



The Order Processing Information System
for Chaiwat Electric Company

by

Mr. Chaiwat Eikarat

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 System
Assumption University

August, 2001

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Project Title The Order Processing Information System for Chaiwat Electric Company

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Academic Year August 4, 2001

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.

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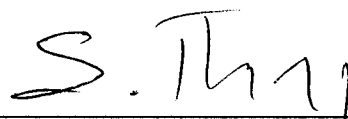
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ABSTRACT

The Order Processing Information System is developed based on Sales Department at Chaiwat Electric Company. The information is gathered from the department daily operations. This Project covers the analysis of the existing system and proposed system.

The current existing Order Processing Information System is based on the manual and some computerized system. Most data are stored on paper, while some parts are kept in the Microsoft Access. It is very hard to maintain the system, that has to face the general problems of manual system, which are error-prone and having a high maintenance cost.

The new proposed Information System will be developed to replace the manual and some computerized information system. All data are kept in the database server, Microsoft SQL Server 7.0, and are accessed through the web server, Microsoft Internet Information Server 5.0 on Microsoft Windows 2000 Server. The user interfaces, moreover, are implemented on web browser, Microsoft Internet Explorer. It will reduce the number of administrative staffs, solve the problem of manual system and decrease the high maintenance cost.

ACKNOWLEDGEMENTS

It is a great pleasure to acknowledge the assistance and guidance of numerous people who contributed to this system development project and making the report success.

The writer would like to thank Air Marshal Dr. Chulit Meesajjee, his project advisor, for advising him thought out these project.

Thank to all MS(CIS) instructors for the knowledge they gave him through out his study in CIS program.

Lastly, he would like to thank Sales Department for providing him the necessary information that he uses to develop this project.



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I. INTRODUCTION

1.1 Background of the Project

In the past, the company used computer for basic tasks such as preparing documentation and keeping records of customer and business partners. In addition the existing order system make errors occur and it easily delayed in the past. To reduce all these problems, we decide to use the computer system to execute the job.

The order processing information system is aimed to develop a computerized information system in order to support data collection for higher efficiency in responding and satisfying in terms of the attached diagram. Finally, this project suggests a system that will enhance the business functions in terms of capacity and control by using a computerized web database gathering and containing all necessary information that is related to the data collecting. We aim to help employees in gathering information from the customers and store them into computerized web base format in order to let every concerned departments easily retrieve the desired data.

1.2 Objectives of the Project

The objective of the project on order processing information system are as follows:

- (1) To reduce documentation work by adopting documents electronically such as purchase order, invoice., etc.
- (2) To reduce the transaction and processing cost.
- (3) To enable shorten lead-time of ordering components in order to meet the requirement of the customers.
- (4) To implement the new system which provides high speed of data transmission & communication and improve the accuracy of information.

1.3 Scope of the Project

This project focuses on computerized system of how to increase efficiency of various activities at station service and reduce the time taken to serve customers to achieve their satisfaction.

The project scope is divided as follows:

(1) Scope of Data

- (a) Purchase order number (P/O#)
- (b) Customer code
- (c) Order type
- (d) Currency paid by the customer
- (e) Price term for customer purchase order
- (f) Date of customer order / delivery date
- (g) Sales contact
- (h) Quantity ordered
- (i) VAT
- (j) Name of suppliers for the goods
- (k) Specification of the goods (Model, Unit Price, etc)

(2) Scope of Process

- (a) The company receives order from customer by telephone or e-mail.
- (b) The company input data of customer into customer's web based application of classifying the type of customer.
- (c) The company input the information about the customer purchase order.
- (d) The information is automatically link to the supplier's customer system.

- (e) The supplier sends Purchase Invoice, Bill of Lading and other related business documents to the company through the network.
 - (f) The company receives P/L, B/L and other related business documents via electronically devices.
 - (g) The company receives and clears merchandise at cargo (or) received by the customer.
- (3) Scope of Interface
- (a) Customer
 - (b) Model
 - (c) Model Price
 - (d) Customer Purchase Order
 - (e) Company Purchase Order
 - (f) Control P/A Shipment
 - (g) Delivery Order
 - (h) Stock In
 - (i) Stock Out
- (4) Scope of Geography
- (a) The Chaiwat Electric Company
 - (b) The company's suppliers are established in Japan, Singapore, Malaysia, Philippines and Indonesia

In summary, the context data flow diagram of gas self-servicing real time information system is illustrated in Figure F.1.

1.4 Deliverables

- (1) Project Introduction
 - (a) Background of the project

- (b) Objectives
- (c) Scope
- (2) The Existing System
 - (a) Background of the organization
 - (b) Existing business function
 - (c) Current problems and areas for improvements
 - (d) Existing computer system
- (3) The Proposed System
 - (a) System specification
 - (1) Context diagram
 - (2) Data flow diagram
 - (b) System design
 - (c) Hardware and software requirement
 - (d) Security and controls
 - (e) Cost/benefit analysis
- (4) Project Implementation
 - (a) Overview of project implementation
 - (b) Test plan and results
- (5) Conclusions and Recommendations

1.5 Project Plan

The project plan is represented in Gantt Chart as shown in Figure 1.1.:

Figure 1.1. Project Plan of Order Processing Information System.

II. THE EXISTING SYSTEM

2.1 Organization Background

Chaiwat Electric Company was founded on 23 April, 1997. The company engaged in providing the component part including electronic components, home appliance & communication components, car electronic products, semiconductor and factory automation from the Chaiwat group who are the suppliers established in Japan, Singapore, Malaysia, Philippines and Indonesia to customers. The company sells imported and local industrial products in Thailand. The shareholders of the company are Chaiwat Electric Company which holds 49% and Nattapong Electric Company which holds 51% of the total stock. The company has approximately 114 people in the organization.

Chaiwat Electric Company has a clear-cut duty divided into each department. Description of each department are as below:

(1) Sales Department:

The department promote, advertise and sale products of the company and handles all orders from all customers that the customers ordered.

(2) Logistic Department:

The department is handling import cargoes and responsible for taking care of stock of cargoes stored in warehouses.

(3) Accounting Department:

The department deals with all jobs such as making general accounting standard, producing payroll for all employees and support internal activities for sales' job.

(4) Human Resource Department:

The department is responsible for everything about staff- such as: recruiting employee, etc.

The organization chart of Chaiwat Electric Company is shown below in Figure 2.1.

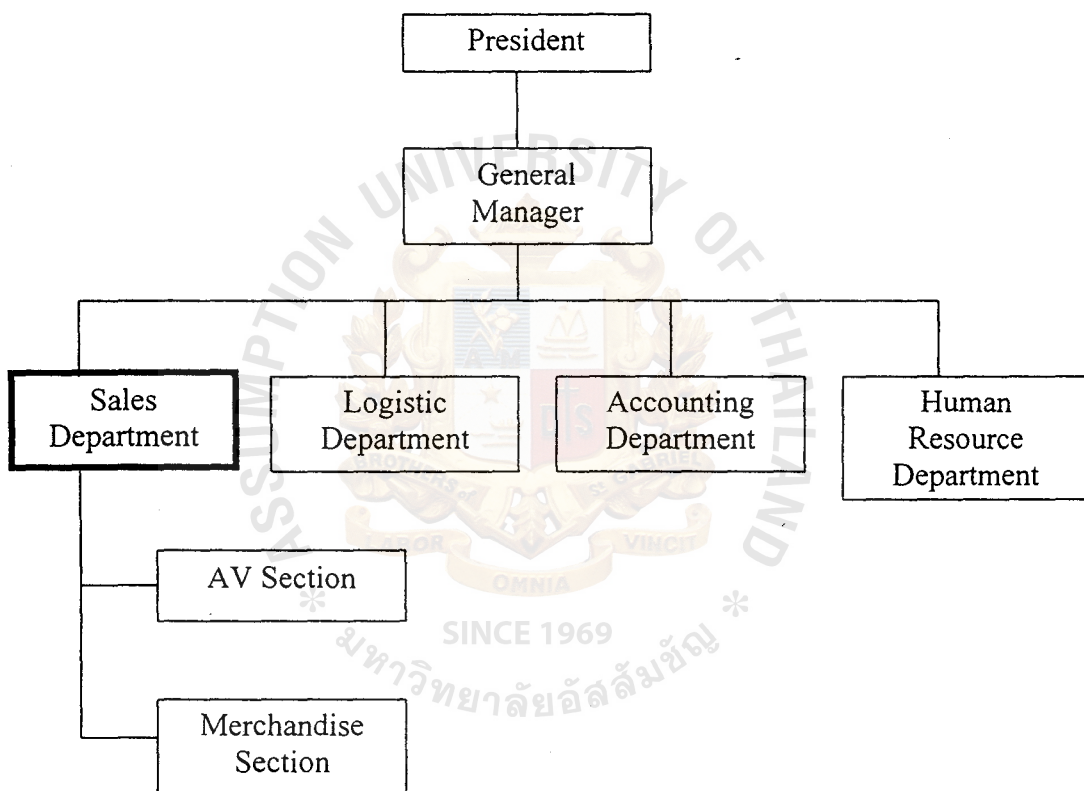


Figure 2.1. The Organization Chart of Chaiwat Electric Company.

2.2 Existing Business Functions

The Sales department receives purchase orders from customers then they will check and verify the customer's business documents manually and submit to the authorized person for approval. It will take 3-5 days for the business documents to pass

for approval. If it is approved, they will send them to the company's suppliers established in foreign countries via fax machines and sometimes by mailing the business document. For keeping the records of each customer, the company classifies the customer's records in more than one file, which can frustrate the information worker. From the supplier's side, it will take time to check and verify business documents sent from the company. It also consumes time to provide the goods for the company since it will check the stock of the components for each customer. Because his company lacks linking its business to be as one organization, many disadvantages occurred to the company.

2.3 Current Problems and Areas for Improvement

Ordering some products from suppliers established in foreign countries brought the cost of transaction each time high and communication channel itself made it difficult to know the product availability at the moment. A lot of business document had to be used and the complexity of passing each transaction to the authorization department takes about 3-5 days for checking and approval.

Implementing the new system – VPN (Virtual Private Network) which is a service offer secure, reliable connectivity over shared public network infrastructure such as the internet. Introducing VPN the Sales department would check and issue the purchase order from customer. Instead of printing and mailing to the suppliers established in foreign countries, the purchase order would be transmitted directly to the suppliers in foreign countries via computer network.

To facilitates this process, we adopt order processing information system software to transmit the related information to the supplier. On the supplier's side suppliers could send their business documents such as shipping document, invoice, or related documents through the network within less than a minute. In addition, to achieve the

global competitiveness in the business world, the company needs linking all business partners together to know their up-to-date information.

2.4 Existing Computer System

At present, our company has some information system to support the business. Some information may be kept in the form of paper work that has opportunity to lose any information used to record the business report and some information may be kept in Microsoft Access Database. Moreover, information is not easily shared to any responsible person or division to perform some tasks. So, it is a time to develop and implement the new system to better performance of the business.



III. THE PROPOSED SYSTEM

3.1 System Specification

The new system is developed by Visual InterDev and it is analyzed and designed by the following tool;

Context Diagrams

They are constructed to show the highest level model of the system. This is the most general or broad picture of the existing system. They are used to represent pictorially the scope of boundaries of the system or what we call the area under study. Their purpose is to identify what is to be included in the area under study. They link the system to the rest of the world. It shows how the system interacted with the others outside the system boundary. In other words, it intends to obtain a broad overview of what the system encompasses and what it does not encompass.

Data Flow Diagrams

They are graphic representation of a system that shows data flows to, from, and within the system, processing functions that change the data in some manner, and the storage of this data they are nothing more than a network of related system function (processing of data) that indicated from where information is received and where it is sent a popular term of data flow diagram refer to acronym DFDs.

3.2 System Design

After getting the best evaluate alternate solution to fulfill our business requirements and specify the computer base solution, the design and integrate requirements is involved to develop technical design specifications. That means our identified system analyst ready to be constructed.

By constructing the propose system, the technical design specifications (IS blueprints) are identified into 5 distinct focus in the system, which are the processes to be illustrated; a system designed by orderly drawing process design, database design, input and output design, user interface, and software design. The pictures are shown in Appendix section.

(1) Process Design

The process design is depicted in a form of data flow diagrams (DFDs) that is the technique for organizing and documenting the structure and flow of data through a system's process. For these pictures defined our entire business processes, we begin with project scope of our system to look for the information about interface focus that documented in a context diagram. It is shown in Figure F.1. After identifying context diagram, the order processing information system can be divided into subsystem data flow diagrams in lower levels that shows data flow details to specify deeper information of each subsystem. It is shown in Figure F.3. to F.8. Then, these gathering of subsystems will represent the whole processes system (level 0) that is shown in Figure F.2. Finally, this data flow diagrams (Logical DFDs) which is introduced for our business requirements can be used to develop a technical design (Physical DFDs) to implement the propose system.

(2) Database Design

According to our business requirements used to create useful information, it is classified into a related data that has been analyzed to be ready for implementation as simple, nonredundant, flexible, and adaptable database. The Entity Relationship Diagrams (ERDs) is a tool to create the database model representing the whole picture of our system's data. These

related data will be kept in a database. In particular, the data are described in terms of the entities and relationships that meet with system users and system owners to support our propose system. For data architecture, we will use the distributed relational database to apply in the system. The entity relationship model and tables of structure chart diagram (key data, data type, data domain, attribute, and etc.) are shown in Appendix C.

(3) Input and Output Design

The business transactions and inquiries are often best processed when they occur. Errors are identified and corrected more quickly. It permits greater human interaction in decision making. Inquiries and report can be processed immediately. It could reduce the response time. The input transaction and information requests are transmitted online to several computers for processing. In addition, for middleware, we will use ODBC (Open Database Connectivity Standard) that is attached to the Visual InterDev program to interconnect with another database with another platform.

(4) User Interface

For interface architecture, the web graphical user interface (GUI) will be designed to reach the interactive on-line interface between system user and the computer device. This interface provided a friendly ease of use by application to process inputs and obtain outputs. It has only start web browser and input the html address of the program and login to the system. User interface for this system involves many screens as existing in any kind of computer plus related screens for accomplishment designed system solution. The user interface design is shown in Appendix A.

(5) Software Design

The software design is the last step to complete a system design of the proposed system. After we have designed the database, input, output, and user interface, we have to select the appropriate packaged software and computer equipment that should be installed during the system design. So, the computer programmer has to present programming specifications for implementation the system.

The structured design is used to deal with the size and complexity of selected program. This technique will assist our computer programmers to design the program as a top-down hierarchy of modules that presents the result in a computer program, which is easier to implement and maintain.

Typically, structured design requires data flow diagrams to construct the structure chart, tool of this technique, to graphically depict a modular design of program. The pictures are illustrated in Figure G.1. to Figure G.6.

3.3 Hardware and Software Requirement

For the new system, the selection of hardware and software specification is the major important point to support system design and implement the proposed system. In addition, the cost of computer hardware and software are not too expensive compared with the past and the performance is likely the same or increasing. So, the high quality hardware and software performance with the appropriate price is the best way to reduce cost of implementing to get most benefits for our business.

The new system requires only one server to provide services needed by any client. It must have to use the high specification in server because everything is run and processed on server. The database must have more efficiency to support business and customer data. It also has a good database management system (DBMS) to manage data

extracted or retrieved from different information. The following Tables 3.1 and 3.2. show details of selection hardware and software.

Table 3.1. The Hardware Specification for the OPIS System Server.

Hardware	Specification
CPU	Dual 1 GHz, Pentium III, or higher
Cache	512 MB or higher
Memory	256 MB 100 MHz, ECC, SDRAM
Hard Disk	40 GB or higher
CD-ROM Drive	52X or higher
Floppy Drive	1.44 MB
Network Adapter	Ethernet 100-Base T, HUB&LAN Card UTP
Display Adapter	SVGA card
Monitor	17" monitor
Printer	Hewlett Packard Laser Jet
UPS	UPS Powercom 750 VA

Table 3.2. The Software Specification for OPIS System Server.

Software	Specification
Operating System	Microsoft Windows 2000 Server
Web Server	Microsoft Internet Information System 5.0
Common Gateway Interface	Microsoft Active Server Pages
Database Server	Microsoft SQL Server
Virus Scan	McAfee Virus Scan 5.15

The Client of a proposed system use Windows 2000 Professional because the server will be easy to control every client and organization of the company by using active directory service. The selected hardware and software are shown in Tables 3.3, 3.4. below.

Table 3.3. The Hardware Specification for OPIS Client.

Hardware	Specification
CPU	800 MHz, Intel Pentium III, or higher
Memory	256 MB or higher, SDRAM
Hard Disk	15 GB DMA 100 7200 RPM
CD-ROM Drive	52X or higher
Floppy Drive	1.44 MB
Network Adapter	Ethernet 100-Base T
Display Adapter	SVGA card
Display	14" SVGA monitor
UPS	UPS Powercom 750 VA

Table 3.4. The Software Specification for OPIS Client.

Software	Specification
Operating System	Microsoft Windows 2000 Professional
Web browser	Microsoft Internet Explorer 5.5 or higher
Application Software	Microsoft Office 2000 Professional Edition
Virus Scan	McAfee Virus Scan

In addition, the new proposed system must have a computer embedded in every floor to modify data and send the purchase order. Hardware and software specifications are shown below and the following Figure 3.1 illustrates the hardware configuration of the system of how each component can connect with each other.

Table 3.5. The Hardware Specification for Router.

Hardware	Specification
CPU	Cisco 7200 Network Processing Engine
Memory	NPE 32 MB DRAM
Controller	Cisco 7200 Fast Ethernet I/O Controller
Flash	8 MB PCMCIA Flash Memory
Module	1 port Fast Ethernet 100 Base-T
	4 port Ethernet 100 Base-T
	1 port Fast Ethernet 100 Base-Fx
Software	Cisco 7200 Series IOS Desktop

Table 3.6. The Hardware Specification for Switching Hub.

Software	Specification
Chassis	Catalyst 2924XL 24 port 2 Slots
Module	2 port Fast Ethernet 100 Base-Fx
	24 port Fast Ethernet 100 Base-T
Software	Cisco 2924 Series IOS Desktop

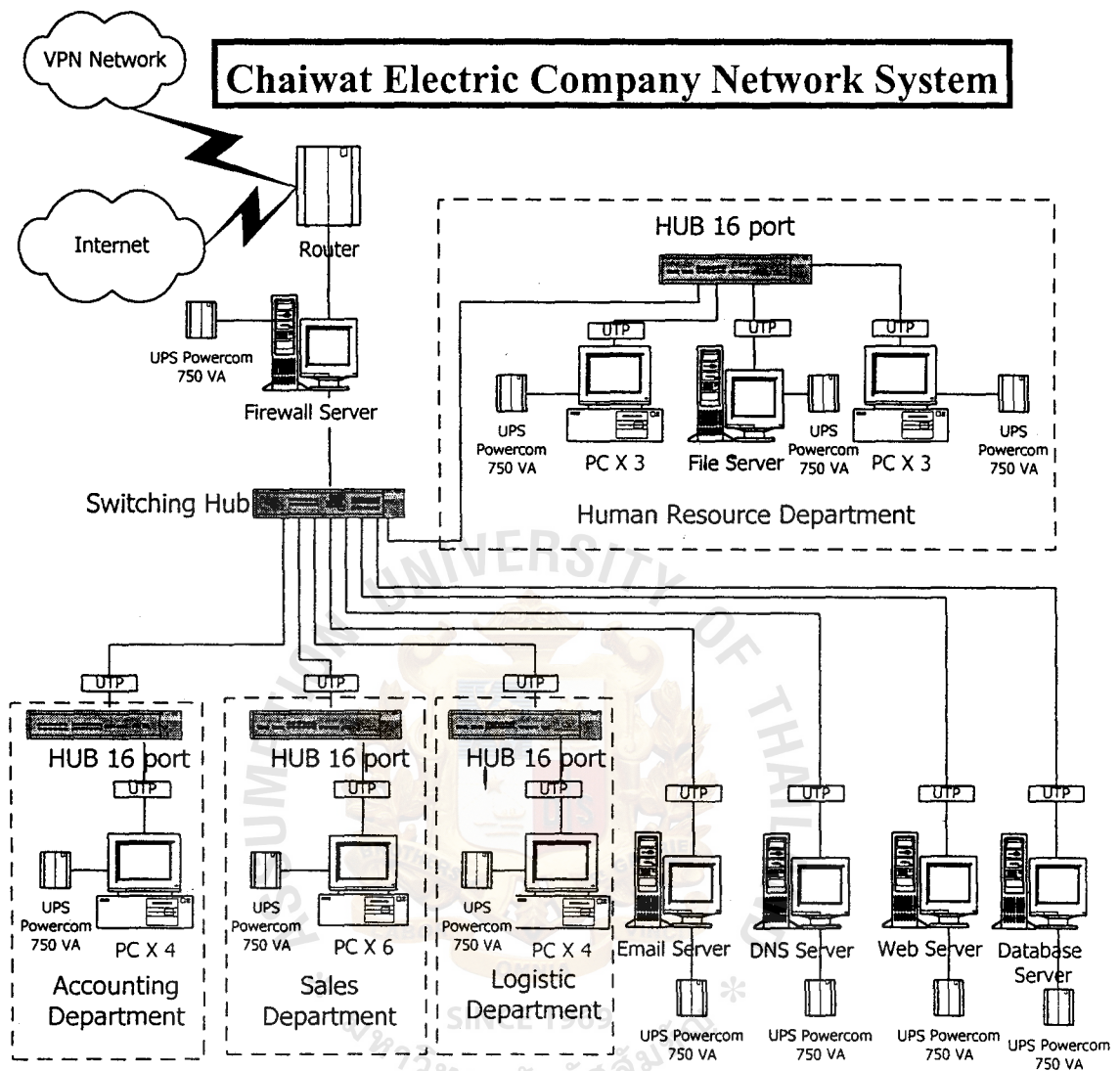


Figure 3.1. Network Diagram of Chaiwat Electric Company.

3.4 Security and Controls

Nowadays, information becomes an invaluable asset, the various methods are created to protect from all possible harms. Since the computerized system of Order Processing Information System is designed in a form of distributed data, the concern is toward the authority for accessing the data. The user authentication is established and implemented. This is just the first phrase of protecting the value of data to remain secret, possess integrity and availability for all users.

The security of a computerized system possess the properties as follows:

(1) User Identification

At the beginning, each user receives the password to access the data at the level that their job is related to. They are not able to access the data out of range of their authority. The system will detect the unauthorized user if that user is not allowed to access that particular information area. The first step is to set the input interface that the user has to enter their password for getting into the system. This is a method to prevent and ensure only authorized users can enter the system. The password of each user is encrypt and kept in the Right database. This encrypted method will encrypt the password into a meaningless form so other users are unable to read and understand.

(2) Program Security

This problem cannot happen because we build the web page by using Visual InetDev Program. When we begin to build the web page, the program will ask us to tick Secure Socket Layer (SSL) Function or not. If we tick it, the page will be coded to be the SSL page format. When we enter

the data through the web, the data is automatically encrypted and other person can not capture and see our data.

(3) Physical Security

Network administrators have increasing concerns about the security of their networks when they expose their organizations' private data and networking infrastructure to Internet crackers. To provide the required level of protection, an organization needs a security policy to prevent unauthorized users from accessing resources on the private network and to protect against the unauthorized export of private information. Even if an organization is not connected to the Internet, it may still want to establish an internal security policy to manage user access to portions of the network and protect sensitive or secret information.

It is best to describe first what a firewall is not: a firewall is not simply a router, host system, or collection of systems that provides security to a network. Firewall is an approach to security. It helps implement a larger security policy that defines the services and access to be permitted. The main purpose of firewall system is to control access to or from a protected network. An Internet Firewall is a system or group of systems that enforces a security policy between an organization's network and the Internet. Firewall permits only authorized traffic to pass, and the firewall itself must be immune to penetration.

(4) Data Entry and Validation

The GUI control and technique can reduce the rate of errors made by user. The program can be set to check every line that is entered. This can ensure the quality of the data produced.

(5) Database Control

With the authority of each user to be able to read, write, delete and modification to the database, this specific range can protect from out of range access through the data from any damage to the database system.

3.5 Cost and Benefit Analysis

(1) Cost Analysis

Cost Analysis is the technique for testing the economic feasibility.

The economic feasibility refers to the cost-effectiveness of a project. Cost and Benefit Analysis determines whether the project is cost-effective.

Investment Cost: this is a onetime cost that will not recur after the project has been completed. This will include the cost of hardware, software, personnel and other expense.

The Investment Cost, is classified into two parts, which are:

- (a) Development Costs are onetime costs associate with the analysis, design and implementation of the system.
- (b) Implementation Cost: the costs are related to the implementation of the system. This will include the costs such as training cost.

Apart from the Investment Cost, Annual Operating Cost may be a fixed costs over time or variable with respect to the system usage.

The Existing and Computerized System Operational Cost is listed on Table 3.7 and Table 3.8.

Table 3.7. Manual System Cost Analysis, Baht.

Cost items		Years				
		1		1		1
<u>Fixed Cost</u>						
Typewriter	2 units @ 5,000	10,000.00	-	-	-	-
Calculator	5 units @ 2,000	10,000.00	-	-	-	-
Total Fixed Cost		20,000.00	-	-	-	-
<u>Operating Cost</u>						
<u>Salary Cost:</u>						
General Manager	1 person @ 15,000	15,000.00	16,500.00	18,150.00	19,965.00	21,961.50
<u>Staff:</u>						
Account Officer	2 persons @ 7,500	15,000.00	16,500.00	18,150.00	19,965.00	21,961.50
Human Resource Officer	2 persons @ 7,500	15,000.00	16,500.00	18,150.00	19,965.00	21,961.50
Logistic Officer	2 persons @ 6,000	12,000.00	13,200.00	14,520.00	15,972.00	17,569.20
Sales Staff	6 persons @ 6,000	36,000.00	39,600.00	43,560.00	47,916.00	52,707.60
Total monthly salary Cost		93,000.00	102,300.00	112,530.00	123,783.00	136,160.80
Total Annual Salary Cost		1,116,000.00	1,227,600.00	1,350,360.00	1,485,396.00	1,633,929.60
<u>Office Supplies & Miscellaneous Cost:</u>						
Stationary	Per Annual	2,000.00	2,200.00	2,420.00	2,662.00	2,928.30
Paper	Per Annual	5,000.00	5,500.00	6,050.00	6,655.00	7,320.50
Utility	Per Annual	5,000.00	5,500.00	6,050.00	6,655.00	7,320.50
Miscellaneous	Per Annual	2,000.00	2,200.00	2,420.00	2,662.00	2,928.20
Total Annual Office Supplies & Miscellaneous Cost		14,000.00	15,400.00	16,940.00	18,634.00	20,497.20
Total Annual Operating Cost		1,130,000.00	1,243,000.00	1,367,300.00	1,504,030.00	1,654,426.80
Total Manual System Cost		1,150,000.00	1,243,000.00	1,367,300.00	1,504,030.00	1,654,426.80

Table 3.8. Computerized System Cost Analysis, Baht.

Cost items	Years				
	1	2	3	4	5
Fixed Cost					
Hardware Cost:					
Computer Server Cost	79,900.00	79,900.00	79,900.00	79,900.00	79,900.00
Client Cost	72,900.00	72,900.00	72,900.00	72,900.00	72,900.00
Router Cost	89,200.00	89,200.00	89,200.00	89,200.00	89,200.00
Switching Hub and Hub	11,160.00	11,160.00	11,160.00	11,160.00	11,160.00
UPS Cost	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00
Total Hardware Cost	253,160.00	253,160.00	253,160.00	253,160.00	253,160.00
Maintenance Cost:					
Maintenance Cost	-	-	-	35,000.00	20,000.00
Total Maintenance Cost	-	-	-	35,000.00	20,000.00
VPN Link Charge Cost	120,000.00	120,000.00	120,000.00	120,000.00	120,000.00
Network Cost	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
Application S/W Cost	241,500.00	241,500.00	241,500.00	241,500.00	241,500.00
Total Software Cost	246,500.00	246,500.00	246,500.00	246,500.00	246,500.00
Implementation Cost:					
Advanced Training Cost	15,000.00	-	-	-	-
Set up Cost	85,500.00	-	-	-	-
Total Implementation Cost	100,500.00	-	-	-	-
Total Fixed Cost	600,160.00	499,660.00	499,660.00	534,660.00	519,660.00
Operating Cost					
People-Ware Cost:					
General Manager 1 person @ 40,000	40,000.00	44,000.00	48,400.00	53,240.00	58,564.00
Staff:					
General Officer 2 persons @ 8000	16,000.00	17,600.00	19,360.00	21,296.00	23,425.60
Total Monthly Salary Cost	56,000.00	61,600.00	67,760.00	74,536.00	81,989.60
Total Annual Salary Cost	672,000.00	739,200.00	813,120.00	894,432.00	983,875.20
Office Supplies & Miscellaneous Cost:					
Stationary 1,500 per month	18,000.00	19,800.00	21,780.00	23,958.00	26,353.00
Paper 7,500 per month	90,000.00	99,000.00	108,900.00	119,790.00	131,769.00
Utility 5,000 per month	60,000.00	66,000.00	72,600.00	79,860.00	87,846.00
Miscellaneous Cost 1,500 per month	18,000.00	19,800.00	21,780.00	23,958.00	26,353.00
Annual Office Supplies & Miscellaneous Cost	186,000.00	204,600.00	225,060.00	247,566.00	272,321.00
Total Operating Cost	858,000.00	943,800.00	1,038,180.00	1,141,998.00	1,256,196.20
Total Computerized System Cost	1,458,160.00	1,443,460.00	1,537,840.00	1,676,658.00	1,775,856.20

(2) Benefit Analysis

The benefits from the computerized system can be generalized into two categories.

Tangible benefits

- (a) Improve connection of transaction processing that could reduce time and expense.
- (b) Past record reference.
- (c) Reduce documentation work.
- (d) Support management requirement to analyze report in timely basis.
- (e) Decrease employee and paper.

Intangible Benefits

- (a) The accuracy of the computerized system makes mistakes less than the manual system.
- (b) High reliability of computerized system makes less mistakes than the manual system.
- (c) Increase the speed of transmitting information to business partners.
- (d) Improve business activities without the steps of complexity and also it supports the growth of the company in the near future.
- (e) High level of security.
- (f) Explosive demand by facilitating the business partners.

In Table 3.9 shows the Five Years of Existing Cost and Accumulation

In Table 3.10 shows the Five Years of Computerized Cost and the Accumulation.

In Table 3.11 shows the Comparison between Accumulation of Manual Cost and Accumulation of Computerized Cost.

In Figure 3.2 depicts the Break Even Analysis between the Existing System and the Computerized System. There are two kinds of line, which are shown in Figure 3.2. One line stands for the Existing System and another one stands for the Computerized System. With the Break Even Analysis, the range of five years has been used to compare the accumulated cost between the existing system and the proposed system.

Apparently, the cost of the investment in the first year of the computerized system is higher than the existing system. For the following years, the cost of the computerized system tends to decline while the cost of the manual system increases dramatically. At one point, where these two lines cut across each other is called the Break Even Point. As in the Figure 3.2, within 1 year and nearly 2 months the proposed system would have reached the Break Even Point, and thereafter, becomes more economical to operate than the existing system.

Table 3.9. Five Years Accumulated Manual System Cost, Baht.

Year	Total Manual Cost	Accumulated Cost
1	1,150,000.00	1,150,000.00
2	1,243,000.00	2,393,000.00
3	1,367,300.00	3,760,300.00
4	1,504,030.00	5,264,300.00
5	1,654,426.80	6,918,756.80
Total	6,918,756.80	-

Table 3.10. Five Years Accumulated Computerized Cost, Baht.

Year	Total Computerized Cost	Accumulated Cost
1	1,235,100.00	1,235,100.00
2	965,600.00	2,200,700.00
3	1,059,980.00	3,260,680.00
4	1,198,788.00	4,459,468.00
5	1,307,996.20	5,767,464.20
Total	5,767,464.20	-

Table 3.11. The Comparison of the System Costs, Baht.

Year	Accumulated Manual Cost	Accumulated Computerized Cost
1	1,150,000.00	1,235,100.00
2	2,393,000.00	2,200,700.00
3	3,760,300.00	3,260,680.00
4	5,264,300.00	4,459,468.00
5	6,918,756.80	5,767,464.20

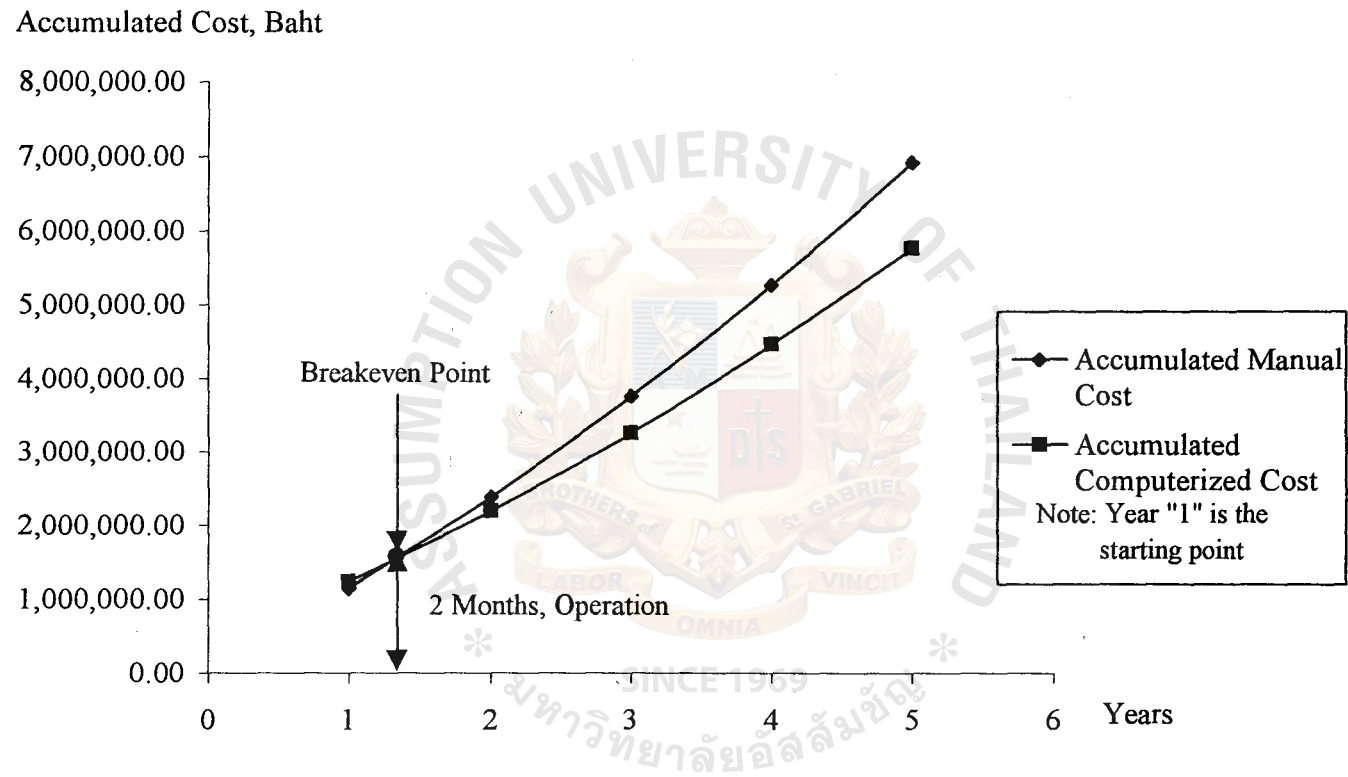


Figure 3.2. Cost Comparison between Manual and Computerized System.

