



CLAIM PAYMENT INFORMATION SYSTEM FOR NON - LIFE INSURANCE

by

Ms. Niyada Waiyaburi

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

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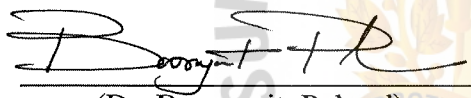
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The Graduate School of Assumption University has approved this final report of the three-credit course, CS 6998 System Development Project, submitted in partial fulfillment of the requirements for the degree of Master of Science in Computer Information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

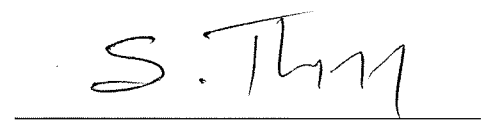
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ABSTRACT

The ACE Group of Companies is one of the world's largest providers of property and casualty insurance and reinsurance. ACE is also one of the most innovative providers of insurance products and services. ACE offers most classes of non-life protection to commercial establishments and individual consumers. It also acts as a claims settling agency, provides surveys and loss control services, and is a correspondent in Thailand for overseas insurance brokers not operating in the country.

The current claim payment system is based on the semi-computerized system. Most of claim payment is done by manual system. The human error usually happened when issuing claim payment cheque. The existing system requires claim staffs to maintain re-check it many times to ensure that errors might not occur, and they also have to face the general problems of manual system, which are error-prone and has a high maintenance cost.

The new proposed system is limited only to Claim Payment Information System for Health & Accident Insurance. The system is analyzed by using structured analysis technique; for instance, the context and data flow diagram. The designing of the proposed system covers software, database, input and output. This is to solve and also minimize problems. The system has been implemented with Microsoft Access, which is user-friendly application. All users concerned can easily produce transaction, update, print report and generate output through the screen and hard copy.

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I. INTRODUCTION

1.1 Background of the Project

Insurance is a service that is very important to everyone because insurance is a pool that people can transfer their risks. The function of insurance is to identify a particular risk and spread the costs of any losses that may occur over the whole pool of insured risks.

Nowadays, computerized information system has been widely used among various non-life insurance companies. Each company sets its own computerized system to serve its own specific needs mainly to reduce time and cost of personnel assigned to time consuming tasks, monitoring and reporting.

ACE International provides group and individual life, accident and health, employee benefits, commercial property & casualty coverages and services in jurisdictions outside the United State and multinationally. The division maintains a sales or operational presence in major markets around the world to support its products and services capabilities, and is actively pursuing business opportunities in key emerging markets in Asia, Latin America and Eastern Europe.

This project is initiated as a result of the rapid growth in the insurance business. The project presents in-depth analysis, design and implement of non-life insurance information system, particularly, with specific focus on Claim Payment Information System of ACE Insurance Limited.

1.2 Objectives of the Project

The objectives of this project are:

- (1) To define and analyze the existing system.
- (2) To improve the existing system to be a realizable information system.

- (3) To provide the solution towards the claim payment system.
- (4) To design a computer-based information system for claim department.
- (5) To design a new system for claim payment system.

The purposes of this project are for;

- (1) The management to get information more easily and accurately.
- (2) The bottleneck in producing the claim payment reports to be eliminated.
- (3) All manual paper work to be reduced.
- (4) Duplication of works to be eliminated.

1.3 Scope of the Project

- (1) Policy number data entry
- (2) Claim number data entry
- (3) Claim requisition data entry
- (4) Update Claim requisition file
- (5) Prepare a print claim confirm report
- (6) Claim payment data entry
- (7) Update check payment control file
- (8) Prepare and print check payment report

1.4 Deliverables

The deliverable of this project is as follows:

- (1) A Graphic User Interface prototype
- (2) Screen/Report layout of all data input/output
- (3) Description of the proposed new program
- (a) System Specification
 - (1) Context Diagram
 - (2) Data Flow Diagram

- (b) System Design
- (c) Hardware and Software Requirement
- (d) Security Controls
- (e) Cost/Benefit Analysis

The following document as a minimum hard copy and on-screen reports required.

- (1) Screen of Policy Holder
- (2) Screen of Main menu
- (3) Screen of Policy details
- (4) Screen of Claim Requisition
- (5) Screen of Claim Confirmation
- (6) Screen of Claim Payment
- (7) Menu screen of Payment reports

II. THE EXISTING SYSTEM

2.1 Background of the Organization

ACE Insurance Limited (Thailand) is one of the ACE Group of Companies. The company has just changed its name from “CIGNA Insurance Asia Pacific Limited” since October, 1999 due to the merging with ACE Group of Companies. The ACE Group of Companies is one of the world’s largest providers of property and casualty insurance and reinsurance. Established in Bermuda in 1985 by major international corporations to provide excess liability coverage, the ACE Group has grown rapidly by building long-term partnerships with brokers and clients in each of the world’s major insurance markets. Today, the company provides products and services in almost 50 countries to a broad range of local and multinational corporations.

ACE International provides group and individual life, accident and health, employee benefits, commercial property & casualty coverages and services in jurisdictions outside the United State and multinationally. The division maintains a sales or operational presence in major markets around the world to support its products and services capabilities, and is actively pursuing business opportunities in key emerging markets in Asia, Latin America and Eastern Europe.

2.2 Existing Business Functions

The nature of business function is to provide the non-life insurance services to the policyholders. The company has 5 business lines as follows:

- (1) Property insurance
- (2) Casualty insurance
- (3) Fire insurance
- (4) Marine insurance

(5) Personal Accident insurance

The company's operation is classified into 5 departments

(1) Finance & Administration

(a) Finance: the main activities are:

- (1) Premium collection
- (2) Commission payment
- (3) Other income collection
- (4) Claim payment
- (5) Other payments

(b) Administration: the operations cover

- (1) Personal recruitment
- (2) Salary management
- (3) Employee tracking records
- (4) Office services stationery
- (5) General affairs

(2) Property & Casualty Department

This department is responsible from the steps of work for underwriting and policies issuing.

- (a) Underwriter is the person who is responsible for
- (b) Consider the risk of each proposal to accept to insure or reject
- (c) Negotiate with other reinsurance company to forward some part of amount insured.
- (d) Coordinate with broker in seeking new customer and prepare quotations to present to the client.

- (e) Processing is responsible for issuing policies and keeping records of customers. After the proposal is completed by underwriter, the proposal will be printed in detail into policy forms.

(3) Accident & Health Department

Accident & Health Department (A&H) is responsible for Personal Accident Insurance (PA). Most customers are individual persons. any products are launched during the fiscal year. The business is coordinated with the bank credit cardmembers which provides the customer database. The main activities in this department is classified as follows:

- (a) Direct Marketing is responsible for contacting with the bank or other possible business channels to seek for the customer database. The mean used for sending our brochures to customers is sending them along with the bank leaflet. The actions of this function are:

- (1) Contact with banks or other possible business channels to seek for the customer database
- (2) Create the campaign for the product and design brochures by working with the advertising company.
- (3) Provide the completed product details to customer service in order to answer the customers' need.

- (b) Operation functions including:

Customer service is responsible for:

- (1) Policies issuing
- (2) Customer tele-service

(3) Renewal insurance

(4) Billing to bank

Telemarketing responsible for:

(1) Call the customers to sell other additional products

(4) Information Technology Department

IT Department functions take responsibility for providing facilities of the general insurance system for customer service, claim and other departments. Furthermore, IT Department tries to improve system to serve users' requirement.

(5) Claim Department

Claim Departments functions are responsible for providing the following Activities:

(a) Take accidental note activity

(1) Receive a call for customer

(2) Claim dairy record

(b) Claim Process

(1) Benefits checking

(2) Issue claim number

(3) Check requisition to finance department

(4) Mailing check to claimant person

2.3 Current Problems and Areas for Improvement

This project focuses on claim payment system, which needs to be improved. The existing payment system is a semi manual-computerized system. In current situation, there are many problems over the claim payment system because there are too many

transactions on claim payment expenses. There is also unrealizable information that is gathered from the system output.

Problems incurred are listed as follows:

- (1) There is huge number of transactions of cheques issuing, but we could not ensure that there is no missing cheque.
- (2) There are many cheques that are manually prepared. More time is consumed to issue those cheques.
- (3) Tracking back the past claim payment records is not up to date and cannot serve claimant enquiry on time.
- (4) Manual claim report is often mistaken and sometimes the cheques issuance does not match with this report.

2.4 The Existing Computer System

The computerized system that is concerned with the claim payment system can be categorized as follows:

2.4.1 The Existing Computer Hardware

- (a) One set of Server which following specifications:

- (1) Intel Celeron 566 MHz
- (2) 128 KB cache memory
- (3) 64 MB SDRAM
- (4) 5.0 GB HDD
- (5) 32 X CD-ROM
- (6) 14" Color monitor
- (7) 104 Key board and mouse

- (b) Twenty sets of personal computers which comprises of the specifications below:

- (1) CPU Pentium 166 MHz
- (2) 64 MB memory
- (3) 1.44 MB Floppy disk-drive, 100 MB Zip-drive
- (4) 24 X CD-ROM drive
- (5) 14" Color monitor
- (6) 104 Key board and mouse

- (c) Ten sets of NEC P3200-Dot Printers (Auto Gross) and five HP color inkjet.

2.4.2 The Existing Computer Software

- (1) Window NT Server V4.0
- (2) LAN Workplace for DOS (30 license users)
- (3) MS DOS version 6.2 Thai Edition
- (4) MS Windows 95 Thai Edition
- (5) Norton Anti-virus and utility for Windows 95
- (6) MS Office 98
- (7) Lotus Note
- (8) System 6 (in-house software)
- (9) Meridian (in-house software)

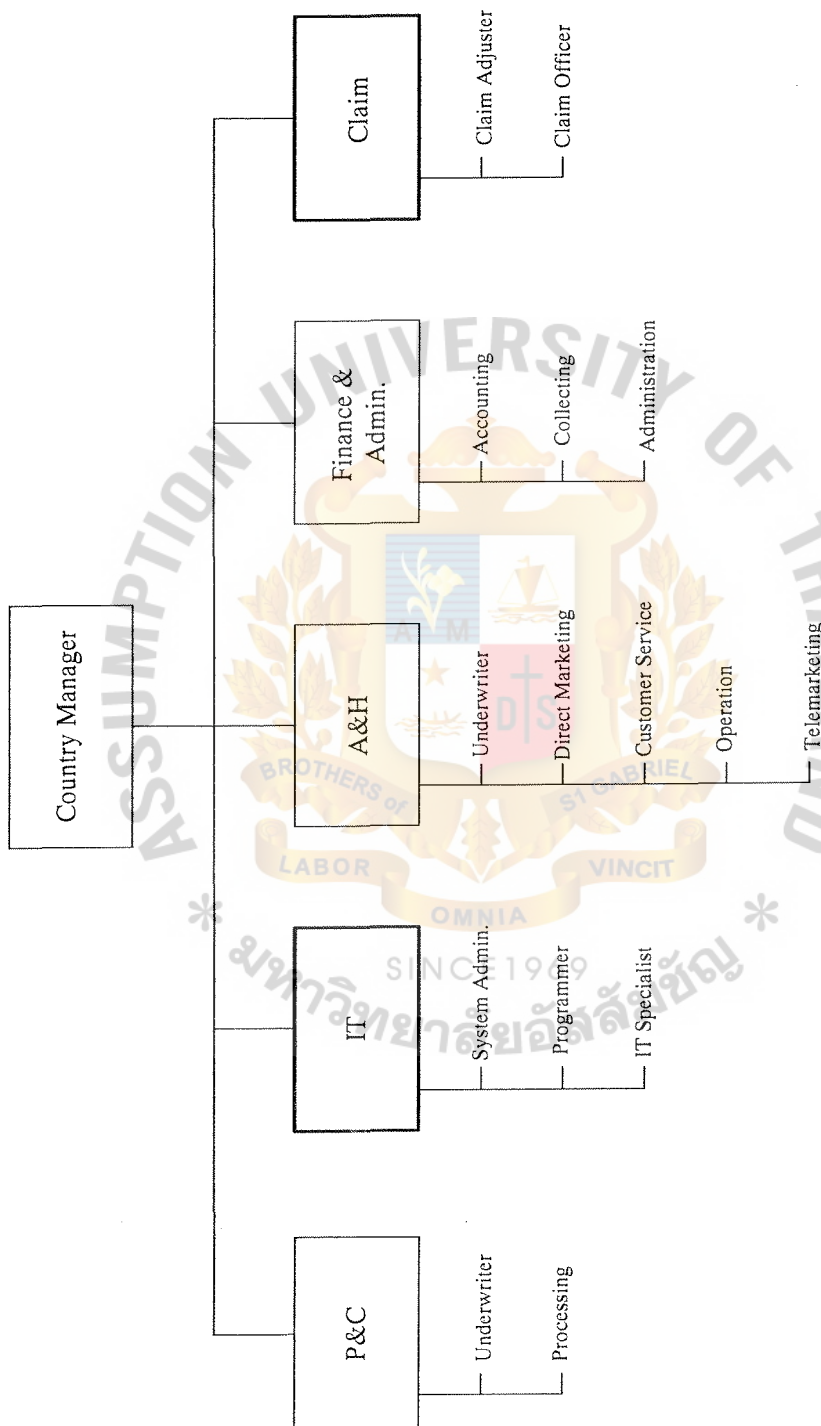


Figure 2.1. Organization Chart of ACE Insurance Limited.

The proposed computerized system will provide the information report to the management. It also solves the problems occurring from the existing system and some ineffective computerized information system. This proposed system would provide the easiness for user and decrease the problems of the claim payment systems.

3.1 System Specifications

During the analysis of the existing system, we can conclude that the user's requirements can be defined as follows:

- (1) Improve the existing system to be a reliable information system.
- (2) Eliminate the bottle-neck in producing the claim payment system.
- (3) Enable high degree of data integrity.
- (4) Provide inquiry screen for the information of each claim payment available to users to use various keys to retrieve the payment information.
- (5) Reduce manual paper work.
- (6) Eliminate the duplication of work.
- (7) Stop issuing manual cheques but use outsourcing facility e.g. using cheque issuance application.
- (8) Require user training course for computer background.
- (9) Enable Finance Department to retrieve data for faster and better service about claim payment to the customers.
- (10) Have certain applications developed by IT department in the future in order to get easy access to information.

3.2 System Design

The operational requirements of this proposed system are shown in the system design as follows:

3.2.1 Data Model: Entity Relationship Diagram (ER-Diagram)

The Entity Relationship Diagram of the proposed system emphasizing the related entity of the system and for database design are shown in Appendix A. Figures A.1, A.2 and A.3 present ER-Diagram for overall Claim Payment Information System in the form of Data Diagram. Figure A.1 shows context data model. The context data model includes the fundamental or independent entities that were previously discovered. Figure A.2 shows the key-based data model and Figure A.3 shows the fully attributed data model in each entity that relate to each other.

3.2.2 Process Model: Context Diagram and Data Flow Diagram

The Process Model presents the flow of data in the claim payment information system. The proposed process models are shown in Context Diagram and Data Flow Diagram (level 0) in Appendices B and C. Figure B.1 Presents Context Diagram of Claim Payment Information System. Figure C.1 shows Data Flow Diagram at level 0, Figures C.2-C.6 presents Data Flow Diagram at level 1.

3.2.3 Data Dictionary

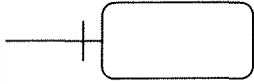

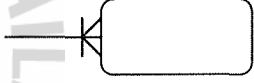
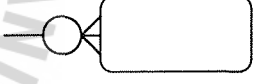

The Data dictionary entries are created after the data flow diagram has been completed and then modified to include the new structure records and elements gleaned from document analysis. The data dictionary is defined in Appendix D.

