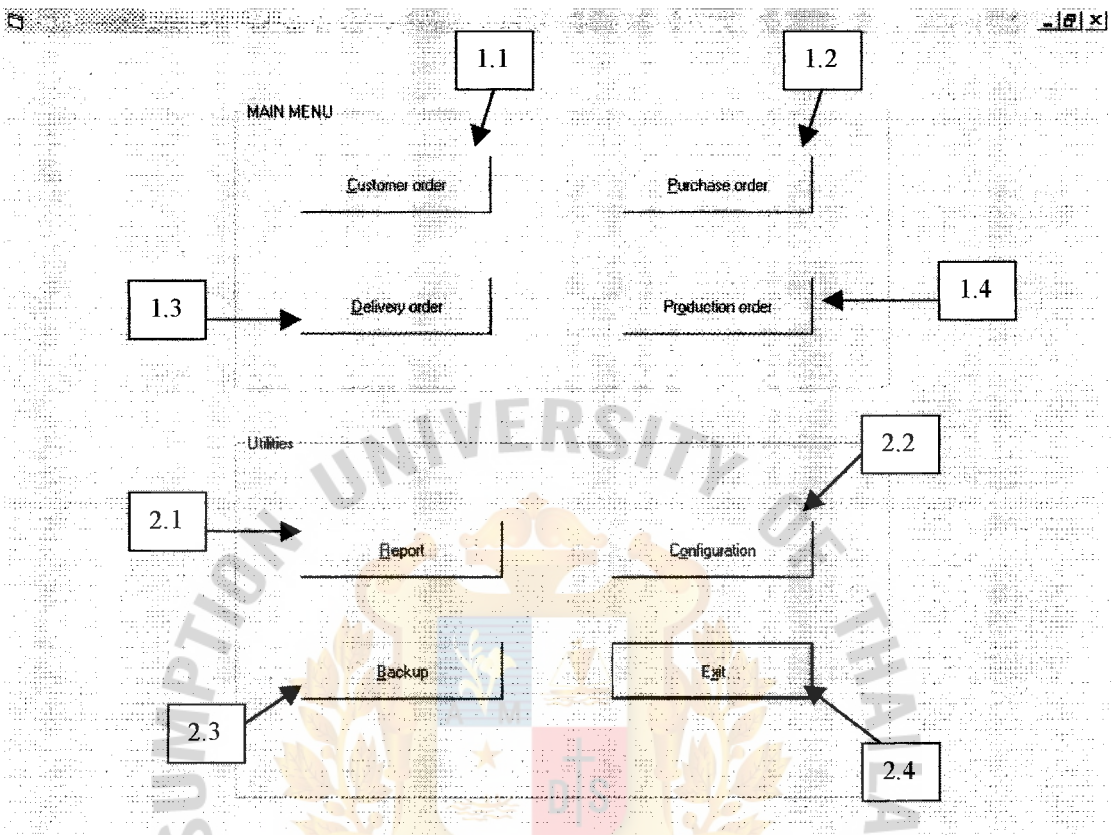

Figure H.2. User Manual 2.

This page is the main page of the system, It contain 2 main parts.

1. Main menu.

This part is consists of programs to create a system document and work, which is contain of 4 sub area.

1.1 Customer order (Product order)

When you click on this button, it will open the "Product order" page

1.2 Purchase order

When you click this button, it will open Purchase order page

1.3 Delivery order

When you click this button, it will open Delivery order page

1.4 Production order

This button will link to production order page

2. Utilities

This part will contain utilities for the program as following

2.1 Report

This button will link to Report page, which you can create a desired report from the system.

2.2 Configuration

This button will link to configuration page, which you can set up information on the system, password setting, printer setup.

2.3 Back up

This button will link to backup page, which you can backup necessary information to a desired location.

2.4 Exit, which will close a program

Customer Order (Product Order)

This page will show basic button for all order in this system and it will show standard feature of the program.

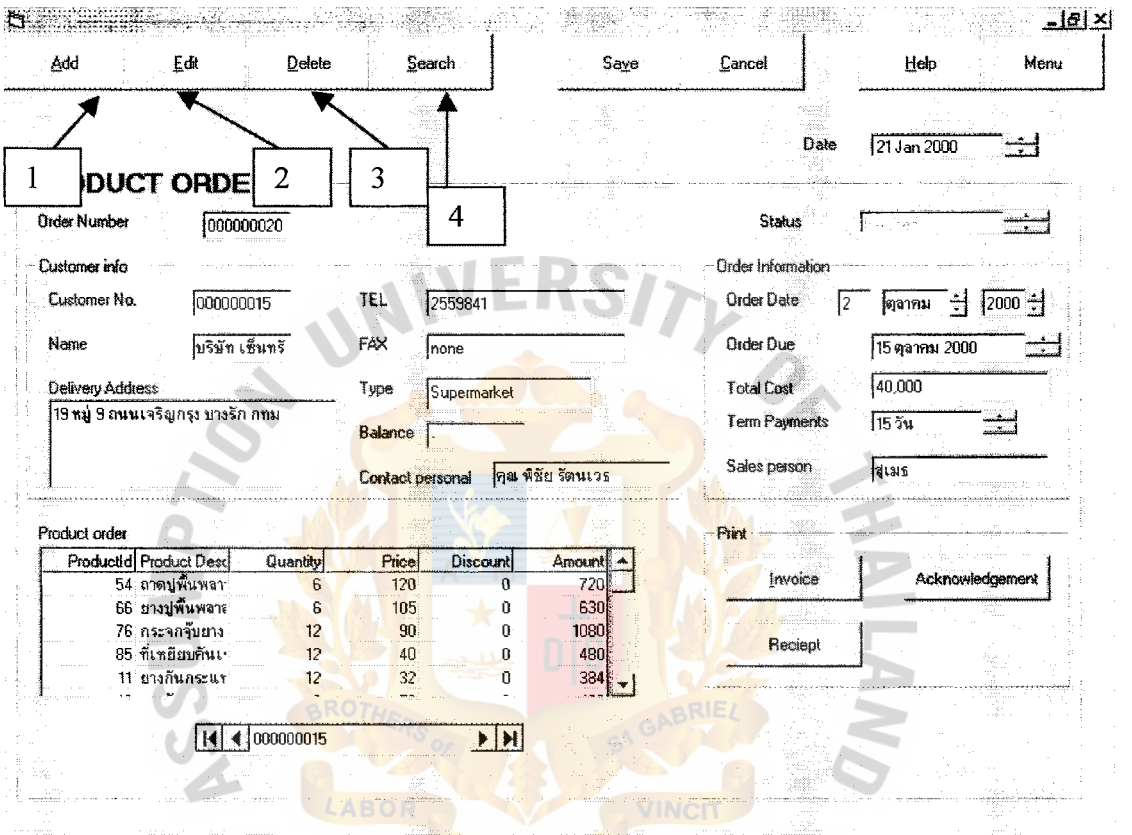

Figure H.3. User Manual 3.