3.6 Cost Benefit Analyst Candidate

(1) Estimated Costs for Order Processing Information System Alternative (Candidate 1)

Table 3.12. Estimated Projected Cost, Baht.

Cost Items	Description	Amount	Unit Price (/ Hr.)	Price
1. Development Cost:	1.1 Personnel Cost:			
	Project Manager (528 hrs./ea)	1	170.45	90,000.00
	System Analyst (528 hrs./ea)	3	113.63	180,000.00
	Database Specialist (120 hrs./ea)	1	166.66	20,000.00
	Network Specialist (80 hrs./ea)	1	125.00	10,000.00
	Subtotal 1:			300,000.00
	1.2 Expenses:			
	Computer Plus Software Training (3 hrs./class)	1	3333.33	10,000.00
	Administration of Windows 2000 for Server Training (10,000 Baht/student)	1	10,000.00	10,000.00
	Subtotal 2:			20,000.00
	1.3 New Hardware & Software:			
	Server Computer (Duel 1000 MHz. Intel Pentium III Processor)	5	79,900.00	399,500.00
	Microsoft Windows 2000 Server (Operating System)	1	82,500.00	12,500.00
	Microsoft SQL Server	1	89,000.00	89,000.00
	Client Computer (Pentium III)	15	24,300.00	364,500.00
	Microsoft Windows2000 Professional	1	70,000.00	70,000.00
	Router	1	89,200.00	89,200.00
	Switching Hub	6	9,300.00	55,800.00
	Subtotal 3:			1,080,500.00
	Total Development Cost			1,400,500.00
2. Operating Cost:	2.1 Personnel Cost:			
	Programmer (50 hrs./ea)	1	200.00	10,000.00
	Subtotal 1:			10,000.00
	2.2 Maintenance:			
	Maintenance for Server System			50,000.00
	Maintenance for Client System			50,000.00
	Maintenance for Network Equipment			50,000.00
	Subtotal 2:			150,000.00
	Total Operating Cost			160,000.00
	Total Project Annual Cost			1,560,500.00

(2) Estimated Costs for Order Processing Information System Alternative
(Candidate 2)

Table 3.13. Estimated Projected Cost, Baht.

Cost Items	Description	Amount	Unit Price (/ Hr.)	Price
1. Development Cost:	1.1 Personnel Cost:			
	Project Manager (528 hrs./ea)	1	284.09	150,000.00
	Programmers	3	60,000.00	180,000.00
	Network Technical Crew (80 hrs./ea)	1	250.00	20,000.00
	Subtotal 1:			350,000.00
	1.2 Expenses:			
	Computer Plus Software Training (3 hrs./class)	1	3333.33	10,000.00
	Administration of Windows 2000 for Server Training (10,000 Baht/student)	1	10,000.00	10,000.00
	Subtotal 2:			20,000.00
	1.3 New Hardware & Software:			
	Server Computer (Duel 1000 MHz. Intel Pentium III Processor)	5	81,900.00	409,500.00
	Microsoft Windows 2000 Server (Operating System)	1	82,500.00	82,500.00
	Microsoft SQL Server	1	89,500.00	89,500.00
	Client Computer (Pentium III)	15	25,300.00	379,500.00
	Microsoft Windows2000 Professional	1	80,000.00	80,000.00
	Router	1	95,200.00	95,200.00
	Switching Hub	6	9,800.00	58,800.00
	Subtotal 3:			1,195,000.00
	Total Development Cost			1,565,000.00
2. Operating Cost:	2.1 Personnel Cost:			
	Computer Plus Software Support	1	20,000.00	20,000.00
	Subtotal 1:			20,000.00
	2.2 Maintenance:			
	Maintenance for Server System			60,000.00
	Maintenance for Client System			60,000.00
	Maintenance for Network Equipment			60,000.00
	Subtotal 2:			180,000.00
	Total Operating Cost			200,000.00
	Total Project Annual Cost			1,765,000.00

(3) Estimated Costs for Order Processing Information System Alternative
(Candidate 3)

Table 3.14. Estimated Projected Cost, Baht.

Cost Items	Description	Amount	Unit Price (/ Hr.)	Price
1. Development Cost:	1.1 Personnel Cost:			
	Project Manager (528 hrs./ea)	1	284.09	150,000.00
	Programmers	3	120,000.00	120,000.00
	Subtotal 1:			510,000.00
	1.2 Expenses:			
	Computer Plus Software Training (3 hrs./class)	1	3333.33	10,000.00
	Administration of Windows 2000 for Server Training (10,000 Baht/student)	1	30,000.00	30,000.00
	Subtotal 2:			40,000.00
	1.3 New Hardware & Software:			
	Server Computer (Duel 1000 MHz. Intel Pentium III Processor)	5	100,000.00	500,000.00
	Microsoft Windows 2000 Server (Operating System)	1	22,500.00	22,500.00
	Microsoft SQL Server	1	91,000.00	91,000.00
	Client Computer (Pentium III)	15	26,000.00	390,000.00
	Microsoft Windows2000 Professional	1	81,000.00	81,000.00
	Router	1	96,075.00	96,075.00
	Switching Hub	6	9,300.00	55,800.00
	Subtotal 3:			1,236,375.00
	Total Development Cost			1,786,375.00
2. Operating Cost:	2.1 Maintenance:			
	Maintenance for Server System			70,000.00
	Maintenance for Client System			70,000.00
	Maintenance for Network Equipment			70,000.00
	Subtotal 1:			210,000.00
	Total Operating Cost			210,000.00
	Total Project Annual Cost			1,996,375.00

(3) Payback Analysis

This is one of the popular methods for determining if and when an investment will pay off. As the company has to invest a certain amount of budget for the development cost long before the benefits are received, this will take a period of time for the benefits to overtake the costs.

Payback Period for the Proposed System can be calculated by the following formula:

$$\text{Payback Period} = C / (A + B) \quad \text{Where:}$$

A = Last year of negative cash flow difference

B = Cumulative difference last negative year

C = Absolute value of cumulative difference



Table 3.15. Payback Analysis of Order Processing Information System (Candidate 1), Baht.

Cost Items	Years					
	0	1	2	3	4	5
Development cost	-1,400,500.00	-	-	-	-	-
Operation & maintenance cost	0	-160,000.00	-168,000.00	-176,400.00	-185,220.00	-194,481.00
Discount factors for 12%	1.000	0.893	0.797	0.712	0.636	0.567
Time-adjusted costs (adjusted to present value)	-1,400,500.00	-142,880.00	-133,896.00	-125,596.80	-117,799.92	-110,270.73
Cumulative time-adjusted costs over lifetime	-1,400,500.00	-1,543,380.00	-1,677,276.00	-1,802,872.00	-1,920,672.72	-2,030,943.45
Benefits derived from operation of new system	0	680,000.00	830,000.00	980,000.00	1,130,000.00	1,280,000.00
Discount factors for 12%	1.000	0.893	0.797	0.712	0.636	0.567
Time-adjusted benefits (adjusted to present value)	0	607,240.00	661,510.00	697,760.00	718,680.00	725,760.00
Cumulative time-adjusted benefits over lifetime	0	607,240.00	1,268,750.00	1,966,510.00	2,685,190.00	3,410,950.00
Cumulative lifetime time- adjusted cost + benefit	-1,400,500.00	-936,140.00	-408,526.00	163,637.20	764,517.28	1,380,006.55

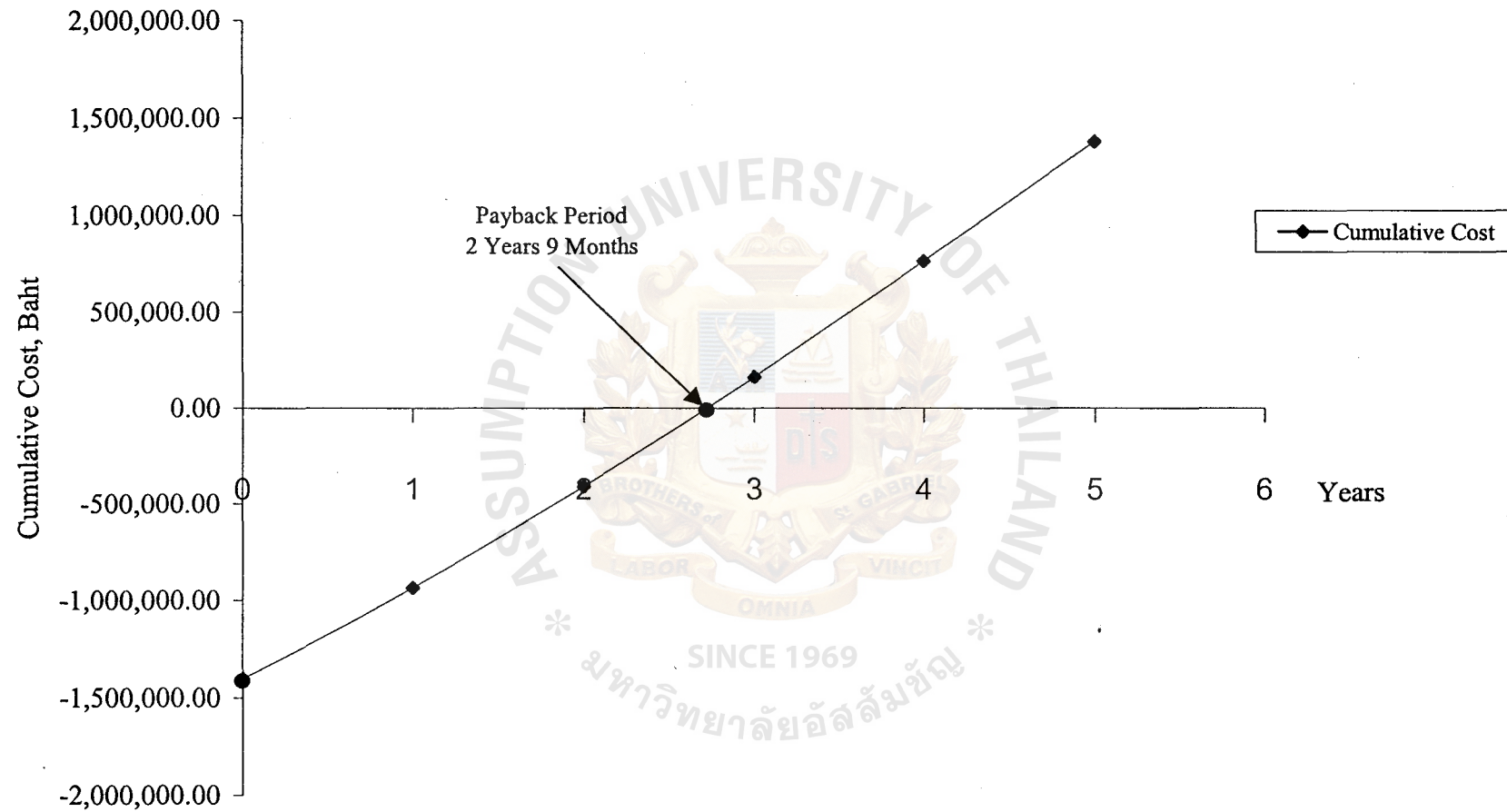


Figure 3.3. Payback Analysis of Gas Self-Servicing Real Time Information System (Candidate 1).

Table 3.16. Payback Analysis of Order Processing Information System (Candidate 2), Baht.

Cost Items	Years					
	0	1	2	3	4	5
Development cost	-1,565,000.00	-	-	-	-	-
Operation & maintenance cost	0	-200,000.00	-210,000.00	-220,500.00	-231,525.00	-243,101.25
Discount factors for 12%	1.000	0.893	0.797	0.712	0.636	0.567
Time-adjusted costs (adjusted to present value)	-1,565,000.00	-178,600.00	-167,370.00	-156,996.00	-147,249.90	-137,838.41
Cumulative time-adjusted costs over lifetime	-1,565,000.00	-1,743,600.00	-1,910,970.00	-2,067,966.00	-2,215,215.90	-2,353,054.31
Benefits derived from operation of new system	0	680,000.00	830,000.00	980,000.00	1,130,000.00	1,280,000.00
Discount factors for 12%	1.000	0.893	0.797	0.712	0.636	0.567
Time-adjusted benefits (adjusted to present value)	0	607,240.00	661,510.00	697,760.00	718,680.00	725,760.00
Cumulative time-adjusted benefits over lifetime	0	607,240.00	1,268,750.00	1,966,510.00	2,685,190.00	3,410,950.00
Cumulative lifetime time- adjusted cost + benefit	-1,565,000.00	-1,136,360.00	-642,220.00	-101,456.00	469,974.10	1,057,895.69

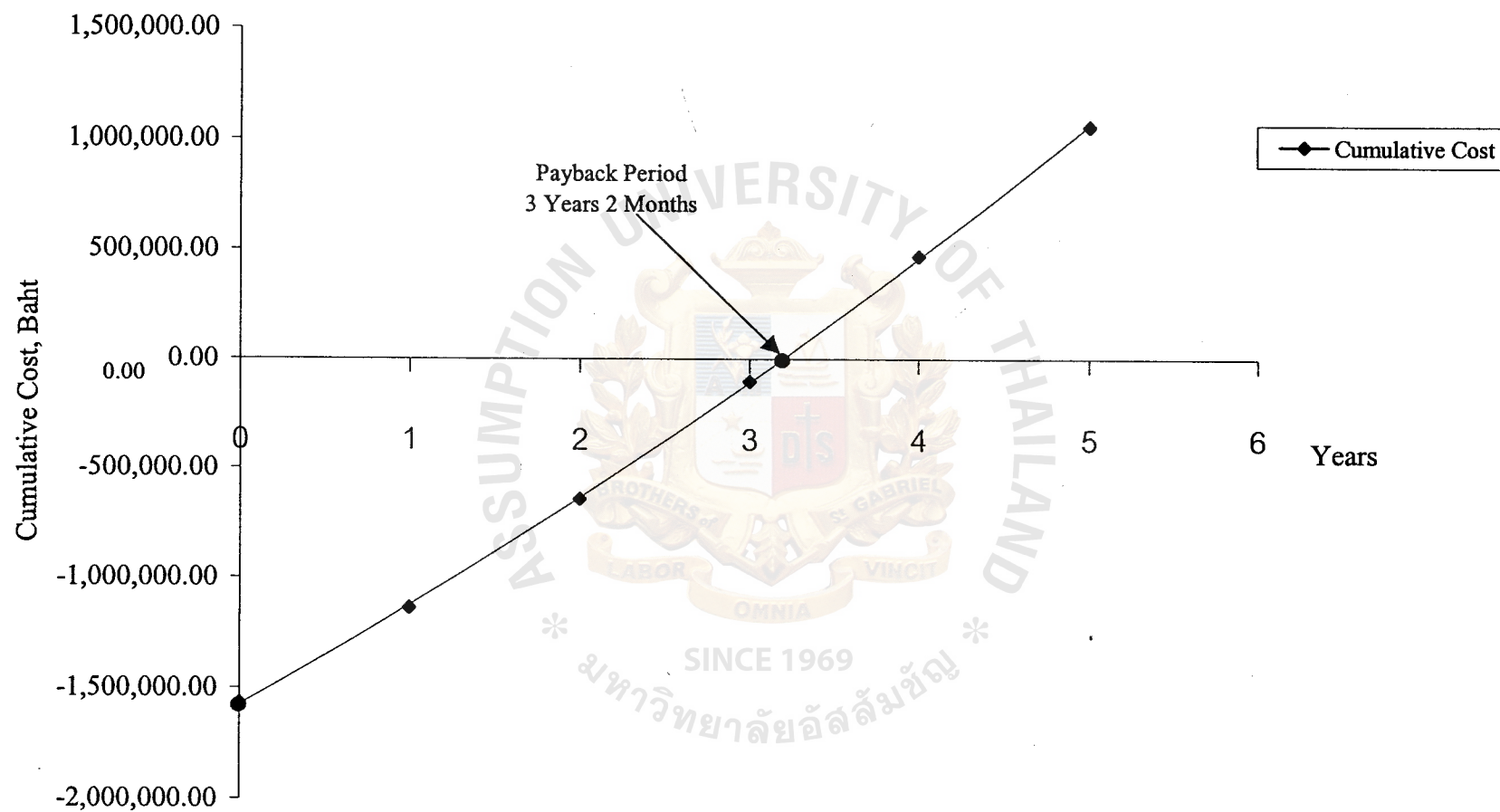


Figure 3.4. Payback Analysis of Gas Self-Servicing Real Time Information System (Candidate2).

Table 3.17. Payback Analysis of Order Processing Information System (Candidate 3), Baht.

Cost Items	Years					
	0	1	2	3	4	5
Development cost	-1,786,375.00	-	-	-	-	-
Operation & maintenance cost	0	-210,000.00	-220,500.00	-231,525.00	-243,101.25	-255,256.31
Discount factors for 12%	1.000	0.893	0.797	0.712	0.636	0.567
Time-adjusted costs (adjusted to present value)	-1,786,375.00	-187,530.00	-175,738.50	-164,845.80	-154,612.40	-144,730.33
Cumulative time-adjusted costs over lifetime	-1,786,375.00	-1,973,905.00	-2,149,643.50	-2,314,489.30	-2,469,101.70	-2,613,832.02
Benefits derived from operation of new system	0	680,000.00	830,000.00	980,000.00	1,130,000.00	1,280,000.00
Discount factors for 12%	1.000	0.893	0.797	0.712	0.636	0.567
Time-adjusted benefits (adjusted to present value)	0	607,240.00	661,510.00	697,760.00	718,680.00	725,760.00
Cumulative time-adjusted benefits over lifetime	0	607,240.00	1,268,750.00	1,966,510.00	2,685,190.00	3,410,950.00
Cumulative lifetime time- adjusted cost + benefit	-1,786,375.00	-1,366,665.00	-880,893.50	-347,979.30	216,088.31	797,117.98

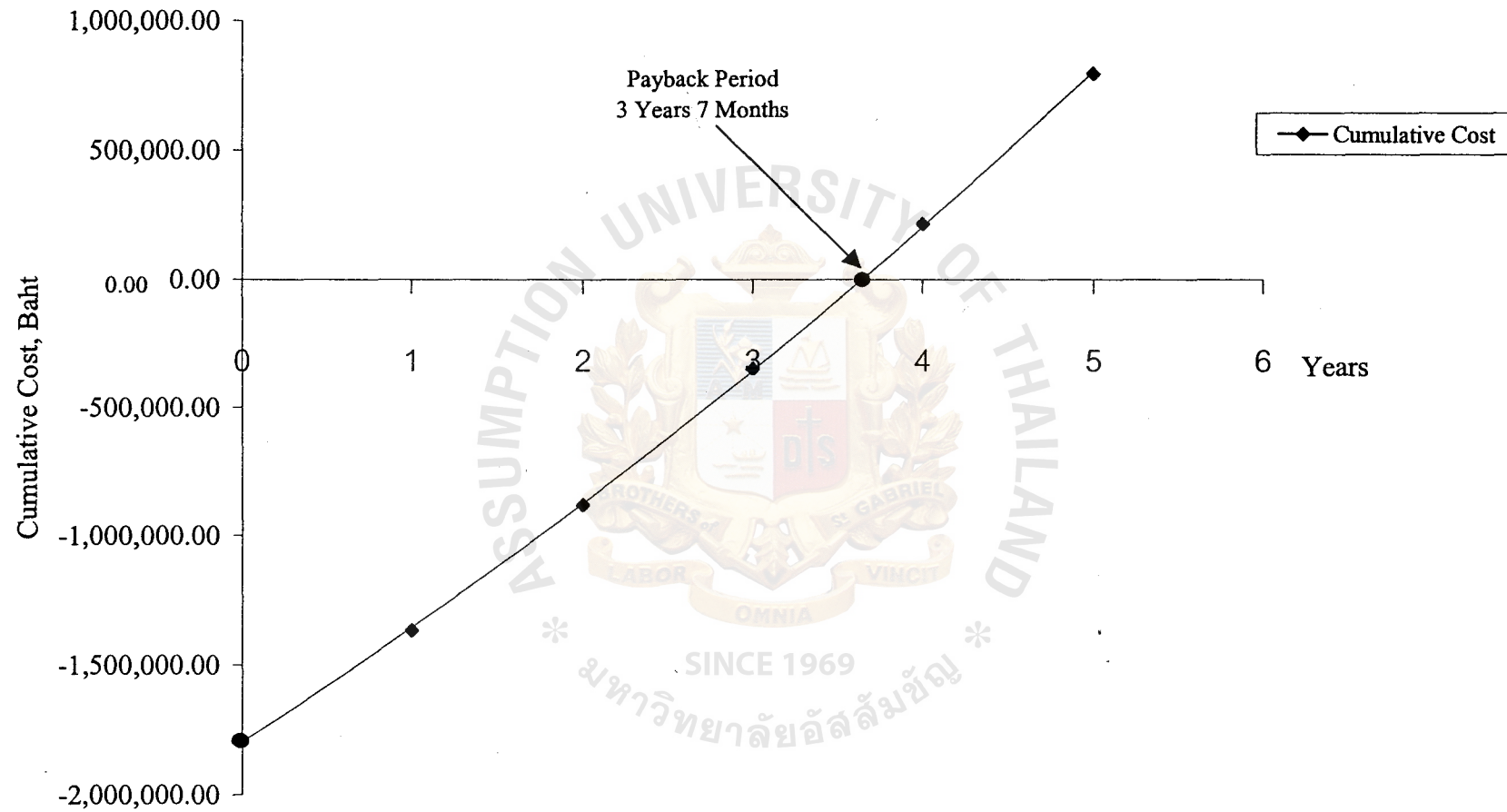


Figure 3.5. Payback Analysis of Gas Self-Servicing Real Time Information System (Candidate3).

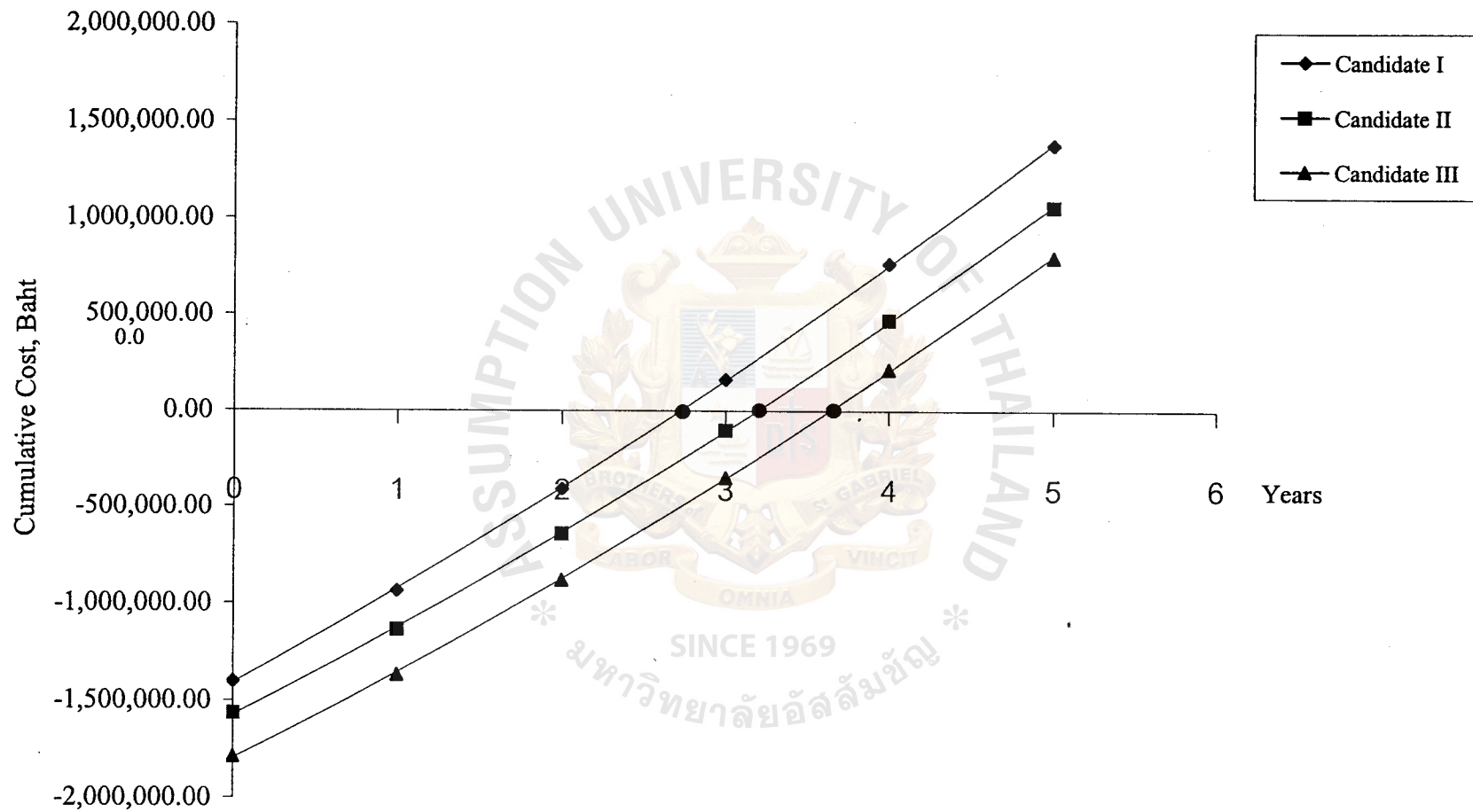


Figure 3.6. Payback Analysis Comparison among Candidate I, II, and III.

(4) Net Present Value

The Net Present Value determines whether it is worth an investment for a computerized system, if the subtraction of the net present value of lifetime cost with the sum of the net present value of lifetime benefit returns the positive value. This can indicate a reasonable or good investment for the company.

(5) Return on Investment

This technique is used to compare the lifetime profitability. The return on investment for a project is a percentage rate that measures the relationship between the amount the business get back from an investment and the amount invested.

The return on investment is calculated as follows:

$$ROI = \frac{(\text{Estimated Lifetime Benefits} - \text{Estimated Lifetime Cost})}{\text{Estimated Lifetime Costs}}$$

Table 3.18. Net Present Value and ROI of Order Processing Information System (Candidate 1), Baht.

Cost Items	Years					
	0	1	2	3	4	5
Development cost	-1,400,500.00	-	-	-	-	-
Operation & maintenance cost	0	-160,000.00	-168,000.00	-176,400.00	-185,220.00	-194,481.00
Discount factors for 12%	1.000	0.893	0.797	0.712	0.636	0.567
Present value of annual costs	-1,400,500.00	-142,880.00	-133,896.00	-125,596.80	-117,799.92	-110,270.73
Total present value of lifetime costs						-2,030,943.45
Benefits derived from operation of new system	0	680,000.00	830,000.00	980,000.00	1,130,000.00	1,280,000.00
Discount factors for 12%	1.000	0.893	0.797	0.712	0.636	0.567
Present value of annual benefits	0	607,240.00	661,510.00	697,760.00	718,680.00	725,760.00
Total present value of lifetime benefits						3,410,950.00
Net Present Value (NPV) of proposed system						1,380,006.55
Return on Investment (ROI) of proposed system						-67.95

Table 3.20. Net Present Value and ROI of Order Processing Information System (Candidate 3), Baht.

Cost Items	Years					
	0	1	2	3	4	5
Development cost	-1,786,375.00	-	-	-	-	-
Operation & maintenance cost	0	-210,000.00	-220,500.00	-231,525.00	-243,101.25	-255,256.31
Discount factors for 12%	1.000	0.893	0.797	0.712	0.636	0.567
Present value of annual costs	-1,786,375.00	-187,530.00	-175,738.50	-164,845.80	-154,612.40	-144,730.33
Total present value of lifetime costs						-2,613,832.02
Benefits derived from operation of new system	0	680,000.00	830,000.00	980,000.00	1,130,000.00	1,280,000.00
Discount factors for 12%	1.000	0.893	0.797	0.712	0.636	0.567
Present value of annual benefits	0	607,240.00	661,510.00	697,760.00	718,680.00	725,760.00
Total present value of lifetime benefits						3,410,950.00
Net Present Value (NPV) of this alternative						797,117.98
Return on Investment (ROI) of this alternative						-30.50

Table 3.19. Net Present Value and ROI of Order Processing Information System (Candidate 2), Baht.

Cost Items	Years					
	0	1	2	3	4	5
Development cost	-1,565,000.00	-	-	-	-	-
Operation & maintenance cost	0	-200,000.00	-210,000.00	-220,500.00	-231,525.00	-243,101.25
Discount factors for 12%	1.000	0.893	0.797	0.712	0.636	0.567
Present value of annual costs	-1,565,000.00	-178,600.00	-167,370.00	-156,996.00	-147,249.90	-137,838.41
Total present value of lifetime costs						-2,353,054.31
Benefits derived from operation of new system	0	680,000.00	830,000.00	980,000.00	1,130,000.00	1,280,000.00
Discount factors for 12%	1.000	0.893	0.797	0.712	0.636	0.567
Present value of annual benefits	0	607,240.00	661,510.00	697,760.00	718,680.00	725,760.00
Total present value of lifetime benefits						3,410,950.00
Net Present Value (NPV) of this alternative						1,057,895.69
Return on Investment (ROI) of this alternative						-44.96

IV. PROJECT IMPLEMENTATION

4.1 Overview of Project Implementation

In the past, we concentrate on using Visual InterDev as a tool in developing and designing the program for the Order Processing Information System. We try to implement the program to be user-friendly as well as easy to read and understand programming logic and user can use this program through the web browser. We start the designing of the program from the point where the user can search for the desired customer profile. User can create, update and delete the data of unwanted customers through the web. Users don't install any program. They just open the browser and type the address of the program in server. The programming logic can be applied to the supplier profile as well. The program also can record customer purchase order and retrieve the data when it is necessary. The user also is able to issue company purchase order, company invoice as well as company delivery order. The report also can be created based on the user and management requirement.

4.2 Hardware and Software Installation

Our new system requires to purchase at lease software packages toward installing the new software system. The system software specific is system server that includes Microsoft Windows 2000 server for operating system and Microsoft Internet Information 5.0 Web Server. Additionally, the Microsoft SQL Server 7.0 is installed in the server to be software to create a system database. For the operation, both server and client sides are a McAfee Virus scan to protect the vulnerable system.

4.3 Test Plan

After the program has been designed and implemented, it now comes the testing part. Testing process is conducted to detect and correct the errors. It also tests the unification of each module in the entire system. All possible ways to get off the route,

apart from the program, are designed and problems must be found and prevented from happening in the future. We have to test whether the program is easy to use and understand if we are the users. If it was hard to follow and understand, then we have to make it more simple. We have to test from the general level to a level that is more specific in order to ensure the correctness of the program. The next implementation thing in testing process is the peak load testing. It can determine whether the system is capable of handling the high volume of activities that occur when the system is at the peak of the processing.

4.4 Conversion

Parallel conversion is the company's choice for the conversion plan. System conversion consists of Data Conversion and System Installation. The major objective is to install the computerized system to replace the manual system. All the data previously kept on paper is now recorded in the designed database. This process must be executed carefully since the conversion of data takes a certain time to process while the existing system is running in a parallel processing until the full computerized system is ready.

4.5 Training

After the program has been tested and installed, there comes the process of training for the user to be familiar and able to use the program correctly. As we know, some user may not know how to use the computer at all. This is the process to teach the user to understand the flow of the program and probably the logic. System analysis, programmers and vendors are assigned to train the users. The methods used are demonstration of the equipment, create the training manual, give lectures about the procedure, discussion, question and answer and hands on experience with new equipment.

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

This new computer system is developed to analyze, design and implement the “Order Processing Information System” for Sales department of Chaiwat Electric Company to facilitate the routine tasks of employees, eliminate the complexity of passing documents, provide better service to customers and improve the handled transaction. In the existing system, most activities have been done manually which made the company face many problems in handling the transaction like excessive paper, cost of communication, trace of previous record, information for their customers.

The new system is designed to meet the requirement of users and management. It could provide better service to the customers and help staff to do their routine tasks quickly and effectively. In addition, the new computer system made the company need fewer employees to handle the transaction than before.

The proposed system has several parties involved in order to make the system successful. First, System owner should see the importance of the computer information system and allocate the budget for this system and give the useful information. Second, the system users who give the useful information since they are the ones who actually use this system.

Table 5.1 shows the time spent on each process of the Existing System compared to the Proposed System. It shows that each process of the Proposed System uses less amount of time to finish the mission. This can explain that the Proposed System is far more efficient and effective than the Existing System.

Table 5.1. The Degree of Achievement of the Proposed System.

Process	Existing System	Proposed System
Create Customer Record	20 mins.	1 min.
Search for Customer Profile	30 mins.	1 min.
Record Customer P/O	25 mins.	1 min.
Produce Company Invoice	20 mins.	2 mins.
Search Supplier Profile	30 mins.	1 min.
Record Company P/O	15 mins.	2 mins.
Total	2 hrs. 20 mins.	8 mins.

The process of creating customer or supplier profile can be done by just clicking on the 'New' button. The new window will pop up, then the user need to enter the required data to the provided text box. After finishing with the details then click on the 'Update' button. This time the new profile has been created successfully while taking less amount of time.

For the process of searching customer profile, the user is required to press record navigation bar button and then browse through until the user finds the right customer. Other method is provided as well, the user has to key in the customer number then the closet range of customer number the name will appear then the user needs only to select the desired customer. This concept is also applied in searching supplier profile as well.

Now, we are at the phase of recording customer or company purchase order. The user needs only to enter the data to the provided space then click the 'Update' button. The information is now recorded to the following files for future reference.

For the part of generating company invoice, the user does not have to enter the invoice number. This invoice number is already pre-specified within the program, the last number of the invoice will come up automatically. The user does not have to search

for the last time previous number at all. This provides a helpful in arranging the invoice number with the correct sequence and easy for searching in the future.