3.2.4 Input, Output and Interface Design (Prototype)

The input, output and interface designs are shown in Appendix G, and are the prototypes of proposed system.



Table 3.1. Cardinality of a Relationship.

Cardinality Interpretation	Minimum Instances	Maximum Instances	Graphic Notation
Exactly one	1	1	
Zero or one	0	1	
One or more	1	many (>1)	
Zero, one or more	0	many (>1)	
More than one	>1	>1	

3.3 Hardware and Software Requirements

After surveying the hardware and software requirements, it is found that the existing computerized systems is appropriated and suitable for the proposed system and employ Microsoft-Access in order to map with the proposed system. The specifications of the computer system are represented in the same way as 2.4 for the existing computer system.

In addition, it is unnecessary to provide the network system on the claim payment system since it is for the purpose of management centralized control in the head office.

Microsoft has provided a lot of software, which can transform a normal Intel-based PC server, Application Server and Database Server. The software is designed to integrate with Microsoft Windows NT Server, and is also packed together as Microsoft Back Office suite.

Decision was made to use the Microsoft Back Office suite as the major software for our proposed system; therefore, the server must have the hardware specification, which can run both Microsoft Windows NT and the other software in the suite. The hardware & software specifications for the proposed Server are shown in the Tables 3.2 and 3.3 respectively.

Table 3.2. The Hardware Specification for the Claim Payment Information System.

Hardware	Specification
CPU	Intel Celeron 566 MHz
Cache	128 KB or higher
Memory	64 MB or higher
Hard Disk	5.2 GB or higher
CD-Rom Drive	32 X CD-ROM
Floppy Drive	1.44 MB
Display Adapter	SVGA card
Display	14" Color Monitor
Printer	NEC P3200-Dot Printer and Inkjet

Table 3.3. The Software Specification for the Claim Payment Information System.

Software	Specification
Operating System	Microsoft Windows NT Server 4.0 (Service Pack 3)
Application Server	Microsoft Active Server Pages
Database Server	Microsoft SQL Server 6.5

The Claim Payment Information System is sometimes used to run any other office automation software, such as word processing, for example. Therefore, in general standard, it should have hardware specification high enough to run Microsoft windows 95 and Microsoft Office 97. The hardware & software specifications for each client machine are shown in the Tables 3.4 and 3.5 respectively.

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Table 3.4. The Hardware Specification for Each Client Machine.

Hardware	Specification
CPU	486 Dx4-100, Pentium, or higher
Cache	256 KB or higher
Memory	64 MB or higher
Hard Disk	1 GB or higher
CD-Rom Drive	1X or higher
Floppy Drive	1.44 MB
Network Adapter	Ethernet 10-Base T
Display Adapter	SVGA card
Display	14" SVGA monitor

Table 3.5. The Software Specification for Each Client Machine.

Software	Specification
Operating System	Microsoft Windows 95
Web browser	Microsoft Internet Explorer 3.0 or higher
Application Software	Microsoft Office 97 Professional Edition

3.4 Security and Control

Security is a very broad and complex area when a computer-based information system is involved. It encompasses not only the day-to-day protection of the computer hardware and software, but also the integrity of data, the privacy of data, the safeguarding of all physical facilities, and the avoidance of disastrous losses. Many of the security controls attempt to prevent or detect unauthorized access to data, computer equipment, or other physical facilities.

For the proposed system it is necessary to ensure the security of the hardware and the software, privacy of information and integrity of the system by protecting data and computer systems from unauthorized access, modification, destruction or misuse. In this proposed system, there are many security checks and controls that can be categorized as follows:

3.4.1 Physical Security

These concern the protection from:

(a) Protection for hardware

- (1) Unauthorized access: Physical access to the computer facilities should be restricted to authorized persons. Normally only such personnel as computer operation supervisor and information system management should have authorized access to computer facilities.
- (2) Disaster: Computer facilities should be environmentally controlled and protected from fires, flood, power outages and so on.
- (3) Breakdown and interruptions: IT department provides backup system and non-system daily, weekly and monthly depending on the importance of application system and type of processing (batch or online).

(b) Protection for data

Data security refers to maintaining the integrity and privacy of data, a key resource of any firm. With respect to a computer-based information system, the data of privacy concern include the data contained within:

- (1) data structures stored in on-line database
- (2) the data dictionary

Data security controls in computer based systems provide three types of protection: protection from unauthorized access to data, protection from undetected access and changes, and protection from loss or alteration of data.

(c) Protection for program and application

Application control have overall objective of providing reasonable assurance that transactions are legitimately authorized and accurately recorded, classified, processed, and reported. They are generally grouped according to input controls, processing controls, and output controls.

All transactions input into the system through the input screen therefore, we can check and validate input data before storing in the data file. We have an inquiry program for users to check input transactions.

3.4.2 Logical Security

These consider:

(a) User identification

User identification is checked for the correct password upon starting the system, starting the system. If it is a wrong password, the screen alerts the user to reenter the password. If wrong password is keyed in three times, the system is then terminated. The password is automatically updated every three months.

(b) Time restriction

The server is set for users to access the system within the specific period of time.

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(c) Authentication level

The users are given the password at necessary low access level to perform their tasks and activities.

3.4.3 Behavioral Security

- (a) Having the system log the number of unsuccessful sign-on attempts is in order to monitor whether unauthorized users are attempting to sign on the system.
- (b) Classifications of user ID authorization so each user can access his own function areas.
- (c) Having the specific function key for specific user ID.

3.5 System Cost Analysis

3.5.1 Cost Analysis

To consider the financial aspects of the new system that is to be implemented, cost comparison should be made between the existing system (semi-computerized system) and the new computerized system. A comparison should also be made on the investment costs, implementation costs, and annual operating costs. These forms are the basis for cost analysis.

The criteria for choosing the hardware have been established after discussion with the management by explaining the requirement of each item of hardware and other items. This hardware should be able to expand in the future. The project team considers software requirement carefully with the related criteria and company's application architecture. The Table 3.6 shows the cost analysis of the existing system against those of the proposed candidate computerized system which is calculated in Tables 3.10, 3.15

and 3.20. The comparison of system costs between the accumulated manual system cost and accumulated computerized system is also shown in Table 3.12, 3.17 and 3.22.



(1) Costs of Existing System

Table 3.6. Existing System Cost Analysis, Baht.

Cost Items	Description	Amount	Unit Price	Price				
				Year 1	Year 2	Year 3	Year 4	Year 5
1. Fixed Cost	1.1 Equipment / Hardware							
	Software Cost:							
	Workstations Cost	2	50,000.00	100,000.00	-	-	-	-
	Software license (spreadsheet)	1	10,000.00	10,000.00	-	-	-	-
	Typewriter	1	12,000.00	12,000.00	-	-	-	-
	Total Fixed Cost			122,000.00	-	-	-	-
2. Operating Cost :	2.1 People-Ware Cost:							
	Administrative staff	2	20,000.00	40,000.00	44,000.00	48,400.00	53,240.00	58,564.00
	Claim Officer	2	12,000.00	24,000.00	26,400.00	29,040.00	31,944.00	35,138.40
	Total Monthly Salary Cost			64,000.00	70,400.00	77,440.00	85,184.00	93,702.40
	Total Annual Salary Cost			768,000.00	844,800.00	929,280.00	1,022,208.00	1,124,428.80
	2.2 Office Supplies & Miscellaneous Cost:							
	Stationary	Per Annum	10,000.00	10,000.00	11,500.00	13,225.00	15,208.75	17,490.06
	Paper	Per Annum	20,000.00	20,000.00	23,000.00	26,450.00	30,417.50	34,980.13
	Utility	Per Annum	30,000.00	30,000.00	34,500.00	39,675.00	45,626.25	52,470.19
	Miscellaneous	Per Annum	20,000.00	20,000.00	23,000.00	26,450.00	30,417.50	34,980.13
	Annual Office Supplies & Miscellaneous Cost			80,000.00	92,000.00	105,800.00	121,670.00	139,920.50
	Total Operating Cost			848,000.00	936,800.00	1,035,080.00	1,143,878.00	1,264,349.30
	Total Existing System Cost			970,000.00	936,800.00	1,035,080.00	1,143,878.00	1,264,349.30

Table 3.7. Five Years Accumulated Manual System Cost, Baht.

Year	Total Manual Cost	Accumulated Cost
1	970,000	970,000
2	936,800	1,906,800
3	1,035,080	2,941,880
4	1,143,878	4,085,758
5	1,264,349	5,350,107
Total	5,350,107	

Table 3.8. Candidate System Matrix of Cost Evaluation and Comparison.

Candidate	Candidate 1 System 6	Candidate 2 Oracle Full Package	Candidate 3 Oracle + Modified
Portion of System Computerized Brief description of that portion of the system that would be computerized in this candidate	Actually, the system 6 provides the fully payment system. It is an application software for only non-life insurance. It is available for the claim payment process.	This candidate uses the built-in report for the application which selected only the Accounting Module.	This Oracle+modified by inhouse has great advantage for flexibility, since this software allows user to create the specific report which can best fit their requirement.
Benefits Brief description of the business benefits that would be realized.	It can increase the policy issue productivity, control and produce the specific report to the management.	This is the easiest and the fastest way to implement the system.	Having software tools to develop dbase application to fit specific requirement.
Servers and Workstations A description of the servers and workstation needed for support.	Server is Unix, MS Windows NT 4.0 workstation.	Server is UNIX, MS Windows NT 4.0 workstation	Server is UNIX, MS Windows NT 4.0 workstation
Software Tools Needed Software tools needed to design and build. Not generally applicable if application software packages are not purchased.	System 6	-	Oracle Development Tools
Application Software A description of the software to be purchased, built, accessed, or some combination of these technique.	Mixed with standard package and custom solutions.	Same as candidate 1	Relational Database Management System
Method of Data Processing Generally some combination of on line, batch, differed batch, remote batch, and real-time.	The centralize data processing. Real-time is in the specification.	Client/server	Client/server
Output Devices and Implications A description of output devices that would be used, special output requirements and output consideration.	Printer are mostly output.	Same as candidate 1	Same as candidate 1
Input Devices and Implication A description of output devices that would be used, special input requirements and iuput consideration.	Key board and mouse	Same as candidate 1	Same as candidate 1
Storage Devices and Implications Brief description of what data would be stored, what data would be accessed from existing stores, what storage media would be used, how much storage capacity would be organized.	Storage data is done by using a centralized storage method.	Same as candidate 1	Same as candidate 1

Table 3.9. Feasibility Analysis Matrix of Cost Evaluation and Comparison.

Feasibility	Wt.	Candidate 1	Candidate 2	Candidate 3
		ACE Claim Payment System	Oracle Full package	Oracle +modified by inhouse
Operational Feasibility Functionality. A description of to what degree the candidate would benefit the organization and how well the system would work.	25%	The information technology team fully understand and support users requirement. The current business process problems are acknowledged by the team and wait for the next proceed from the management.	The software application is a standardize package. Certain parts may not be suitable for the insurance business but some parts in this system are better than those in the existing system. The users may not be familiar with the new work process.	The same as using "Oracle full package" but tailor made or modified program and application done by the Oracle staff. The unnecessary functions and figures are minimized. The users may still not be familiar with the new work process.
Political . a description of how well received this solution would be from both user management, user, and organization perspective.		The users management, users and organization to accept change.	The users management, users and organization to accept change.	The users management, users and organization to accept change.
		Score 90	Score 50	Score 80
Technically Feasibility Technology. An assessment of the maturity, availability (or ability to acquire), and desirability of the computer technology needed to this support candidate.	25%	The IT team is supported by the ACE Group. The know-how from ACE is more simplified and easier to use than Thailand base.		
Expertise. An assessment of the technical expertise needed to develop, operate, and maintain the candidate system.		The IT team and the IT from ACE Group have to perform modifications and train the users management and users	Required to hire an expert to train the users management and users.	Required to hire an expert and be trained to perform modifications for integration requirement.
		Score 80	Score 50	Score 60
Economic Feasibility Cost to develop: Payback period Net present value: Detailed calculations:	40%	Approximately Bht. 1,333,000 2.09 years Bht. 1,934,487	Approximately Bht.1,403,000 2.25 years Bht.1,821,315	Approximately Bht.1,408,000 2.26 years Bht.1,813,232
		Score 90	Score 50	Score 60
Schedule Feasibility Ass assessment of how long the solution will take to design and implement.	10%	About 6 months	About 9 months	About 12 months
		Score 90	Score 70	Score 50
	100%	87.50%	56.00%	60.00%

Table 3.10. Estimated Cost for Computerized System of Candidate 1, Baht.

Cost Item	Description	Amount	Unit Price (Baht)	Price (Baht)				
				Year 1	Year 2	Year 3	Year 4	Year 5
1. Development Cost :	1.1 Hardware Cost:							
	Computer Server Cost	1	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00
	Workstations Cost	1	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00
	Total Hardware Cost			250,000.00	250,000.00	250,000.00	250,000.00	250,000.00
	1.2 Software Cost:							
	Software Server	1	100,000.00	100,000.00	-	-	-	-
	DBMS server software	1	80,000.00	80,000.00	-	-	-	-
	DBMS client software	5	10,000.00	50,000.00	-	-	-	-
	Microsoft license			100,000.00	-	-	-	-
	Total Software Cost			330,000.00	-	-	-	-
	1.3 Personnel Cost :							
	System Analyst	2	35,000.00	70,000.00	-	-	-	-
	System Architect	1	30,000.00	30,000.00	-	-	-	-
	Database Specialist	1	30,000.00	30,000.00	-	-	-	-
	Programmers	2	15,000.00	30,000.00	-	-	-	-
	Total Personnel Cost			160,000.00	-	-	-	-
	1.4 Maintenance Cost:							
	Maintenance Cost (15% of license)			-	49,500.00	49,500.00	49,500.00	49,500.00
	Total Maintenance Cost			-	49,500.00	49,500.00	49,500.00	49,500.00
	Total Implementation Cost			50,000.00	-	-	-	-
	Total Development Cost			790,000.00	299,500.00	299,500.00	299,500.00	299,500.00
2. Operating Cost :	2.1 People-Ware Cost:							
	Administrative staff	2	10,000.00	20,000.00	22,000.00	24,200.00	26,620.00	29,282.00
	Claim Staff	2	12,000.00	19,000.00	20,900.00	22,990.00	25,289.00	27,817.90
	Total Monthly Salary Cost			39,000.00	42,900.00	47,190.00	51,909.00	57,099.90
	Total Annual Salary Cost			468,000.00	514,800.00	566,280.00	622,908.00	685,198.80
	2.2 Office Supplies & Miscellaneous Cost:							
	Stationary	Per Annum	5,000.00	5,000.00	5,500.00	6,050.00	6,655.00	7,320.50
	Paper	Per Annum	5,000.00	5,000.00	5,500.00	6,050.00	6,655.00	7,320.50
	Utility	Per Annum	50,000.00	50,000.00	55,000.00	60,500.00	66,550.00	73,205.00
	Miscellaneous	Per Annum	15,000.00	15,000.00	16,500.00	18,150.00	19,965.00	21,961.50
	Annual Office Supplies & Miscellaneous Cost			75,000.00	82,500.00	90,750.00	99,825.00	109,807.50
	Total Operating Cost			543,000.00	514,800.00	566,280.00	622,908.00	685,198.80
	Total Computerized System Cost			1,333,000.00	814,300.00	865,780.00	922,408.00	984,698.80

Table 3.11. Five Years Accumulated Computerized System Cost of Alternative 1, Baht.

Year	Total Computerized Cost	Accumulated Cost
1	1,333,000.00	1,333,000.00
2	814,300.00	2,147,300.00
3	865,780.00	3,013,080.00
4	922,408.00	3,935,488.00
5	984,698.80	4,920,186.80
Total	4,920,186.80	

Table 3.12. Cost Comparison between Existing System and Computerized System.