1. ADD button

This button will allow you to add new order information when you click this button it will ask you for confirmation, After confirmation, all input in the input screen will be blank that will allow you to enter new information. You need to press "Save" button to save the information.

2. Edit button

After you click this button, the program will allow you to change information in the input screen (normally, you can't change any information on the input screen). You need to press "Save" button to save edited information

3. Delete button

This button will allow you to delete a whole record of order. After you press "Delete" button, the program will ask you for confirmation. Think it carefully before delete a record. Anyway if you delete a record by accident, you may find old record in backup. (If you want to delete some part of the record, you can use edit button)

4. Search button

This button will allow you to search for a desired record by using a name (Example is in the customer information page). It will prompt you with input window. You input a desired name and the program will search for a desired record by using your input, if the input is unknown then the program will show the most similar record for you). In product order, you will use order number as a searching key.

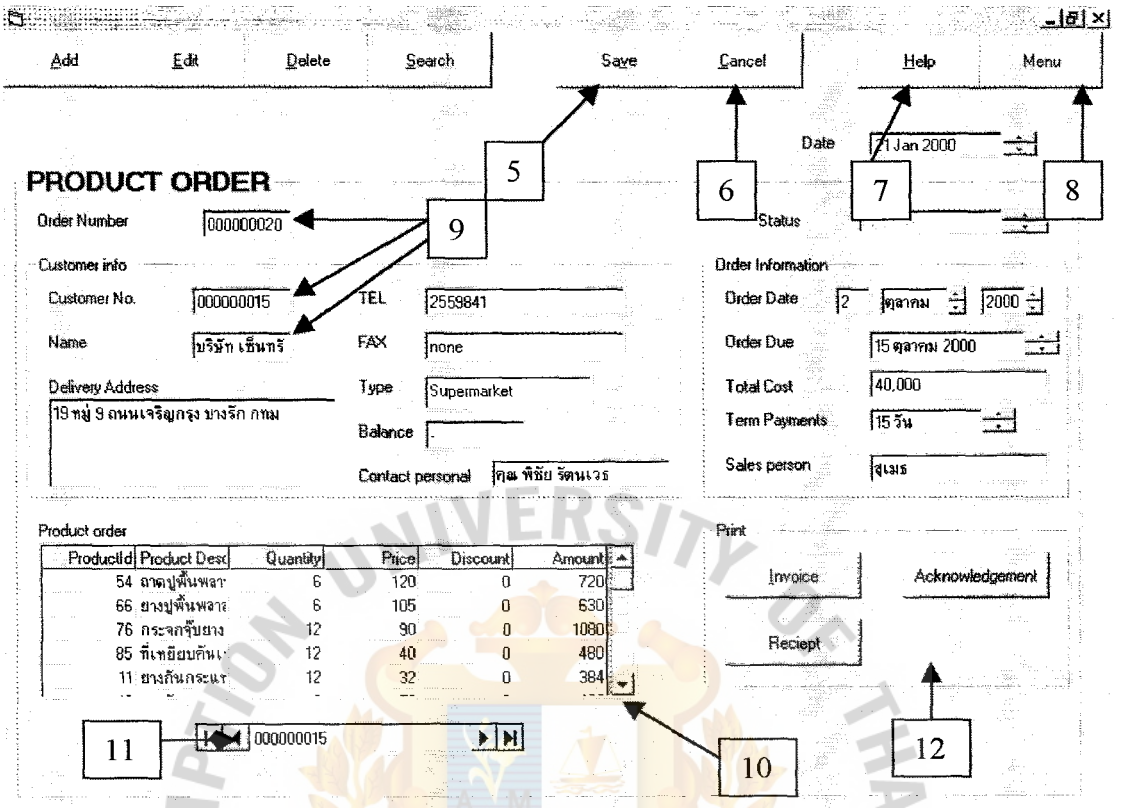

Figure H.4. User Manual 4.

5. Save

This button will save information into database. It will update any input information on input screen into database

6. Cancel

This button is use to return to condition before saving. In the other word, you can cancel your updating. This feature is helpful, especially when you save a wrong information into the database (This feature can restore a old condition only one saving history and only in the same period of system operating)

7. Help

This button will show a user manual for a user. Or helpful information on the program

8. Menu

This button will link you to the previous menu

9. You can use this input box as a search engine for you. You can type order number, customer number or customer name and press "Enter" on your keyboard and then the program will search for the most similar record to your searching key.

10. This field is the table for product that customer orders. You must input it by yourself. Anyway, if you type a product id (Product number) then the program will directly show product name to you. For product order page, you need to type in this information.

11. This is a data control that you can use to search for a desired record (same as using order number in no.9) anyway you can move forward, backward to adjacent record or move to the beginning or the end of record by using this data control.