5.2 Recommendations

In every step of system development, employees and other users should be involved and have participated since they could gradually be familiar to the new system. The proposed system is designed to meet users and management needs. The system tends to use the program that is easy for the users to use and operate. This system is designed to be the client/server system that can be used to interact within and outside the company. We have to test the proposed system and get feedback from the users before it is launched for the real use.

However, If we want to become successful in implementing the Order Processing Information System, the following factors should be considered:

- (1) It should have a supporter for the computer program in the company in case of program malfunction.
- (2) Frequently reviews and keeping up to date of the user requirement to correct the mistakes and development in the future.
- (3) The company may adapt the computerized system to other departments such as Accounting and Logistic Department. This will enhance the processing performance, reduce work cycle and eliminate unnecessary paper work.
- (4) The new Order Processing Information System needs to have Network administrator to handle and support the technical requirements about the network of the company.
- (5) In the future, the company should implement the Quality of Service (Qos) to manage the traffic and task and allocate bandwidth for ordering program.



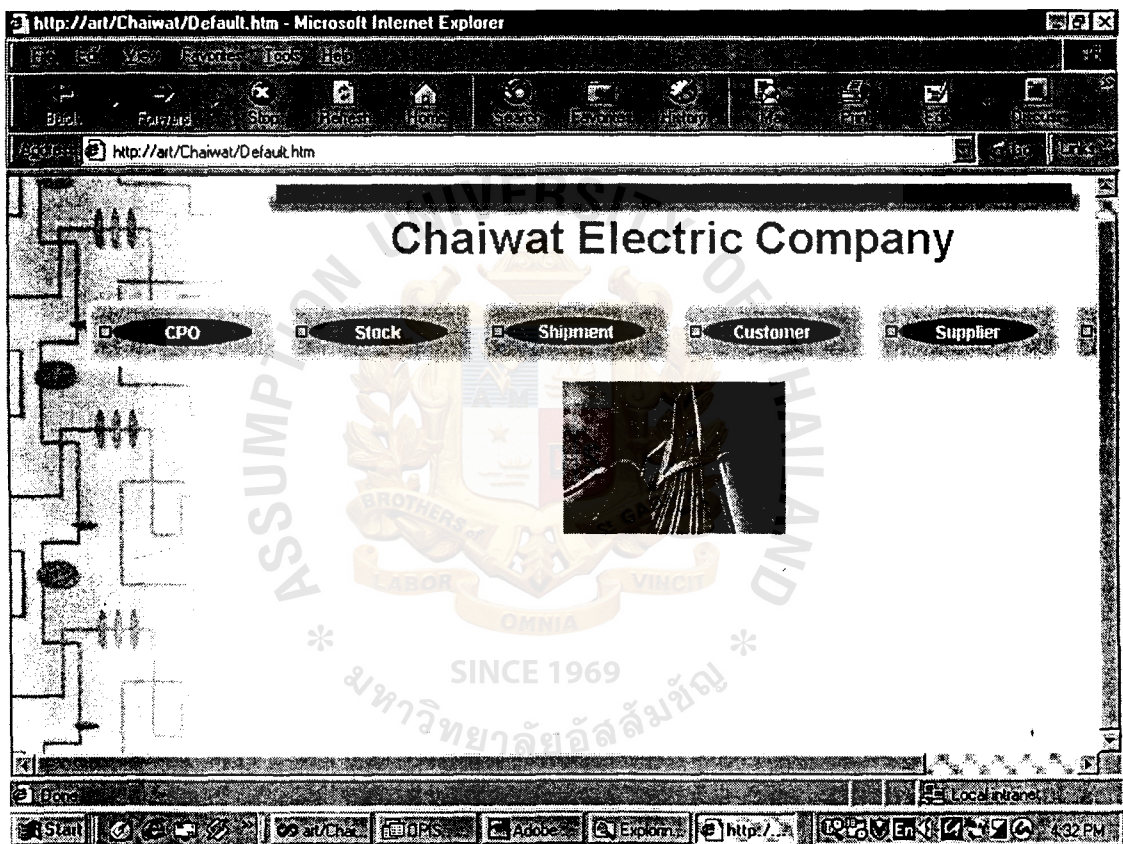


Figure A.1. Chaiwat Electric Company Main Page.

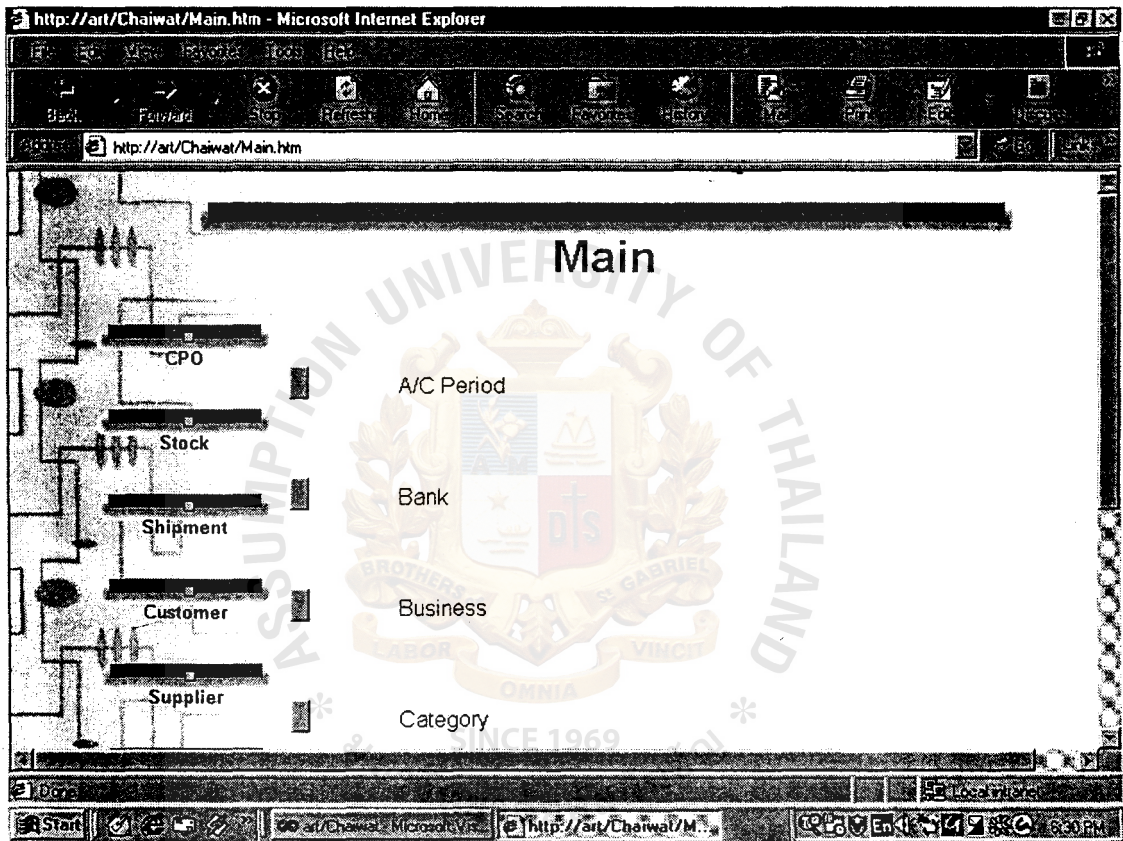


Figure A.2. Main Menu Page.

AC Period

1997	7	true
1997	8	true
1997	9	true
1997	10	false
1998	1	false
1998	2	true
1998	3	false
1998	4	true
1998	5	false
1998	6	true

Page : 1 of 1

Figure A.3. A/C Period Page.

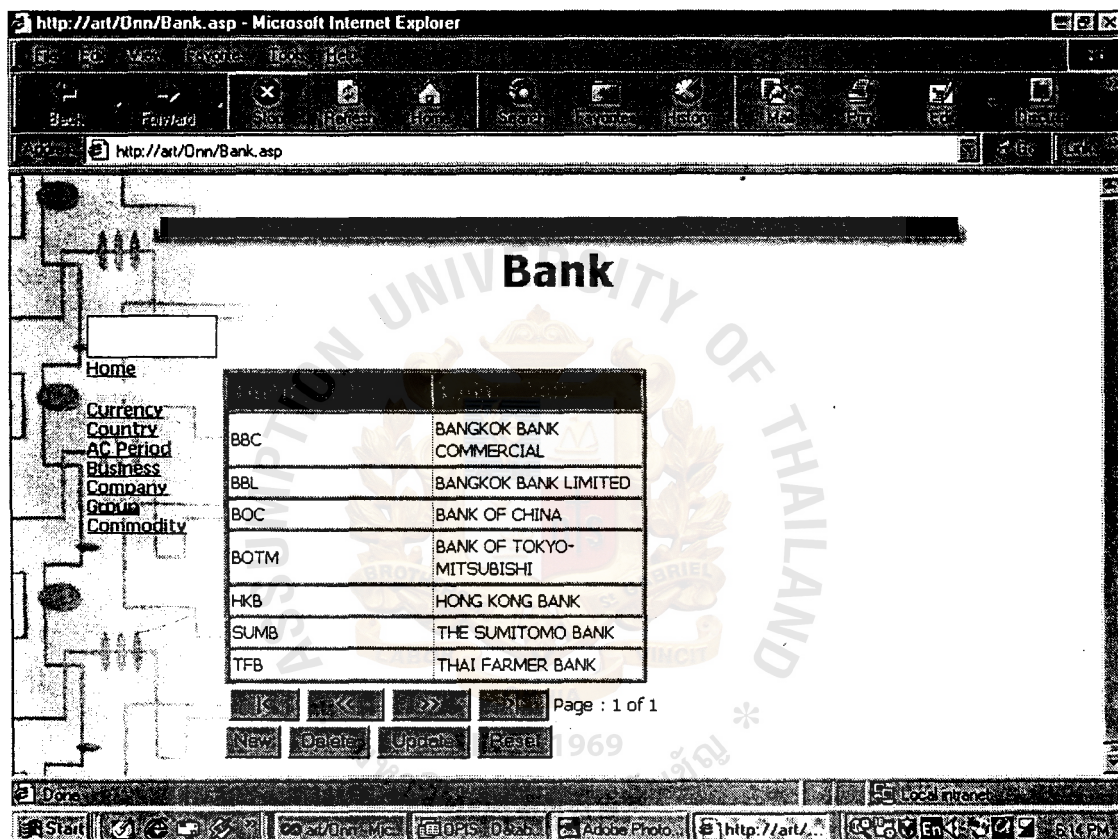


Figure A.4. Bank Page.

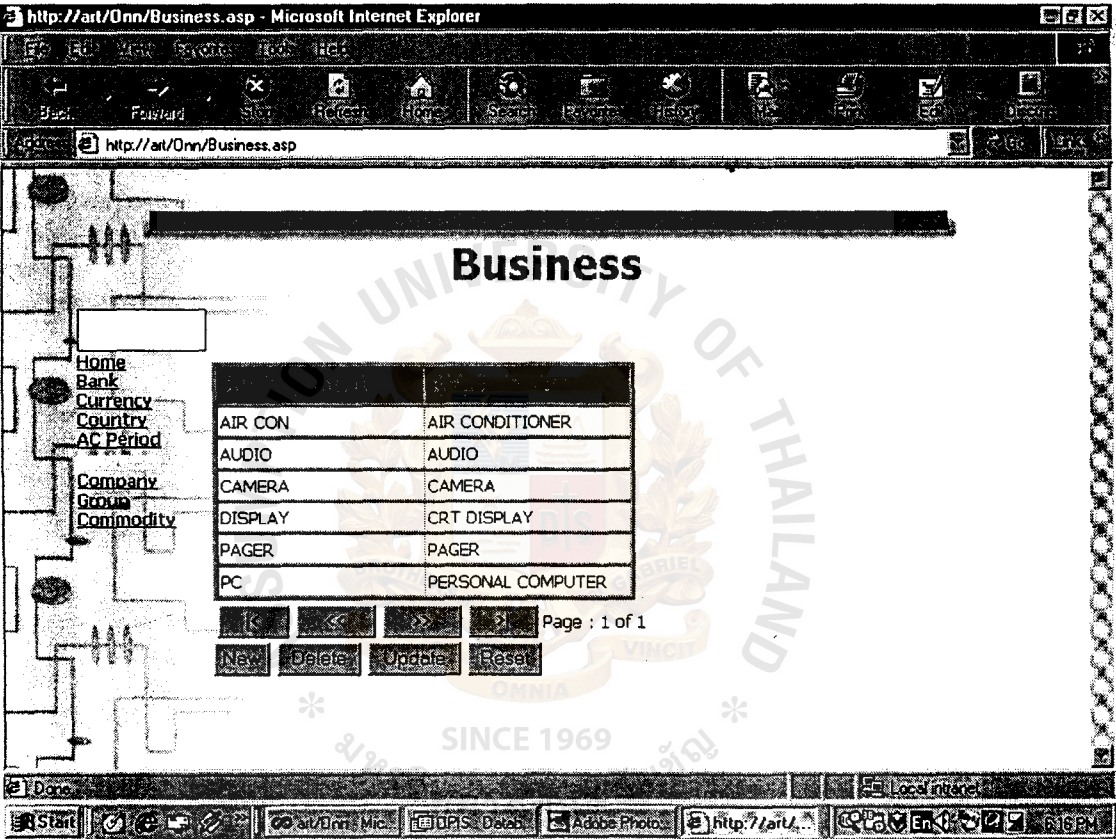


Figure A.5. Business Page.

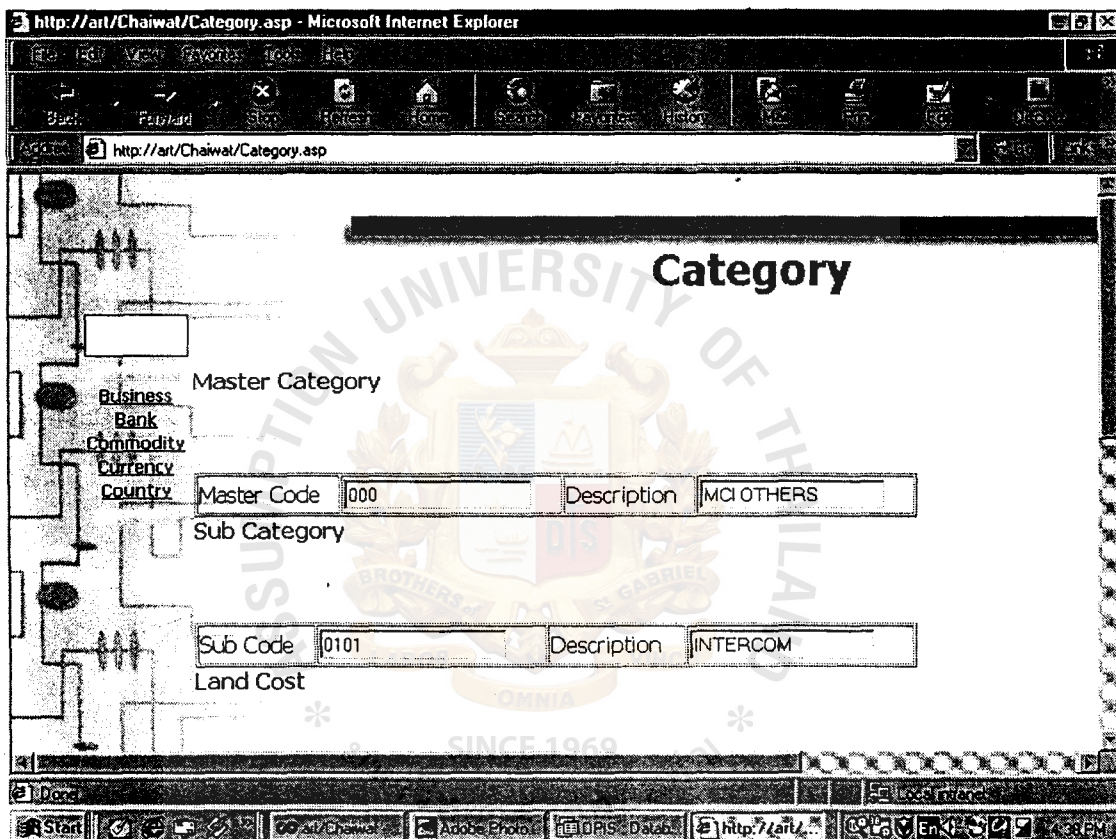


Figure A.6. Category Page.

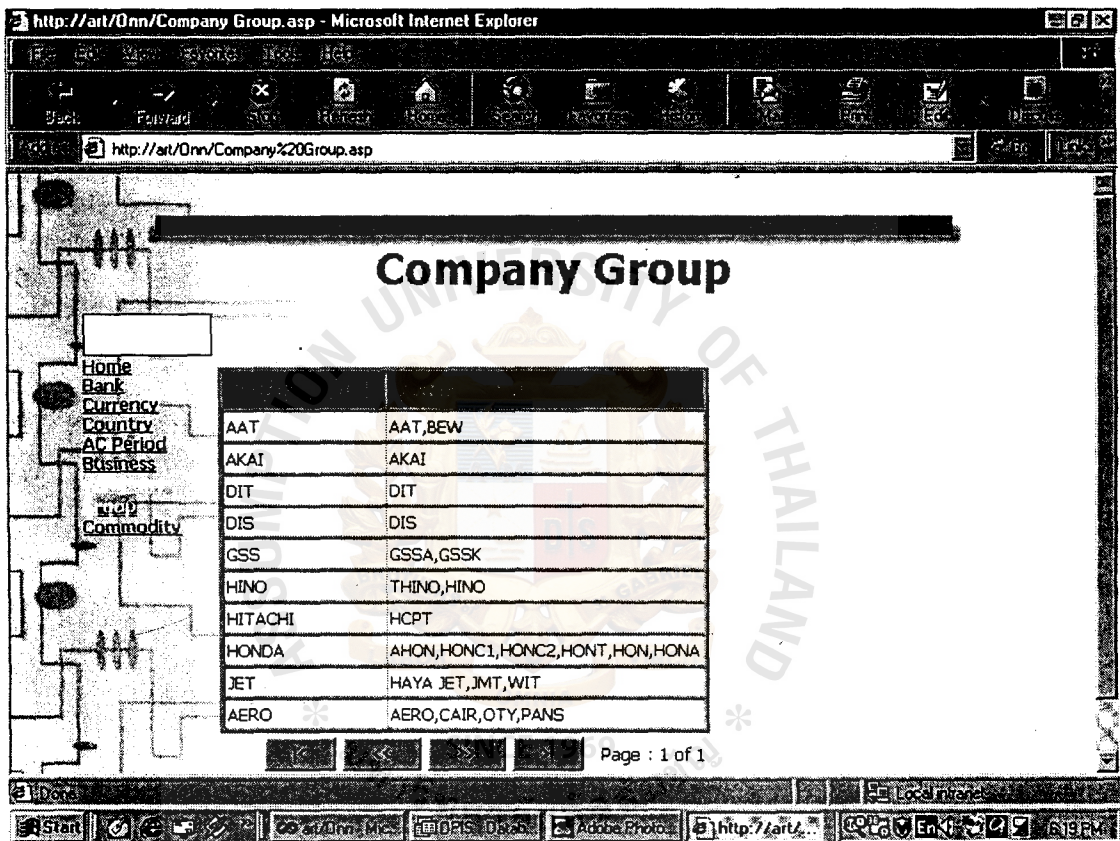


Figure A.7. Company Group Page.

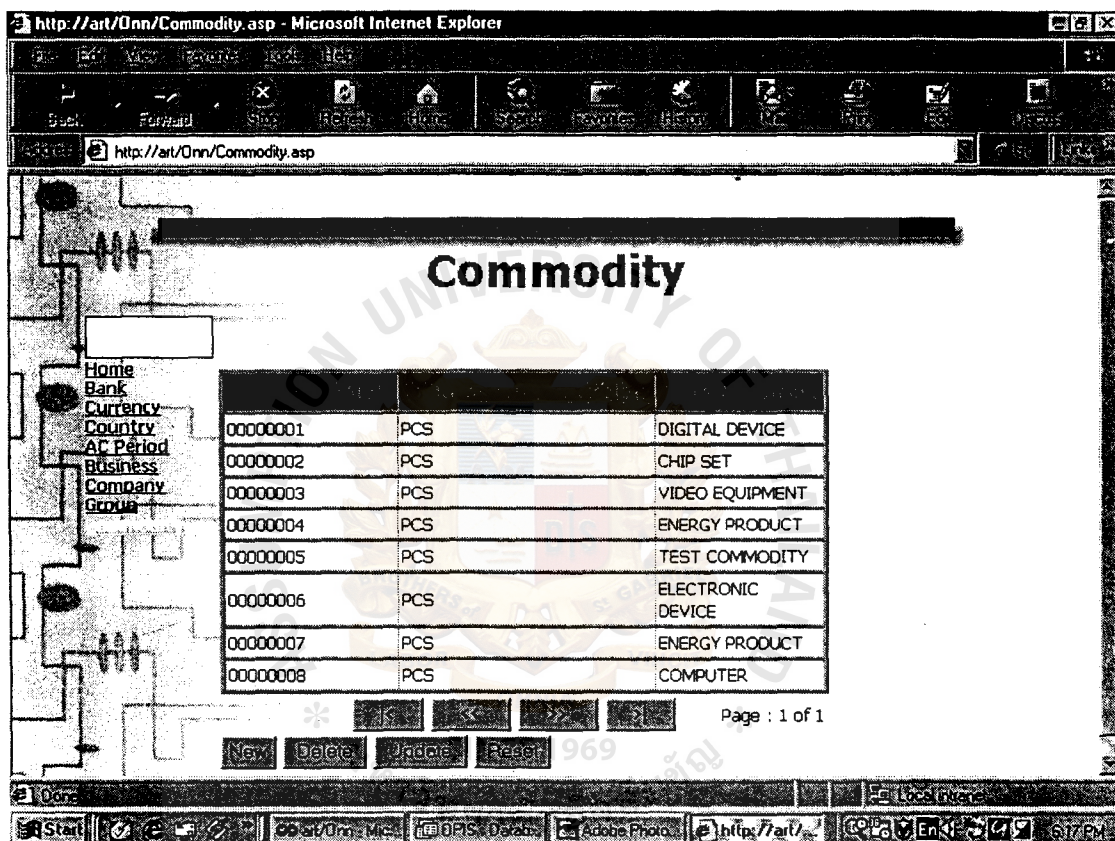


Figure A.8. Commodity Page.

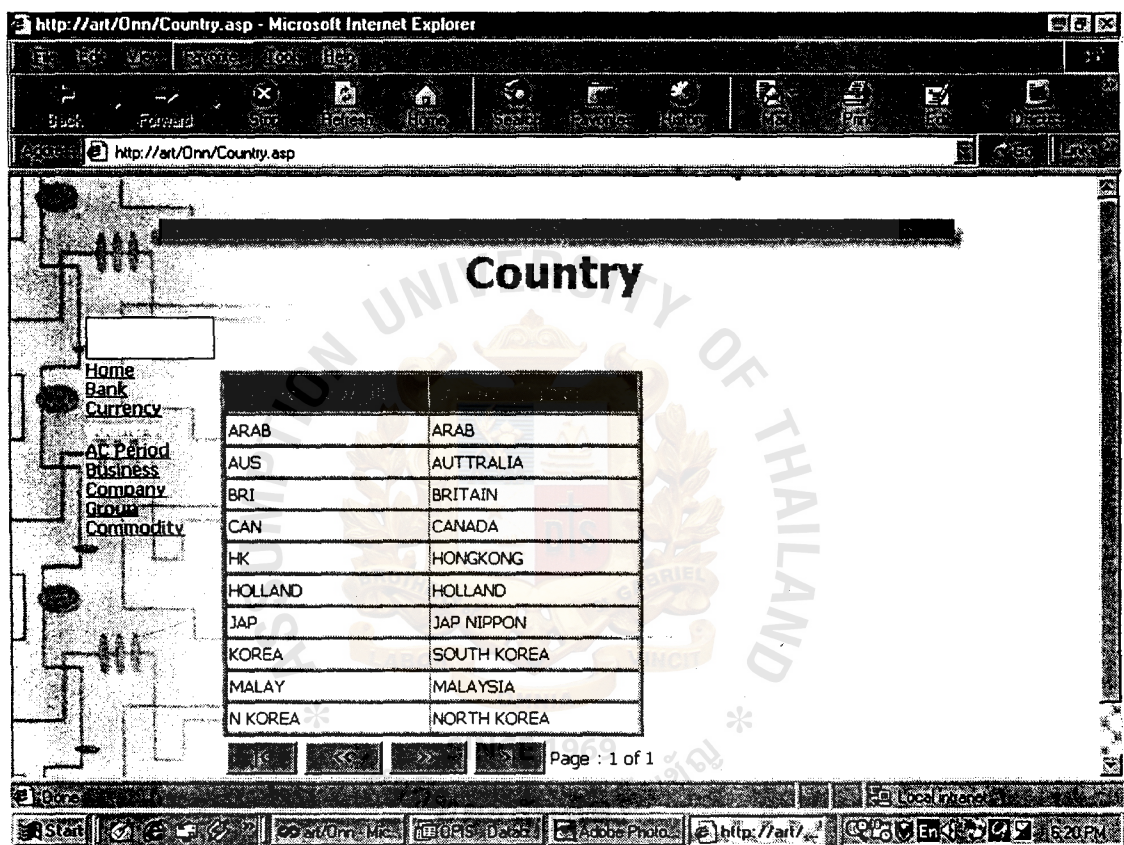


Figure A.9. Country Page.

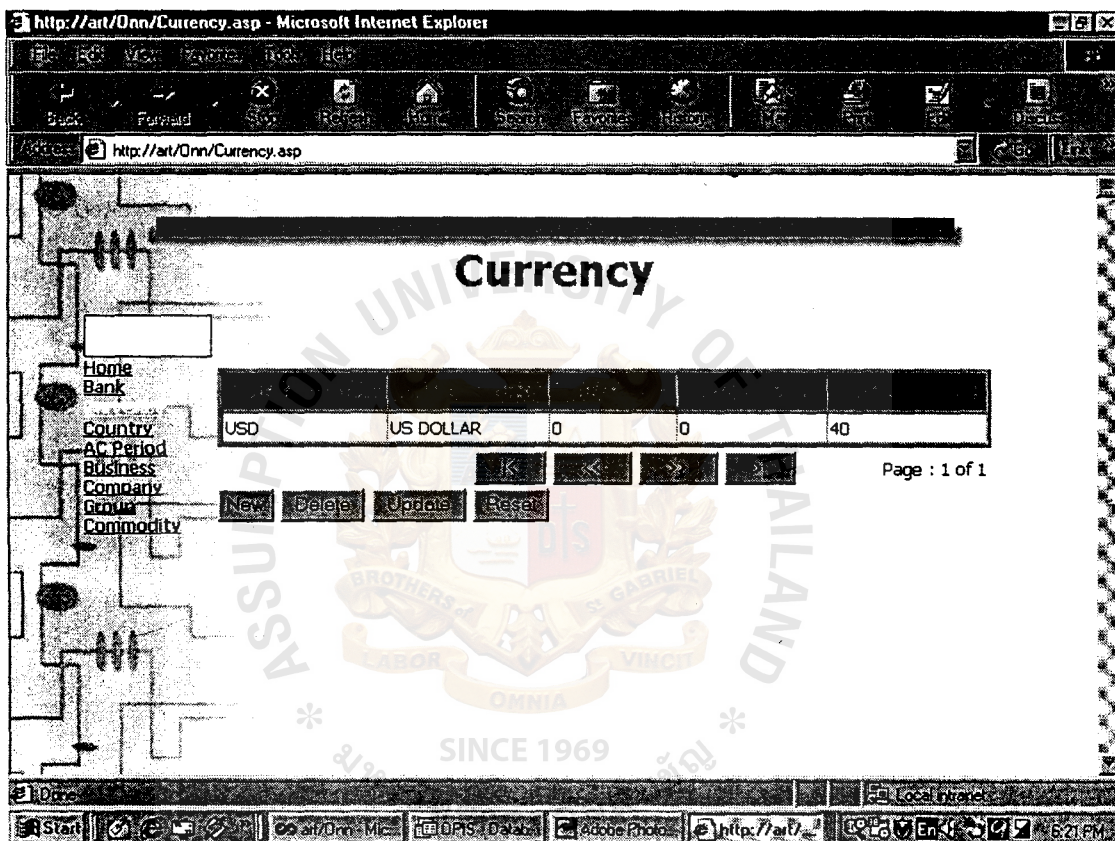


Figure A.10. Currency Page.

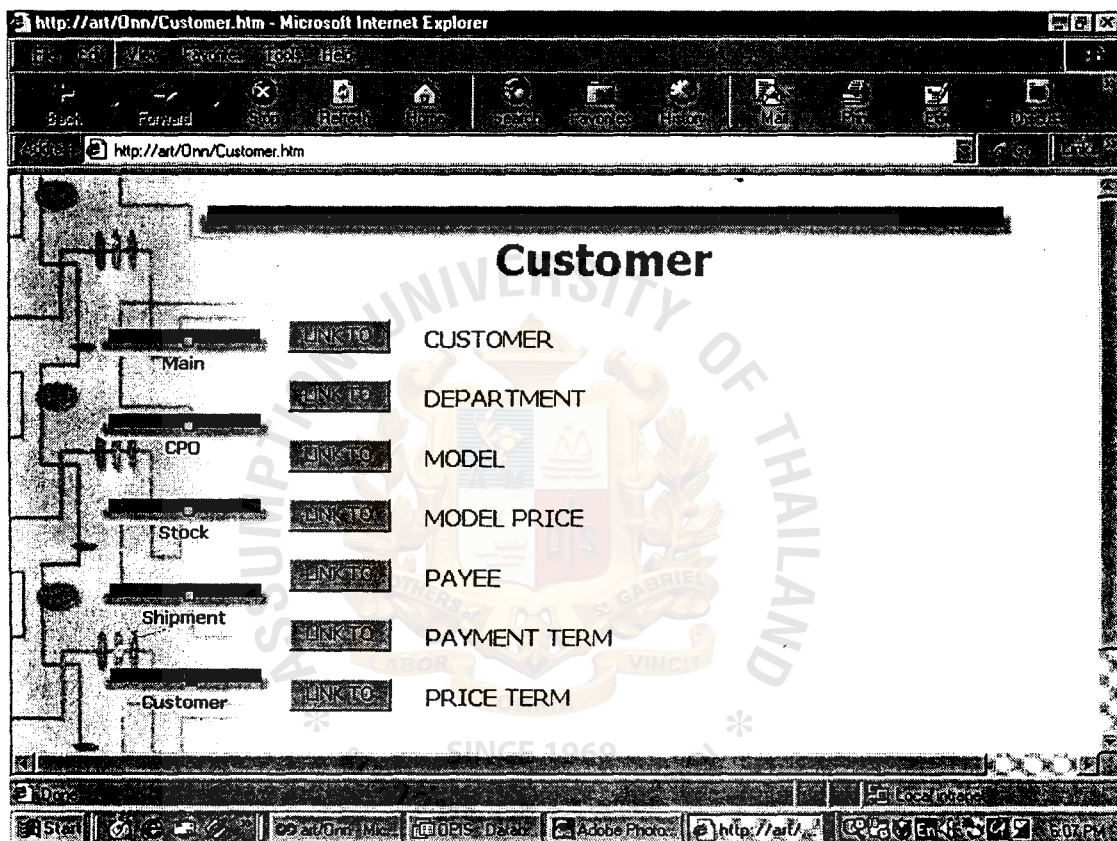


Figure A.11. Customer Menu Page.

http://art/Chaiwat/Customer.asp - Microsoft Internet Explorer

Back Forward Stop Home Search Favorites Help

Address http://art/Chaiwat/Customer.asp

Customer

Model Price

Model

Price Term

Payment Terms

Customer Code	0000000	BUSS. Field	AIR_CON
Name	SHARP TEPNAKORN	Company Group	GW
MEI Code	S9700001	Default Curr.	USD
Contact	MS.PATTANEE	Credit Limit	1000
Office Add.	58 MOO3 T SUPATU.	Balance Limit	8
		Payment Term	AMS10
		Country Code	CAN
Delivery			

Start | http://art/Chaiwat/ Microsoft Vie | http://art/Chaiwat/C... | 46 PM

Figure A.12. Customer Input Page.

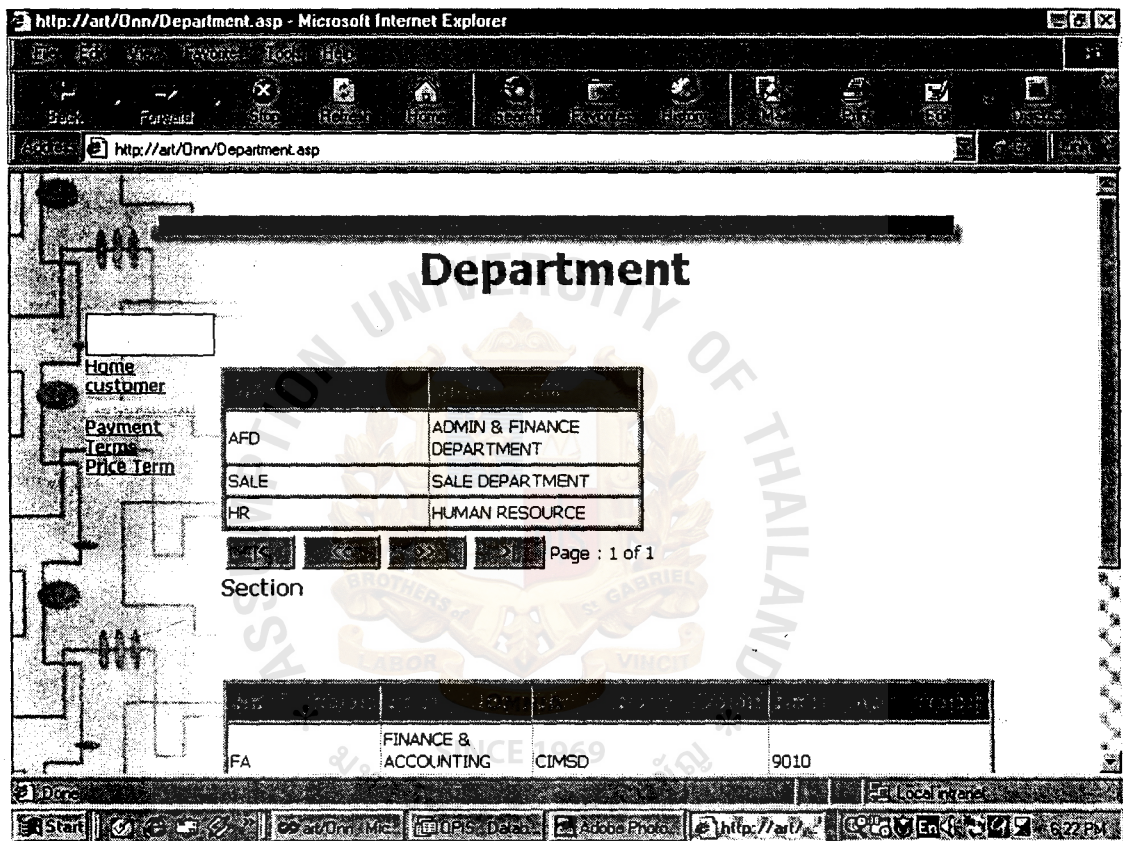


Figure A.13. Department Page.

http://art/Chaiwat/Model.asp - Microsoft Internet Explorer

Model

ModelPrice	Model	BP 273CPOS	Description	SOLAR BATTERY	
Price Term	Category		Stopped	<input checked="" type="checkbox"/> Checkbox1	ISO Certified <input checked="" type="checkbox"/> Checkbox2
Payment	Unit		Min. Order	1	Min. Level
Terms	Commodity				
Customer	WID		Latest Cost	1	
	Ave cost	87			
	Customer				

Start | OPS Database | at/Chaiwat/Model.asp | http://art/Chaiwat/Model.asp

Figure A.14. Model Input Page.