Year	Accumulated Existing Cost	Accumulated Computerized Cost
1	970,000.00	1,333,000.00
2	1,906,800.00	2,147,300.00
3	2,941,880.00	3,013,080.00
4	4,085,758.00	3,935,488.00
5	5,350,107.30	4,920,186.80

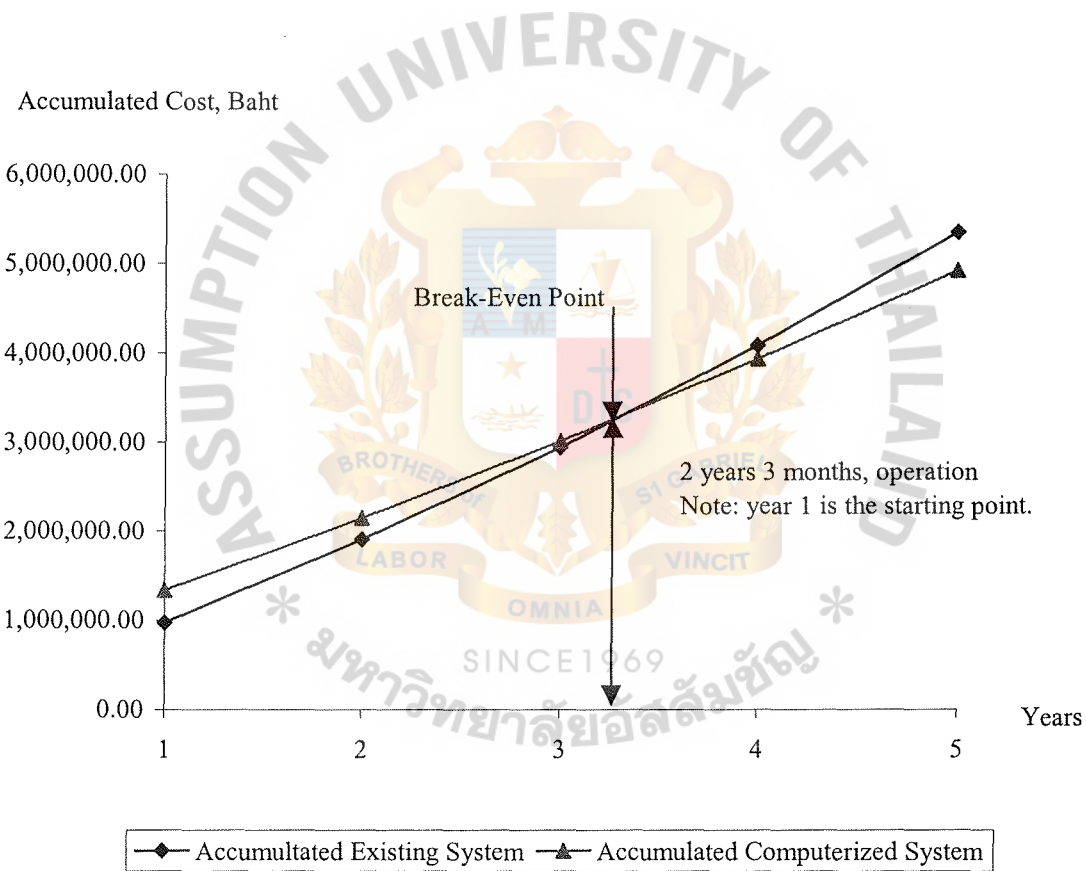


Figure 3.13. Comparison Graph of the System Costs between Existing System at Computerized System of Candidate 1.

Table 3.13. Payback Analysis for the Computerized System of Candidate 1, Baht.

Cost Items	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Development cost	-1,333,000						
Operation & maintenance cost		-199,950	-229,950	-259,950	-289,950	-319,950	-349,950
Discount factor for 12%	1.0000	0.8929	0.7972	0.7120	0.6355	0.5674	0.5066
Time adjusted costs (adjusted to present value) :	-1,333,000	-178,535	-183,316	-185,084	-184,263	-181,540	-177,285
Cumulation time-adjusted cost over lifetime :	-1,333,000	-1,511,535	-1,694,851	-1,879,936	-2,064,199	-2,245,739	-2,423,023

Benefit derived from operation of new system	0	950,000	997,500	1,047,375	1,099,744	1,154,731	1,212,467
Discount factor for 12%	1.0000	0.8929	0.7972	0.7120	0.6355	0.5674	0.5066
Time adjusted costs (adjusted to present value) :	0	848,255	795,207	745,731	698,887	655,194	614,236
Cumulative time-adjusted benefits overlife time :	0	848,255	1,643,462	2,389,193	3,088,080	3,743,274	4,357,511
Cumulative time-adjusted cost over lifetime :	-1,333,000	-663,280	-51,389	509,257	1,023,881	1,497,536	1,934,487

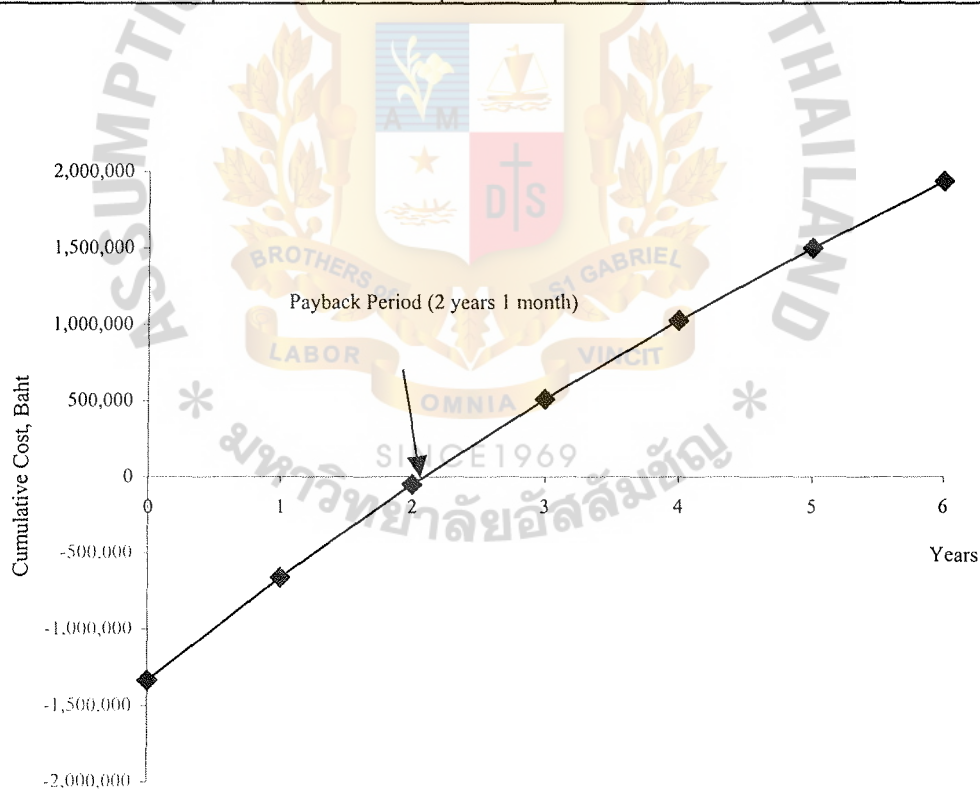


Figure 3.14. Payback Analysis of Computerized System (Candidate 1).

Table 3.14. Net Present Value Analysis of the Computerized System of Candidate 1, Baht.

Cost Items	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Development cost	-1,333,000							
Opeation & maintenance cost		-199,950	-229,950	-259,950	-289,950	-319,950	-349,950	
Discount factor for 12%	1.0000	0.8929	0.7972	0.7120	0.6355	0.5674	0.5066	
Present value of life time cost	-1,333,000	-178,535	-183,316	-185,084	-184,263	-181,540	-177,285	
Total present value of lifetime costs :								-2,423,023

Benefit derived from operation of new system	0	950,000	997,500	1,047,375	1,099,744	1,154,731	1,212,467	
Discount factor for 12%	1.0000	0.8929	0.7972	0.7120	0.6355	0.5674	0.5066	
present value of annual benefits :	0	848,255	795,207	745,731	698,887	655,194	614,236	
Total present value of lifetime benefits								4,357,511
Net present value of this alternative								1,934,487

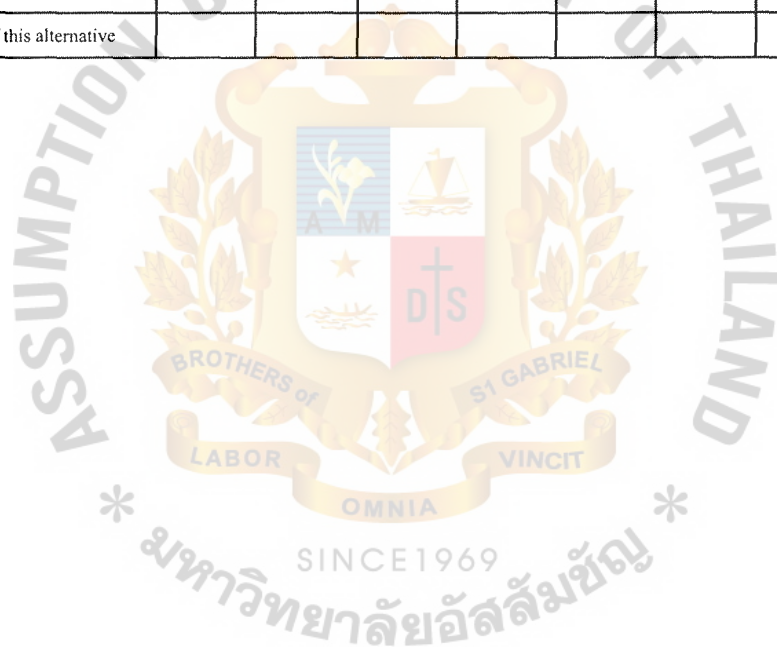


Table 3.15. Estimated Cost for Computerized System of Candidate 2, Baht.

Cost Items	Description	Amount	Unit Price	Price				
				Year 1	Year 2	Year 3	Year 4	Year 5
1. Development Cost :	1.1 Hardware Cost:							
	Computer Server Cost	1	200,000.00	200,000.00	200,000.00	200,000.00	200,000.00	200,000.00
	Workstations Cost	1	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00
	Total Hardware Cost			300,000.00	300,000.00	300,000.00	300,000.00	300,000.00
	1.2 Software Cost:							
	Application Software	1	50,000.00	50,000.00	-	-	-	-
	Software Server	1	100,000.00	100,000.00	-	-	-	-
	DBMS server software	1	70,000.00	70,000.00	-	-	-	-
	DBMS client software	5	10,000.00	50,000.00	-	-	-	-
	Microsoft license			50,000.00	-	-	-	-
	Total Software Cost			270,000.00	-	-	-	-
	1.3 Personnel Cost :							
	System Analyst	1	15,000.00	15,000.00	-	-	-	-
	Consultant's fee	1	40,000.00	40,000.00	-	-	-	-
	Programmer	2	20,000.00	40,000.00	-	-	-	-
	Total Personnel Cost			95,000.00	-	-	-	-
	1.4 Maintenance Cost:							
	Maintenance Cost (15% of license)			-	40,500.00	40,500.00	40,500.00	40,500.00
	Total Maintenance Cost			-	40,500.00	40,500.00	40,500.00	40,500.00
	1.5 Implementation Cost:							
	Advance Training Cost	1	40,000.00	40,000.00	-	-	-	-
	Basic Training Cost	1	35,000.00	35,000.00	-	-	-	-
	Set up Cost	1	100,000.00	100,000.00	-	-	-	-
	Total Implementation Cost			135,000.00	-	-	-	-
	Total Development Cost			800,000.00	300,000.00	300,000.00	300,000.00	300,000.00
2. Operating Cost :	2.1 People-Ware Cost:							
	Administrative staff	2	10,000.00	20,000.00	22,000.00	24,200.00	26,620.00	29,282.00
	Claim Staff	2	12,000.00	24,000.00	26,400.00	29,040.00	31,944.00	35,138.40
	Total Monthly Salary Cost			44,000.00	48,400.00	53,240.00	58,564.00	64,420.40
	Total Annual Salary Cost			528,000.00	580,800.00	638,880.00	702,768.00	773,044.80
	2.2 Office Supplies & Miscellaneous Cost:							
	Stationary	Per Annum	5,000.00	5,000.00	5,500.00	6,050.00	6,655.00	7,320.50
	Paper	Per Annum	5,000.00	5,000.00	5,500.00	6,050.00	6,655.00	7,320.50
	Utility	Per Annum	30,000.00	50,000.00	55,000.00	60,500.00	66,550.00	73,205.00
	Miscellaneous	Per Annum	15,000.00	15,000.00	16,500.00	18,150.00	19,965.00	21,961.50
	Annual Office Supplies & Miscellaneous Cost		75,000.00	75,000.00	82,500.00	90,750.00	99,825.00	109,807.50
	Total Operating Cost			603,000.00	580,800.00	638,880.00	702,768.00	773,044.80
	Total Computerized System Cost			1,403,000.00	880,800.00	938,880.00	1,002,768.00	1,073,044.80

Table 3.16. Five Years Accumulated Computerized System Cost of Candidate 2, Baht.

Year	Total Computerized Cost	Accumulated Cost
1	1,403,000.00	1,403,000.00
2	880,800.00	2,283,800.00
3	938,880.00	3,222,680.00
4	1,002,768.00	4,225,448.00
5	1,073,044.80	5,298,492.80
Total	5,298,492.80	

St. Gabriel's Library

Table 3.17. Cost Comparison between Existing System and Computerized Sy

Year	Accumulated Existing Cost	Accumulated Computerized Cost
1	970,000.00	1,403,000.00
2	1,906,800.00	2,283,800.00
3	2,941,880.00	3,222,680.00
4	4,085,758.00	4,225,448.00
5	5,350,107.30	5,298,492.80

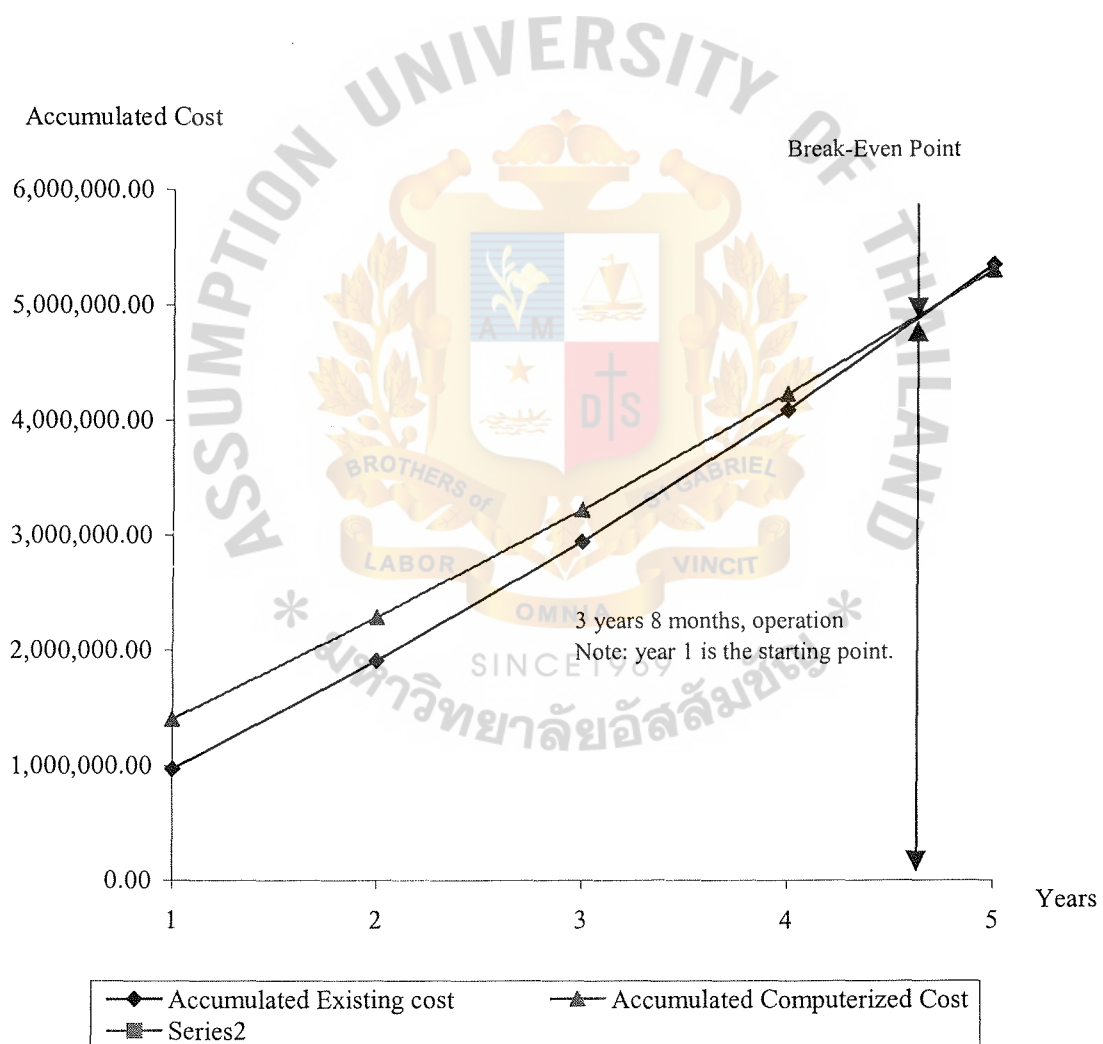


Figure 3.15. Comparison Graph of the System Costs between Existing System and Computerized System of Candidate 2.