12. This area is use to print a desired document. For product order page, it contains three type of document

    a. Invoice

    b. Receipt for customer

    c. Acknowledgement for a product to customer (normally, we will not send an acknowledgement to customer, only when customer asks for it)

Purchase Order

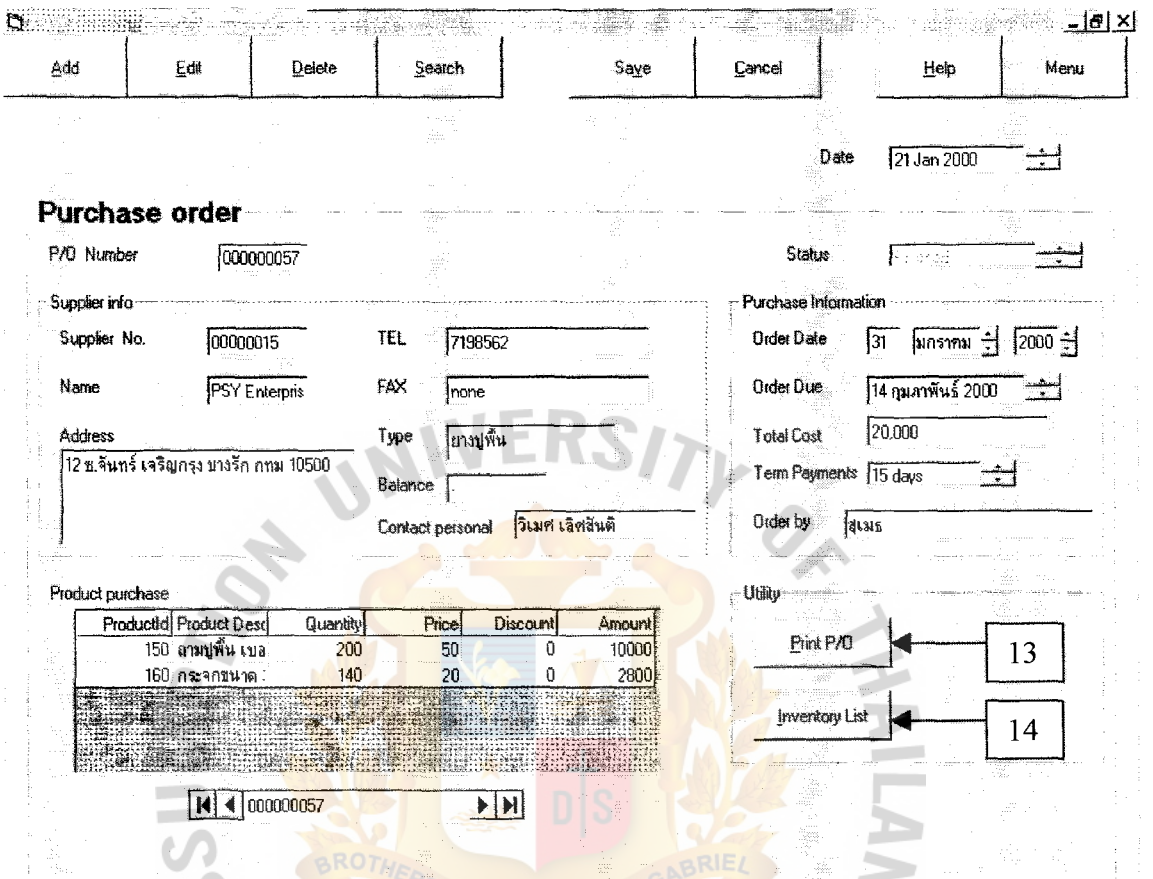

Figure H.5. User Manual 5.

1. All Standard buttons are as the customer order
2. "Search" Button use product order number as a searching criterion and use also type desired number in P/O number input box and press enter for searching.
3. Arrow no. 13 points on Print P/O button, this button will print out P/O for purchasing order.
4. Arrow no. 14 points on Inventory list, this button will show you a inventory information.

Production Order

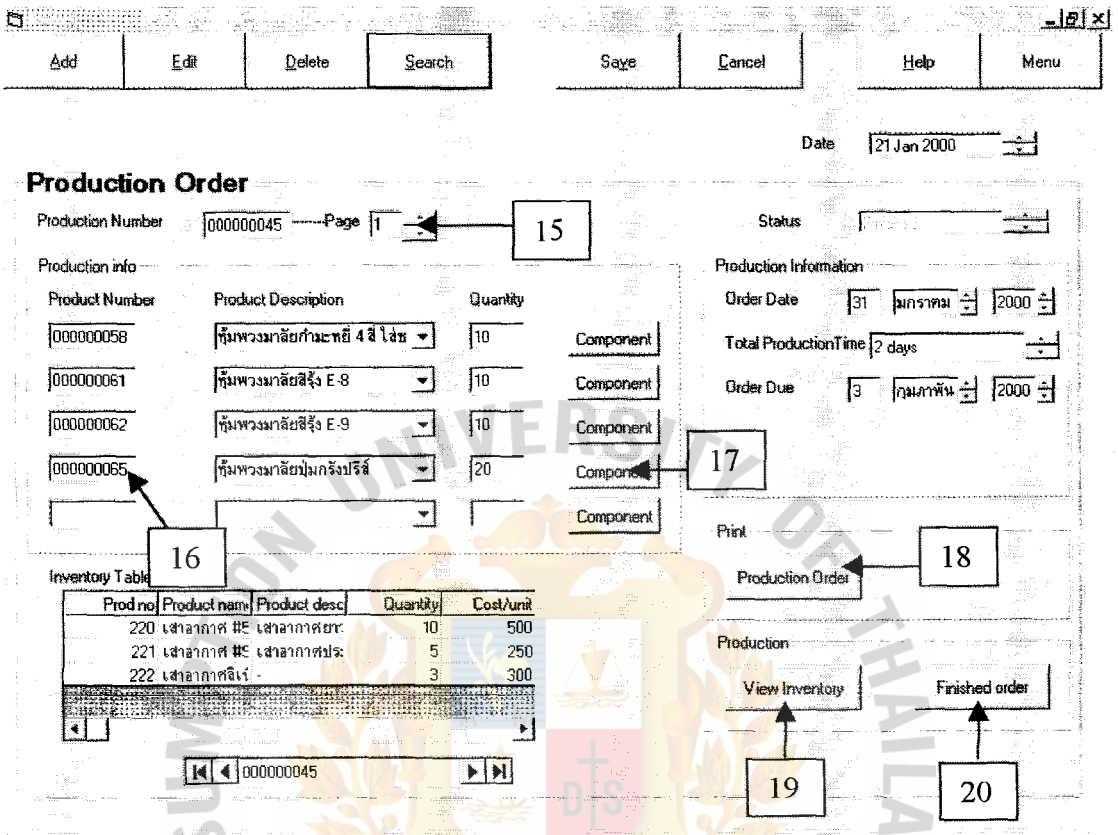

Figure H.6. User Manual 6.