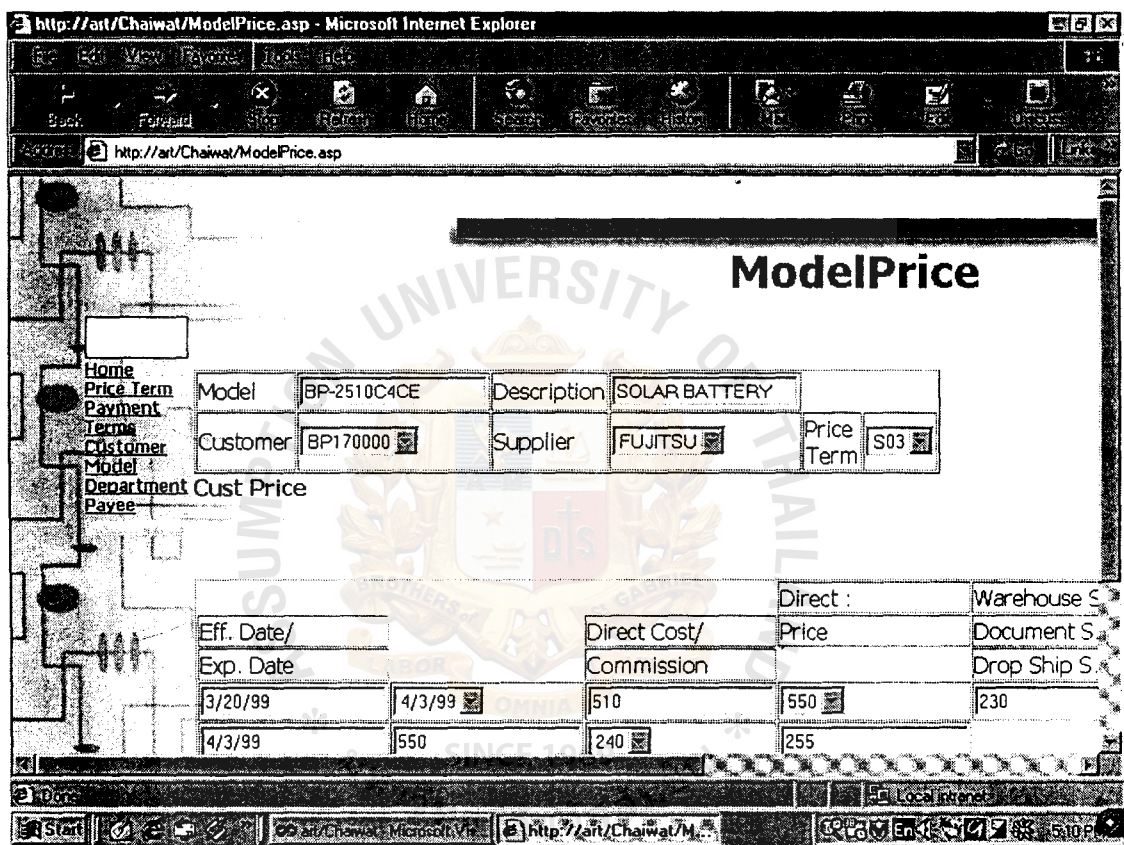


Figure A.15. Model Price Page.

http://art/Chaiwat/Payee.asp - Microsoft Internet Explorer

http://art/Chaiwat/Payee.asp

Payee

ModelPrice

Price Term

Payment Terms

Customer

Model

Department

Payee Code	HA		
Name	HA		
Due Date		A/C Code	8302
Payment Term	AMS10	MEI Code	XXX39133

Supplier List

MIE-MED

SINCE 1969

Start | av.Chaiwat, Micros | OPIS Database | http://art/Chaiwat/ | 6:58 PM

Figure A.16. Payee Input Page.

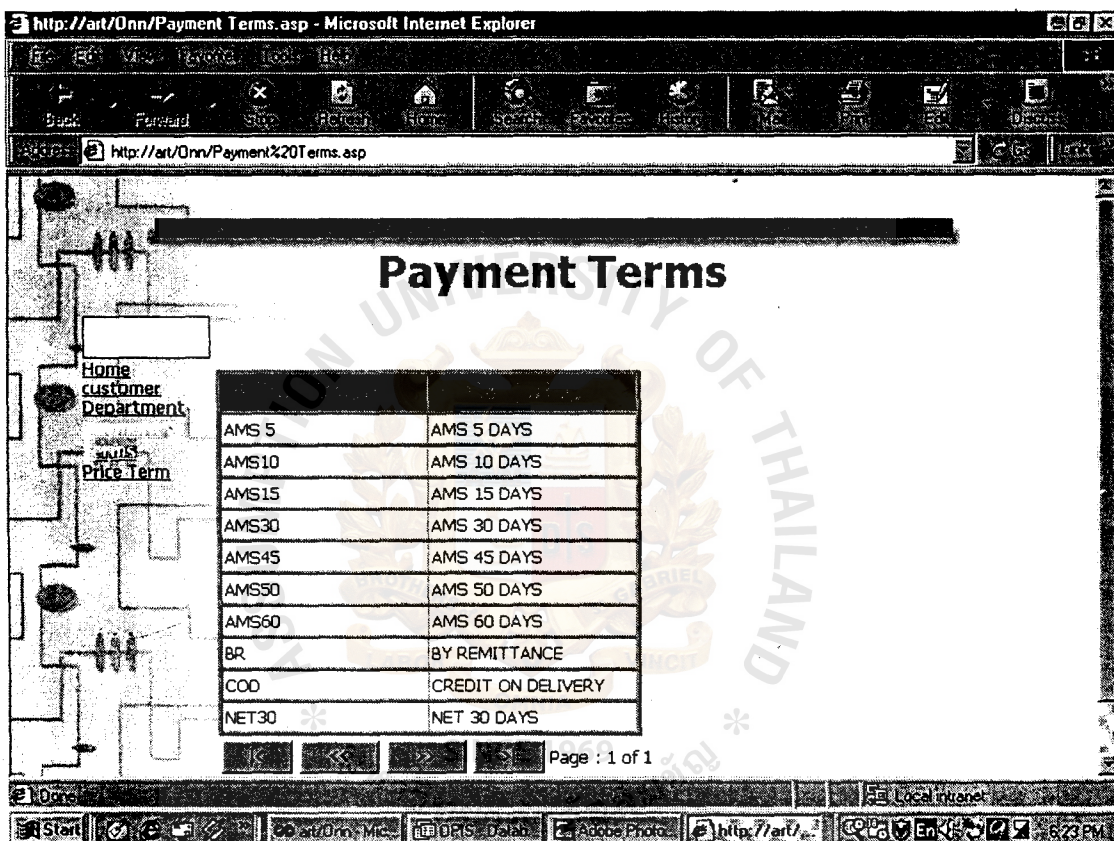


Figure A.17. Payment Terms Page.

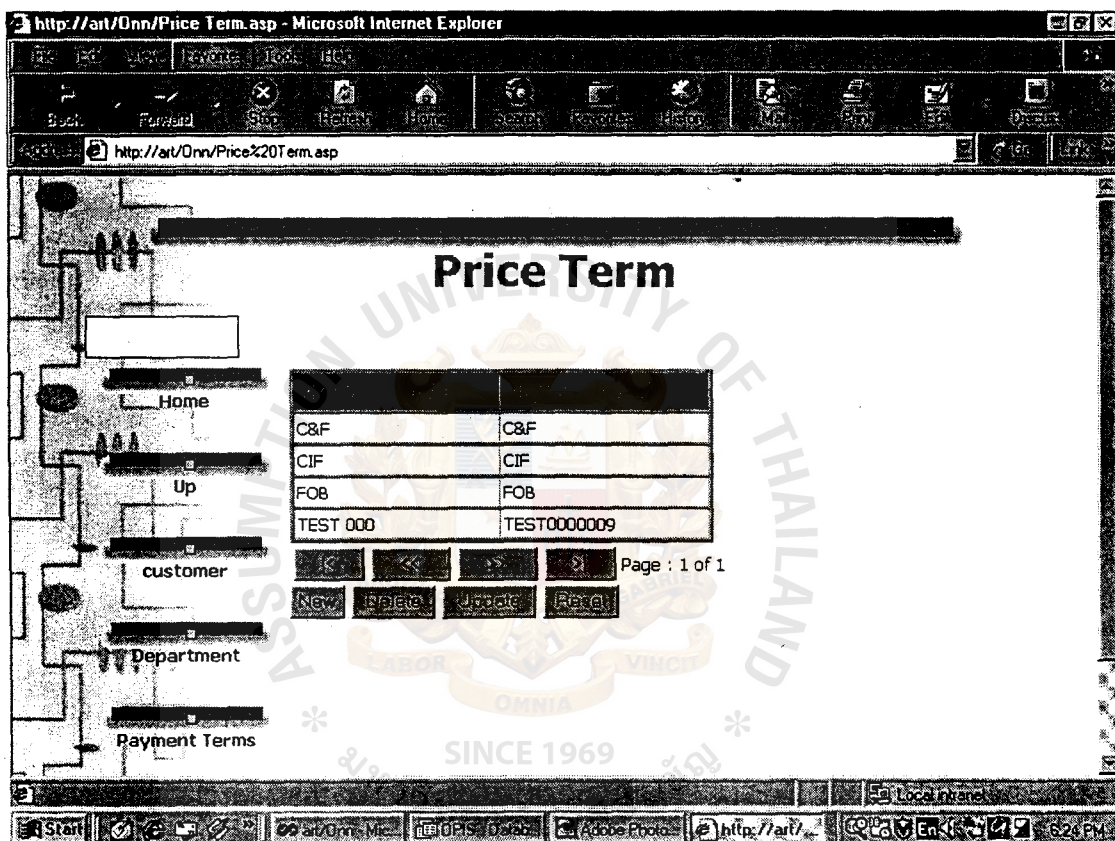


Figure A.18. Price Terms Page.

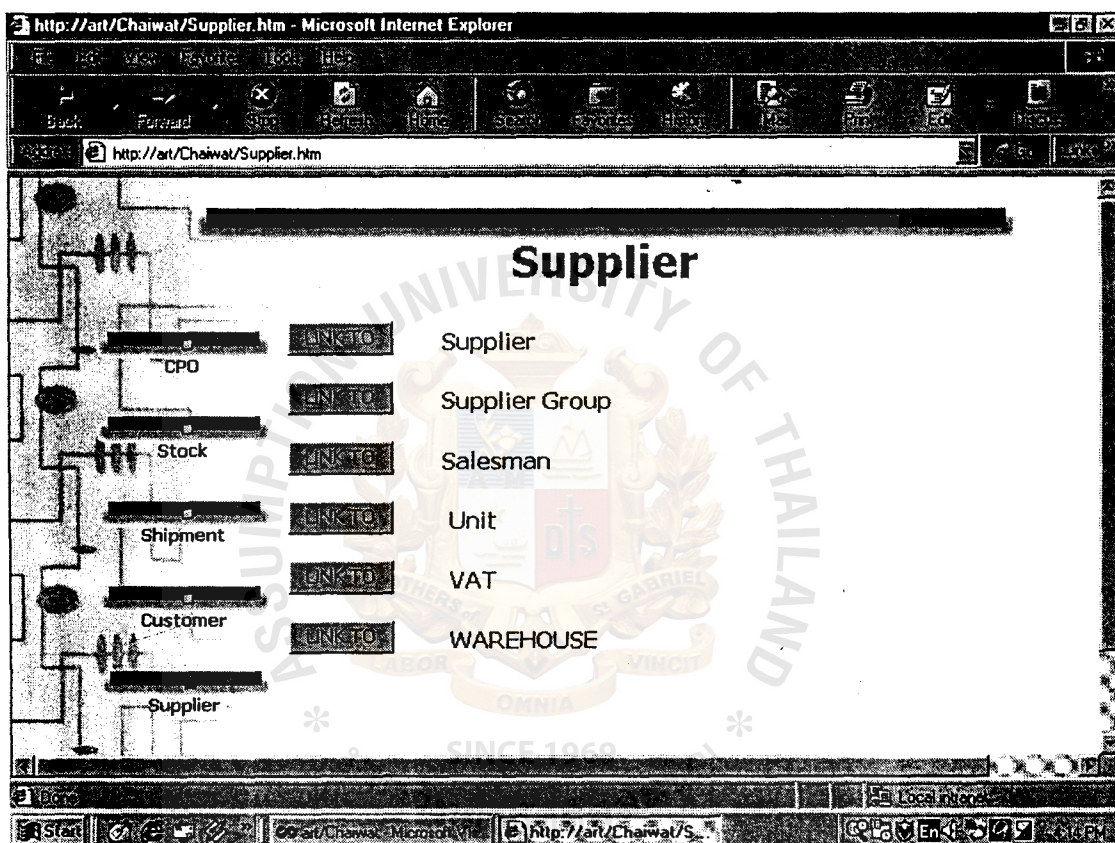


Figure A.19. Supplier Main Menu Page.

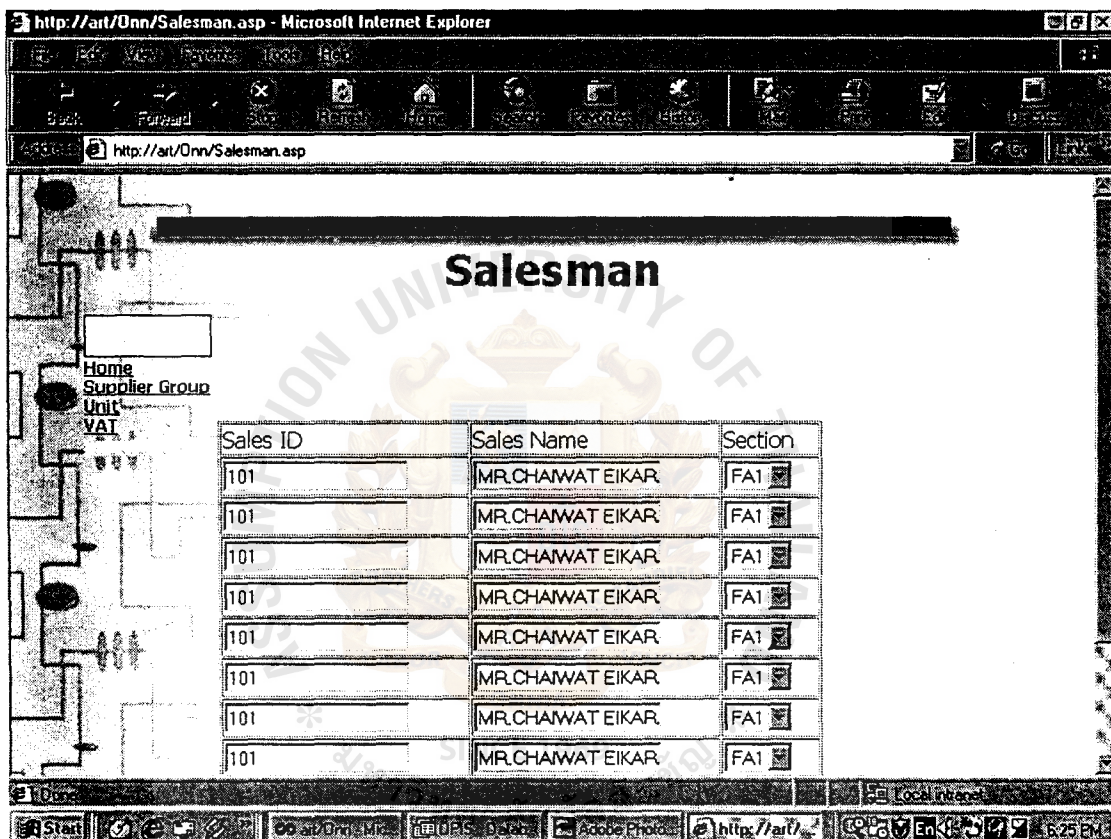


Figure A.20. Salesman Input Page.

http://art/Chaiwat/Supplier.asp - Microsoft Internet Explorer

Back Forward Stop Refresh Home Search Favorites History View Favorites Tools

http://art/Chaiwat/Supplier.asp

Supplier

Supplier Group
Unit
VAT
Salesman
Warehouse

Supplier Code	AMS
Name	AT ASIA MATSUSHITA
MEI Code	00029276
Supplier Group	<input type="checkbox"/>
Contact	5
Address	MUKAKUNING, BATI
Phone	
Fax	
Telex	
Country	<input type="checkbox"/>

Start | art/Chaiwat | Adobe Acrobat | OPS Data | http://art... | Local Internet | 159

Figure A.21. Supplier Input Page.

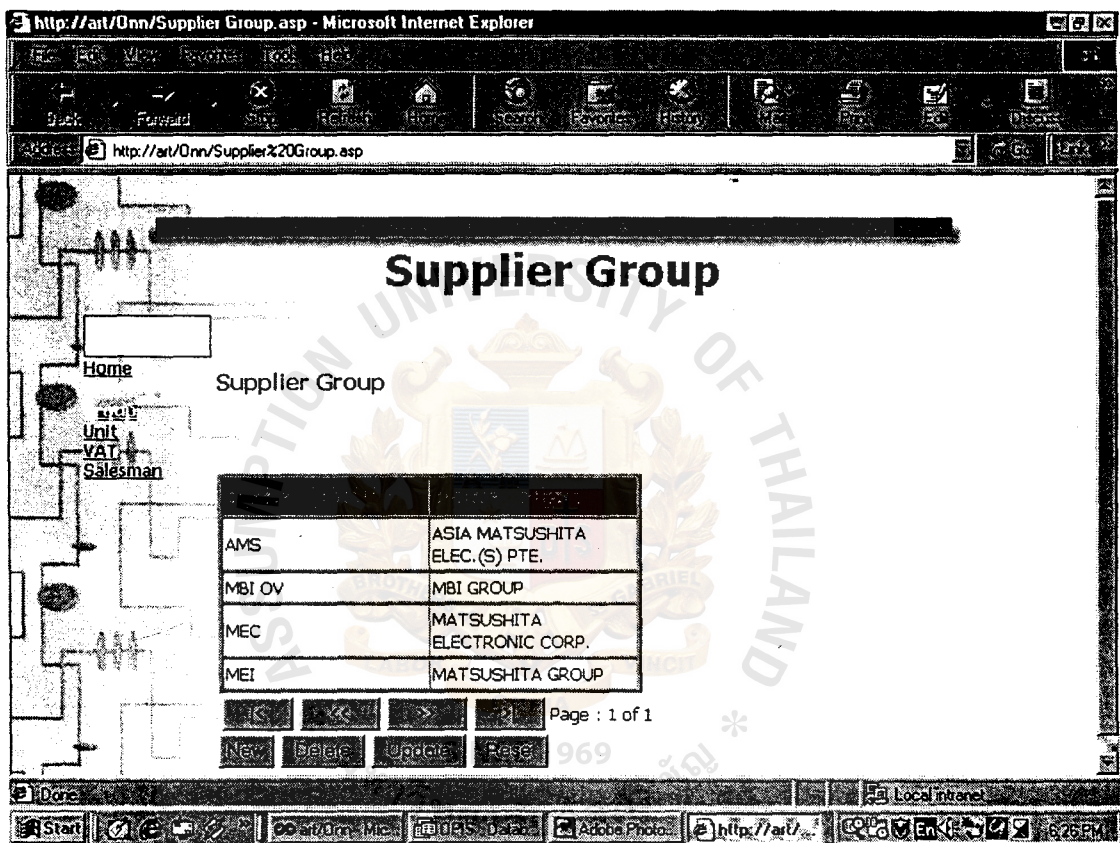


Figure A.22. Supplier Group Page.

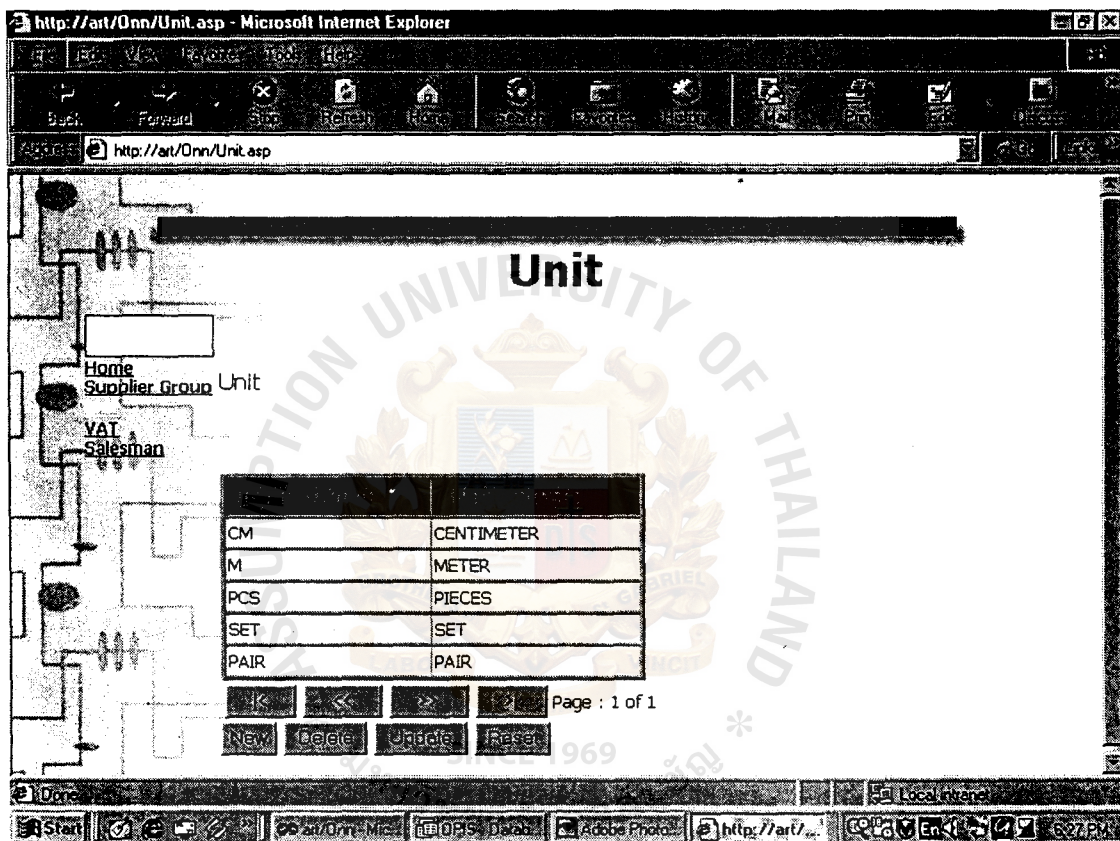


Figure A.23. Unit Page.

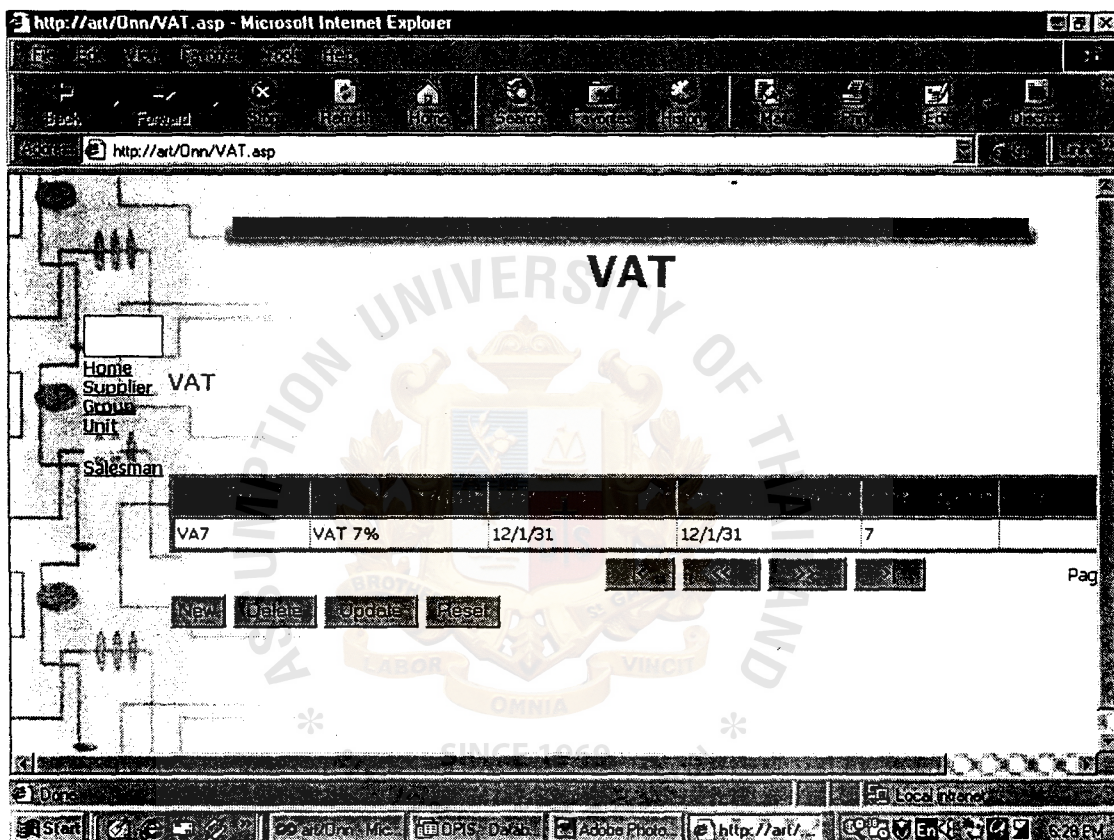


Figure A.24. VAT Page.

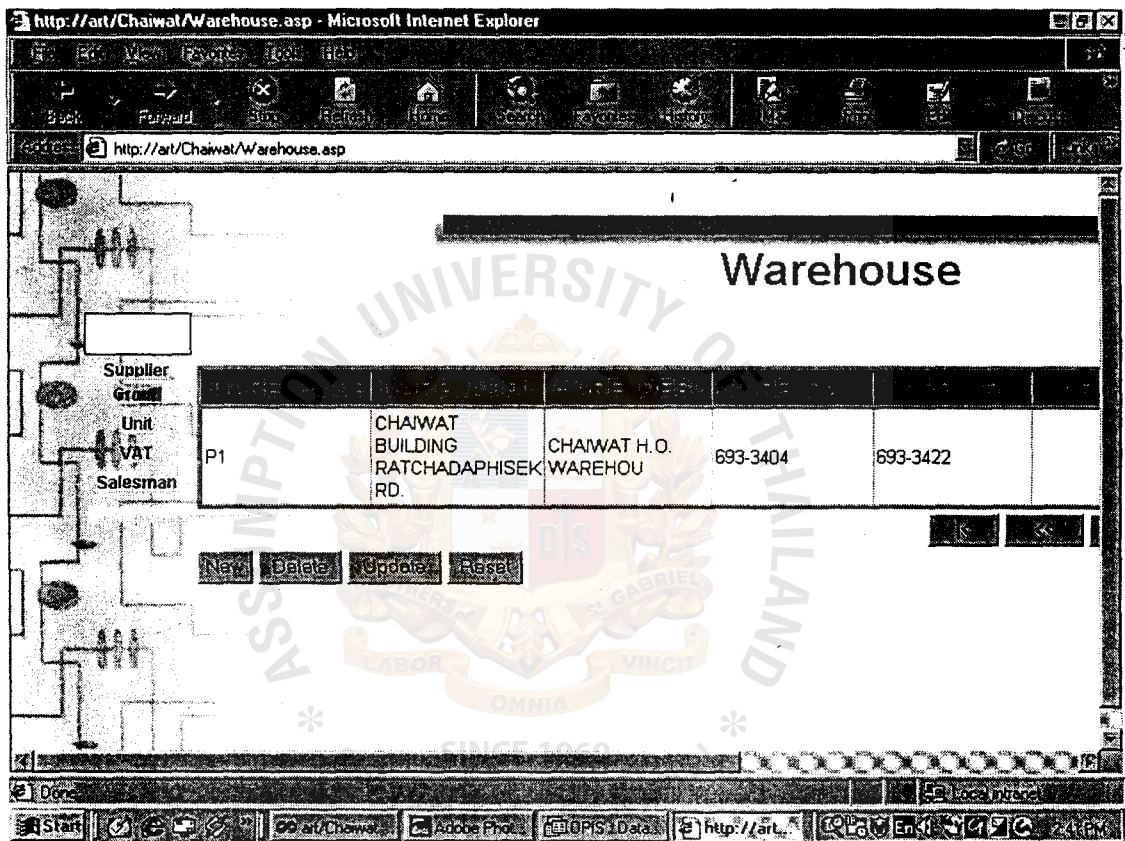


Figure A.25. Warehouse Page.

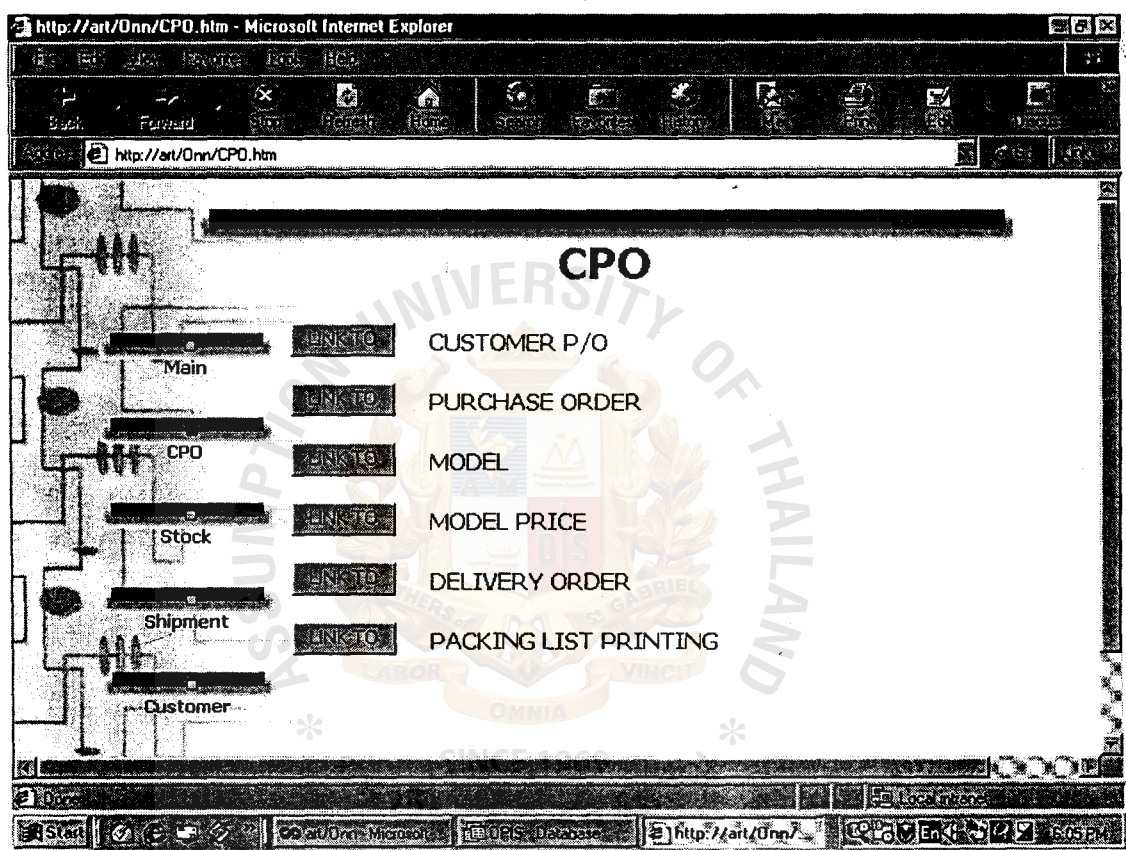


Figure A.26. Purchase Order Menu Page.

http://art/Onn/CustomerPO.asp - Microsoft Internet Explorer

http://art/Onn/CustomerPO.asp

Customer PO

Up

CPO No.	PICT380001	Order Type	W	Taxable		Modified Date	12/
Code	A9700001	Currency	BHT			Modified By	OP
Limit Credit		Price Term	008			Our Ref.	200
Outstd		Issue Date	12/28/1454			Status	M
Delivery		Salesman	1			Section	
		Remark	TESTING				

Item

Start OPS Data Adobe Acrobat http://art/

Figure A.27. Customer Purchase Order Input Page.

http://art/Chaiwat/CompanyPO.asp - Microsoft Internet Explorer

http://art/Chaiwat/CompanyPO.asp

Company PO

Customer PO
Delivery
Order
PO

Pur. Order	000001	Curr.	Yen	Order To	S04
Type	<input checked="" type="checkbox"/> Checkbox1	Sect.	GIS	End User	HBK
CPO		Price Term	POB		
Accountee	A001	Dest.	CEU	Supplier	S001
Consignee	A001	Bank	HKB	To IPS	N
Commission%	4	Remark			
Taxable Type	1				
Payee	ISEA				

Start | C:\art\Chaiwat\Man... | D:\DP... Database | http://art/Cha... | Local intranet | 4:55 PM

Figure A.28. Company Purchase Ordre Page.

http://art/Chaiwat/DeliveryOrder.asp - Microsoft Internet Explorer

Back Forward Stop Refresh Home Search Favorites Print View

Address http://art/Chaiwat/DeliveryOrder.asp

Order No.	10550012	Job No.	1001	Date	11/3/98
DO-Type	W	Warehouse	W1	Inv No.	0100021
Status	W	Dealer	SSSS	Total Amount	5000

Customer

A870001	ASIA HONDA MORTOR COMPANY	67/1 HONDA MORTOR PATUMTHANEE 10120	1234444
---------	---------------------------	-------------------------------------	---------

Other

010	AM	11/3/98
-----	----	---------

Deposit

Page : 1 of 1

Remark

Salesman 1

New Delete Update Reset Print

Figure A.29. Delivery Order Input Page.