Table 3.18. Payback Analysis for the Computerized System of Candidate 2, Baht.

Ccst Items	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Development cost	-1,403,000						
Opeation & maintenance cost		-210,450	-240,450	-270,450	-300,450	-330,450	-360,450
Discount factor for 12%	1.0000	0.8929	0.7972	0.7120	0.6355	0.5674	0.5066
Time adjusted costs							
(adjusted to present value) :	-1,403,000	-187,911	-191,687	-192,560	-190,936	-187,497	-182,604
Cumulation time-adjusted							
cost over lifetime :	-1,403,000	-1,590,911	-1,782,598	-1,975,158	-2,166,094	-2,353,591	-2,536,195

Benefit derived from							
operation of new system	0	950,000	997,500	1,047,375	1,099,744	1,154,731	1,212,467
Discount factor for 12%	1.0000	0.8929	0.7972	0.7120	0.6355	0.5674	0.5066
Time adjusted costs							
(adjusted to present value) :	0	848,255	795,207	745,731	698,887	655,194	614,236
Cumulative time-adjusted							
benefits overlife time :	0	848,255	1,643,462	2,389,193	3,088,080	3,743,274	4,357,511
Cumulative time-adjusted							
cost over lifetime :	-1,403,000	-742,656	-139,136	414,035	921,986	1,389,683	1,821,315

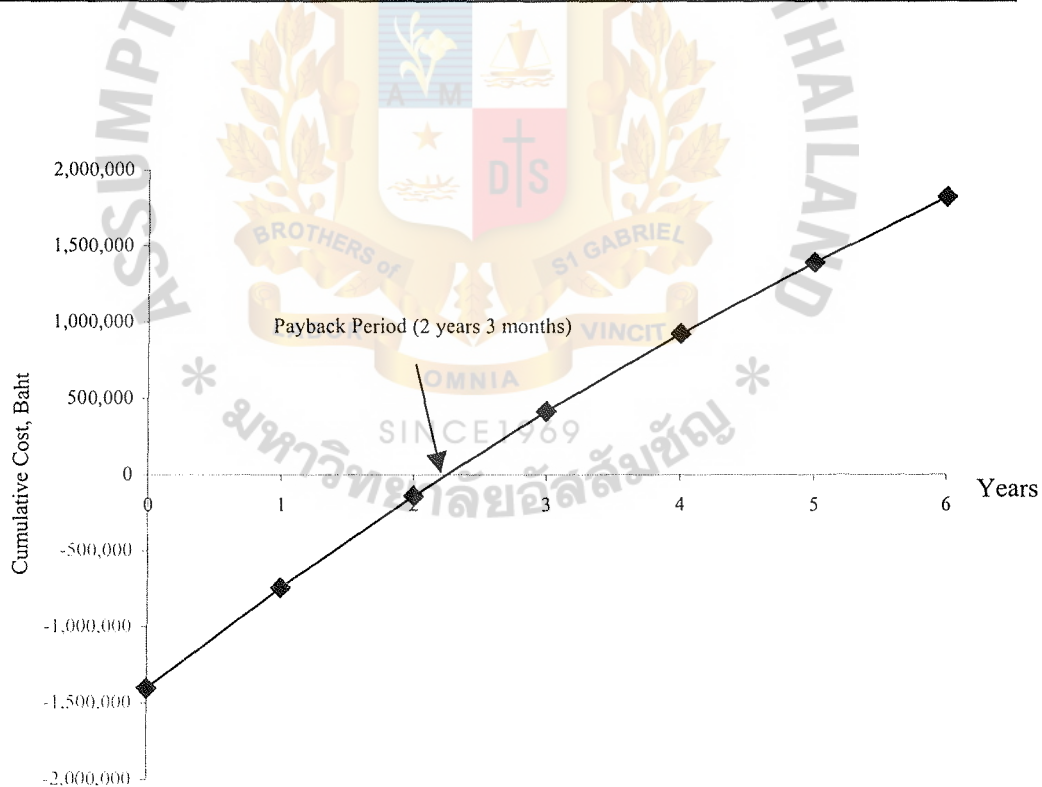


Figure 3.16. Payback Analysis of Computerized System (Candidate 2).

Table 3.19. Net Present Value Analysis of the Computerized System of Candidate 2, Baht.

Cost Items	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Development cost	-1,403,000							
Operation & maintenance cost		-199,950	-229,950	-259,950	-289,950	-319,950	-349,950	
Discount factor for 12%	1.0000	0.8929	0.7972	0.7120	0.6355	0.5674	0.5066	
Present value of life time cost	-1,403,000	-178,535	-183,316	-185,084	-184,263	-181,540	-177,285	
Total present value of lifetime costs :								-2,493,023

Benefit derived from operation of new system	0	950,000	997,500	1,047,375	1,099,744	1,154,731	1,212,467	
Discount factor for 12%	1.0000	0.8929	0.7972	0.7120	0.6355	0.5674	0.5066	
present value of annual benefits :	0	848,255	795,207	745,731	698,887	655,194	614,236	
Total present value of lifetime benefits								4,357,511
Net present value of this alternative								1,864,487



Table 3.20. Estimated Cost for Computerized System of Candidate 3, Baht.

Cost Items	Description	Amount	Unit Price	Price				
				Year 1	Year 2	Year 3	Year 4	Year 5
1. Development Cost :	1.1 Hardware Cost:							
	Computer Server Cost	1	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00
	Workstations Cost	1	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00
	Total Hardware Cost			250,000.00	250,000.00	250,000.00	250,000.00	250,000.00
	1.2 Software Cost:							
	Software Server	1	70,000.00	70,000.00	-	-	-	-
	Software Package	1	50,000.00	50,000.00	-	-	-	-
	DBMS server software	1	20,000.00	20,000.00	-	-	-	-
	DBMS client software	5	15,000.00	75,000.00	-	-	-	-
	Modify program for support	1	50,000.00	50,000.00	-	-	-	-
	Microsoft license			70,000.00	-	-	-	-
	Total Software Cost			335,000.00	-	-	-	-
	1.3 Personnel Cost :							
	System Analyst	2	20,000.00	40,000.00	-	-	-	-
	System Architecture	1	50,000.00	50,000.00	-	-	-	-
	Database Specialist	1	30,000.00	30,000.00	-	-	-	-
	Programmer	2	15,000.00	30,000.00	-	-	-	-
	Total Personnel Cost			150,000.00	-	-	-	-
	1.4 Maintenance Cost:							
	Maintenance Cost (15% of license)			-	50,250.00	50,250.00	50,250.00	50,250.00
	Total Maintenance Cost			-	50,250.00	50,250.00	50,250.00	50,250.00
	1.5 Implementation Cost:							
	Basic Training Cost	1	40,000.00	40,000.00	-	-	-	-
	Set up Cost	1	30,000.00	30,000.00	-	-	-	-
	Total Implementation Cost			70,000.00	-	-	-	-
	Total Development Cost			805,000.00	250,000.00	250,000.00	250,000.00	250,000.00
2. Operating Cost :	2.1 People-Ware Cost:							
	Administrative staff	2	10,000.00	20,000.00	22,000.00	24,200.00	26,620.00	29,282.00
	Claim Officer	2	12,000.00	24,000.00	26,400.00	29,040.00	31,944.00	35,138.40
	Total Monthly Salary Cost			44,000.00	48,400.00	53,240.00	58,564.00	64,420.40
	Total Annual Salary Cost			528,000.00	580,800.00	638,880.00	702,768.00	773,044.80
	2.2 Office Supplies & Miscellaneous Cost:							
	Stationary	Per Annum	5,000.00	5,000.00	5,500.00	6,050.00	6,655.00	7,320.50
	Paper	Per Annum	5,000.00	5,000.00	5,500.00	6,050.00	6,655.00	7,320.50
	Utility	Per Annum	30,000.00	50,000.00	55,000.00	60,500.00	66,550.00	73,205.00
	Miscellaneous	Per Annum	15,000.00	15,000.00	16,500.00	18,150.00	19,965.00	21,961.50
	Annual Office Supplies & Miscellaneous Cost		75,000.00	75,000.00	82,500.00	90,750.00	99,825.00	109,807.50
	Total Operating Cost			603,000.00	580,800.00	638,880.00	702,768.00	773,044.80
	Total Computerized System Cost			1,408,000.00	830,800.00	888,880.00	952,768.00	1,023,044.80

Table 3.21. Five Years Accumulated Computerized System Cost of Candidate 3, Baht.

Year	Total Computerize Cost	Accumulated Cost
1	1,408,000.00	1,408,000.00
2	830,800.00	2,238,800.00
3	888,880.00	3,127,680.00
4	952,768.00	4,080,448.00
5	1,023,044.80	5,103,492.80
Total	5,103,492.80	

Table 3.22. Comparison of the System Costs between Existing System and Computerized System of Candidate 3, Baht.

Year	Accumulated Existing Cost	Accumulated Computerized Cost
1	970,000.00	1,408,000.00
2	1,906,800.00	2,238,800.00
3	2,941,880.00	3,127,680.00
4	4,085,758.00	4,080,448.00
5	5,350,107.30	5,103,492.80

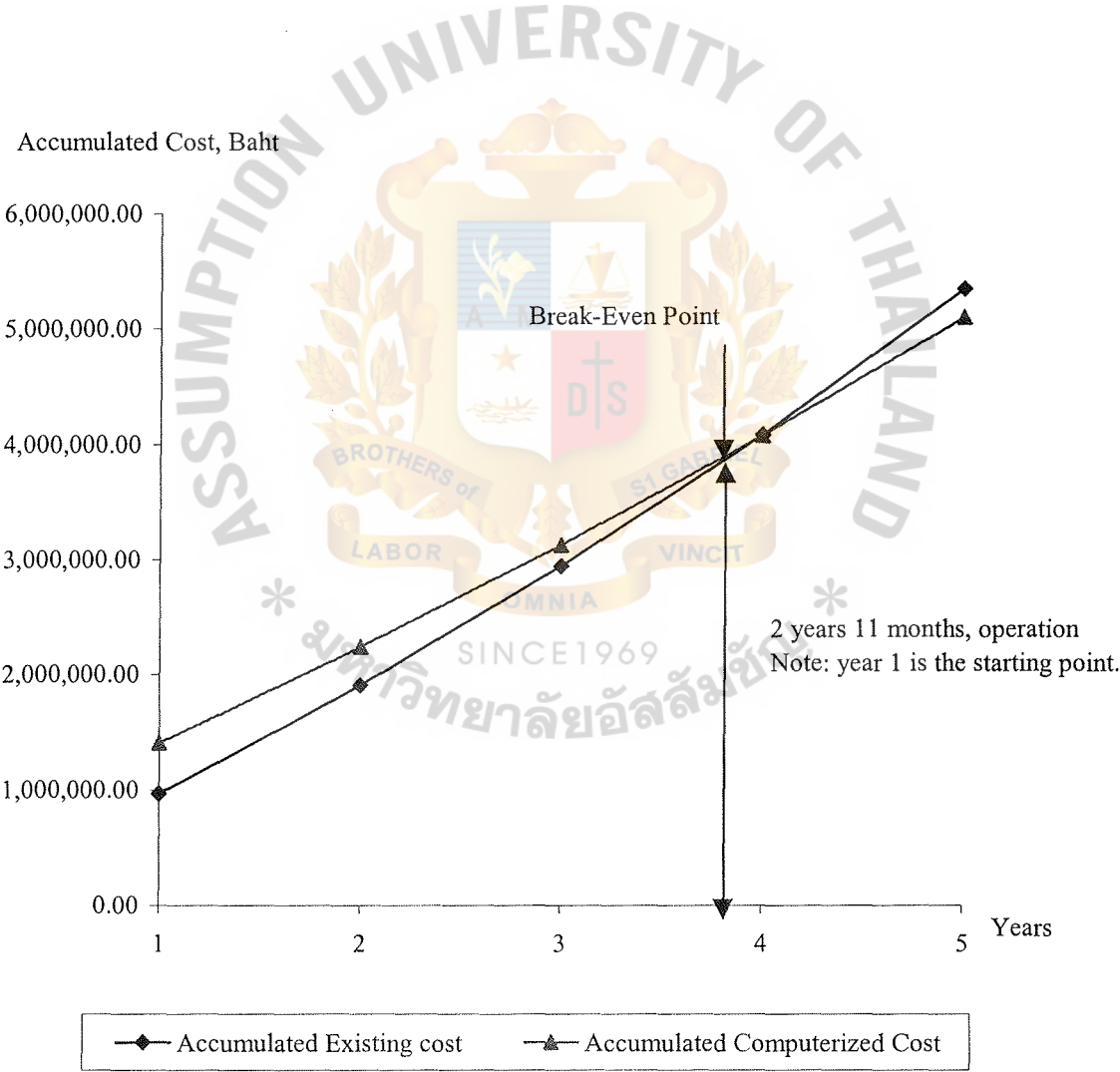


Figure 3.17. Comparison Graph of the System Costs between Existing System and Computerized System of Candidate 3

Table 3.23. Payback Analysis for the Computerized System of Candidate 3, Baht.