1. No. 15, Page no. of the production order. This page no. is use when there are more than 5 products to order in production order.
2. No. 16, Product number, this number is the product number that you want to produce. You can type in product number such as 45 and it will automatically change to 000000045 and also show product description after you press enters in product no.
3. No. 17,"Component" button, This button is used when you want to see detail of the product (It will link to product information)

4. No. 18,"Production order", This button is used to print production order to production department.

5. No. 19,"View inventory", this button is used for view inventory information page

6. No. 20,"Finished order", this button is used for confirm finished production order or you can type in status input box.

Delivery Order

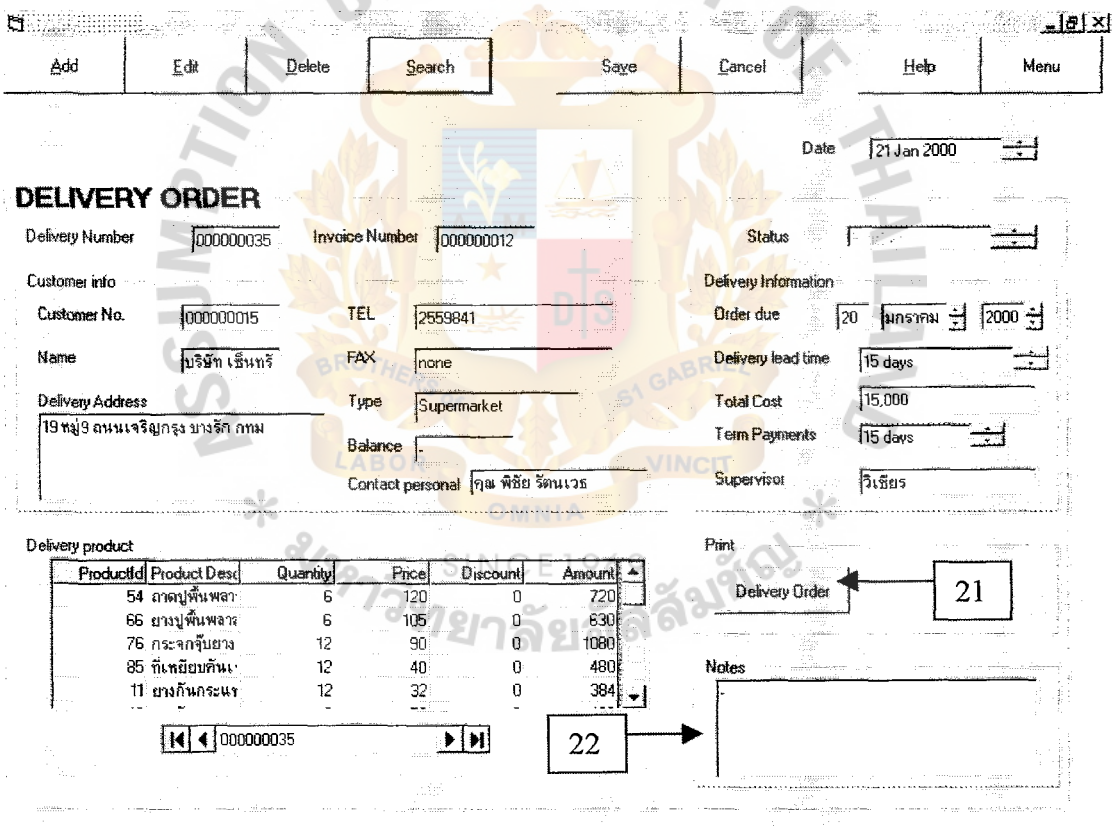

Figure H.7. User Manual 7.

1. No. 21, Delivery order, this button is used when you want to print out the delivery order.

2. No.22, Note text box, This text box is used for write down special note or order. You can note anything that you want in to delivery order.