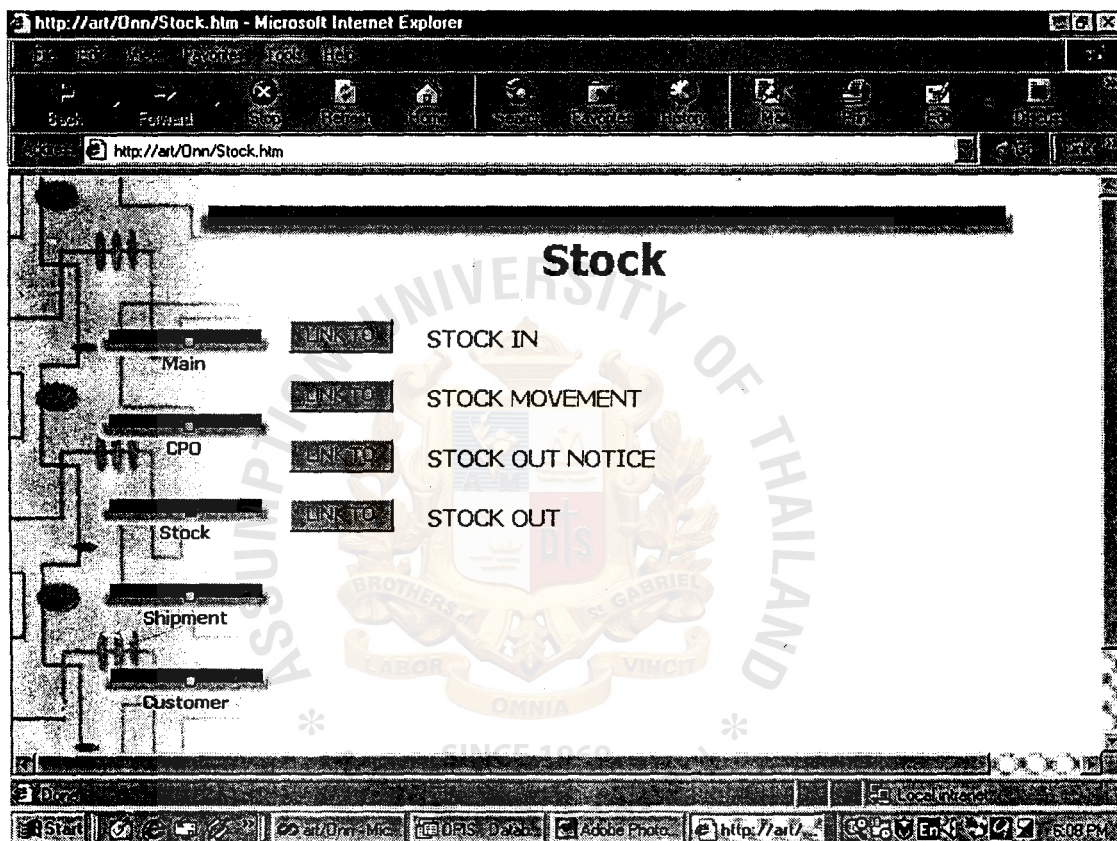


Figure A.30. Stock Menu Page.

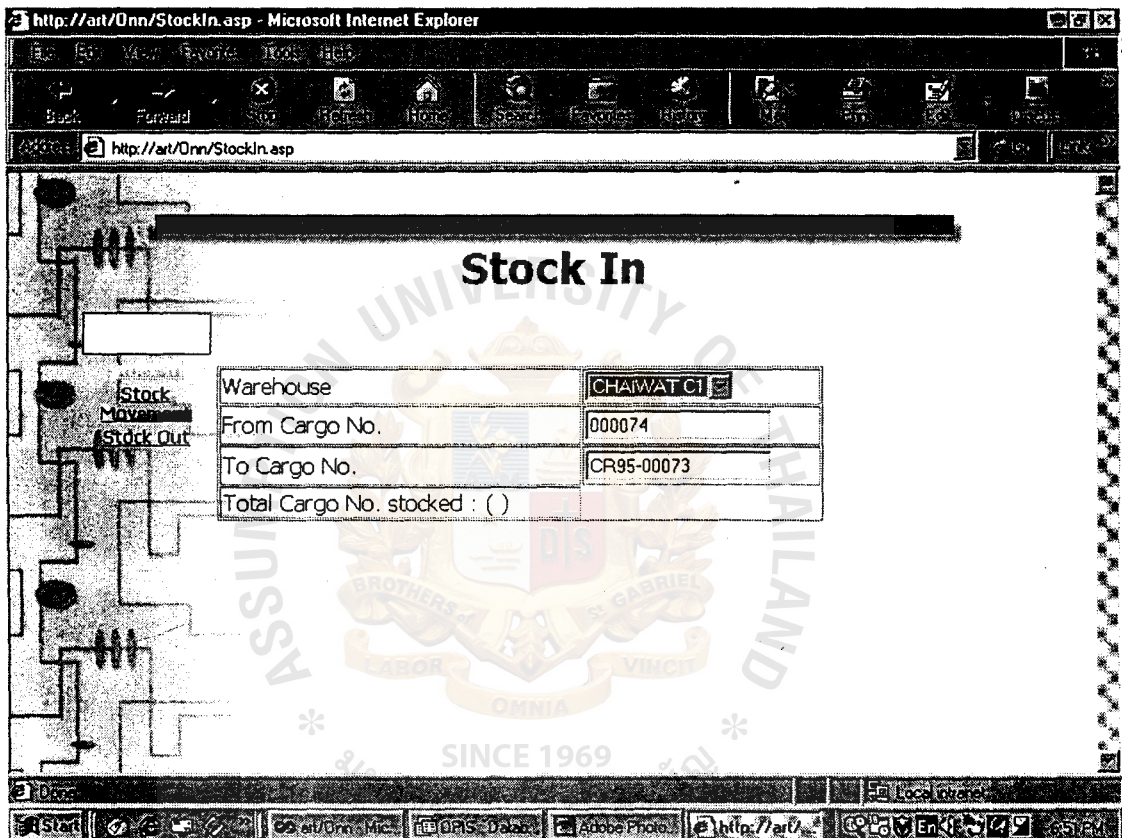


Figure A.31. Stock In Input Page.

http://art/Onn/StockOut.asp - Microsoft Internet Explorer

Back Forward Stop Refresh Home Search Favorites History View Favorites Tools

http://art/Onn/StockOut.asp

Stock Out

Stock In
Stock
Movement

Home
Stock In
Stock
Movement

Warehouse	Warehouse
Section	FA4
Trans. Date	3/20/98
Session	MORNING SE

Start | C:\ | 2000 | OPS | Design | Adobe | http://art/ | Local Internet | 7:04 PM

Figure A.32. Stock Out Input Page.

http://art/Chaiwat/StockOutNotice.asp - Microsoft Internet Explorer

http://art/Chaiwat/StockOutNotice.asp

Stock Out Notice

Stockin
StockMovement
StockOut
Notice

Do. NO.	0001	Section	FA2	Customer Code	A001
Warehouse	WAREHOUSE	Status	R	Modified By	OPIS
Goods Type	A	Delivery Date	12/11/96	Modified Date	7/11/96
Move Date	12/11/96	Move Session	MORNING SE	Car No.	3

1 MODEL02

Page : 1 of 1

New Delete Update Reset

Figure A.33. Stock Out Notice Page.

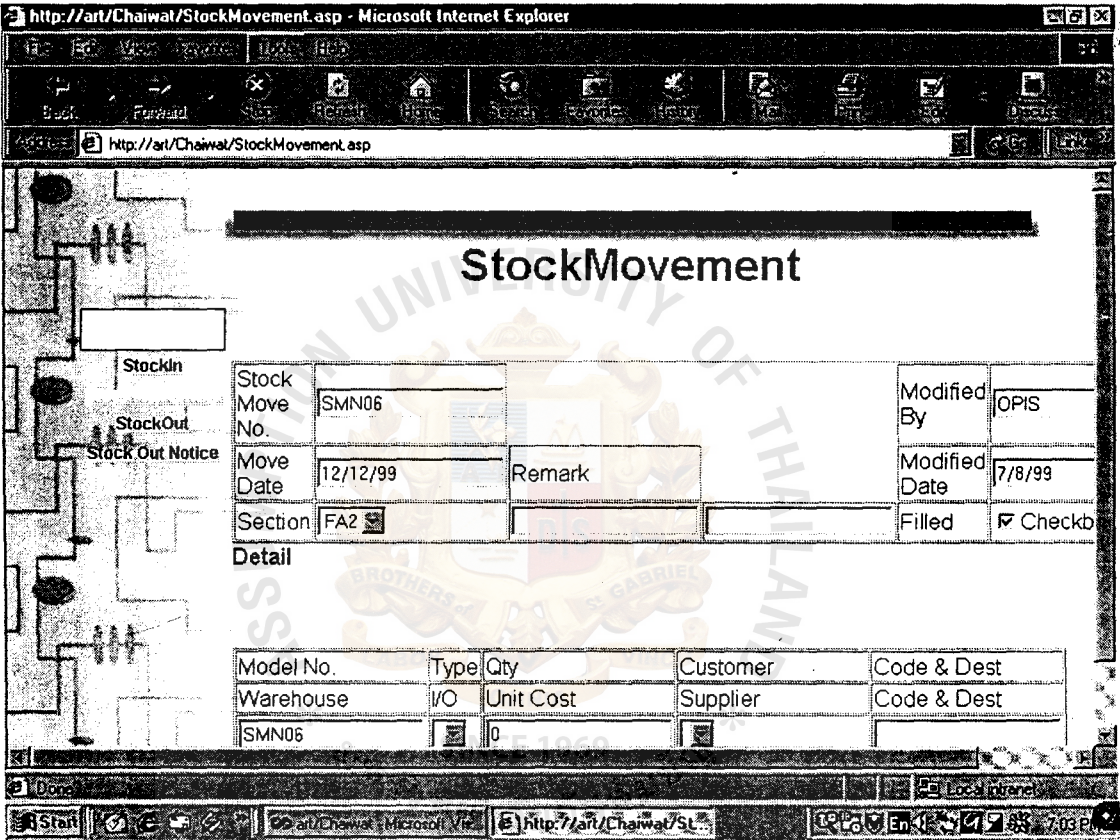


Figure A.34. Stock Movement Page.

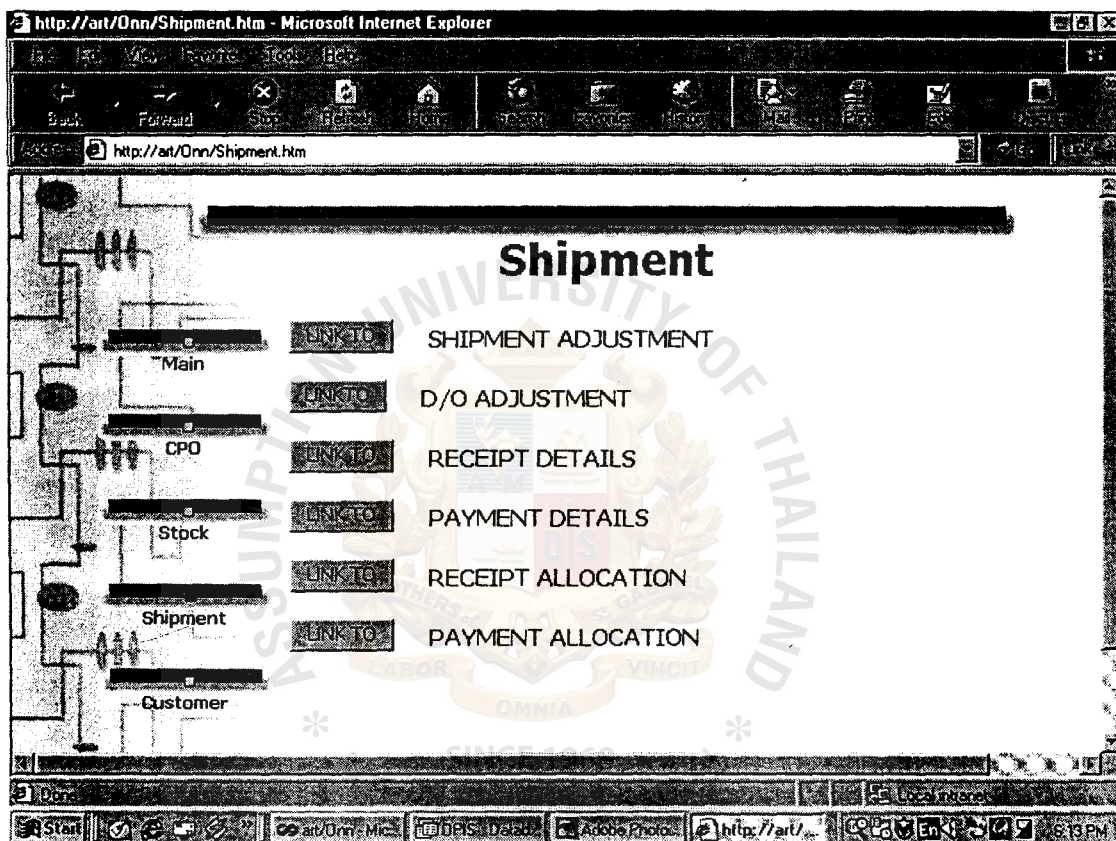


Figure A.35. Shipment Menu Page.

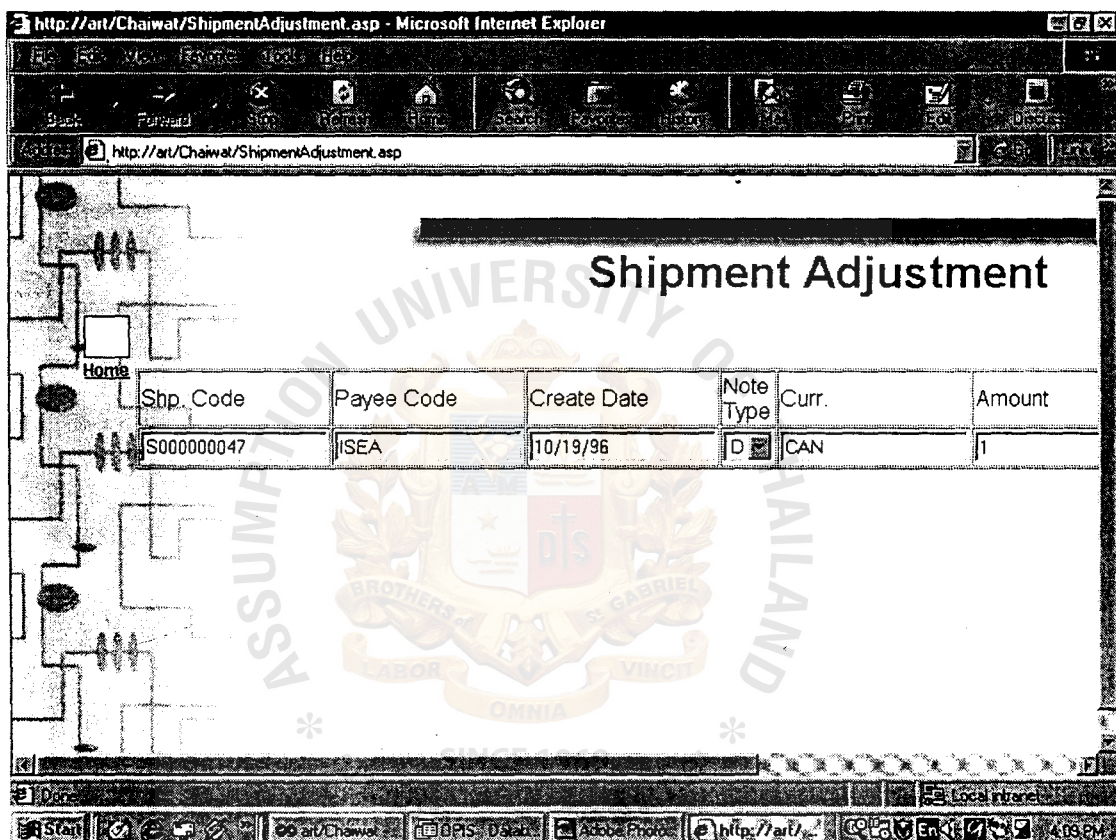


Figure A.36. Shipment Adjustment Input Page.

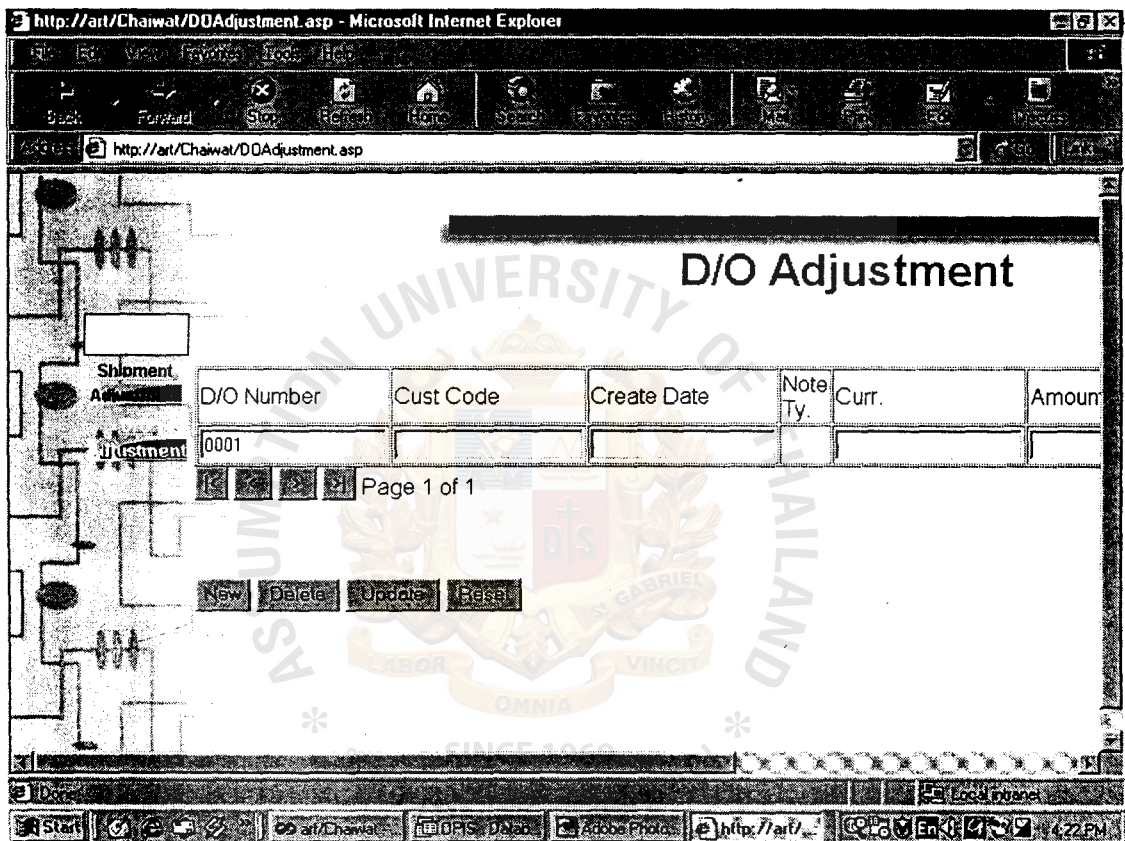


Figure A.37. Delivery Order Adjustment Input Page.

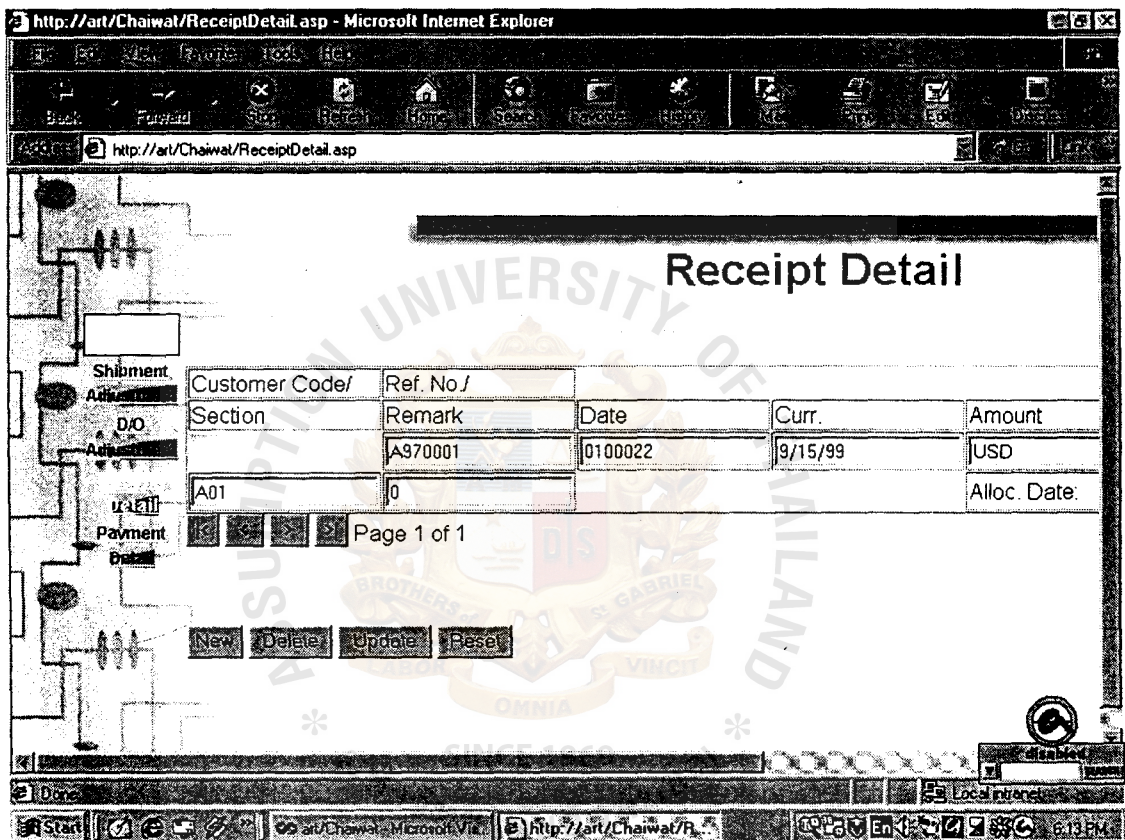


Figure A.38. Receipt Detail Page.



Chaiwat Electric Company

Delivery Order

Page : 1 of 1

บริษัท ชัยวัฒน์ อิเล็กทริก จำกัด 250/120 อาคารชัยวัฒน์คอมเพล็กซ์ ถนนรัชดาภิเษก แขวงห้วยขวาง กรุงเทพฯ 10320 โทร. 731-5610 โทรสาร. 731-5666	ชื่อลูกค้า ที่อยู่	บริษัท พูจิตลี (ประเทศไทย) จำกัด 60/90 นิคมอุตสาหกรรมนวนครโซน 3 หมู่ 19 ถ.พหลโยธิน ต.คลองหนึ่ง อ.คลองหลวง จ.ปทุมธานี 12120	อ้างถึง D/O No. 0032984 วันที่ส่งของ 06/06/2001 รหัสลูกค้า F9700001
		บริษัท พูจิตลี (ประเทศไทย) จำกัด 60/90 นิคมอุตสาหกรรมนวนครโซน 3 หมู่ 19 ถ.พหลโยธิน ต.คลองหนึ่ง อ.คลองหลวง จ.ปทุมธานี 12120	รหัสพนักงานขาย 0206-ID07 รหัสคลังสินค้า P1

Item	Customer P/O No.	Products Code	MEI Products Code	Description	Quantity o. of Carton
1	HG0020338	DCM1-3722	HBZLPXHM0009	DC MOTOR	43,200
2	HG0020338	DCM1-3722	HBZLPXHM0009	DC MOTOR	43,200
3	HG0020338	DCM1-3722	HBZLPXHM0009	DC MOTOR	43,200
4	HG0020338	DCM1-3722	HBZLPXHM0009	DC MOTOR	43,200
5	HG0020338	DCM1-3722	HBZLPXHM0009	DC MOTOR	43,200
6	HG0020338	DCM1-3722	HBZLPXHM0009	DC MOTOR	43,200
7	HG0020338	DCM1-3722	HBZLPXHM0009	DC MOTOR	43,200
8	HG0020338	DCM1-3723	HBZLPXHM0009	DC MOTOR	43,200
9	HG0020338	DCM1-3722	HBZLPXHM0009	DC MOTOR	43,200
10	HG0020338	DCM1-3724	HBZLPXHM0009	DC MOTOR	43,200
11	HG0020338	DCM1-3725	HBZLPXHM0009	DC MOTOR	43,200
12	HG0020338	DCM1-3722	HBZLPXHM0009	DC MOTOR	43,200
13	HG0020338	DCM1-3722	HBZLPXHM0009	DC MOTOR	43,200

Figure B.1. Delivery Order Report.

บริษัท ชัยวัฒน์ อิเล็คทริค จำกัด

250/120 อาคารชัยวัฒน์คอมเพล็กซ์

ถนนรัชดาภิเษก แขวงห้วยขวาง กรุงเทพฯ 10320

โทร. 731-5610 โทรสาร. 731-5666

Chaiwat Electric Company

250/120 Chaiwat Complex Building

Rachadaphisek Rd. Huaykwang, Bangkok 10320

Tel. 731-5610 Fax. 731-5666

STATEMENT FOR PAYMENT

Page 1 of 1

STATEMENT OF MAY , 20(Date 1-06-2001

TO MESSERS. บริษัท พูจิตสี (ประเทศไทย) จำกัด

Item	Invoice No.	Date	Amount	VAT Amount	Invoice Amount
1	0031332	05/03/01	228347.40	470.13	7186.23
2	0031863	05/04/01	1155246.00	441910.94	675505.34
3	0031895	05/09/01	127605.90	179.708.76	2746976.76
4	0031896	05/09/01	1543021.00	269563.14	4120465.14
5	0031975	05/09/01	513489.00	179708.76	2746976.76
6	0031977	05/10/01	521387.00	179708.76	2746976.76
7	ISD0105019	05/17/01	6716.00	-2412.76	-36880.71
8	0031412	05/18/01	-34465.23	15984.32	244331.72
9	0031464	05/19/01	385012.00	808689.42	12361395.42
10	0031468	05/20/01	156789.00	8932.41	136638.31
11	0031469	05/21/01	235468.00	1078252.56	16481860.56
12	0031524	05/22/01	2546.00	359417.52	5493953.52
13	0032352	05/27/01	2555.00	449271.90	6867441.90
14	0032353	05/27/01	2314.00	4094.24	62583.44
15	ISD0105040	05/28/01	54489.00	15244.95	233029.95
16	ISD0105040	05/28/01	21785.00	-482.00	-7376.14
17	0032419	05/29/01	-6893.00	-1064.94	-16278.38
18	0032421	05/30/01	-15213.00	3048.99	46605.99
19	32429	05/30/01	7502.00	525.20	8028.10
20	32568	05/30/01	4355.00	1123.00	25894.00
SUB TOTAL (BAHT)			4912056.07	3369605.47	54945314.67
GRAND TOTAL (BAHT)			1029708.6	7207961.65	110178842.3

Approved by

Sales Manager

Payment date :/...../.....

Approved by

Accounting Manager

Received by :

Figure B.2. Statement of Payment Report.

CHAIWAT ELECTRIC COMPANY

Date: 11-06-2001

Summary Invoice Report

Time: 08:11:55

Username : NUANRUT

Date: 11-06-2001 to 30-06-2001

Page 1 of 1

Domestic/Import: All Status : N

Section : ASS

Invoice No.	Invoice Date	D/O No.	Customer	Status	W/H	Amount(THB)	Vat Amt(THB)	Net Amount(THB)
0032837	08-06-2001	NO28430	TST	N	UAS	108,900.00	7,623.00	116,523.00
NO28339	08-06-2001	NO28431	TAW	N	P1	2,330.00	163.10	2,493.10
NO28340	08-06-2001	NO28432	TAW	N	P1	39,290.00	2,750.30	42,040.30
NO28341	08-06-2001	NO28433	TOYOGIW	N	P1	687,731.00	48,141.18	735,872.30
NO28342	08-06-2001	NO28434	TOYOGIW	N	P1	8,680.00	607.60	9,287.60
NO28343	08-06-2001	NO28435	TOYOGIW	N	P1	37,323.00	2,612.65	39,936.25
NO28344	08-06-2001	NO28436	TOYOSIR	N	P1	5,080.00	355.60	5,435.60
NO28345	08-06-2001	NO28437	TOYOSIR	N	P1	3,600.00	252.00	3,852.00
NO28346	08-06-2001	NO28438	TOYOSIR	N	P1	331,246.00	23,187.22	354,433.22
NO28347	08-06-2001	NO28439	TST	N	P1	177,646.00	12,435.00	190,081.22
NO28348	08-06-2001	NO28440	AAT	N	P1	328,002.00	22,960.20	350,963.10
NO28349	08-06-2001	NO28441	AAT	N	P1	17,600.00	1,232.00	18,832.00
NO28350	08-06-2001	NO28442	AAT	N	P1	18,601.00	1,302.11	19,903.71
NO28353	08-06-2001	NO28445	HATC	N	P1	72,499.00	5,074.93	77,573.93
NO28354	08-06-2001	NO28446	HATC	N	P1	491,940.00	34,435.80	526,375.80
NO28355	08-06-2001	NO28447	HATC	N	P1	7,650.00	535.50	8,185.50
NO28356	08-06-2001	NO28448	HATC	N	P1	11,475.00	803.25	12,278.25
NO28357	08-06-2001	NO28449	HONAC	N	P1	151,188.00	10,583.16	161,771.16
NO28358	08-06-2001	NO28450	HONAC	N	P1	7,650.00	535.50	8,185.50
Total Section : ASS						2,508,431.00	175,590.10	2,684,021.10
Grand Total :						4,905,632.00	343,394.10	5,249,026.10

Figure B.3. Summary Invoice Report.



APPENDIX C
DATABASE DESIGN

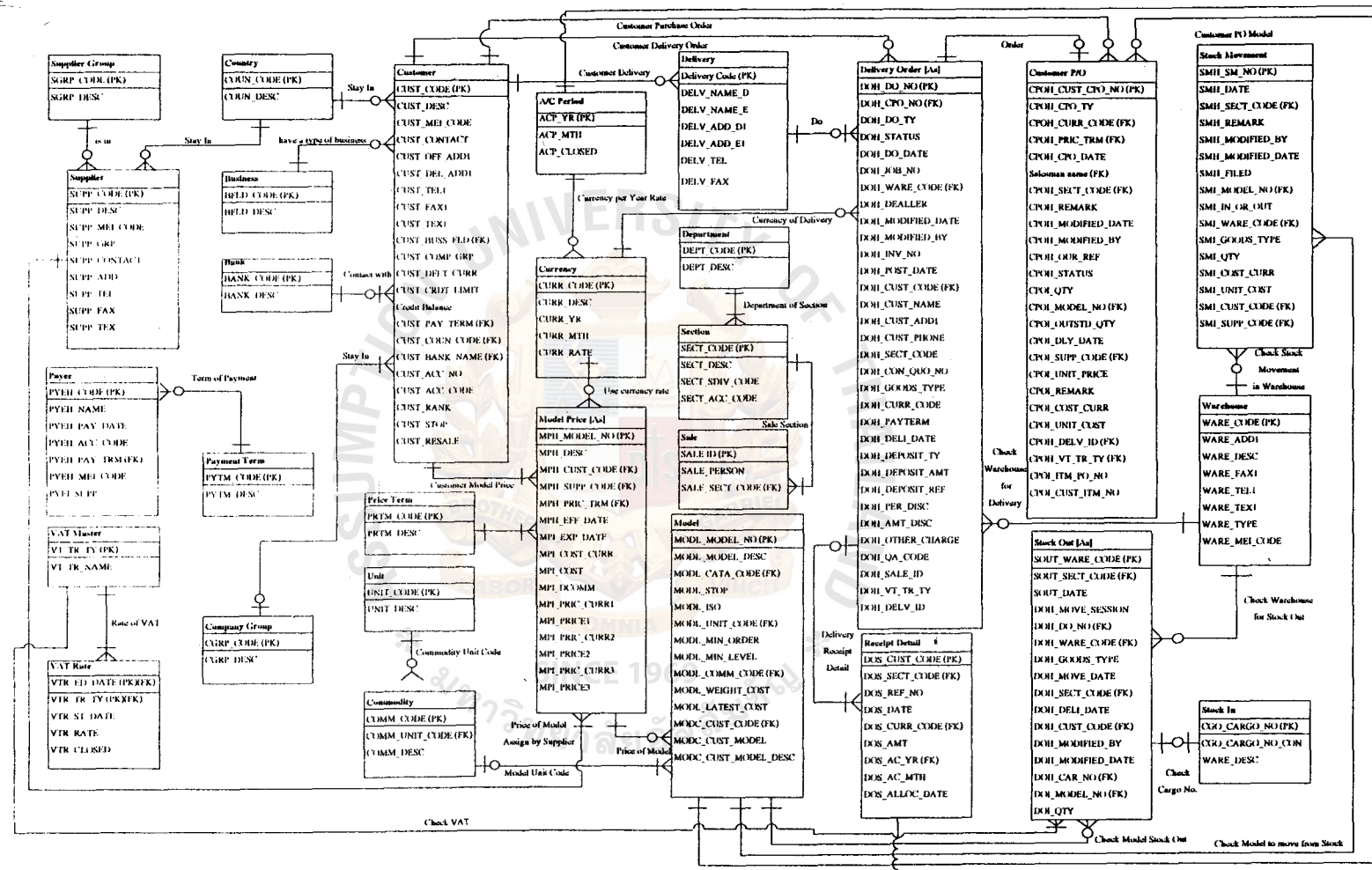


Table C.1. Structure of A/C Period Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	ACP_YR	Number	Y	Y		Receipt Detail		Primary key
2	ACP_MTH.	Number						Foreign key
3	ACP_CLOSED	Char						Attribute

Table C.2. Structure of Bank Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	BANK_CODE	Varchar	Y	Y		Customer		Primary key
2	BANK_DESC	Varchar						Attribute

Table C.3. Structure of Business Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	BFLD_CODE	Varchar	Y	Y		Customer		Primary key
2	BFLD_DESC	Varchar						Attribute

Table C.4. Structure of Category Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	CATM_CODE	Varchar	Y	Y		Model		Primary key
2	CATM_DESC	Varchar						Attribute
3	CAT_CODE	Varchar	Y	Y		Model		Primary key
4	CAT_DESC	Varchar						Attribute
5	CAT_FREIGHT_FEE	Number						Attribute
6	CAT_IL_INSUR	Number						Attribute
7	CAT_IL_BANK_FEE	Number						Attribute
8	CAT_MIN_MARKUP1	Number						Attribute
9	CAT_MIN_MARKUP2	Number						Attribute
10	CAT_MIN_MARKUP3	Number						Attribute
11	CAT_DELI_FEE	Number						Attribute
12	CAT_IW_INSUR	Number						Attribute
13	CAT_PACK_FEE	Number						Attribute
14	CAT_STR_FEE	Number						Attribute
15	CAT_COMM	Number						Attribute
16	CAT_PROMOT_FEE	Number						Attribute
17	CAT_STOCK_DEPN	Number						Attribute

Table C.4. Structure of Category Table (Continued).