Cost Items	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Development cost	-1,408,000						
Operation & maintenance cost		-211,200	-241,200	-271,200	-301,200	-331,200	-361,200
Discount factor for 12%	1.0000	0.8929	0.7972	0.7120	0.6355	0.5674	0.5066
Time adjusted costs (adjusted to present value) :	-1,408,000	-188,580	-192,285	-193,094	-191,413	-187,923	-182,984
Cumulation time-adjusted cost over lifetime :	-1,408,000	-1,596,580	-1,788,865	-1,981,960	-2,173,372	-2,361,295	-2,544,279

Benefit derived from operation of new system	0	950,000	997,500	1,047,375	1,099,744	1,154,731	1,212,467
Discount factor for 12%	1.0000	0.8929	0.7972	0.7120	0.6355	0.5674	0.5066
Time adjusted costs (adjusted to present value) :	0	848,255	795,207	745,731	698,887	655,194	614,236
Cumulative time-adjusted benefits overlife time :	0	848,255	1,643,462	2,389,193	3,088,080	3,743,274	4,357,511
Cumulative time-adjusted cost over lifetime :	-1,408,000	-748,325	-145,403	407,233	914,708	1,381,979	1,813,232

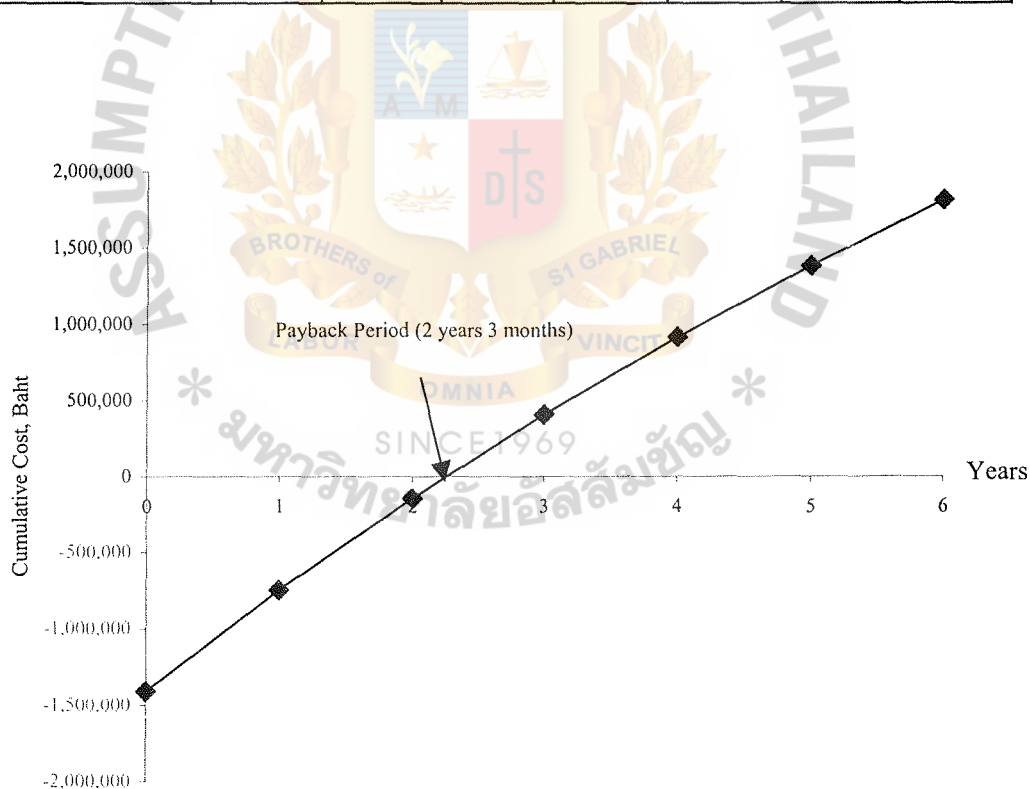


Figure 3.18. Payback Analysis of Computerized System (Candidate 3).

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Table 3.24. Net Present Value Analysis of the Computerized System of Candidate 3, Baht.

Cash Items	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Development cost	-1,408,000							
Operation & maintenance cost		-199,950	-229,950	-259,950	-289,950	-319,950	-349,950	
Discount factor for 12%	1.0000	0.8929	0.7972	0.7120	0.6355	0.5674	0.5066	
Present value of life time cost	-1,408,000	-178,535	-183,316	-185,084	-184,263	-181,540	-177,285	
Total present value of lifetime costs :								-2,498,023

Benefit derived from operation of new system	0	950,000	997,500	1,047,375	1,099,744	1,154,731	1,212,467	
Discount factor for 12%	1.0000	0.8929	0.7972	0.7120	0.6355	0.5674	0.5066	
present value of annual benefits :	0	848,255	795,207	745,731	698,887	655,194	614,236	
Total present value of lifetime benefits								4,357,511
Net present value of this alternative								1,859,487



3.5.2 Recommendation and Selection

The details of alternative solutions and feasibility analysis are shown in Tables 3.10-3.24 and Figures 3.1-3.6 and we can summarize the main factors for decision making of both cost and benefit.

After we have completed the Candidate Matrix which fills up all the characteristics required for each candidate and also perform Feasibility Study of each candidate in terms of various issues, we decided to select Candidate 1 name “System 6” which has highest total ranking score comprising of Operational Feasibility, Technical Feasibility, Economic Feasibility and Schedule Feasibility.



IV. PROJECT IMPLEMENTATION

4.1 Overview of Project Implementation

Implementation is the process of assuring that the information system is operational and then allowing users to take over its operation for use and evaluation. The Claim Payment Information System analyst has several approaches to implementation that should be considered as the changeover to the new system is being prepared for schedule/ resources utilized as following:

4.1.1 Planning Final Construction, System Test, and Installation Activities

The last development stage: final construction, system test, installation. To ensure that the system meets its system quality goals

Planing involves the following tasks:

Identifying activities to be performed.

- (2) Determining dependencies between these activities.
- (3) Assigning personnel and resources to each activity.
- (4) Scheduling the begin date and end date of each activity.

4.1.2 Construct and Test Production-ready Database and Programs

The process of converting from existing system to proposed system. The following activities are performed to convert data from one to another.

- (1) Set date to cut of database, no update existing database.
- (2) Backup existing data.
- (3) Convert data.

4.1.3 Obtain Additional Hardware, Prepare the facility for additional hardware and test hardware components.

4.1.5 User Training

Training the users is a critical and potentially costly activity. The user documentation (user manual) must be completed. The training plan must outline the training schedule, objective, materials and so on.

4.2 System Test and Installation

- (1) Perform system test.
- (2) Install components.
- (3) Conduct user review/ acceptance test.

Testing is performed throughout the system development and done on many different levels at various intervals. However, for the Claim Payment Information System, there are two testing plans as shown below:

4.2.1 Testing System Software and System Development

This step is provided by a vendor who has already tested the software before the software is loaded into the hardware.

4.2.2 Testing Application Software (System 6 and Microsoft Access)

- (a) Program testing with test data:

The System 6 and Microsoft Access are tested by the programmer and system analyst. The following steps are included in the testing process.

- (1) Test valid and invalid data.
- (2) Test possible variations in format and codes.
- (3) Output must be corrected and be satisfactory.
- (4) File output from tested data must be correct.

(b) Link testing test data

System Analyst test the program on System 6 that are independent, and actually working together or tests all combinations by creating special test data to ensure that the system can detect errors and can handle normal or bulk transactions.

(c) Full Systems testing with test data:

The operators and users become actively involved in testing. There are factors to take into consideration when testing.

- (1) Check that documentation is clear enough and adequate for operators and users to afford correct and efficient operation.
- (2) Determining if output is correct and that users understand it. This testing will include measures of error, timeliness, ease of use and so on.

(d) Full System Testing with live data:

This step allows an accurate comparison of the new system's output with what we know to be correctly processed output as well as good feeling for how actual data will be handled.

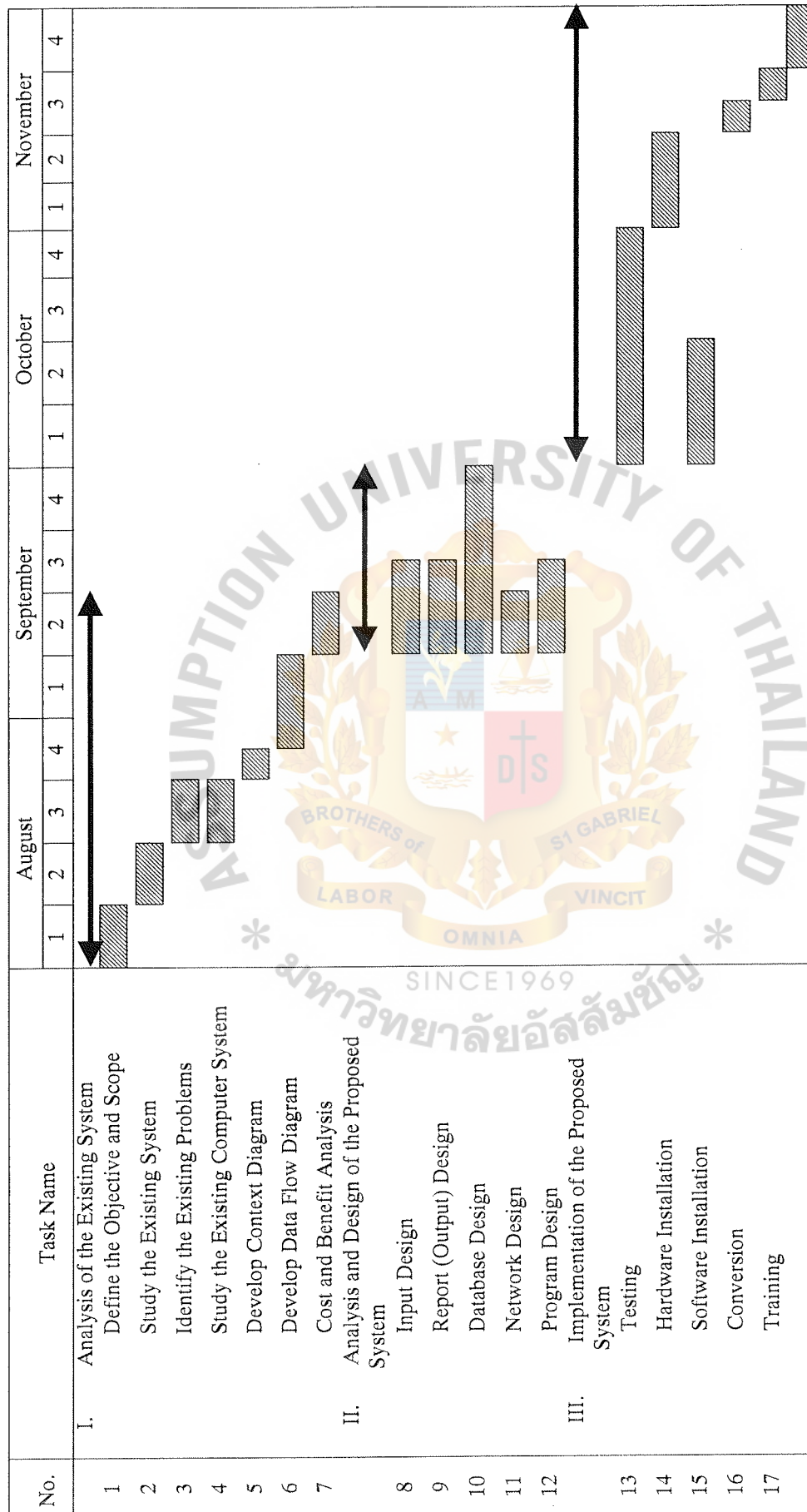


Figure 4.1 Gantt Chart of Claim Payment Information System.

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The objectives of the project are to analyze and design and then implement the Claim Payment Information System to meet the users' requirement, and to meet the organization's policy and operation plan for ACE Insurance Limited. The manual system was analyzed to see how the information flows and of its problems.

The Claim Payment Information System provides users with ability to create and maintain the Claim Payment database by entering the claim requisition, confirmation and claim payment reports. The process will assist us to generate the payment type and lists to transfer to Citibank for automatic transfer to the customer's accounts.

The users can get several available system functions, which are displayed as menu, and they can choose among them. The management can get any claim and payment report from this system for decision-making. The system provides more accurate and timely information. The inquiries and reports enable users to make more timely decision.

The system design and development of this project use the top-down approach. This refers to looking at the overall organization objectives first and then decomposing them into management system requirements. Finally, it is found that the appropriate solution for the Claim Payment Information System is System 6, plus in-house modification, which users Microsoft-Access as the application software.

Table 5.1 shows that why the Proposed System use less time and more effective than the Existing System.

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

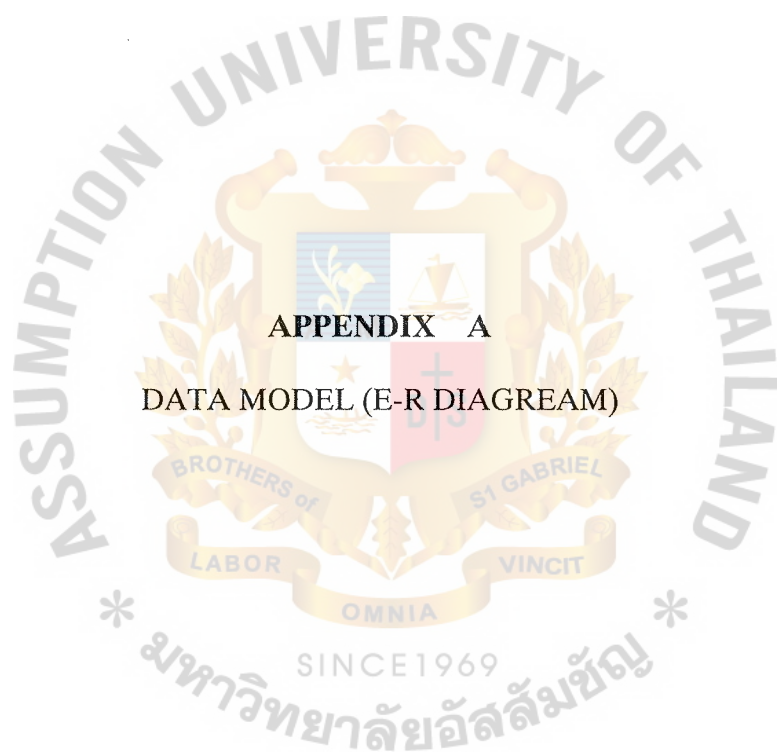
Process	Existing System	Proposed System	Degree of Achievement
Retrieve customer information process	5 minutes Manual retrieve information from customer files.	2 minutes Retrieve from customer database in system 6.	60%
Check and verify policy's coverage	10 minutes Have to look the coverage brochures case by case.	3 minutes Can look for the policy details in the program interface.	70%
Claim payment preparation	7 days Manual preparing cheque by typing form type writer.	3 days Online payment through Citibank.	57%
Payment transfer process	1 day Send hard copy to Bank.	4 hrs. Online transfer.	83%

5.2 Recommendations

The Claim Payment Information System has been definitely complete according to the objectives and users' requirements. This proposed system is only one part of the overall system that needs to be improved. The system can be applied to use with the existing system. The concepts of the proposed system is enable to apply with other information system in the company.

In the future, the company has a plan to have its own web site and will allow the customer to access the insurance information through the web page. The Claim Department has an idea to provide claim follow-up on the web page to enable the policyholder checking the claim information by themselves.

Moreover, there are many work area to be done and improve such as the job control for claim payment and procedures.