Report Page

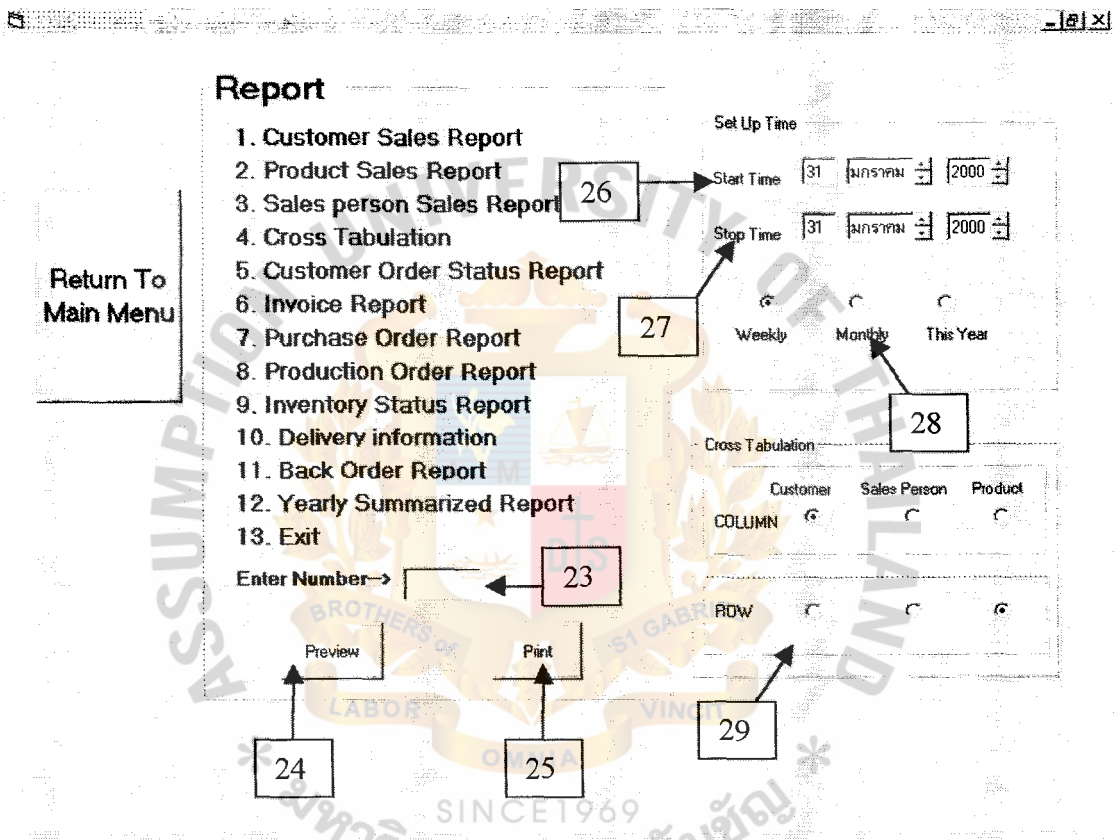

Figure H.8. User Manual 8.

1. No.23, This input box is use to choose the report that you want to print out or see.

   1.1 If you want to see the report (No print out), press "Preview Button" (No.24)

   1.2 If you want to print out, Press "Print" button

   1.3 In Choice no.4 (Cross tabulation), You must use in combination with Cross tabulation zone (No.29)

2. In Set up time zone, you can set a start date (No.26) and End date (No.27) for your report. You also able to choose a detail of report by using Radio button (No. 28) to choose weekly, monthly or year summary report

3. No.29, Cross-Tabulation Zone Zone, This zone will use in conjunction with Choice no.4 in input box (No.23). You can choose which type of information that you want in column and row. (Notice. You can't choose the same information such as Column: Customer and Row: Customer.)

Configuration

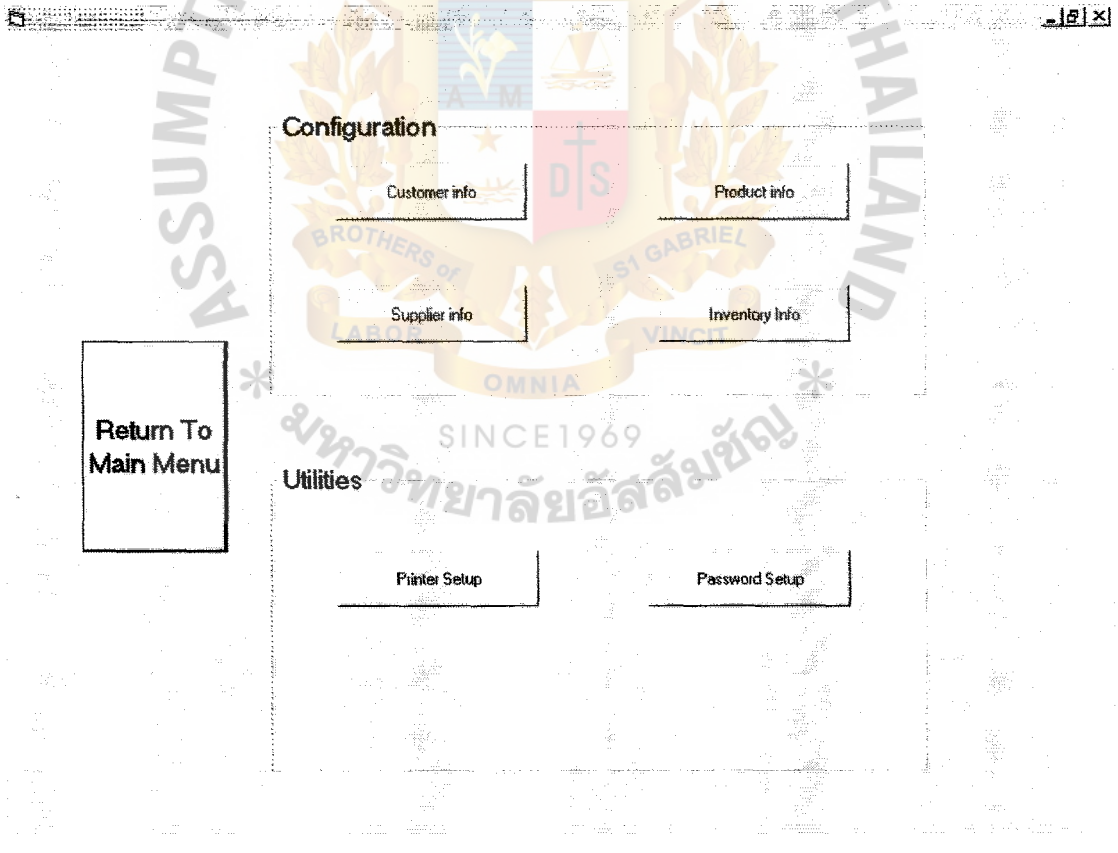

Figure H.9. User Manual 9.

This page contains of Two zones.

1. Configuration Zone, this zone is used for set up a default information on four areas

   1.1 Customer info, this button will link to Customer information page

   1.2 Product info, this button will link to Product information page

   1.3 Supplier info, this button will link to Supplier information page

   1.4 Inventory info, this button will link to Inventory information page

2. Utilities Zone, this zone will cover

   2.1 Printer setup, this button will link to standard printer setup feature of default printer

   2.2 Password setup, this button will link to password set up page.

Customer Information (Under Configuration Page)