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
18	CAT_ADV_FEE	Number						Attribute
19	CAT_INST_FEE	Number						Attribute
20	CAT_TRAIN_FEE	Number						Attribute
21	CAT_IW_BANK_FEE	Number						Attribute
22	CAT_CONT_FEE	Number						Attribute
23	CAT_SALE_PROV	Number						Attribute
24	CAT_BDEBT_PROV	Number						Attribute
25	CAT_OTHS_CHRG	Number						Attribute
26	CAT_LANDED_FEE	Number						Attribute

Table C.5. Structure of Company Group Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	CGRP_CODE	Varchar	Y	Y		Customer		Primary key
2	CGRP_DESC	Varchar						Attribute

Table C.6. Structure of Commodity Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	COMM_CODE	Varchar	Y	Y		Model		Primary key
2	COMM_UNIT_CODE	Varchar						Foreign key
3	COMM_DESC	Varchar			Y			Attribute

Table C.7. Structure of Country Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	COUN_CODE	Varchar	Y	Y		Customer Supplier		Primary key
2	COUN_DESC	Varchar						Attribute

Table C.8. Structure of Currency Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	CURR_CODE	Varchar	Y	Y		Receipt Detail		Primary key
2	CURR_DESC	Varchar						Attribute
3	CURR_YR	Number						Attribute
4	CURR_MTH	Number						Attribute
5	CURR_RATE	Number						Attribute

Table C.9. Structure of Customer Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	CUST_CODE	Integer	Y	Y		Company P/O Customer P/O Delivery Order Model Model Price Receipt Detail		Primary key
2	CUST_DESC	VarChar			Y			Attribute

Table C.9. Structure of Customer Table (Continued).

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
3	CUST_MEI_CODE	VarChar						Attribute
4	CUST_CONTACT	VarChar			Y			Attribute
5	CUST_OFF_ADD1	VarChar			Y			Attribute
6	CUST_DEL_ADD1	VarChar			Y			Attribute
7	CUST_TEL1	VarChar			Y			Attribute
8	CUST_FAX1	VarChar			Y			Attribute
9	CUST_TEX1	VarChar			Y			Attribute
10	CUST_BUSS_FLD	VarChar	Y	Y				Foreign key
11	CUST_COMP_GRP	VarChar	Y	Y				Foreign key
12	CUST_DFLT_CURR	VarChar						Attribute
13	CUST_CRDT_LIMIT	Number						Attribute
14	Credit Balance	Number						Attribute
15	CUST_PAY_TERM	VarChar	Y	Y				Foreign key
16	CUST_COUN_CODE	VarChar	Y	Y				Foreign key
17	CUST_BANK_NAME	VarChar	Y	Y	Y			Foreign key
18	CUST_ACC_NO	VarChar			Y			Foreign key
19	CUST_ACC_CODE	VarChar						Foreign key

Table C.9. Structure of Customer Table (Continued).

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
20	CUST_RANK	VarChar			Y			Attribute
21	CUST_STOP	Char						Attribute
22	CUST_RESALE	Char						Attribute
23	CUST_CPO_TY	Char	Y	Y				Foreign key

Table C.10. Structure of Custmer Thai Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	CUST_D_DESC	Varchar	Y	Y		Customer		Attribute
2	CUST_D_OFF_ADD1	Varchar			Y			Attribute
3	CUST_D_OFF_ADD2	Varchar			Y			Attribute
4	CUST_D_OFF_ADD3	Varchar			Y			Attribute

Table C.11. Structure of Delivery Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	Delivery Code	Varchar	Y	Y		Customer		Primary key
2	DELV_NAME_D	Varchar						Foreign key
3	DELV_NAME_E	Varchar			Y			Attribute
4	DELV_ADD_D1	Varchar			Y			
5	DELV_ADD_E1	Varchar			Y			
6	DELV_TEL	Varchar			Y			
7	DELV_FAX	Varchar			Y			

Table C.12. Structure of Department Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	DEPT_CODE	VarChar	Y	Y		Section		Primary key
2	DEPT_DESC	Integer	Y	Y				Attribute
3	SECT_CODE	Char	Y	Y				Attribute
4	SECT_DESC	Date						Attribute
5	SECT_SDIV_CODE	VarChar						Attribute

Table C.13. Structure of Model Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	MODL_MODEL_NO	VarChar	Y	Y		Company P/O Customer P/O Model Price		Primary key
2	MODL_MODEL_DESC	VarChar						Attribute
3	MODL_CATA_CODE	VarChar						Foreign key
4	MODL_STOP	Char						Attribute
5	MODL_ISO	VarChar						Attribute
6	MODL_UNIT_CODE	VarChar						Attribute
7	MODL_MIN_ORDER	Number						Attribute
8	MODL_MIN_LEVEL	Number						Attribute
9	MODL_COMM_CODE	VarChar			Y			Foreign key
10	MODL_WEIGHT_COST	Number			Y			Attribute
11	MODL_LATEST_COST	Number			Y			Attribute
12	MODC_CUST_CODE	VarChar						Foreign key
13	MODC_CUST_MODEL	VarChar						Attribute
14	MODC_CUST_MODEL_D ESC	VarChar						Attribute

Table C.14. Structure of Model Price Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	MPH_MODEL_NO	VarChar	Y	Y		Model		Primary key
2	Model Description	VarChar			Y			Attribute
3	MPH_CUST_COSE	VarChar	Y	Y				Foreign key
4	MPH_SUPP_CODE	VarChar	Y	Y				Foreign key
5	MPH_PRIC_TRM	VarChar	Y	Y				Foreign key
6	MPI_EFF_DATE	Date						Attribute
7	MPI_EXP_DATE	Date						Attribute
8	MPI_COST_CURR	VarChar			Y			Attribute
9	MPI_COST	Number			Y			Attribute
10	MPI_DCOMM	VarChar			Y			Attribute
11	MPI_PRIC_CURR1	VarChar			Y			Attribute
12	MPI_PRICE1	Number			Y			Attribute
13	MPI_PRIC_CURR2	VarChar			Y			Attribute
14	MPI_PRICE2	Number			Y			Attribute
15	MPI_PRIC_CURR3	VarChar			Y			Attribute
16	MPI_PRICE3	Number			Y			Attribute
17	MPI_IPRIC_CURR	VarChar						Attribute

Table C.14. Structure of Model Price Table (Continued).

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
18	MPI_IPRICE	Number						Attribute
19	MPI_COMM	Number						Attribute
20	Markup Percentage1	Number						Attribute
21	Markup Percentage2	Number						Attribute
22	Markup Percentage3	Number						Attribute

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Table C.15. Structure of Payee Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	PYEH_CODE	VarChar	Y	Y				Primary key
2	PYEH_NAME	VarChar						Attribute
3	PYEH_PAY_DATE	VarChar			Y			Attribute
4	PYEH_ACC_CODE	VarChar						Attribute
5	PYEH_PAY_TRM	VarChar			Y			Attribute
6	PYEH_MEI_CODE	VarChar						Attribute
7	PYEI_SUPP	VarChar	Y	Y				Foreign key

Table C.16. Structure of Payment Term Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	PYTM_CODE	VarChar	Y	Y		Customer Delivery Order		Primary key
2	PYTM_DESC	VarChar						Attribute

Table C.17. Structure of Price Term Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	PRTM_CODE	VarChar	Y	Y		Model Price		Primary key
2	PRTM_DESC	VarChar						Attribute

Table C.18. Structure of Sale Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	SALE_ID	Number	Y	Y				Primary key
2	SALE_PERSON	VarChar						Attribute
3	SALE_SECT_CODE	VarChar	Y	Y				Foreign key

Table C.19. Structure of Supplier Group Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	SGRP_CODE	VarChar	Y	Y		Supplier		Primary key
2	SGRP_DESC	VarChar						Attribute

Table C.20. Structure of Supplier Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	SUPP_CODE	VarChar	Y	Y		Company P/O Customer P/O		Primary key
2	SUPP_DESC	VarChar			Y			Attribute
3	SUPP_MEI_CODE	VarChar						Attribute
4	SUPP_GRP	VarChar	Y	Y				Foreign key
5	SUPP_CONTACT	VarChar			Y			Attribute
6	SUPP_ADD	VarChar			Y			Attribute
7	SUPP_TEL	VarChar			Y			Attribute
8	SUPP_FAX	VarChar			Y			Attribute
9	SUPP_TEX	VarChar			Y			Attribute
10	SUPP_COUN_CODE	VarChar			Y			Foreign key

Table C.21. Structure of VAT Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	VT_TR_TY	VarChar	Y	Y		Customer P/O Delivery Order Receipt Detail		Primary key
2	VT_TR_NAME	VarChar						Attribute
3	VTR_ED_DATE	Date						Attribute
4	VTR_ST_DATE	Date						Attribute
5	VTR_RATE	Number						Attribute
6	VTR_CLOSED	Char						Attribute

Table C.22. Structure of Unit Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	UNIT_CODE	VarChar	Y	Y		Commodity Model		Primary key
2	UNIT_DESC	VarChar						Attribute

Table C.23. Structure of Warehouse Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	WARE_CODE	Integer	Y	Y		Delivery Order Stock Movement Stock Out Notice		Primary key
2	WARE_ADD1	VarChar			Y			Attribute
3	WARE_DESC	VarChar			Y			Attribute
4	WARE_FAX1	VarChar			Y			Attribute
5	WARE_TEL1	VarChar			Y			Attribute
6	WARE_TEX1	VarChar*			Y	*		Attribute
7	WARE_TYPE	Char			Y			Attribute
8	WARE_MEI_CODE	VarChar			Y			Attribute

Table C.24. Structure of Customer P/O Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	CPOH_CUST_CPO_NO	VarChar	Y	Y		Company P/O Delivery Order Receipt Detail		Primary key
2	CPOH_CUST_CODE	VarChar	Y	Y				Foreign key
3	CPOH_CPO_TY	Char						Attribute
4	CPOH_CURR_CODE	VarChar	Y	Y				Foreign key
5	CPOH_PRIC_TRM	VarChar	Y	Y				Foreign key
6	CPOH_CPO_DATE	Date						Attribute
7	Sales man name	Number	Y	Y				Foreign key
8	CPOS_SECT_CODE	VarChar	Y	Y				Foreign key
9	CPOH_REMARK	VarChar			Y			Attribute
10	CPOH_MODIFIED_DATE	Date						Attribute
11	CPOH_MODIFIED_BY	VarChar						Attribute
12	CPOH_OUR_REF	Number						Attribute
13	CPOH_STATUS	VarChar						Attribute
14	Customer Model No.	VarChar						Attribute
15	CPOI_QTY	Number						Attribute

Table C.24. Structure of Customer P/O Table (Continued).

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
16	CPOI_MODEL_NO	VarChar	Y	Y				Foreign key
17	CPOI_OUTSTD_QTY	Number						Attribute
18	CPOI_DLY_DATE	Date						Attribute
19	CPOI_SUPP_CODE	VarChar	Y	Y				Foreign key
20	CPOI_UNIT_PRICE	Number						Attribute
21	CPOI_REMARK	VarChar						Attribute
22	CPOI_COST_CURR	VarChar						Attribute
23	CPOI_UNIT_COST	Number						Attribute
24	CPOH_DELV_ID	VarChar	Y	Y				Foreign key
25	CPOH_VT_TR_TY	VarChar	Y	Y				Foreign key
26	CPOH_ITM_PO_NO	VarChar						Attribute
27	CPOI_CUST_ITM_NO	VarChar *				*		Attribute

Table C.25. Structure of Company Purchase Order Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	POH_PO_NO	VarChar	Y	Y		Customer P/O Delivery Order		Primary key
2	POH_PO_TY	Char						Attribute
3	POH_CPO_NO	VarChar	Y	Y				Foreign key
4	POH_ACCOUNTEE	VarChar						Attribute
5	POH_CONSIGNEE	VarChar						Attribute
6	POH_COMM	Number						Attribute
7	POH_CURR_CODE	VarChar	Y	Y				Foreign key
8	POH_SECT_CODE	VarChar	Y	Y				Foreign key
9	POH_PRIC_TRM	VarChar	Y	Y				Foreign key
10	POH_DEST_CODE	VarChar						Attribute
11	POH_BANK_NAME	VarChar	Y	Y				Foreign key
12	POH_SALES_OFF	VarChar						Attribute
13	POH_CUST_CODE	VarChar	Y	Y				Foreign key
14	POH_SUPP_CODE	VarChar	Y	Y				Foreign key
15	POH_PAYEE	VarChar	Y	Y				Foreign key
16	POH_SEND_TY	VarChar						Attribute

Table C.25. Structure of Company Purchase Order Table (Continued).

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
17	POH_RMK	VarChar						Attribute
18	POH_MODIFIED_BY	VarChar						Attribute
19	POH_MODIFIED_DATE	Date						Attribute
20	POH_STATUS	Char						Attribute
21	POH_ISS_DATE	Date						Attribute
22	POH_RESERVER	VarChar						Attribute
23	POI_ITEM_NO	Number						Attribute
24	POI_FGHT_TY	Char						Attribute
25	POI_MODEL_NO	VarChar	Y	Y				Foreign key
26	POI_COMM	Number						Attribute
27	POI_UNIT_PRICE	Number						Attribute
28	POI_QTY	Number						Attribute
29	POI_OUTSTD_QTY	Number						Attribute
30	POI_ETD_DATE	Date						Attribute
31	POI_ETA_DATE	Date						Attribute
32	CPO No.	VarChar	Y	Y				Foreign key
33	Customer code	VarChar	Y	Y				Foreign key

Table C.25. Structure of Company Purchase Order Table (Continued).

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
34	POI_REPLY_NO	VarChar						Attribute
35	POI_CONF_NO	Char						Attribute

Table C.26. Structure of Delivery Order Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	DOH_DO_NO	VarChar	Y	Y		Customer P/O Company P/O Receipt Detail		Primary key
2	DOH_CPO_NO	VarChar						Foreign key
3	DOH_DO_TY	Char						Attribute
4	DOH_STATUS	VarChar						Attribute
5	DOH_DO_DATE	Date						Attribute
6	DOH_JOB_NO	VarChar						Attribute
7	DOH_WARE_CODE	VarChar						Foreign key
8	DOH_DEALER	VarChar						Attribute

Table C.26. Structure of Delivery Order Table (Continued).

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
9	DOH_MODIFIED_BY	VarChar						Attribute
10	DOH_MODIFIED_DATE	Date						Attribute
11	DOH_INV_NO	VarChar						Attribute
12	DOH_POST_DATE	Date						Attribute
13	Calculated	VarChar						Attribute
14	DOH_CUST_CODE	VarChar	Y	Y				Foreign key
15	DOH_CUST_NAME	VarChar						Attribute
16	DOH_CUST_ADD	VarChar						Attribute
17	DOH_CUST_PHONE	VarChar						Attribute
18	DOH_DISTRICT	Char						Attribute
19	DOH_SECT_CODE	VarChar	Y	Y				Foreign key
20	DOH_CON_QUO_NO	VarChar						Attribute
21	DOH_GOODS_TYPE	VarChar						Attribute
22	DOH_VESSEL_ETA	VarChar						Attribute
23	DOH_CURR_CODE	VarChar	Y	Y				Foreign key
24	DOH_PAYTERM	VarChar	Y	Y				Foreign key
25	DOH_DELI_DATE	Date						Attribute

Table C.26. Structure of Delivery Order Table (Continued).

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
26	DOH_DEPOSIT_TY	VarChar						Attribute
27	DOH_DEPOSIT_AMT	Number						Attribute
28	DOH_DEPOSIT_REF	VarChar						Attribute
29	DOH_PER_DISC	Number						Attribute
30	DOH_AMT_DISC	Number						Attribute
31	DOH_OTHER_CHARGE	Number						Attribute
32	DOH_QA_CODE	VarChar						Attribute
33	DOH_REMARK	VarChar						Attribute
34	DOH_SALE_ID	Number	Y	Y				Foreign key
35	DOH_VT_TR_TY	VarChar	Y	Y				Foreign key
36	DOH_DELV_ID	VarChar	Y	Y				Foreign key

Table C.27. Structure of Stock In Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	WARE_DESC	VarChar	Y	Y		Stock Movement		Primary key
2	CGO_CARGO_NO	VarChar						Attribute
3	CGO_CARGO_NO	VarChar						Attribute

Table C.28. Structure of Stock Movement Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	SMH_SM_NO	VarChar	Y	Y		Stock Out Notice		Primary key
2	SMH_DATE	Date						Attribute
3	SMH_SECT_CODE	VarChar	Y	Y				Foreign key
4	SMH_REMARK	VarChar			Y			Attribute
5	SMH_MODIFIED_BY	VarChar						Attribute
6	SMH_MODIFIED_DATE	Date						Attribute
7	SMH_FIELD	VarChar						Attribute
8	SMI_MODEL_NO	VarChar	Y	Y				Foreign key
9	SMI_IN_OR_OUT	Char						Attribute

Table C.28. Structure of Stock Movement Table (Continued).

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
10	SMI_WARE_CODE	VarChar	Y	Y				Foreign key
11	SMI_GOODS_TYPE	VarChar						Attribute
12	SMI_QTY	Number						Attribute
13	SMI_COST_CURR	VarChar						Attribute
14	SMI_UNIT_COST	Number						Attribute
15	SMI_CUST_CODE	VarChar	Y	Y				Foreign key
16	SMI_SUPP_CODE	VarChar	Y	Y				Foreign key

Table C.29. Structure of Stock Out Notice Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	DOH_DO_NO	VarChar	Y	Y		Stock Movement		Primary key
2	DOH_WARE_CODE	VarChar	Y	Y				Foreign key
3	DOH_GOODS_TYPE	VarChar						Attribut
4	DOH_MOVE_DATE	Date			Y			Attribute
5	DOH_SECT_CODE	VarChar	Y	Y				Foreign key

Table C.29. Structure of Stock Out Notice Table (Continued).

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
6	DOH_STATUS	VarChar						Attribute
7	DOH_DELI_DATE	Date						Attribute
8	DOH_MOVE_SESSION	VarChar						Attribute
9	DOH_CUST_CODE	VarChar	Y	Y				Foreign key
10	DOH_MODIFIED_BY	VarChar						Attribute
11	DOH_MODIFIED_DATE	Date						Attribute
12	DOH_CAR_NO	Number						Attribute
13	DOI_MODEL_NO	VarChar	Y	Y				Foreign key
14	DOI_QTY	Number						Attribute
15	DOI_REMARK	VarChar			Y			Attribute

Table C.30 Structure of Stock Out Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	SOUT_WARE_CODE	VarChar	Y	Y		Stock Movement Stock Out Notice		Primary key
2	SOUT_SECT_CODE	VarChar	Y	Y				Foreign key
3	SOUT_DATE	Date						Attribute
4	DOH_MOVE_SESSION	VarChar						Attribute

Table C.31. Structure of Shipment Adjustment Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	SHPH_SHPMNT_NO	VarChar	Y	Y		Delivery Order		Primary key
2	SHPH_PAYEE_CODE	VarChar	Y	Y				Foreign key
3	SHPH_CREATED_DATE	Date						Attribute
4	SHPH_CURR_CODE	VarChar	Y	Y				Foreign key
5	SHPH_INV_TOTAL	Number						Attribute
6	SHPI_REMARK	VarChar						Attribute

Table C.32. Structure of D/O Adjustment Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	DOH_DO_NO	VarChar	Y	Y		Delivery Order		Primary key
2	DOH_SECT_CODE	VarChar	Y	Y				Foreign key
3	DOH_CUST_CODE	VarChar	Y	Y				Foreign key
4	DOH_REMARK1	VarChar			Y			Attribute
5	DOH_CREATED_DATE	Date						Attribute
6	Note Type	VarChar			Y			Attribute
7	DOH_CURR_CODE	VarChar	Y	Y				Foreign key

Table C.33. Structure of Receipt Detail Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key to Table	Check	Key Type
1	DOS_CUST_CODE	VarChar	Y	Y		Delivery Order Customer P/O Company P/O		Primary key
2	DOS_SECT_CODE	VarChar	Y	Y				Foreign key
3	DOS_REF_NO	VarChar	Y	Y				Attribute
4	DOS_DATE	Date						Attribute
5	DOS_CURR_CODE	VarChar	Y	Y				Foreign key
6	DOS_AMT	Number						Attribute
7	DOS_AC_YR	Number	Y	Y				Foreign key
8	DOS_AC_MTH	Number						Attribute
9	DOS_ALLOC_DATE	Date						Attribute



APPENDIX D
DATA DICTIONARY

Table D.1. A/C Period Table.

No.	Data Element	Meaning
1	ACP_YR	Fiscal Year for example Fiscal year for March 1998 is 1997
2	ACP_MTH	Number of Month in the fiscal year; for example April = '1', March = '12'
3	ACP_CLOSED	Closed

Table D.2. Bank Table.

No.	Data Element	Meaning
1	BANK_CODE	Code assigned for the bank
2	BANK_DESC	Bank name

Table D.3. Business Table.

No.	Data Element	Meaning
1	BFLD_CODE	Business code to identify business field of a customer.
2	BFLD_DESC	Description of business code

Table D.4. Category Table.

No.	Data Element	Meaning
1	CATM_CODE	Master category
2	CATM_DESC	Category description
3	CAT_CODE	Category code
4	CAT_DESC	Category description
5	CAT_FREIGHT_FEE	Import Freight cost rate

Table D.4. Category Table (Continued).

No.	Data Element	Meaning
6	CAT_IL_INSUR	Import insurance rate
7	CAT_IL_BANK_FEE	Import duty rate
8	CAT_MIN_MARKUP1	Markup by w/h sales rate
9	CAT_MIN_MARKUP2	Markup by Doc. Sales rate
10	CAT_MIN_MARKUP3	Markup by Drop. Shipment
11	CAT_DELI_FEE	Delivery fee ratre
12	CAT_IW_INSUR	inland insurance rate
13	CAT_PACK_FEE	Packing fee rate
14	CAT_STR_FEE	Storage fee rate
15	CAT_COMM	Commission rate
16	CAT_PROMOT_FEE	Promotion fee rate
17	CAT_STOCK_DEPN	Stock depreciation
18	CAT_ADV_FEE	advertisement fee
19	CAT_INST_FEE	Installation fee for FA
20	CAT_TRAIN_FEE	Training fee rate
21	CAT_IW_BANK_FEE	Inland bank fee rate
22	CAT_CONT_FEE	Contingency fee rate
23	CAT_SALE_PROV	Provision for after sales service and cost
24	CAT_BDEBT_PROV	Provision for bad debt
25	CAT_OTHS_CHRG	Other charges
26	CAT_LANDED_FEE	Landed Fee

Table D.5. Company Group Table.

No.	Data Element	Meaning
1	CGRP_CODE	Company Group Code
2	CGRP_DESC	Company Group Name

Table D.6. Commodity Table (Continued).

No.	Data Element	Meaning
1	COMM_CODE	Commodity code
2	COMM_UNIT_CODE	Unit code for the commodity
3	COMM_DESC	Description of the commodity

Table D.7. Country Table.

No.	Data Element	Meaning
1	COUN_CODE	Country Code
2	COUN_DESC	Country Name

Table D.8. Customer Table.

No.	Data Element	Meaning
1	CUST_CODE	Customer Code
2	CUST_DESC	Customer full name
3	CUST_MEI_CODE	Global code for the customer
4	CUST_CONTACT	Contact name
5	CUST_OFF_ADD1	Customer's office address
6	CUST_DEL_ADD1	Customer's delivery address
7	CUST_TEL1	Tel. no. of the customer
8	CUST_FAX1	Fax no. of the customer
9	CUST_TEX1	Telex no. of the customer
10	CUST_BUSS_FLD	Business field code of the customer
11	CUST_COMP_GRP	Company group of the customer
12	CUST_DFLT_CURR	Default currency of the customer
13	CUST_CRDT_LIMIT	Credit limit of the customer
14	Credit Balance	Balance of credit
15	CUST_PAY_TERM	Payment term of the customer

Table D.8. Customer Table (Continued).

No.	Data Element	Meaning
16	CUST_COUN_CODE	Country of the customer
17	CUST_BANK_NAME	Trade bank code for the customer
18	CUST_ACC_NO	Account number of customer
19	CUST_ACC_CODE	Account code of customer
20	CUST_RANK	Ranking of customer
21	CUST_STOP	Stop
22	CUST_RESALE	Customer Resale

Table D.9. Customer Thai Table.

No.	Data Element	Meaning
1	CUST_D_DESC	Customer full name in Thai
2	CUST_D_OFF_ADD1	Customer's office address in Thai
3	CUST_D_OFF_ADD2	Customer's office address in Thai

Table D.10. Currency Table.

No.	Data Element	Meaning
1	CURR_CODE	Currency code
2	CURR_DESC	Currency description
3	CURR_YR	Year for the exchange rate.
4	CURR_MTH	Month for the exchange rate.
5	CURR_RATE	Exchange rate for the period.

Table D.11. Department Table (Continued).

No.	Data Element	Meaning
1	DEPT_CODE	Department code
2	DEPT_DESC	Department name

Table D.12. Section Table.

No.	Data Element	Meaning
1	SECT_CODE	Section code in the Department
2	SECT_DESC	Section name
3	SECT_SDIV_CODE	Division Code in MEI
4	SECT_ACC_CODE	Section A/C code

Table D.13. Delivery Table.

No.	Data Element	Meaning
1	Delivery Code	Delivery Code
2	DELV_NAME_D	Delivery full name in Thai
3	DELV_NAME_E	Delivery full name in English
4	DELV_ADD_D1	Delivery address in Thai
5	DELV_ADD_E1	Delivery address in English
6	DELV_TEL	Delivery Telephone
7	DELV_FAX	Delivery Fax

Table D.14. Model Table.

No.	Data Element	Meaning
1	MODL_MODEL_NO	Model No.
2	MODL_MODEL_DESC	Model Description
3	MODL_CATA_CODE	Cataegory code

Table D.14. Model Table (Continued).

No.	Data Element	Meaning
4	MODL_STOP	Stop
5	MODL_ISO	Model ISO
6	MODL_UNIT_CODE	Unit Code
7	MODL_MIN_ORDER	Minimum order quantity
8	MODL_MIN_LEVEL	Minimum level
9	MODL_COMM_CODE	Commodity code
10	MODL_WEIGHT_COST	Weight Cost
11	MODL_LATEST_COST	Latest Cost
12	MODC_CUST_CODE	Customer with own model no.
13	MODC_CUST_MODEL	Customer model no.
14	MODC_CUST_MODEL_DESC	Customer model description

Table D.15. Payee Table.

No.	Data Element	Meaning
1	PYEH_CODE	Payee Code
2	PYEH_NAME	Payee Name
3	PYEH_PAY_DATE	Payee's due date
4	PYEH_ACC_CODE	Payee's code for account system
5	PYEH_PAY_TRM	Payment term for the payee
6	PYEH_MEI_CODE	Global code for the payee
7	PYEH_SUPP	Suppliers for the payee

Table D.16. Model Price Table (Continued).

No.	Data Element	Meaning
1	MPH_MODEL_NO	Model No.
2	Model Description	Model No. Description
3	MPH_CUST_CODE	Customer code for the price
4	MPH_SUPP_CODE	Supplier code for the cost/Price
5	MPH_PRIC_TRM	Price term
6	MPI_EFF_DATE	From this day price is effective
7	MPI_EXP_DATE	Unit this day price is valid.
8	MPI_COST_CURR	Currency code for direct cost
9	MPI_COST	Direct cost
10	MPI_DCOMM	Direct cost commission
11	MPI_PRIC_CURR1	Currency code for Price 1
12	MPI_PRICE1	Price 1
13	MPI_PRIC_CURR2	Currency code for Price 2
14	MPI_PRICE2	Price 2
15	MPI_PRIC_CURR3	Currency code for Price 3
16	MPI_PRICE3	Price 3
17	MPI_IPRIC_CURR	Currency code for indent price
18	MPI_IPRICE	Indent price
19	MPI_COMM	Commission for
20	Markup percentage1	Markup percentage for Price 1
21	Markup percentage2	Markup percentage for Price 2
22	Markup percentage3	Markup percentage for Price 3

Table D.17. Payment Terms Table.

No.	Data Element	Meaning
1	PYTM_CODE	Payment term code
2	PYTM_DESC	Payment term description

Table D.18. Price Terms Table (Continued).

No.	Data Element	Meaning
1	PRTM_CODE	Price term code
2	PRTM_DESC	Price term description

Table D.19. Sales Table.

No.	Data Element	Meaning
1	SALE_ID	Salesman ID
2	SALE_PERSON	Salesman name
3	SALE_SECT_CODE	Section code for the salesman

Table D.20. Supplier Group Table.

No.	Data Element	Meaning
1	SGRP_CODE	Supplier group code
2	SGRP_DESC	Supplier group description

Table D.21. Supplier Table.

No.	Data Element	Meaning
1	SUPP_CODE	Code of the supplier
2	SUPP_DESC	Name of the supplier
3	SUPP_MEI_CODE	Global code of the supplier
4	SUPP_GRP	Grouping code for the supplier
5	SUPP_CONTACT	Contact person of the supplier
6	SUPP_ADD	Address of the supplier in English
7	SUPP_TEL	Phone no. of the supplier
8	SUPP_FAX	Fax no. of the supplier

Table D.21. Supplier Table (Continued).

No.	Data Element	Meaning
9	SUPP_TEX	Telex no. of the supplier
10	SUPP_COUN_CODE	Country of the supplier

Table D.22. VAT Master Table.

No.	Data Element	Meaning
1	VT_TR_TY	VAT Type
2	VT_TR_NAME	Description

Table D.23. VAT Rate Table.

No.	Data Element	Meaning
1	VTR_ED_DATE	VAT Type
2	VTR_ST_DATE	Description
3	VTR_RATE	VAT Rate
4	VTR_CLOSED	Closed

Table D.24. Unit Table.

No.	Data Element	Meaning
1	UNIT_CODE	Unit Code
2	UNIT_DESC	Unit Code name

Table D.25. Warehouse Table (Continued).

No.	Data Element	Meaning
1	WARE_CODE	Code of the warehouse
2	WARE_ADD1	Address of the warehouse
3	WARE_DESC	Name of the warehouse
4	WARE_FAX1	Fax no. the warehouse
5	WARE_TEL1	Phone no. of the warehouse
6	WARE_TEX1	Telex no. of the warehouse
7	WARE_TYPE	Warehouse Type
8	WARE_MEI_CODE	Use for send data to MEI

Table D.26. Customer P/O Table.

No.	Data Element	Meaning
1	CPOH_CUST_CPO_NO	PO no. from customer
2	CPOH_CUST_CODE	Customer Code
3	CPOH_CPO_TY	Order Type
4	CPOH_CURR_CODE	Currency for the customer order
5	CPOH_PRIC_TRM	Price term for the CPO
6	CPOH_CPO_DATE	Date of Customer order
7	Sales man name	Select from the pull down list
8	CPOS_SECT_CODE	Section code of the salesman
9	CPOH_REMARK	Remarks of the CPO
10	CPOH_MODIFIED_DATE	Last modification date
11	CPOH_MODIFIED_BY	Last person who modified CPO
12	CPOH_OUR_REF	Reference no. given by this system
13	CPOH_STATUS	CPO Status
14	Customer Model No.	Model no. of the customer in CPO
15	CPOI_QTY	Quantity ordered by customer
16	CPOI_MODEL_NO	Model no.
17	CPOI_OUTSTD_QTY	Outstanding quantity

Table D.26. Customer P/O Table (Continued).

No.	Data Element	Meaning
18	CPOI_DLY_DATE	Delivery date requested by customer
19	CPOI_SUPP_CODE	Supplier of the product
20	CPOI_UNIT_PRICE	Unit price is automatically displayed.
21	CPOI_REMARK	Item remarks given by customer
22	CPOI_COST_CURR	Currency of its cost
23	CPOI_UNIT_COST	Unit cost of the product
24	CPOH_DELV_ID	Delivery of Customer
25	CPOH_VT_TR_TY	VAT Type
26	CPOI_ITM_PO_NO	Item PO no.
27	CPOI_CUST_ITM_NO	Customer Item no.

Table D.27. Company Purchase Order Table.

No.	Data Element	Meaning
1	POH_PO_NO	Automatically given by section
2	POH_PO_TY	Order type
3	POH_CPO_NO	CPO number, if linked to CPO
4	POH_ACCOUNTTEE	Enter accountee if different
5	POH_CONSIGNEE	Enter consignee if different.
6	POH_COMM	Change Commission if it is different
7	POH_CURR_CODE	Currency for this order
8	POH_SECT_CODE	Responsible Section for this order
9	POH_PRIC_TRM	Price term
10	POH_DEST_CODE	Destination code
11	POH_BANK_NAME	Bank name
12	POH_SALES_OFF	Sales office which receive order
13	POH_CUST_CODE	Customer code
14	POH_SUPP_CODE	Supplier code
15	POH_PAYEE	Payee code

Table D.27. Company Purchase Order Table (Continued).

No.	Data Element	Meaning
16	POH_SEND_TY	Transmission through IPS or not
17	POH_RMK	Remarks to supplier
18	POH_MODIFIED_BY	Last person who modified
19	POH_MODIFIED_DATE	Last date when modified
20	POH_STATUS	Status of this order
21	POH_ISS_DATE	Issue date of this order
22	POH_RESERVER	Person who reserved this order
23	POI_ITEM_NO	Item no. of this order
24	POI_FGHT_TY	Freight type
25	POI_MODEL_NO	Model no.
26	POI_COMM	Commission percentage
27	POI_UNIT_PRICE	Unit price
28	POI_QTY	Quantity of this order
29	POI_OUTSTD_QTY	Outstanding Order quantity
30	POI_ETD_DATE	ETD
31	POI_ETA_DATE	ETA
32	CPO NO.	CPO no.
33	Customer code	Customer code
34	POI_REPLY_NO	Reply from supplier
35	POI_CONF_NO	Confirmation form supplier

Table D.28. Delivery Order Table.