APPENDIX A

DATA MODEL (E-R DIAGREAM)

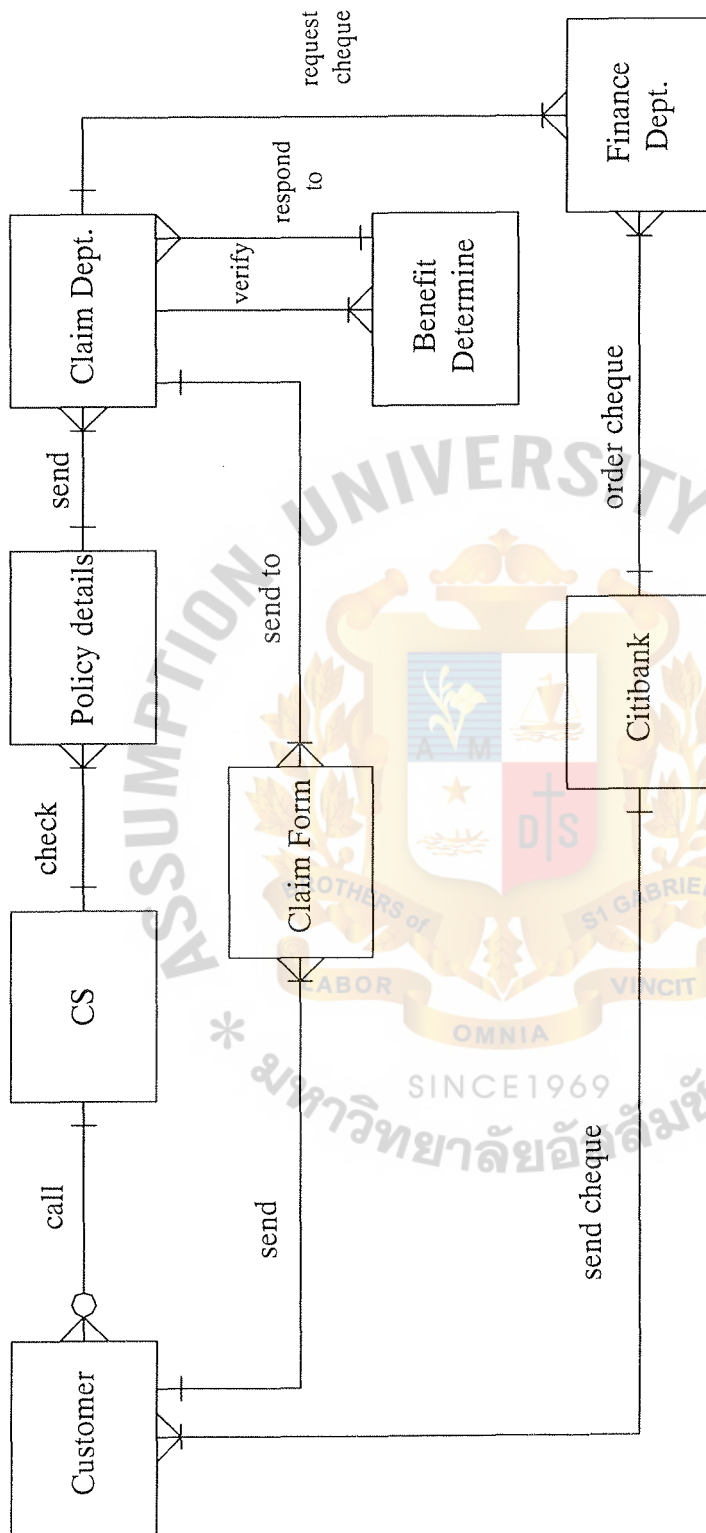


Figure A.1. Claim Payment Information System Entity Relationship Context Diagram.

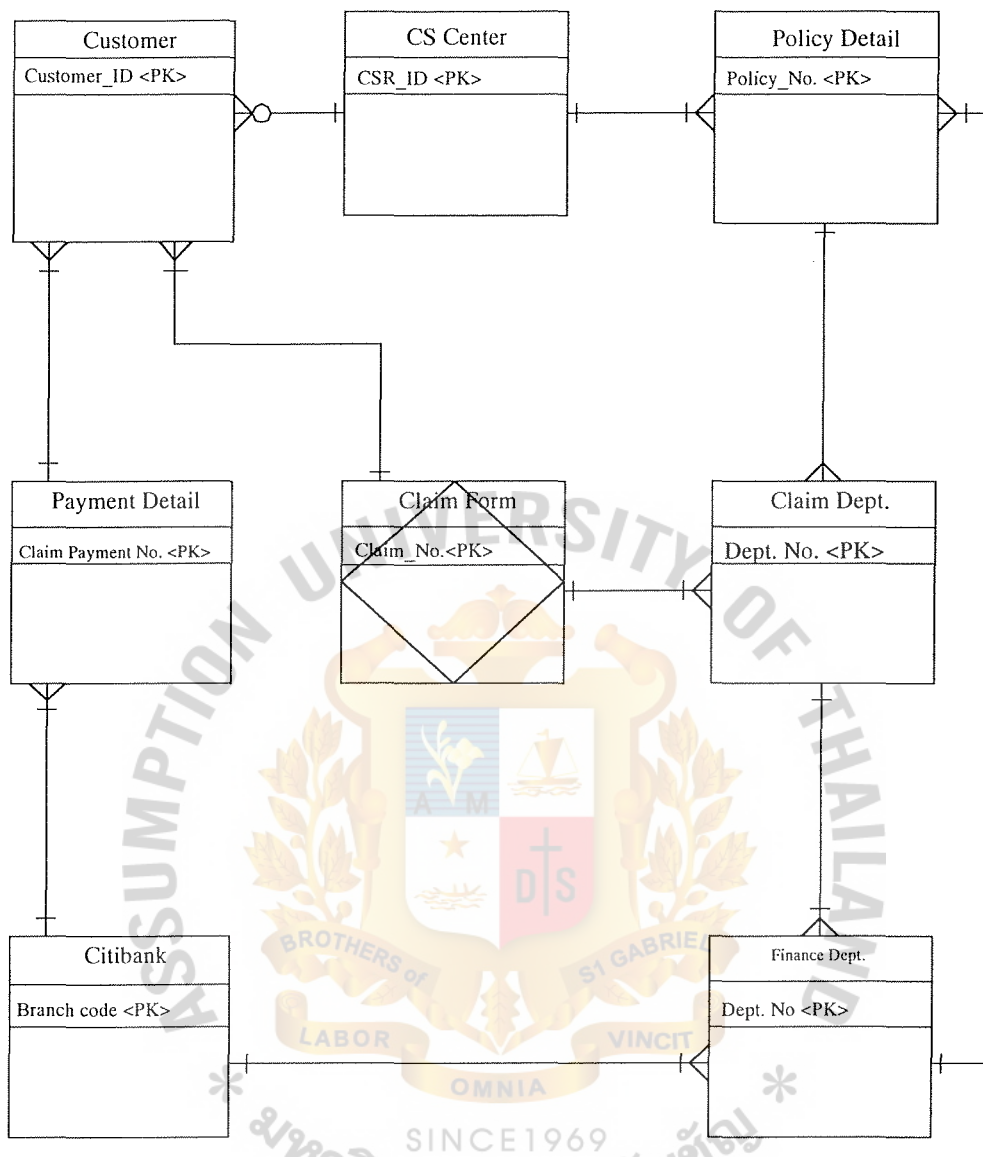


Figure A.2. Claim Payment Information System Key-Base Data Model.

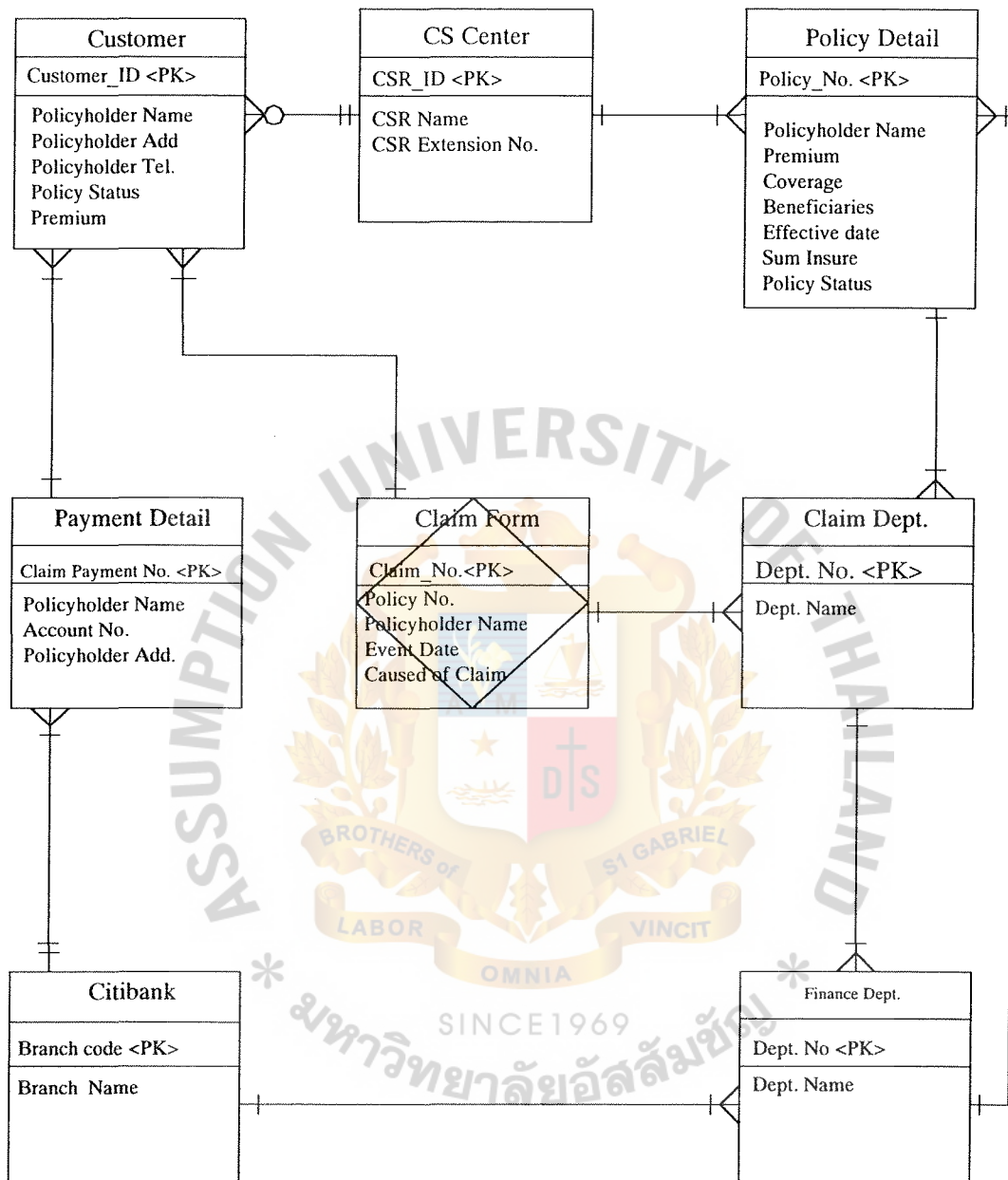


Figure A.3. Claim Payment Information System Fully Attributed Data Model.



APPENDIX B

PROCESS MODEL – CONTEXT DIAGRAM

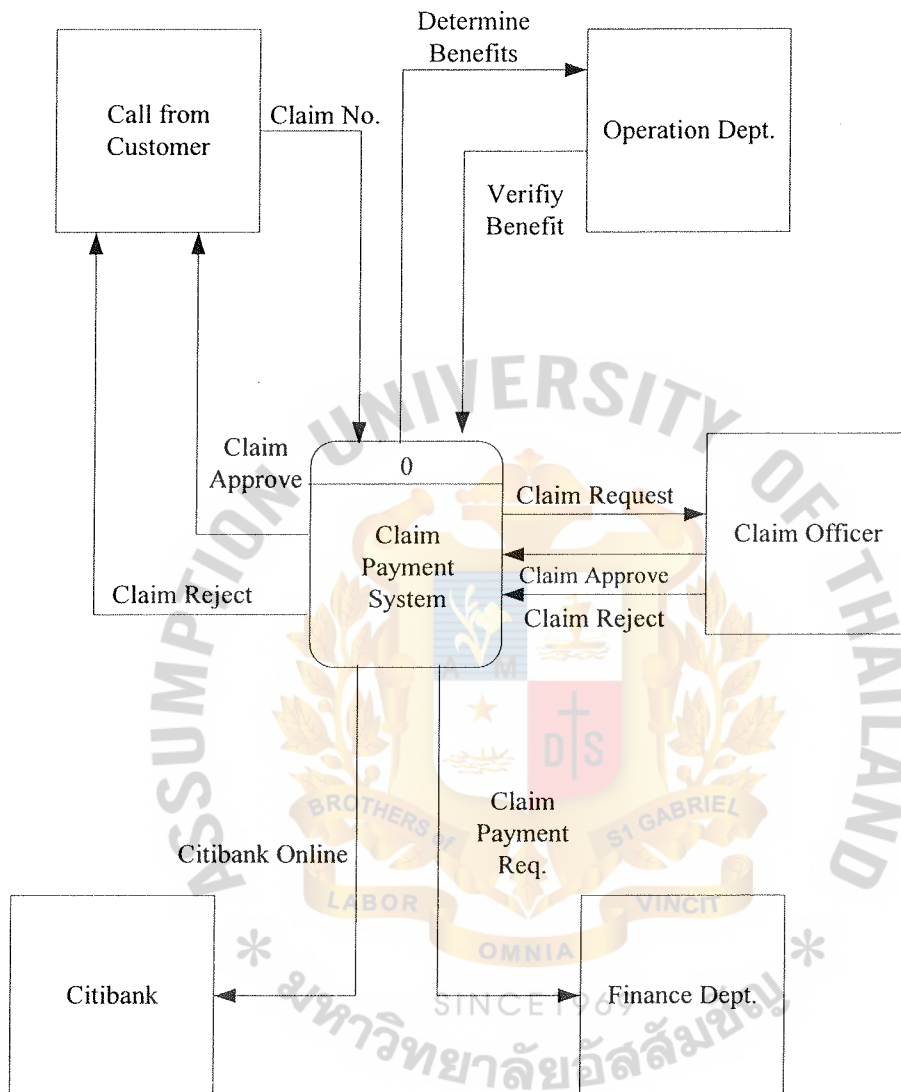
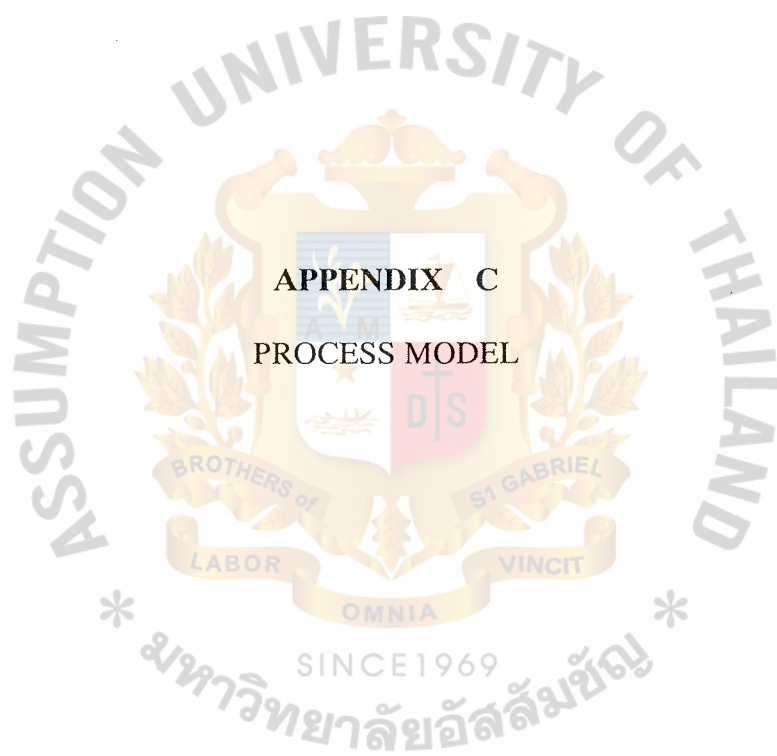