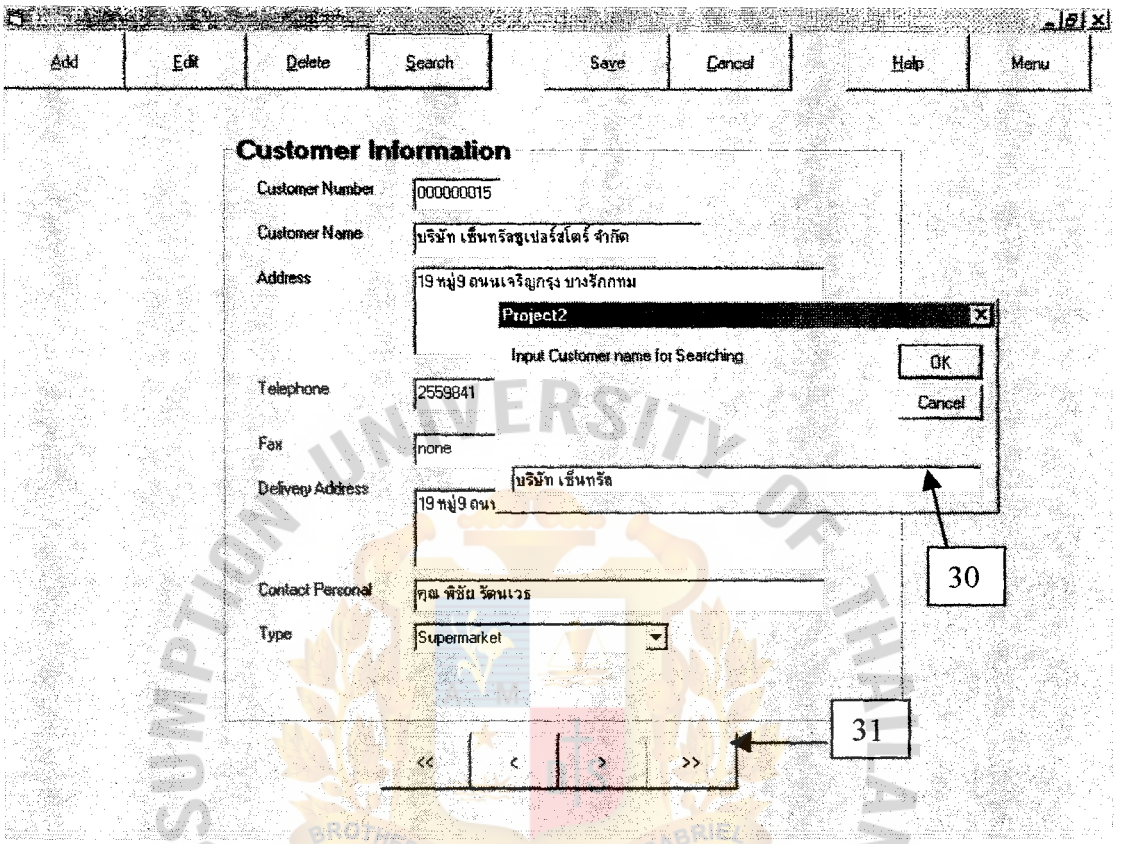

Figure H.10. User Manual 10.

1. No.30, this input window is the result of pressing "Search" Button, this is an example of searching method for this program. You can type in name of the company (For customer information page), or number (For all order pages).
2. No.31 is the data control, you can move the record to next or previous record.

You also can move to the beginning and the end of record by this data control.

Supplier Information (Under Configuration Page)

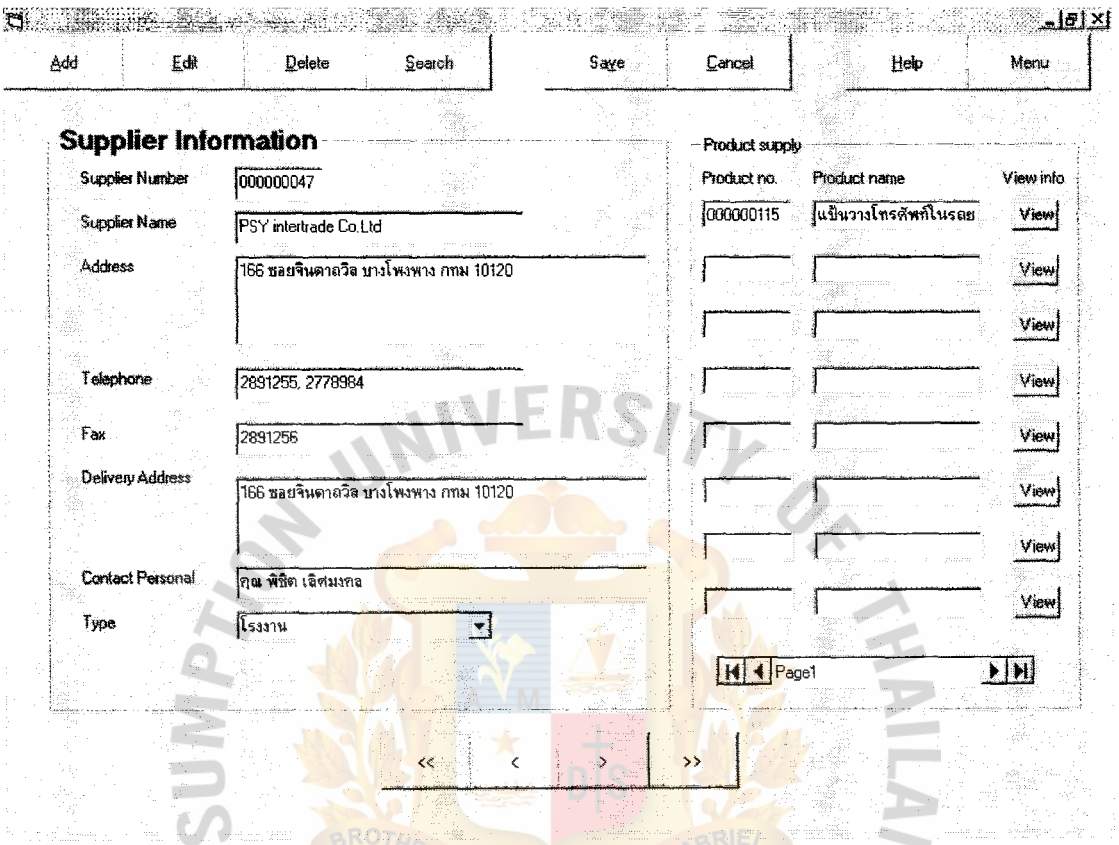

Figure H.11. User Manual 11.