No.	Data Element	Meaning
1	DOH_DO_NO	Delivery Order No.
2	DOH_CPO_NO	Enter to call contents of CPO
3	DOH_DO_TY	Type of DO
4	DOH_STATUS	Delivery Order Status
5	DOH_DO_DATE	Order Date

Table D.28. Delivery Order Table (Continued).

No.	Data Element	Meaning
6	DOH_JOB_NO	Delivery Job No.
7	DOH_WARE_CODE	Warehouse Code
8	DOH_DEALER	Dealer Description
9	DOH_MODIFIED_BY	Person who modified delivery order
10	DOH_MODIFIED_DATE	Last day that modified delivery order
11	DOH_INV_NO	Inventory No.
12	DOH_POST_DATE	Post Date
13	Calculated	Calculated
14	DOH_CUST_CODE	Customer code
15	DOH_CUST_NAME	Customer name
16	DOH_CUST_ADD	Customer Address
17	DOH_CUST_PHONE	Customer Phone No.
18	DOH_DISTRICT	Customer District
19	DOH_SECT_CODE	Section Code
20	DOH_CON_QUO_NO	Quote no.
21	DOH_GOODS_TYPE	Goods type
22	DOH_VESSEL_ETA	Estimated time of arrival of the ship
23	DOH_CURR_CODE	Currency Code
24	DOH_PAYTERM	terms of payment
25	DOH_DELI_DATE	Delivery date of the customer
26	DOH_DEPOSIT_TY	Deposit type
27	DOH_DEPOSIT_AMT	Enter Amount of deposit
28	DOH_DEPOSIT_REF	Reference no. of deposit
29	DOH_PER_DISC	Discount rate
30	DOH_AMT_DISC	Amount of discount
31	DOH_OTHER_CHARGE	Other surcharges
32	DOH_QA_CODE	QA Code
33	DOH_SALE_ID	Salesman name from CPO
34	DOH_VT_TR_TY	VAT Type
35	DOH_DELV_ID	Delivery address

Table D.28. Delivery Order Table (Continued).

No.	Data Element	Meaning
22	DOH_VESSEL_ETA	Estimated time of arrival of the ship
23	DOH_CURR_CODE	Currency Code
24	DOH_PAYTERM	terms of payment
25	DOH_DELI_DATE	Delivery date of the customer
26	DOH_DEPOSIT_TY	Deposit type
27	DOH_DEPOSIT_AMT	Enter Amount of deposit
28	DOH_DEPOSIT_REF	Reference no. of deposit
29	DOH_PER_DISC	Discount rate
30	DOH_AMT_DISC	Amount of discount
31	DOH_OTHER_CHARGE	Other surcharges
32	DOH_QA_CODE	QA Code
33	DOH_REMARK	Remarks of the DO
34	DOH_SALE_ID	Salesman name from CPO
35	DOH_VT_TR_TY	VAT Type
36	DOH_DELV_ID	Delivery address

Table D.29. Stock In Table.

No.	Data Element	Meaning
1	WARE_DESC	Select Warehouse
2	CGO_CARGO_NO	Enter Cargo no. from which stock-in starts.
3	CGO_CARGO_NO	Enter Cargo no. until which stock-in continues.

Table D.30. Stock Movement Table.

No.	Data Element	Meaning
1	SMH_SM_NO	Enter stock movement no.
2	SMH_DATE	Date of movement
3	SMH_SECT_CODE	Section for this movement
4	SMH_REMARK	Remarks for this movement
5	SMH_MODIFIED_BY	Name automatically
6	SMH_MODIFIED_DATE	System date shown
7	SMH_FILED	Field of Stock Movement
8	SMI_MODEL_NO	Model no.
9	SMI_IN_OR_OUT	Move in or move out
10	SMI_WARE_CODE	Warehouse code
11	SMI_GOODS_TYPE	Goods type
12	SMI_QTY	Quantity of movement
13	SMI_COST_CURR	Currency
14	SMI_UNIT_COST	Unit cost of the commodity
15	SMI_CUST_CODE	Customer to send
16	SMI_SUPP_CODE	Supplier of the commodity

Table D.31. Stock Out Notice Table.

No.	Data Element	Meaning
1	DOH_DO_NO	Delivery Order No.
2	DOH_WARE_CODE	Warehouse code
3	DOH_GOODS_TYPE	Goods type
4	DOH_MOVE_DATE	Date of Stock Out
5	DOH_SECT_CODE	Section Code
6	DOH_STATUS	Status of Delivery
7	DOH_DELI_DATE	Delivery Date
8	DOH_MOVE_SESSION	Session of Move Stock Out
9	DOH_CUST_CODE	Customer Code
10	DOH_MODIFIED_BY	Salesman who modified data

Table D.31. Stock Out Notice Table (Continued).

No.	Data Element	Meaning
11	DOH_MODIFIED_DATE	Date of modified data
12	DOH_CAR_NO	Cargo No.
13	DOI_MODEL_NO	Model No.
14	DOI_QTY	Quantity of delivery
15	DOI_REMARK	Remark
16	SMI_SUPP_CODE	Supplier Code

Table D.32. Stock Out Table.

No.	Data Element	Meaning
1	SOUT_WARE_CODE	Warehouse Code
2	SOUT_SECT_CODE	Section Code
3	SOUT_DATE	Date of Stock Out
4	DOH_MOVE_SESSION	Session of move stock out

Table D.33. Shipment Adjustment Table.

No.	Data Element	Meaning
1	SHPH_SHPMNT_NO	Shipment No.
2	SHPH_PAYEE_CODE	Payee Code
3	SHPH_CREATED_DATE	Date of Shipment
4	SHPH_CURR_CODE	Currency Code
5	SHPH_INV_TOTAL	Invoice total amount
6	SHPI_REMARK	Remark

Table D.34. D/O Adjustment Table.

No.	Data Element	Meaning
1	DOH_DO_NO	Delivery Order No.
2	DOH_SECT_CODE	Section Code
3	DOH_CUST_CODE	Customer Code
4	DOH_REMARK1	Remark
5	DOH_CREATED_DATE	Delivery Date
6	Note type	Note
7	DOH_CURR_CODE	Currency Code

Table D.35. Receipt Detail Table.

No.	Data Element	Meaning
1	DOS_CUST_CODE	Customer Code
2	DOS_SECT_CODE	Section Code
3	DOS_REF_NO	Reference No.
4	DOS_DATE	Delivery Date
5	DOS_CURR_CODE	Currency Code
6	DOS_AMT	AMT
7	DOS_AC_TY	A/C Year
8	DOS_AC_MTH	A/C Month
9	DOS_ALLOC_DATE	Allocation Date



APPENDIX E

PROCESS SPECIFICATION

PROCESS SPECIFICATION

Table E.1. Process Specification of Process 1.1.

Items	Description
Process Name:	Check Customer Profile
Data In:	Customer Data
Data Out:	Customer Detail
Process:	<ol style="list-style-type: none"> 1. Get necessary customer data, customer name, billing address, shipping address, telephone number, facsimile number, contact person 2. Read customer data from the Customer Profile Database 3. Send customer data to the Process 1.2
Attachment:	<ol style="list-style-type: none"> 1. Customer 2. Data Store Customer Profile

Table E.2. Process Specification Process 1.2.

Items	Description
Process Name:	Create New Customer Profile
Data In:	Customer Detail from process 1.1
Data Out:	Customer Record
Process:	<ol style="list-style-type: none"> 1. Receive customer detail 2. Read customer detail 3. Record the customer detail into Customer Profile Database 4. Update customer detail to the Customer Profile Database 5. Delete customer detail from the Customer Profile Database
Attachment:	<ol style="list-style-type: none"> 1. Data Store Customer Profile

Table E.3. Process Specification of Process 1.3.

Items	Description
Process Name:	Create & Approve Customer Credit
Data In:	Customer Detail
Data Out:	Approved Customer Credit Status
Process:	<ol style="list-style-type: none"> 1. Read customer detail 2. Evaluate the credit status based on the provided data 3. Determine whether the customer should have a credit of 15 days, 30 days or cash only 4. Record the credit status to the Customer Profile Database 5. Update customer credit to the Customer Profile Database 6. Send approved customer credit status to the Process 2.3
Attachment:	<ol style="list-style-type: none"> 1. Data Store Customer Profile

Table E.4. Process Specification of Process 1.4.

Items	Description
Process Name:	Verify Customer Purchase Order
Data In:	Customer Purchase Order
Data Out:	Verified Customer Purchase Order
Process:	<ol style="list-style-type: none"> 1. Read Customer Purchase Order 2. Check whether all the data provided by the customer is complete and meaningful 3. Record the customer purchase order to the Customer Purchase Order Database 4. Send the approved purchase order to the Sales & Marketing Department 5. Update Customer Purchase Order Database 6. Send uncompleted purchase order back to the customer 7. Send verified customer purchase order to Process 2.1
Attachment:	<ol style="list-style-type: none"> 1. Data Store Customer Purchase Order 2. Sales & Marketing Department

Table E.5. Process Specification of Process 2.1.

Items	Description
Process Name:	Evaluate & Calculate Customer Quoted Price
Data In:	Customer Purchase Order
Data Out:	Accept Quoted Price
Process:	<ol style="list-style-type: none"> 1. Read customer purchase order 2. Calculate whether the quoted price is acceptable for the production 3. Send the accept quoted price to Process 2.6
Attachment:	1. Sales & Marketing Department

Table E.6. Process Specification of Process 2.2.

Items	Description
Process Name:	Determine Delivery Date
Data In:	Customer Purchase Order
Data Out:	Accept Delivery Date
Process:	<ol style="list-style-type: none"> 1. Read customer purchase order 2. Determine whether the delivery date is accepted for the delivery of the product 3. Send the acceptable delivery date to Process 2.6
Attachment:	1. Sales & Marketing Department

Table E.7. Process Specification of Process 2.3.

Items	Description
Process Name:	Check Term of Payment & Discount
Data In:	Customer Purchase Order
Data Out:	Acceptable Term of Payment & Discount
Process:	<ol style="list-style-type: none"> 1. Read customer purchase order 2. Evaluate term of payment from the customer credit status 3. Determine the discount rate 4. Send the accepted term of payment and discount to Process 2.6
Attachment:	1. Sales & Marketing Department

Table E.8. Process Specification of Process 2.5.

Items	Description
Process Name:	Determine Quantity & Quality
Data In:	Customer Purchase Order
Data Out:	Acceptable Quantity & Quality
Process:	<ol style="list-style-type: none">1. Read customer purchase order2. Determine the amount of quantity order is worth of the production3. Determine the requested quality of the product4. Send the acceptable quantity and quality to Process 2.6
Attachment:	<ol style="list-style-type: none">1. Sales & Marketing Department

Table E.9. Process Specification of Process 2.6.

Items	Description
Process Name:	Check 4 condition
Data In:	<ol style="list-style-type: none">1. Accepted Quoted Price2. Accepted Delivery Date3. Accepted Term of Payment & Discount4. Accepted Quantity & Quality
Data Out:	Model Request
Process:	<ol style="list-style-type: none">1. Gather all the result from the previous four process2. Read all four conditions3. Check whether all four conditions meet the acception4. Issue the production request5. Update the Model Database6. Negotiate with the customer if the result is not consensus
Attachment:	<ol style="list-style-type: none">1. Customer2. Data Store Model File

Table E.10. Process Specification of Process 4.1.

Items	Description
Process Name:	Check Supplier
Data In:	Supplier Data
Data Out:	Supplier Detail
Process:	<ol style="list-style-type: none"> 1. Get Supplier Code 2. Search Supplier Database with the supplier code 3. Read supplier detail 4. Send supplier detail to the Sales & Marketing Department
Attachment:	<ol style="list-style-type: none"> 1. Sales & Marketing Department 2. Data Store Supplier File

Table E.11. Process Specification of Process 4.2.

Items	Description
Process Name:	Create New Supplier Detail
Data In:	Supplier Detail
Data Out:	Supplier Record
Process:	<ol style="list-style-type: none"> 1. Get supplier detail 2. Create supplier code 3. Record supplier detail to the Supplier Database 4. Update supplier detail to the Supplier Database 5. Delete supplier detail from the Supplier Database
Attachment:	<ol style="list-style-type: none"> 1. Data Store Supplier File

Table E.12. Process Specification of Process 4.3.

Items	Description
Process Name:	Create New Supplier Detail
Data In:	1. Supplier Code 2. Model Number
Data Out:	Company Purchase Order
Process:	1. Get Supplier Code 2. Key in all detail of the production requirement to the purchase order 3. Record the detail of purchase order to the Company Purchase Order Database 4. Update the Company Purchase Order Database 5. Send Company Purchase Order to the supplier
Attachment:	1. Supplier 2. Data Store Company Purchase Order

Table E.13. Process Specification of Process 5.1.

Items	Description
Process Name:	Check Quality & Quantity
Data In:	Supplier Invoice
Data Out:	Valid Supplier Invoice
Process:	1. Get Supplier Invoice 2. Check whether the product delivery by the supplier is according to the invoice 3. Reject supplier invoice if the quality and quantity is not up to the production standard 4. Send supplier invoice to the Process 5.2
Attachment:	1. Supplier

Table E.14. Process Specification of Process 5.2.

Items	Description
Process Name:	Match Invoice With Company Purchase Order
Data In:	1. Supplier Invoice 2. Company Purchase Order
Data Out:	Valid Supplier Invoice
Process:	1. Get supplier Invoice 2. Get company purchase order 3. Check whether the supplier invoice is matched with the previously issued company purchase order 4. Reject the supplier invoice if it is not matched with the company purchase order 5. Update the Invoice Database 6. Send valid invoice to the Finance & Accounting Department
Attachment:	1. Data Store Company Purchase Order 2. Data Store Invoice File 3. Finance & Accounting Department

Table E.15. Process Specification of Process 6.1.

Items	Description
Process Name:	Calculate Model Price
Data In:	Supplier Invoice
Data Out:	Model Price
Process:	1. Get Supplier Invoice 2. Calculate the production cost 3. Add Mark Up of the company to the model price 4. Send the marked up model price to Process 6.2
Attachment:	1. Finance & Accounting Department 2. Invoice File

Table E.16. Process Specification of Process 6.2.

Items	Description
Process Name:	Calculate VAT Amount
Data In:	Total Model Price
Data Out:	Total Model Price Included VAT
Process:	1. Get total model price 2. Calculate VAT amount 3. Add VAT to the model price 4. Send model price included VAT to the Finance & Accounting Department
Attachment:	1. Finance & Accounting Department

Table E.17. Process Specification of Process 6.3.

Items	Description
Process Name:	Print Company Invoice
Data In:	Total Model Price Included VAT
Data Out:	Company Invoice
Process:	1. Get total model price included VAT 2. Record company invoice 3. Print Company invoice 4. Update (Company/Customer or just) Invoice File
Attachment:	1. Finance & Accounting Department 2. Data Store Invoice File

Table E.18. Process Specification of Process 6.4.

Items	Description
Process Name:	Print Company Delivery Order
Data In:	Company Invoice
Data Out:	Company Invoice & Delivery Order
Process:	<ol style="list-style-type: none">1. Get company invoice2. Record company invoice number to the delivery note3. Record delivery order4. Print Company delivery order5. Update delivery order to the Delivery Order Database6. Send company invoice as well as delivery order to the Process 6.5
Attachment:	<ol style="list-style-type: none">1. Data Store Delivery Order File

Table E.19. Process Specification of Process 6.5.

Items	Description
Process Name:	Delivery Product
Data In:	Company Invoice & Delivery Order
Data Out:	Company Invoice & Delivery Order
Process:	<ol style="list-style-type: none">1. Get company invoice2. Get company delivery order3. Send company invoice and delivery order to the customer in order to notify the future payment as well as the acceptance of the product by the customer
Attachment:	<ol style="list-style-type: none">1. Customer

Table E.20. Process Specification of Process 7.1.

Items	Description
Process Name:	Produce Customer Purchase Order Report
Data In:	Data Store Customer Purchase Order
Data Out:	Customer Purchase Order Report
Process:	<ol style="list-style-type: none">1. Read customer purchase order from the Customer Purchase Order File2. Generate the customer purchase order report3. Send the customer purchase order report to the President
Attachment:	<ol style="list-style-type: none">1. President2. Data Store Customer Purchase Order

Table E.21. Process Specification of Process 7.2.

Items	Description
Process Name:	Produce Company Purchase Order Report
Data In:	Data Store Company Purchase Order
Data Out:	Company Purchase Order Report
Process:	<ol style="list-style-type: none">1. Read company purchase order from the Company Purchase Order File2. Generate the company purchase order report3. Send the company purchase order report to the President
Attachment:	<ol style="list-style-type: none">1. President2. Data Store Company Purchase Order

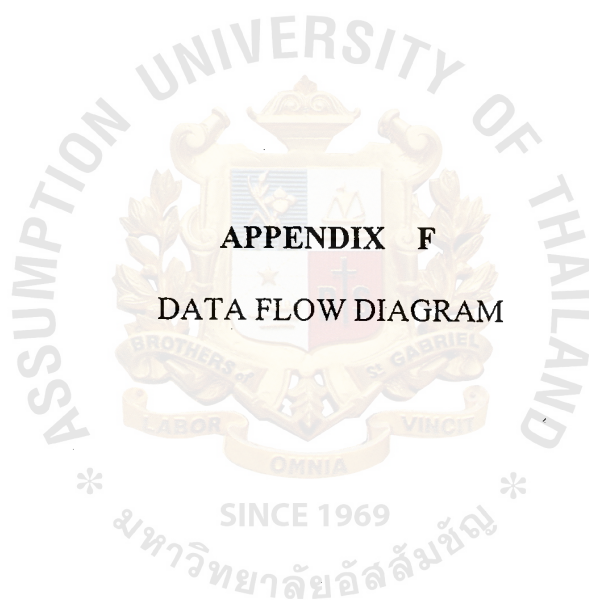
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Table E.22. Process Specification of Process 7.3.

Type	Description
Process Name:	Produce Invoice Report
Data In:	Data Store Invoice
Data Out:	Sales Invoice Report
Process:	<ol style="list-style-type: none"> 1. Read sales information from the Invoice Database 2. Generate the sales statistic report 3. Send the sales statistic report to the President
Attachment:	<ol style="list-style-type: none"> 1. President 2. Data Store Invoice

Table E.23. Process Specification of Process 7.4.

Type	Description
Process Name:	Produce Delivery Order Report
Data In:	Data Store Delivery Order
Data Out:	Delivery Order Report
Process:	<ol style="list-style-type: none"> 1. Read delivery order information from the Delivery Order Database 2. Generate the delivery order report 3. Send the delivery order report to the President
Attachment:	<ol style="list-style-type: none"> 1. President 2. Data Store Delivery Order



APPENDIX F
DATA FLOW DIAGRAM

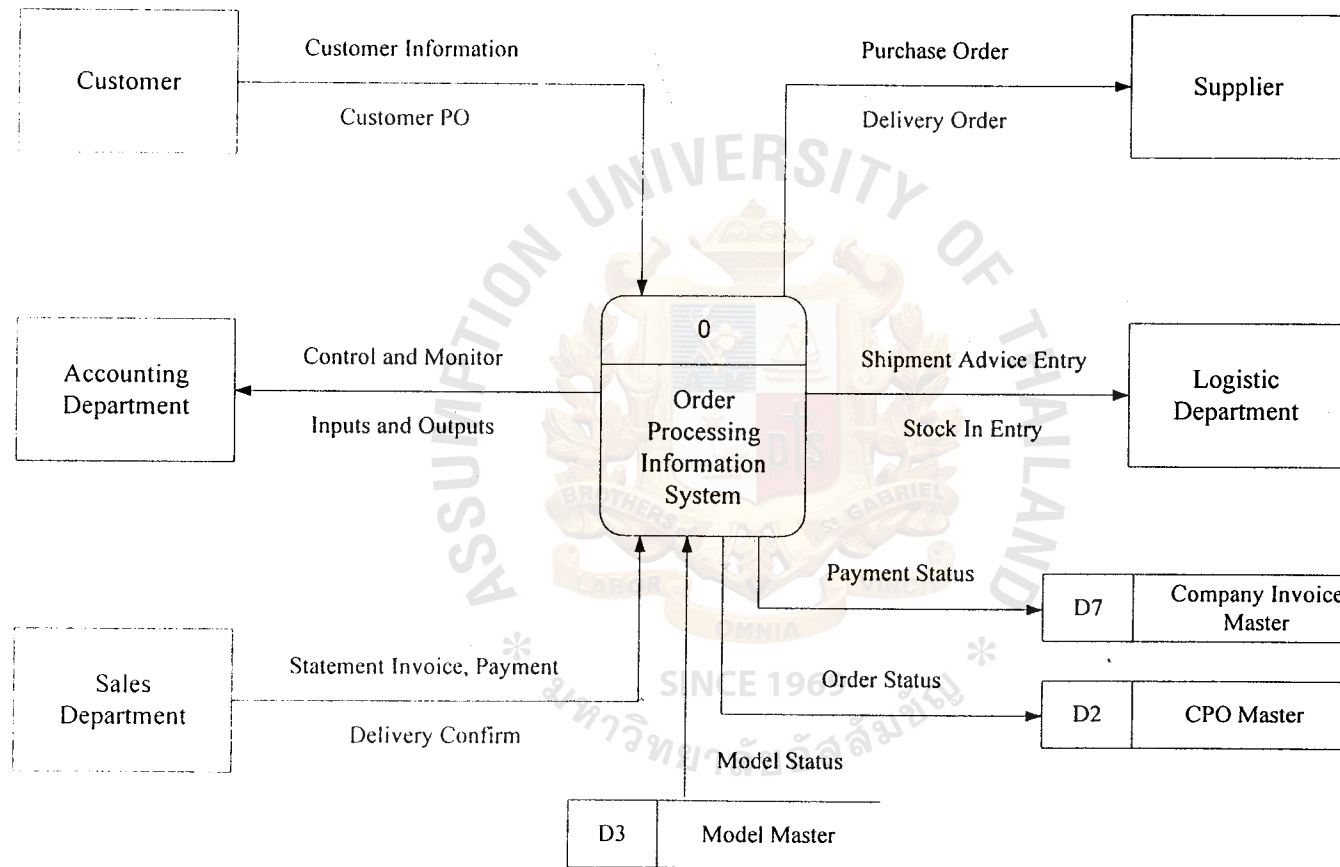


Figure F.1. The Context Diagram of Order Processing Information System.

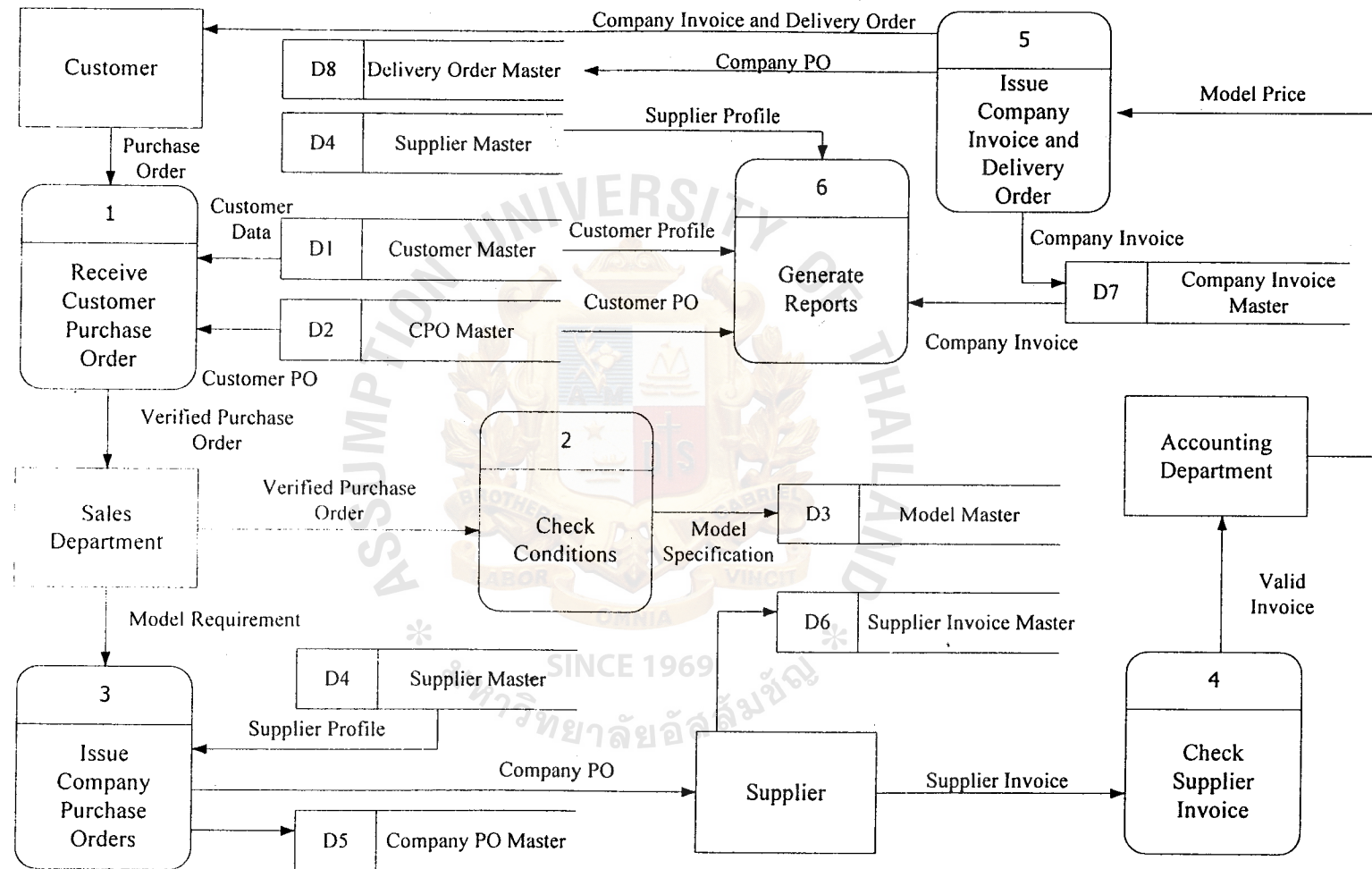


Figure F.2. Data Flow Diagram Level 0 of Proposed System.

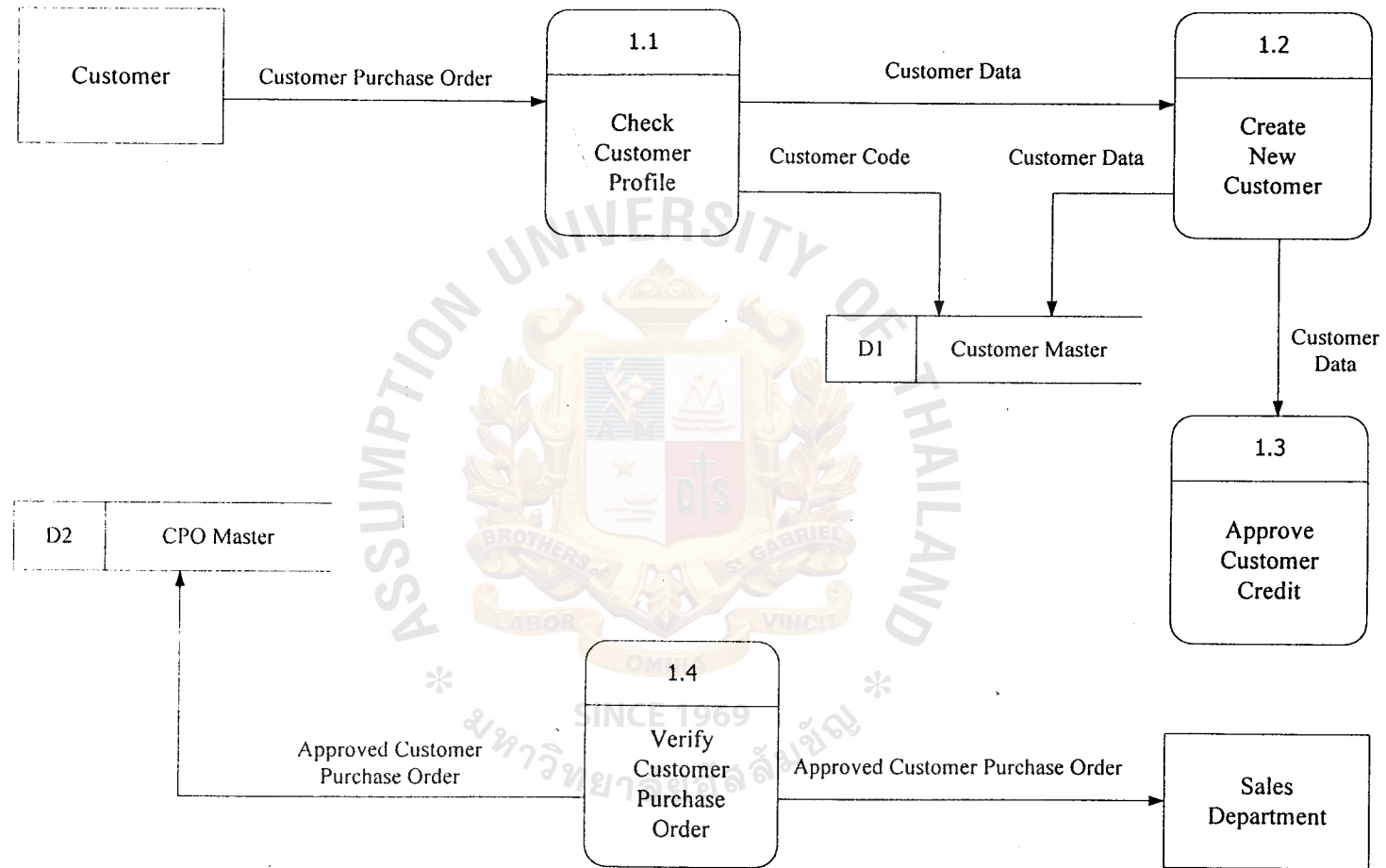


Figure F.3. Data Flow Diagram Level 1: Process 1.0 Receive Customer Purchase Order.

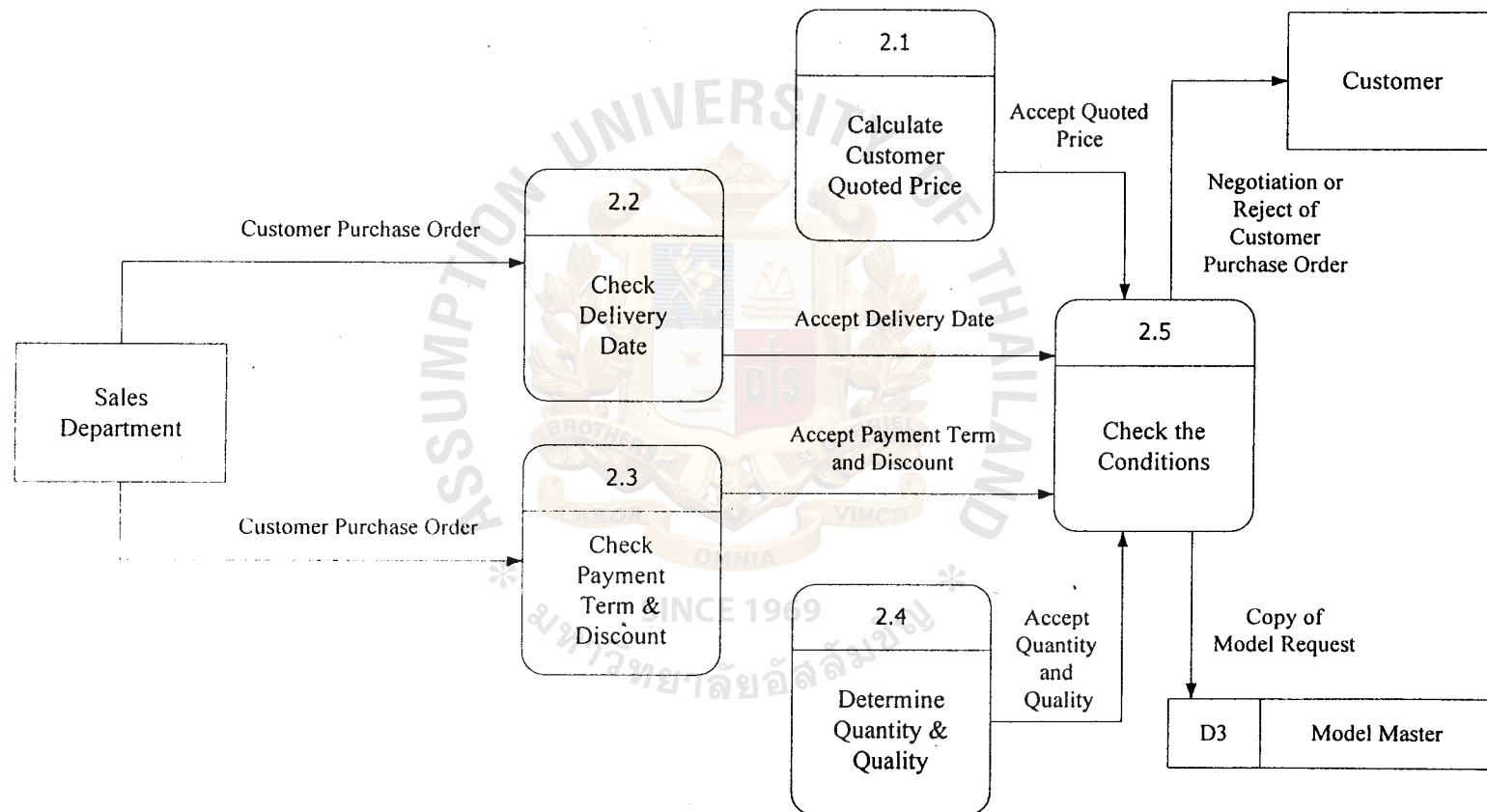


Figure F.4. Data Flow Diagram Level 1: Process 2.0 Check Conditions.