Figure B.1. Context Diagram of Claim Payment Information System



APPENDIX C
PROCESS MODEL

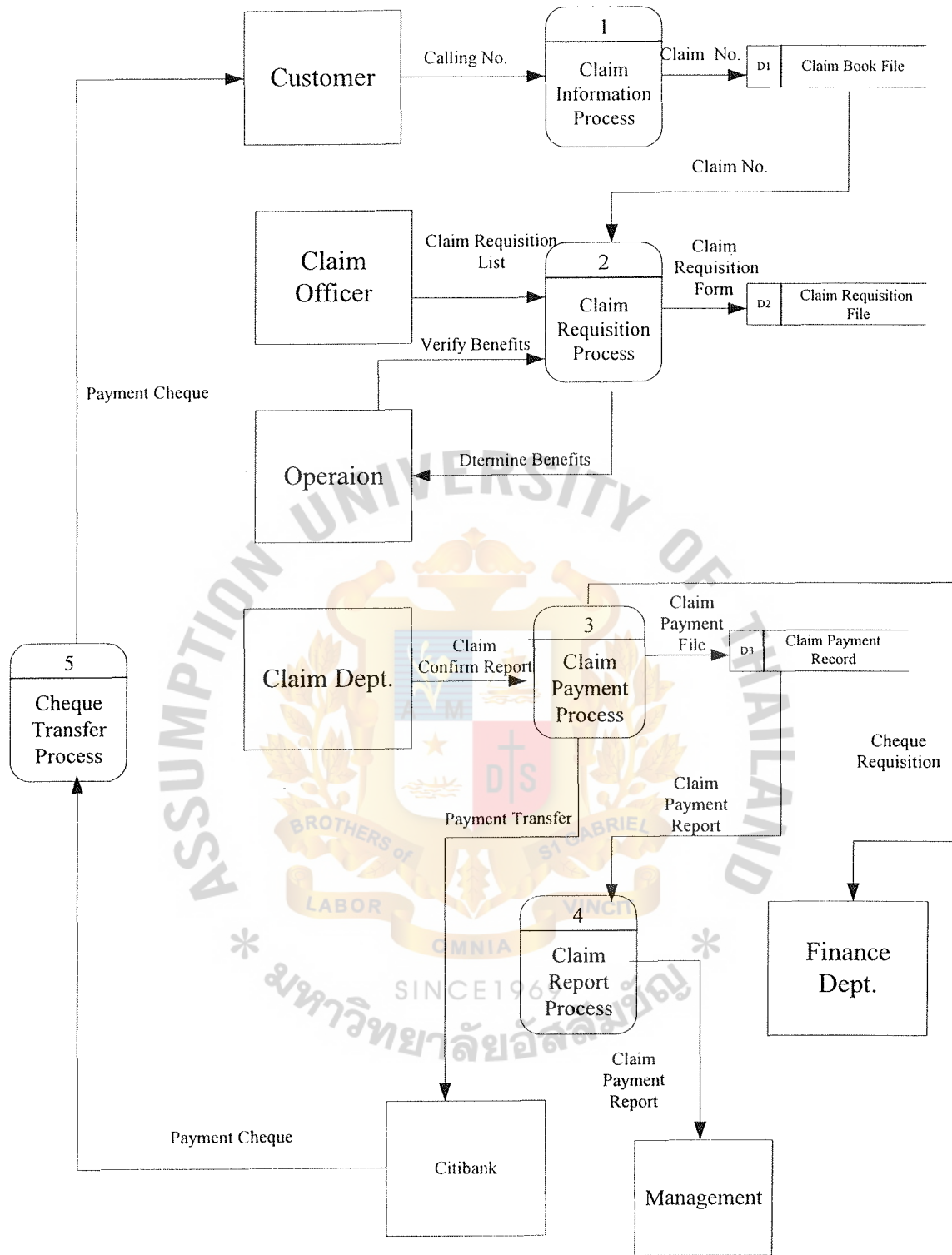


Figure C.1. Data Flow Diagram Level 0 of Claim Payment Information System.

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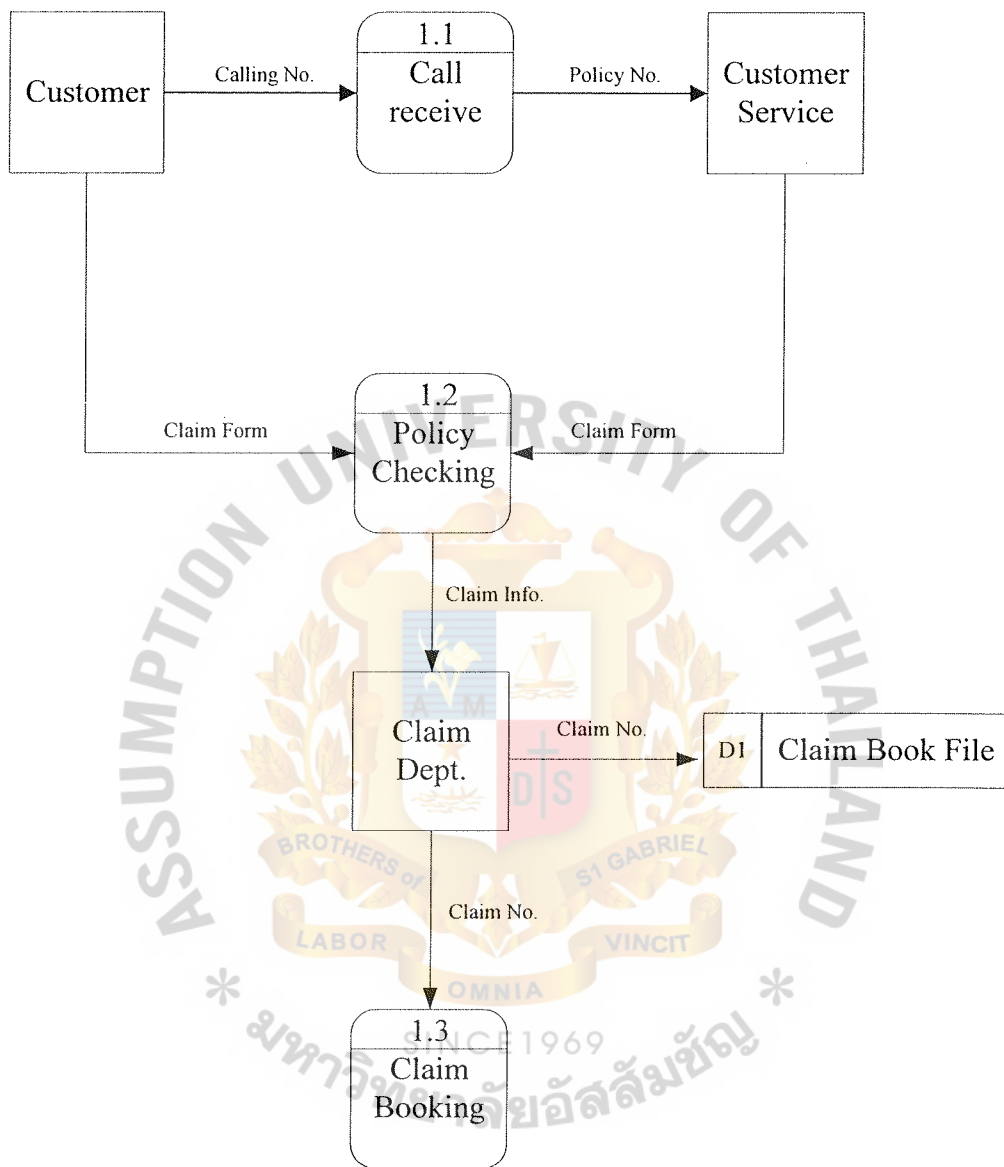


Figure C.2. Data Flow Diagram Level 1 of Claim Information Process.

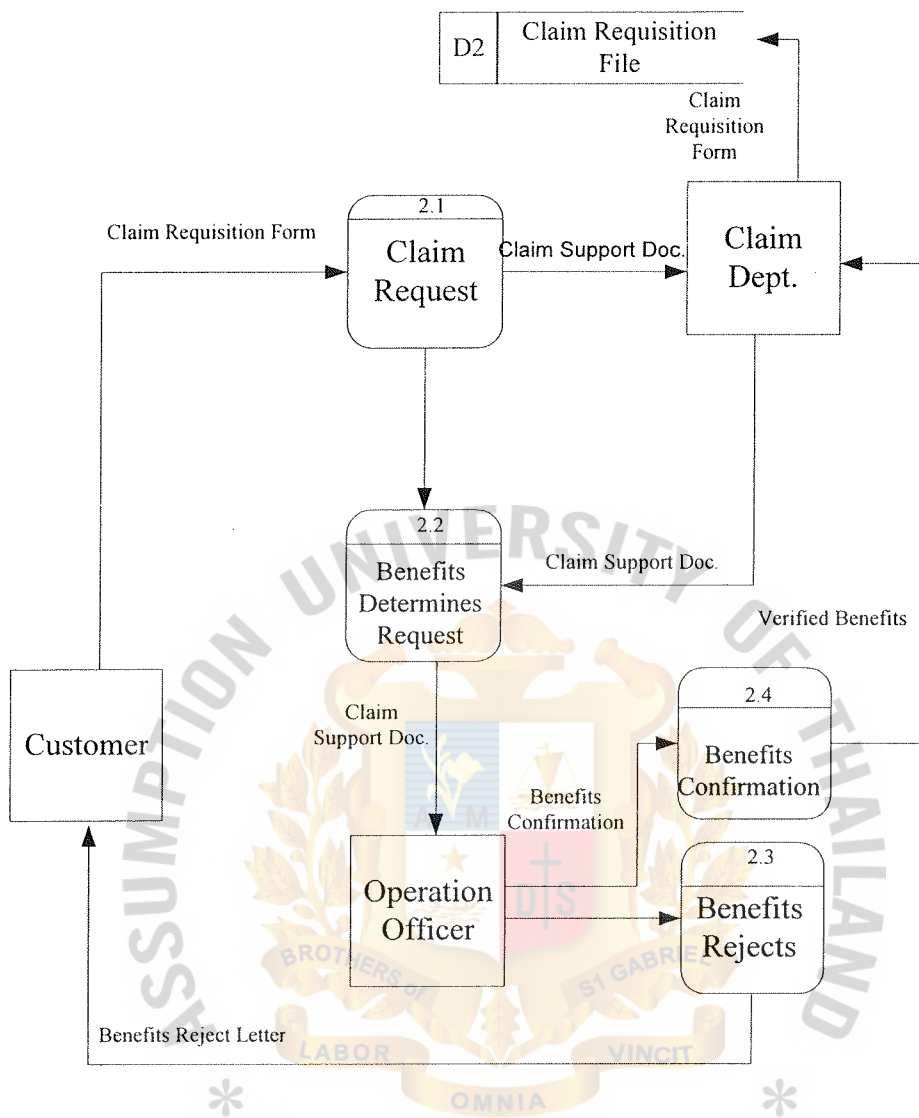


Figure C.3. Data Flow Diagram Level 1 of Claim Requisition Process.

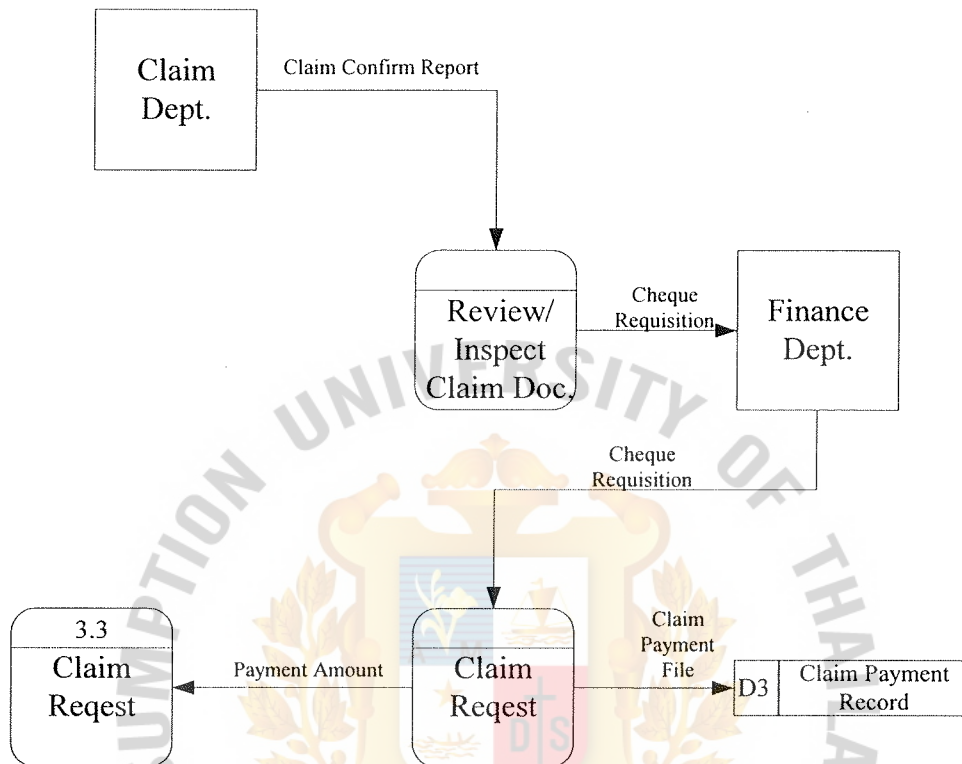


Figure C.4. Data Flow Diagram Level 1 of Claim Payment Process.

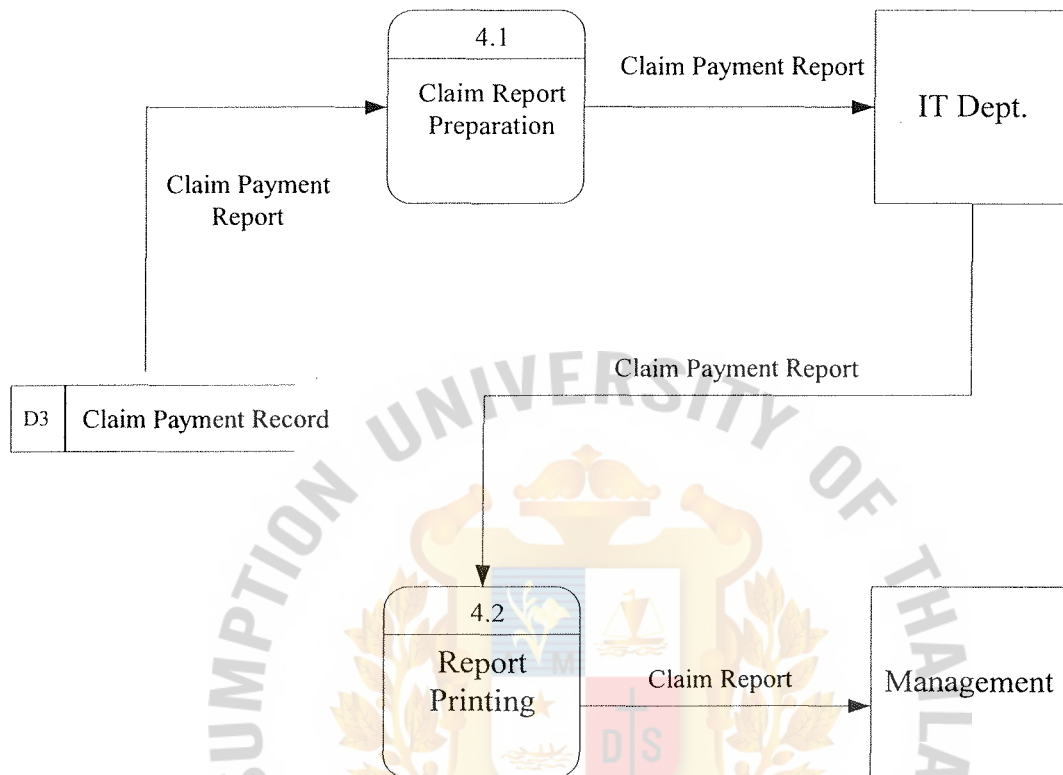


Figure C.5. Data Flow Diagram Level 1 of Claim Report Process.