This page has a same user interface with customer information page.

1. This page contains 2 Zone.

   1.1 Supplier information, contains all information about supplier.

   1.2 Product supply, shows a product that current supplier in this page supply to our company.

Product Information (Under Configuration Page)

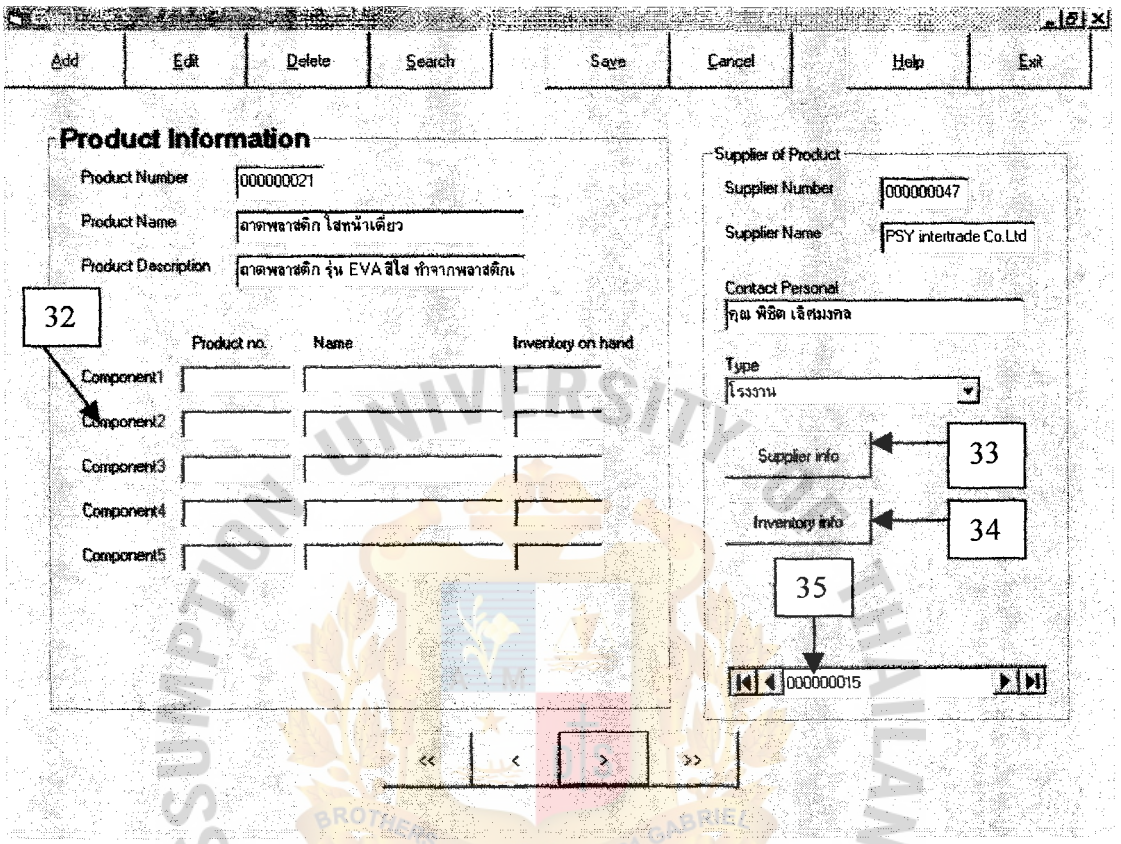

Figure H.12. User Manual 12.

This page contains of 2 zones

1. Product information zone. This zone contains product information.

   No. 32 is the component of product (necessary components to produce the product. If the component requires more than 5 components then the last component will link to product no. that contains more components for a product

2. Supplier of the product, this zone shows an information about supplier

2.1 "Supplier info" button (No.33), will link to supplier info page if you want to see more detail about supplier

2.2 "Inventory info" button (No.34), will link to inventory page.

2.3 Data control (No.35) is used for supplier information zone. (All characteristic is the same as data control in the previous content

Inventory Information (Under Configuration Page)