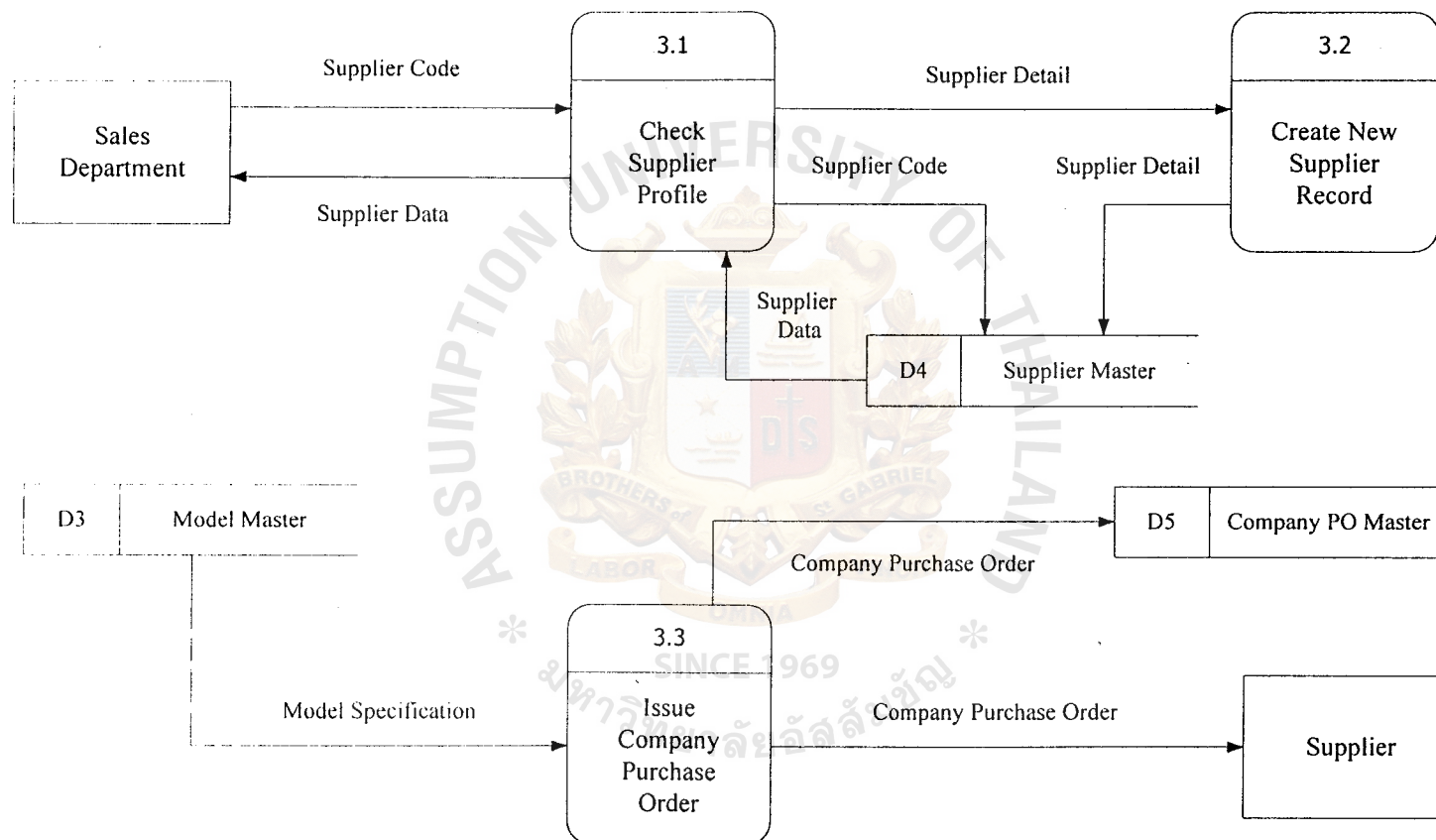


Figure F.5. Data Flow Diagram Level 1: Process 3.0 Issue Company Order.

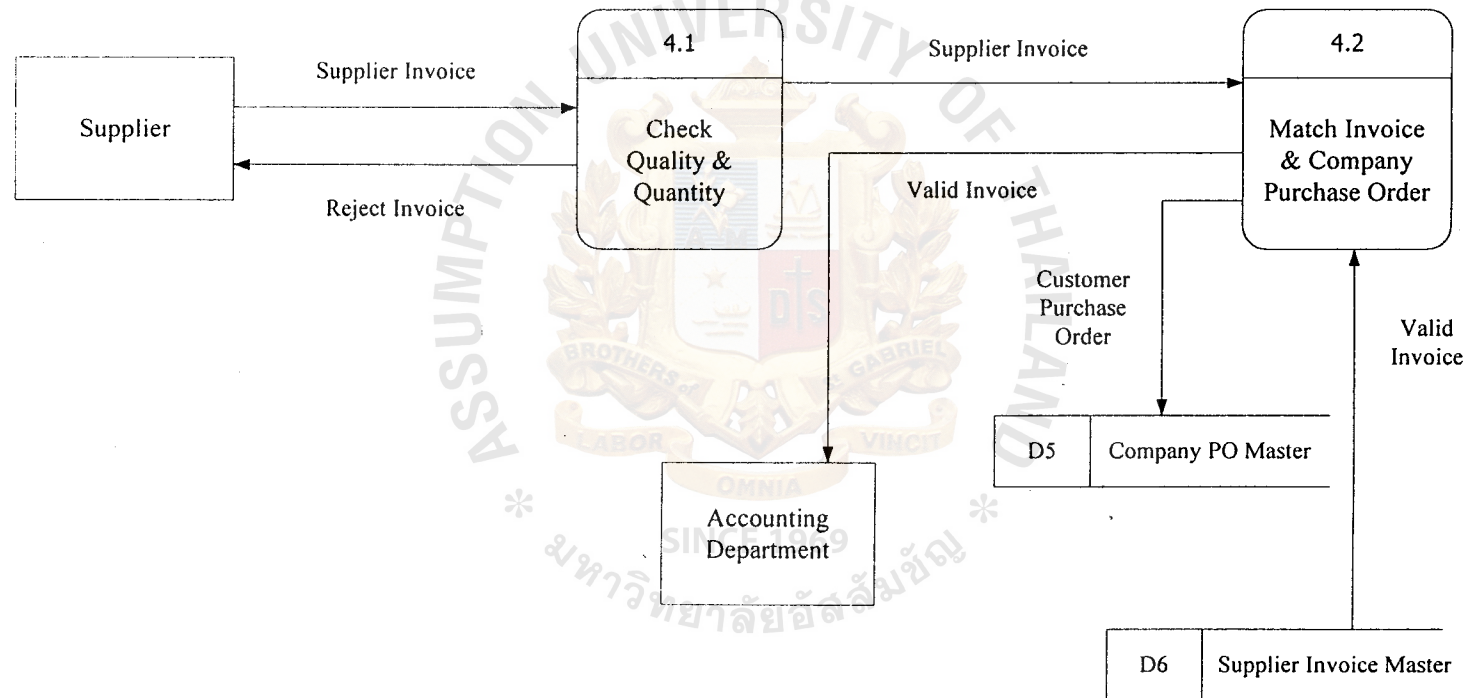


Figure F.6. Data Flow Diagram Level 1: Process 4.0 Receive Supplier Invoice.

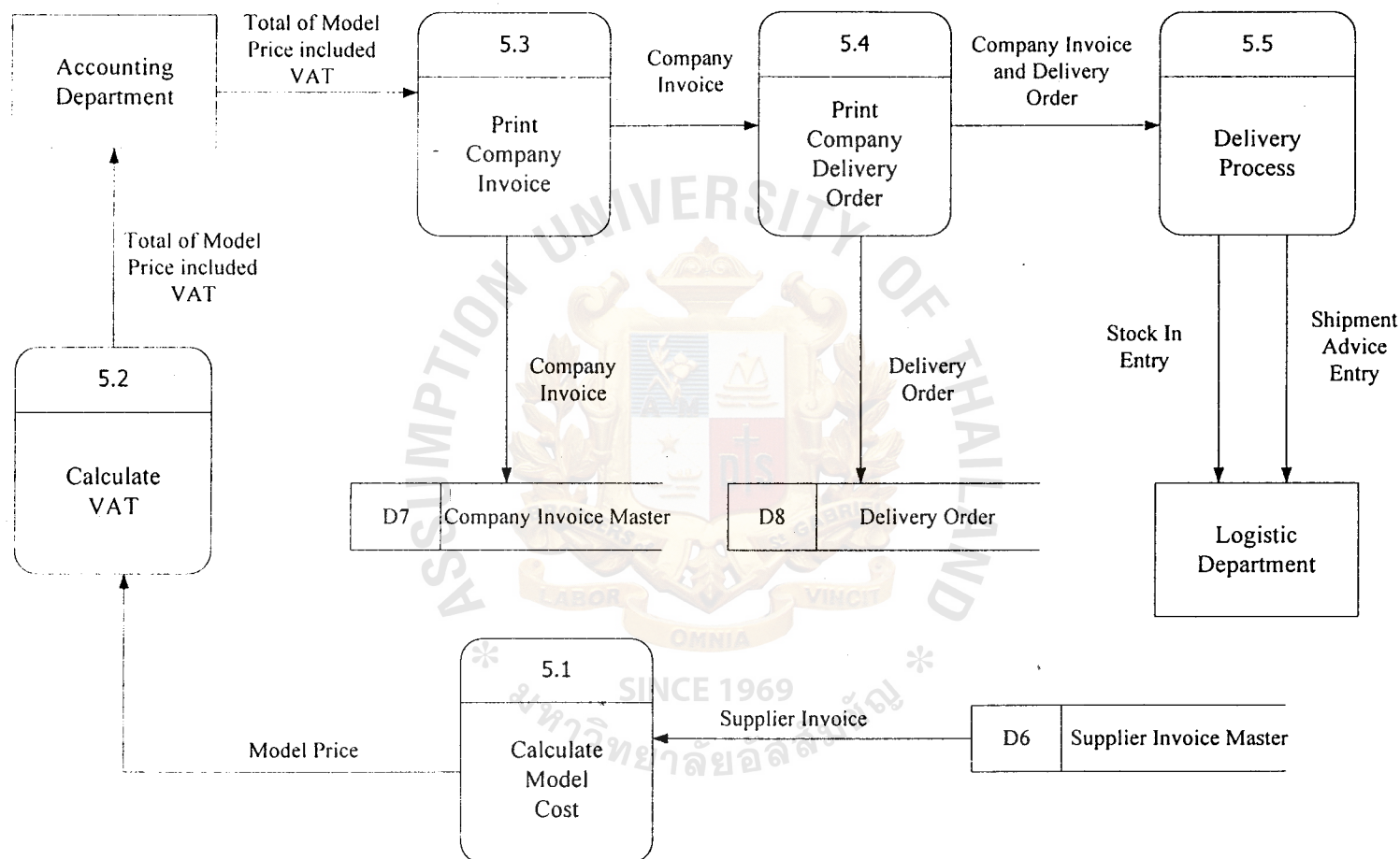


Figure F.7. Data Flow Diagram Level 1: Process 5.0 Issue Company Invoice.

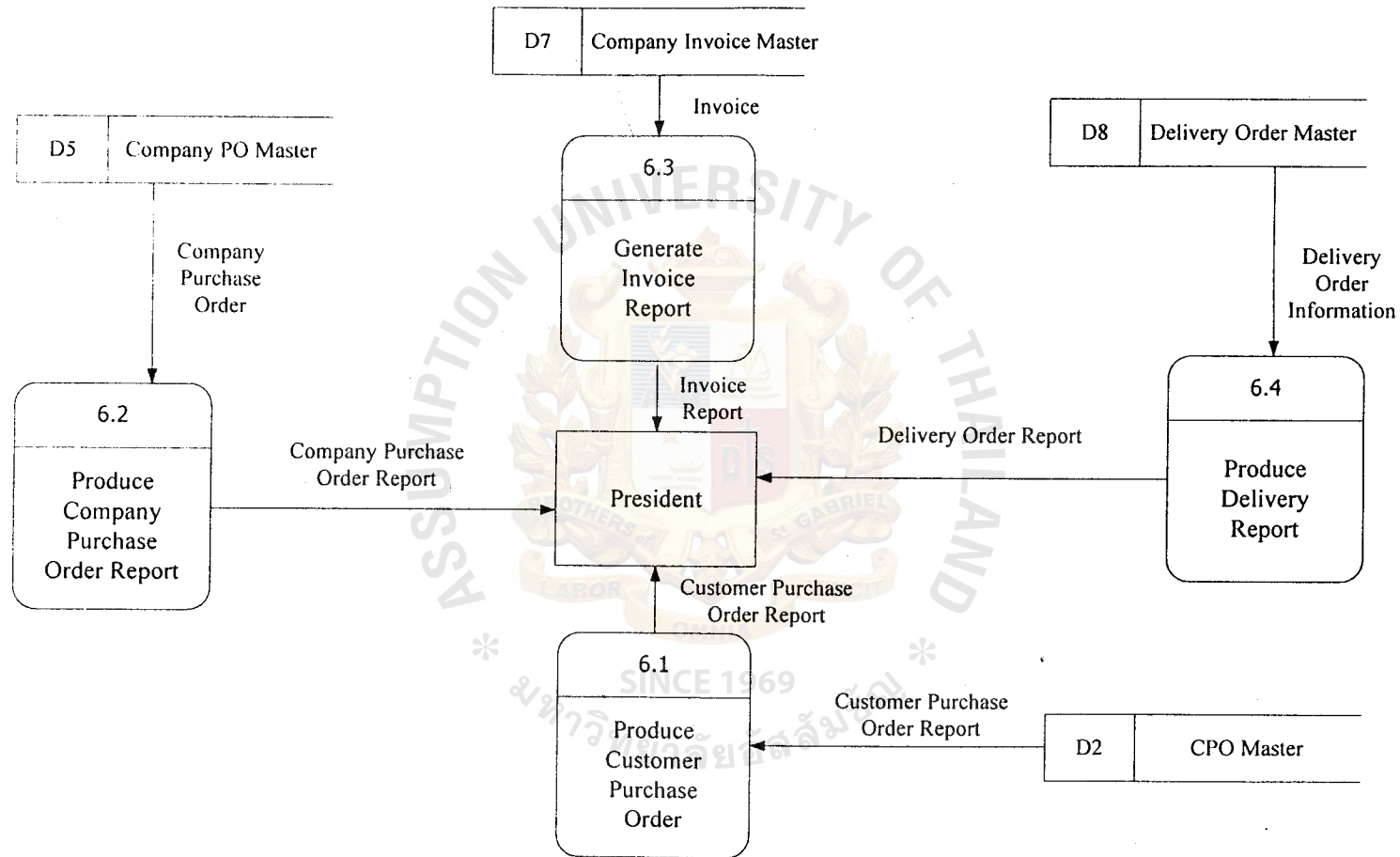


Figure F.8. Data Flow Diagram Level 1: Process 6.0 Generate Report.



APPENDIX G

STRUCTURE CHART

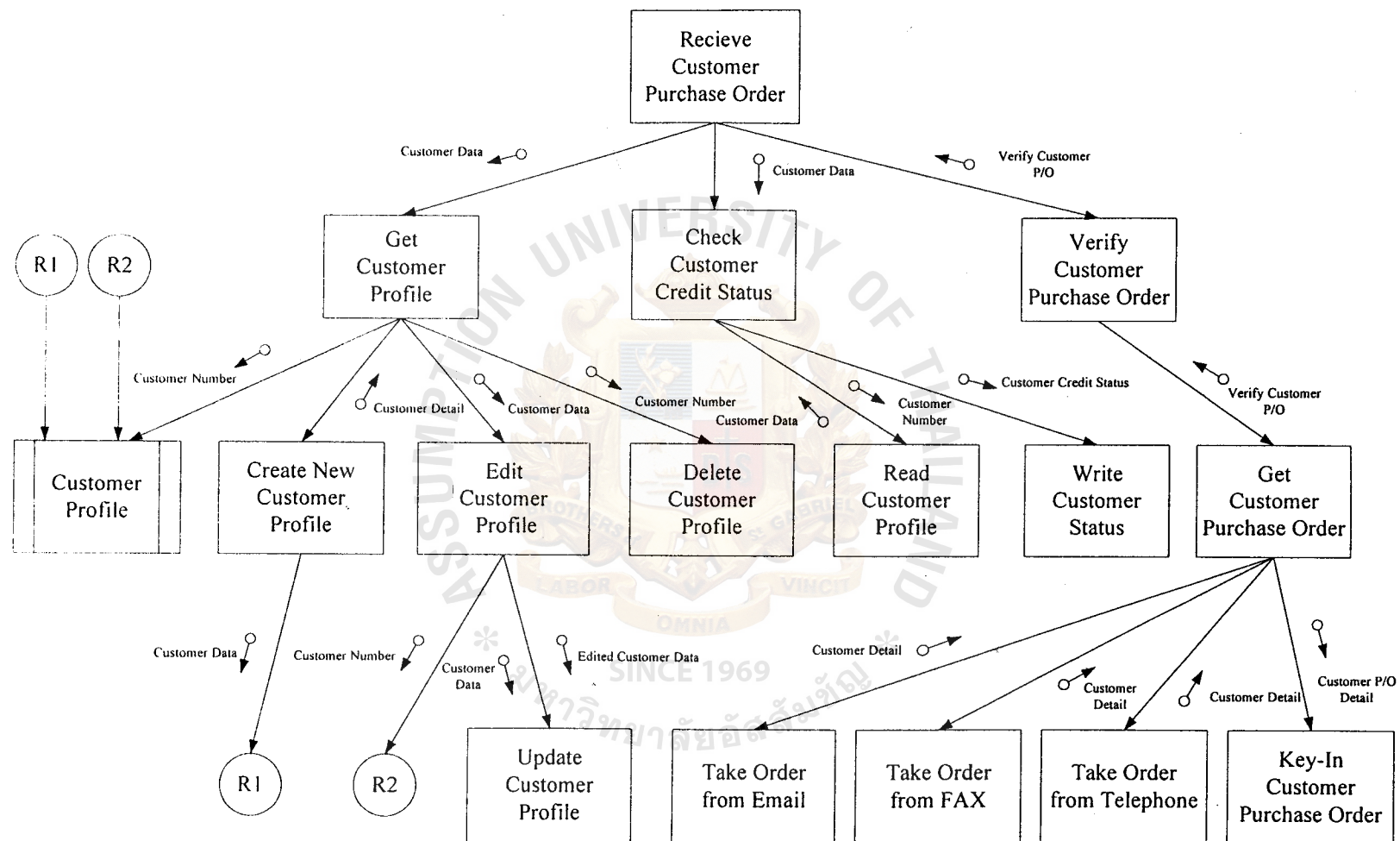


Figure G.1. Structure Chart of Receive Customer Purchase Order.

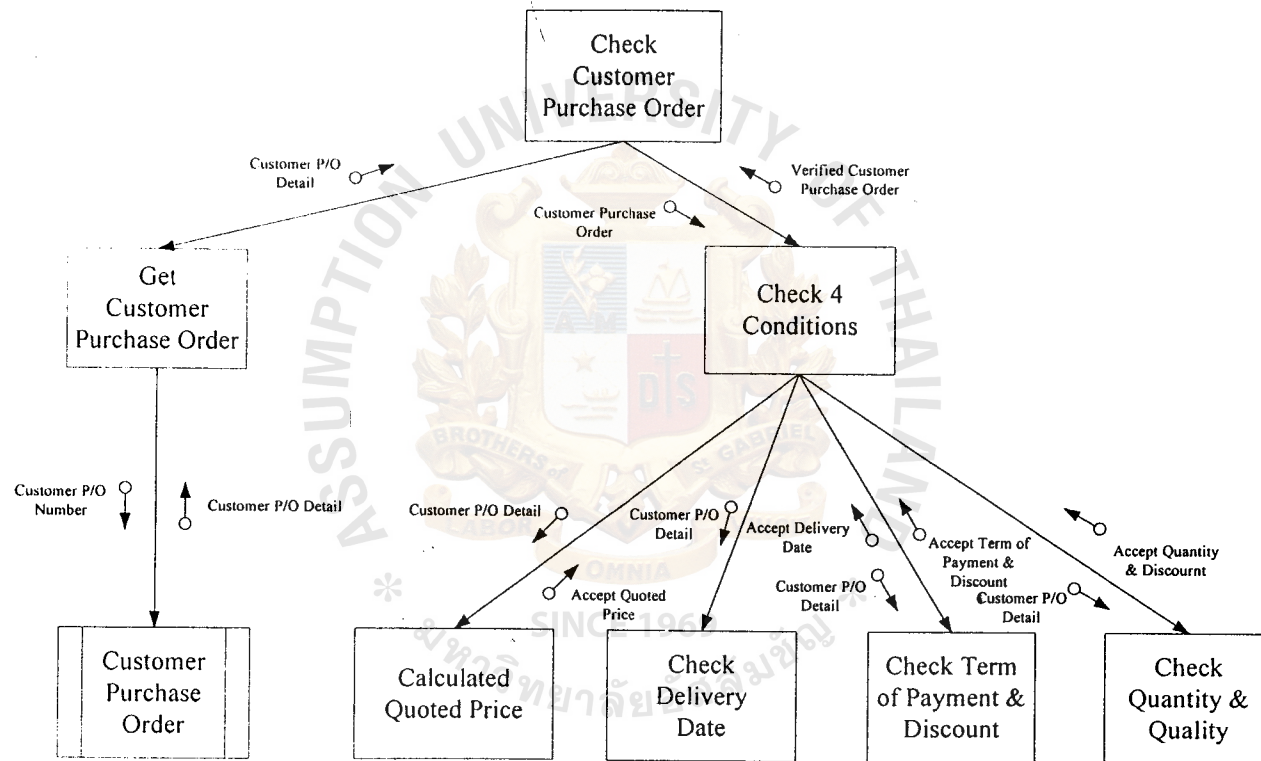


Figure G.2. Structure Chart of Check Conditions.

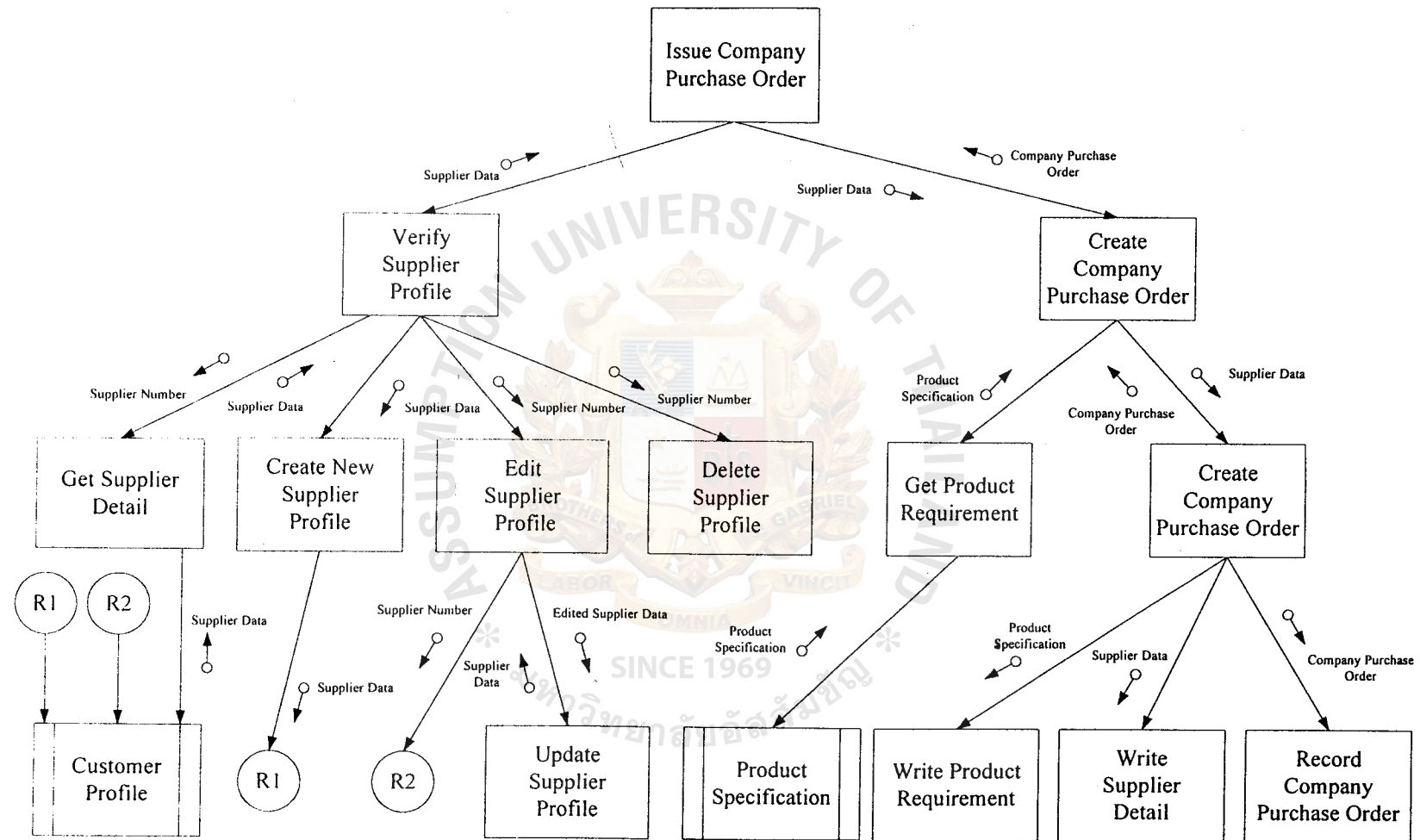


Figure G.3. Structure Chart of Issue Company Purchase Order.

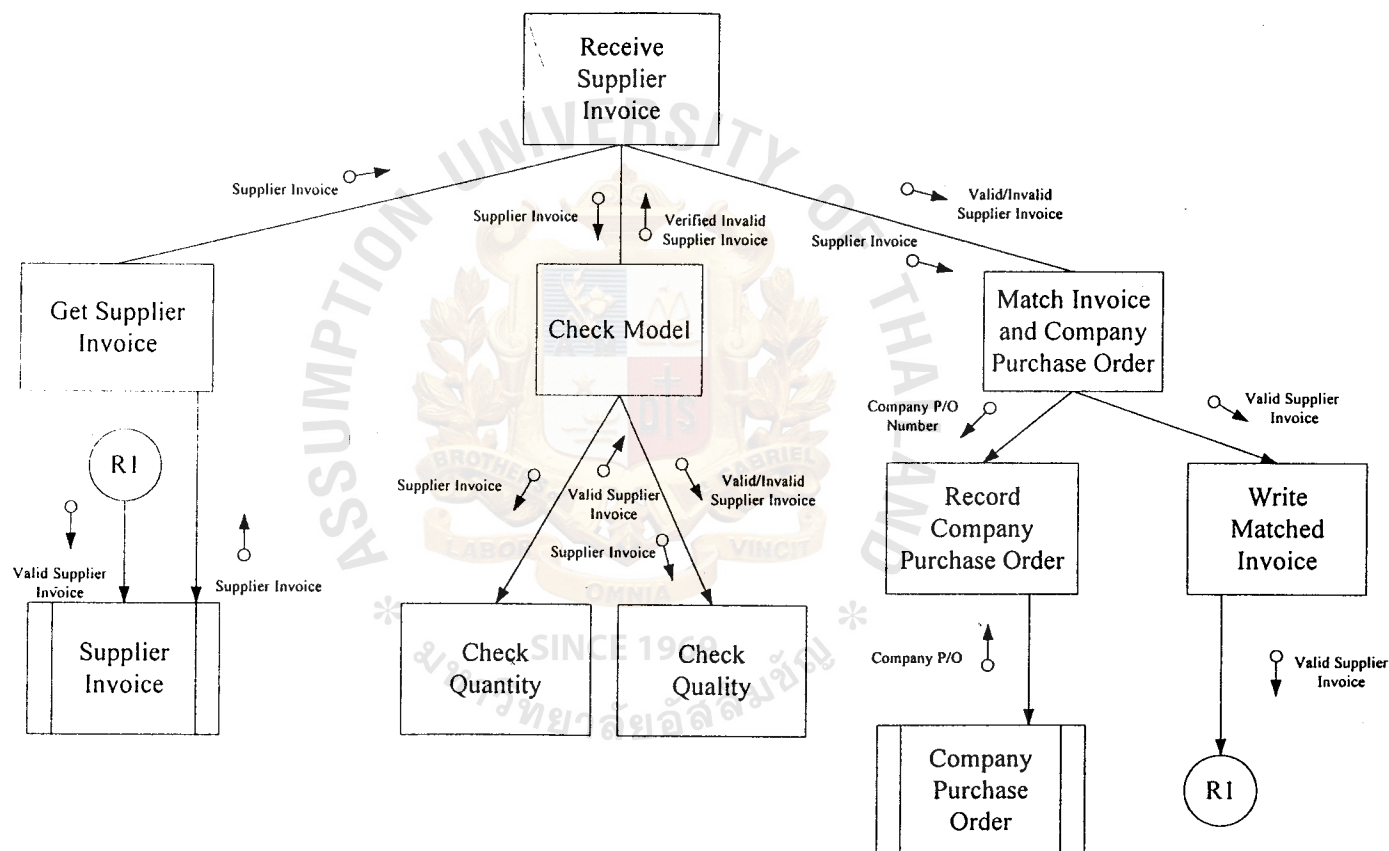


Figure G.4. Structure Chart of Receive Supplier Invoice.

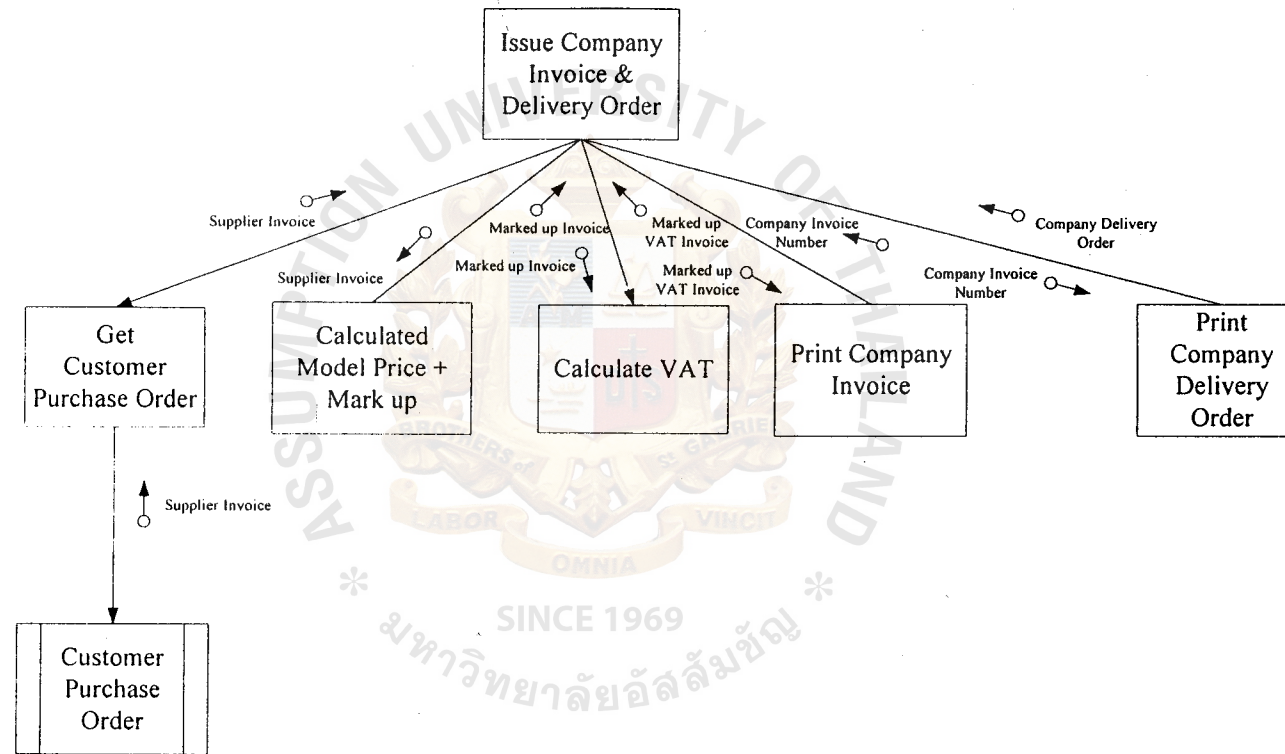


Figure G.5. Structure Chart of Issue Company Invoice & Delivery Order.

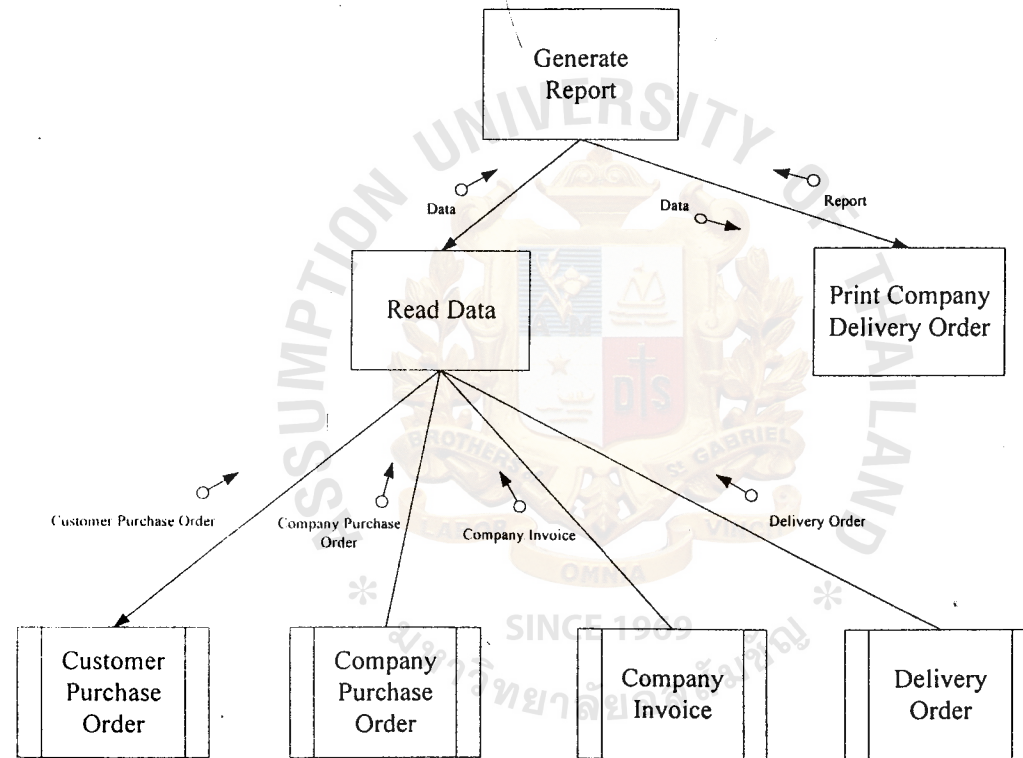


Figure G.6. Structure Chart of Generate Report.

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