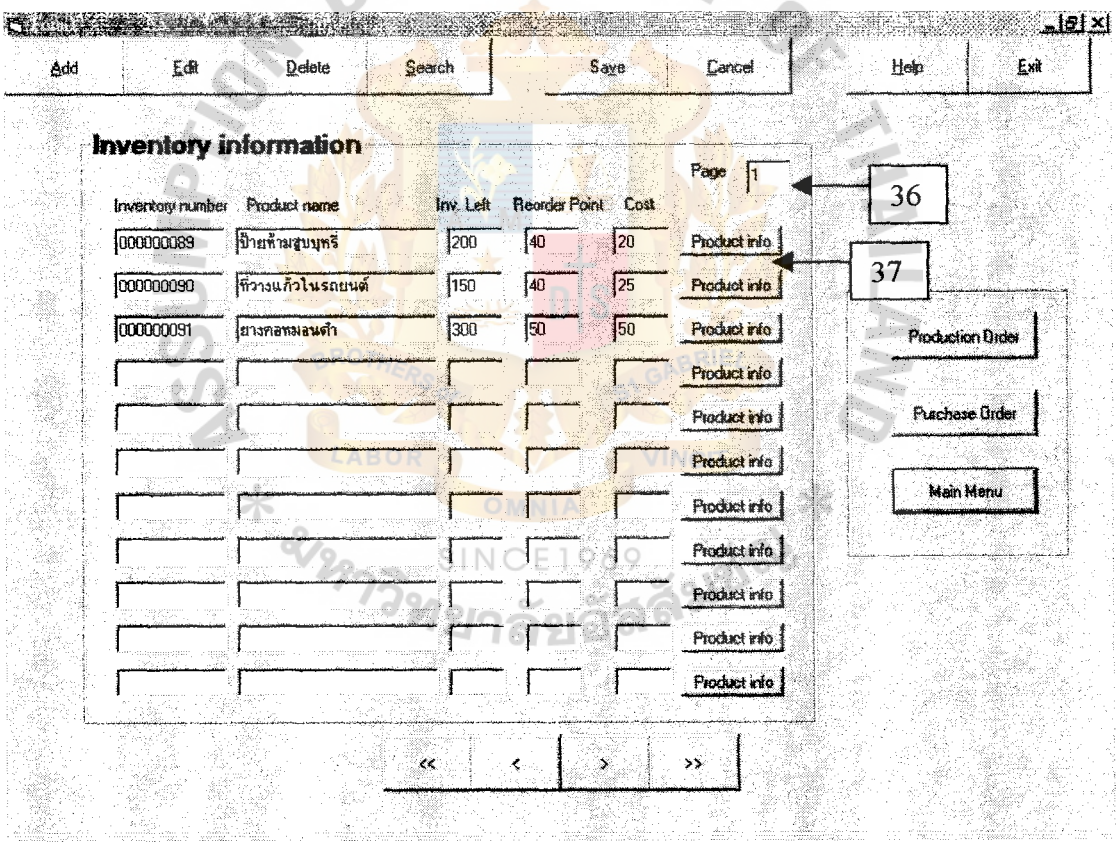

Figure H.13. User Manual 13.

This page contains of two zones.

1. Inventory information, this zone will show detail information of inventory. And if you want to see the detail of inventory, you must press "Product info" No.37 button behind the inventory row.
2. No.36 (Page no.) you can type in the desired page and it will change all inventory information to a desired page of the record (Anyway you can type in the inventory no., "Search" button or use data control below to search for the location of the inventory record.
3. Menu zone contains a link to Production order, Purchase order and main menu page.

Back Up Page

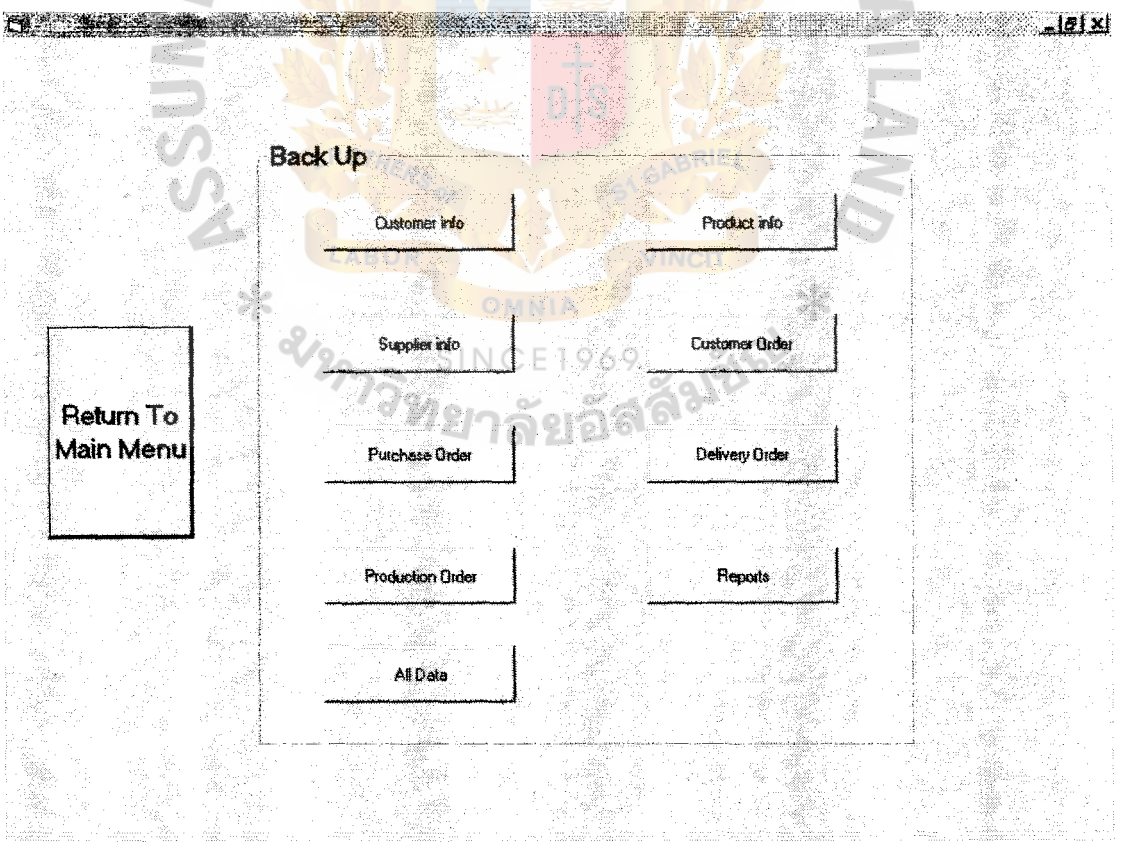

Figure H.14. User Manual 14.

This page is used to back up necessary information of your system (Notice that range of time for information to stay in the system is depended on situation)

Password Setup

This page will allow you to change your password. You must type in your user name, current password, new password and password confirmation in this page to change your password. "Save" button is used for saving your password changing. Please remember that if you change password without save it. It makes no different with no changing.

Figure H.15. User Manual 15.

BIBLIOGRAPHY

English References

1. Date, C. J. An Introduction to Database Systems, Fifth Edition. MA: addison-Wesley Publishing Company, 1990.

2. Fifzgerald, J. and A. Fitzgerald. Fundamentals of System Analysis: Using Structured Analysis and Design Techniques, Third Edition. NJ: Jonh Willy, 1997.

3. Kendall, K. E. and J. E. Kendall. System Analysis and Design, 2nd Edition. NY: Prentice-hall, 1992.

4. Whitten, Jeffery L. and Lonnie D. Bently. System Analysis and Design Methods. Taipei: McGraw Hill, 1998.

Thai Reference

1. ธาริน สิทธิธรรมชารี และ สุรสิทธิ์ คิวประสพศักดิ์. คู่มือการเขียนโปรแกรม Advanced Visual Basic Version 6.0 ฉบับเพื่อการประยุกต์ใช้งาน. กรุงเทพมหานคร: บริษัท ซัคเซส มีเดีย จำกัด, 2542.