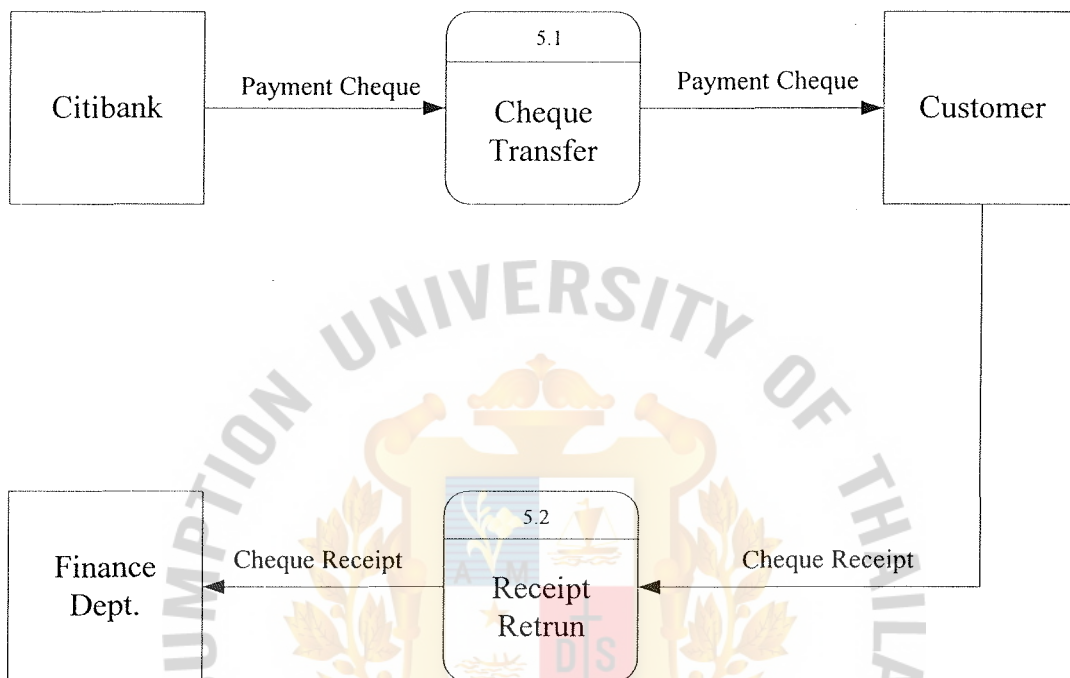
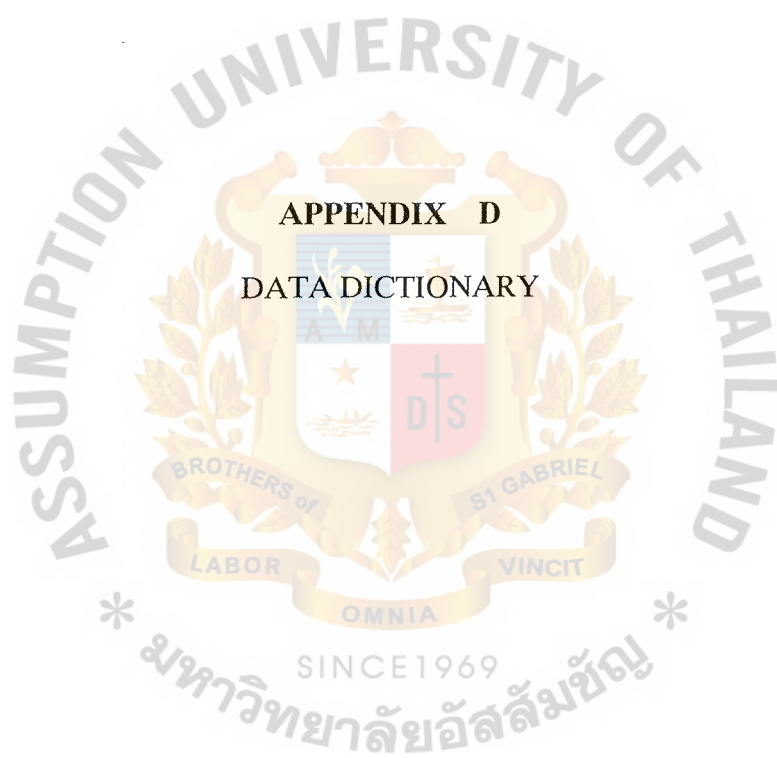


Figure C.6. Data Flow Diagram Level 1 of Cheque Transfer Process.



APPENDIX D
DATA DICTIONARY

DATA DICTIONARY

Table D.1. Data Dictionary of Claim Payment Information System.

Field Name	Field Type	Meaning
Benefits Confirmation	Data Flow	After operation officer checking the policy coverages, if that policy is valid and covered the claimant, operation officer will prepare benefits confirmation and send back to claim department for further processing.
Benefits Rejection	Data Flow	If the policy is not valid or the benefits are not covered by the insurer, the operation officer will send the rejection to inform claim department to decline claim payment
Calling No.	Data Flow	After a customer service representative gets a call, the staff will book the number of calling into the file. Claim officer requests claim payment.
Cheque Receipt	Data Flow	The receipt form signed by policyholder after receiving claim payment cheque.
Cheque Requisition List	Data Flow	Claim Department will prepare the list of payments to submit to Finance department for further processing.
Citibank	External Entity	A bank that provides cash transfer.
Claim Book File	Data Store	Data store of claim number.
Claim Confirm Report	Data Flow	The claim officer processes for invoice due.

Table D.2. Data Dictionary of Claim Payment Information System.

Field Name	Field Type	Meaning
Claim Dept.	External Entity	The department responsible for provide the activities including take accidental note and claim process.
Claim File	Data Flow	The file which consolidate the information of claimant and the policy data to be kept in claim book file.
Claim Form	Data Flow	The form to be filled in by policyholder about the details of accident or illness and have to be signed by the policyholder and sent along with other claim request documents.
Claim Info.	Data Flow	After Customer Service Representative gets a call from customer and checking the coverage of the policy, she/he will pass all the information to the claim department.
Claim No.	Data Flow	After the Claim Requisition Process, a claim officer creates this information and keeps in the Claim Book File.
Claim Officer	External Entity	Person in charge who performs a task of verifying and validating the claim payment.
Claim Payment Record	Data Store	Data store for claim payment.
Claim Report	Data Flow	The report of claim payment monthly print out from claim payment record and to be submitted to management.

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Table D.3. Data Dictionary of Claim Payment Information System.

Field Name	Field Type	Meaning
Claim Requisition Form	Data Flow	The internal form - sent to policyholder who would like to claim to fill in the details of claim and sent along with other support document.
Claim Requisition List	Data Flow	During the Claim Payment Process, a claim officer retrieve this information by the claim requisition file in order to match information.
Claim Support Doc.	Data Flow	Other documents including doctor certificates, expenses receipt from hospital, copy of ID cards, etc. per claim process requisition.
Customer	External Entity	The policyholder.
Customer Service	External Entity	Assigned staff provides enquiry answers from customers and contacts customer service center.
Determine Benefits	Data Flow	Process of checking coverages of policy whether it covers the insurer or not.
Finance Dept.	External Entity	The department performs the function of cheque payments and contact Citibank to prepare payment transfers.
IT Department	External Entity	The department responsible for report print out for overall department in the company including claim report.
Management	External Entity	The group of staff who has decision making.

Table D.4. Data Dictionary of Claim Payment Information System.

Field Name	Field Type	Meaning
Operation	External Entity	The section which supervises the customer service representative and processing officer who does the operation work.
Payment Amount	Data Flow	The amount to be paid to the claimant.
Payment Transfer	Data Flow	The process of payment transfer to the claimant.
Payment Preparation	Data Flow	The process at finance department to prepare the cheque to be paid to the claimant.
Policy No.	Data Flow	The running number of the policy classified by type of insurance.
Review/ Inspect Claim Doc.	Data Flow	The process used claim officer to review and verify the claim requisition whether the policy is covered or not.
Verified Benefits	Data Flow	If the policy is covered, the verified benefits will be sent back to claim department to further processes.



APPENDIX E
PROCESS SPECIFICATION

PROCESS SPECIFICATION

Table E.1. Process Specification of Process 1.

Process Name:	Claim Information
Data In:	Calling No.
Data Out:	Calling No.
Process:	(1) Get a call from customer and book the calling number. (2) Keep the calling number in the claim book file.
Attachment:	(1) Customer (2) Customer Service Representative (CSR) (3) Claim Book File (D1)

Table E.2. Process Specification of Process 2.

Process Name:	Claim Requisition
Data In:	Claim Requisition List
Data Out:	Claim Requisition Form
Process:	(1) Claim officer prepare claim requisition list from claim book file. (2) Send claim requisition to the Operation section to determine the benefits. (3) Keep them into the Claim Requisition File
Attachment:	(1) Claim Department (2) Operation Section (3) Claim Book File (D1) (4) Claim Requisition File (D2)

Table E.3. Process Specification of Process 3.

Process Name:	Claim Payment
Data In:	Claim Confirm Report
Data Out:	(1) Claim Payment File (2) Cheque Requisition (3) Payment Transfer
Process:	(1) Claim submit the claim confirmation report. (2) Claim prepare claim cheque requisition to finance department. (3) Record Claim Payment into Claim Payment database
Attachment:	(1) Claim Department (2) Finance Department (3) Citibank (4) Production Control Department (PCD)

Table E.4. Process Specification of Process 4.

Process Name:	Claim Report
Data In:	Claim Payment Record
Data Out:	Claim Payment Report
Process:	(1) Retrieve claim report from claim payment record. (2) Print out monthly report to management.
Attachment:	(1) Claim Payment Record (D3) (2) IT Department (1) Management

Table E.5. Process Specification of Process 5.

Process Name:	Cheque Transfer
Data In:	Payment transfer amount.
Data Out:	Payment Cheque
Process:	(1) Get payment amount from claim department. (2) Finance department transfers payment to Citibank. (3) Citibank mail out claim payment cheque to Customer.
Attachment:	(1) Claim Department (2) Finance Department (3) Citibank (4) Customer

Table E.6. Process Specification of Process 1.1.

Process Name:	Call receive
Data In:	Calling No.
Data Out:	Calling No.
Process:	(1) Get a call from customer. (2) Get policy data from customer.
Attachment:	(1) Customer (2) Customer Service Representative

Table E.7. Process Specification of Process 1.2.

Process Name:	Policy Checking
Data In:	(1) Policy No. (2) Customer Name
Data Out:	(1) Policy details
Process:	(1) Retrieve policy detail form customer database. (2) Check policy benefits. (3) Transfer claim information to claim department.
Attachment:	(1) Customer (2) Customer Service Representative

Table E.8. Process Specification of Process 1.3.

Process Name:	Claim Booking
Data In:	Claim information
Data Out:	Claim booking number
Process:	(1) Get claim information from customer service or customer. (2) Book claim number into claim book file.
Attachment:	(1) Customer (2) Customer Service Representative (3) Claim Department (4) Claim Book File (D1)

Table E.9. Process Specification of Process 2.1.

Process Name:	Claim Request
Data In:	Claim requisition form
Data Out:	Claim support document
Process:	(1) Get claim requisition form from customer. (2) Add more claim support document. (3) Consolidate all claim document to operation section.
Attachment:	(1) Claim Department (2) Customer (3) Claim Requisition File (D2)

Table E.10. Process Specification of Process 2.2.

Process Name:	Benefits determine request
Data In:	Claim support document
Data Out:	Benefits confirmation
Process:	(1) Get all claim support document. (2) Submit to determine benefits.
Attachment:	(1) Claim department (2) Operation section

Table E.11. Process Specification of Process 2.3.

Process Name:	Benefits confirmation
Data In:	Benefits requisition
Data Out:	Benefits confirmation
Process:	After benefits determine by operation section, the confirmation will be sent back to claim department for further process.
Attachment:	(1) Operation section (2) Claim department

Table E.12. Process Specification of Process 2.4.

Process Name:	Benefits reject
Data In:	Benefits requisition
Data Out:	Benefits reject
Process:	Non-approval claim requisition will be sent back to customer as a reject letter.
Attachment:	(1) Operation section (2) Customer

Table E.13. Process Specification of Process 3.1.

Process Name:	Review/Inspect claim document
Data In:	Claim requisition list
Data Out:	Clheque requisition
Process:	Finance get all claim support document and Requisition form and review them again.
Attachment:	(1) Claim requisition file (D2) (2) Finance department

Table E.14. Process Specification of Process 3.2.

Process Name:	Payment preparation
Data In:	Cheque requisition
Data Out:	(1) Payment amount (2) Claim payment file
Process:	(1) Finance prepare claim payment in accordance with cheque requisition from claim department. (2) Record claim payment to claim payment file.
Attachment:	(1) Finance department (2) Citibank (3) Claim payment file (D3)

Table E.15. Process Specification of Process 4.1.

Process Name:	Claim report preparing
Data In:	Claim payment file
Data Out:	Claim payment record
Process:	(1) IT department retrieve claim payment file. (2) Prepare to print claim report.
Attachment:	(1) Claim payment database (D4) (2) IT department

Table E.16. Process Specification of Process 4.2.

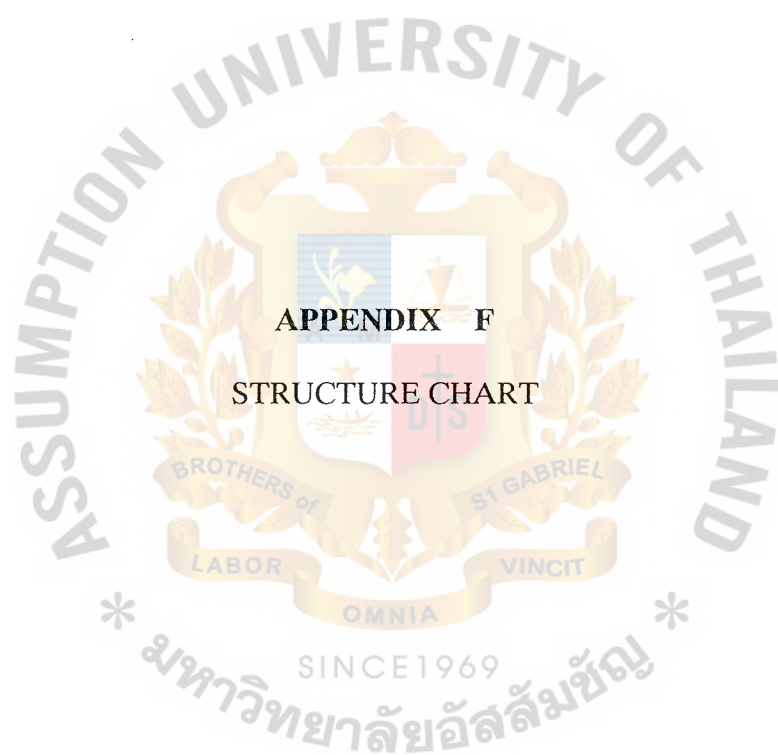
Process Name:	Report printing
Data In:	Claim payment record
Data Out:	Claim monthly report
Process:	(1) IT department print out clam payment report. (2) Claim monthly reports are distributed to management.
Attachment:	(1) IT department (2) Management (3) Claim payment record (D4)

Table E.17. Process Specification of Process 5.1.

Process Name:	Cheque transfer
Data In:	Payment cheque
Data Out:	Payment cheque
Process:	Citibank transfer payment amount to customer.
Attachment:	(1) Citibank (2) Customer

Table E.18. Process Specification of Process 5.2.

Process Name:	Receipt return
Data In:	Cheque receipt
Data Out:	Cheque receipt
Process:	Customer sent cheque receipt back to finance department.
Attachment:	(1) Customer (2) Finance department



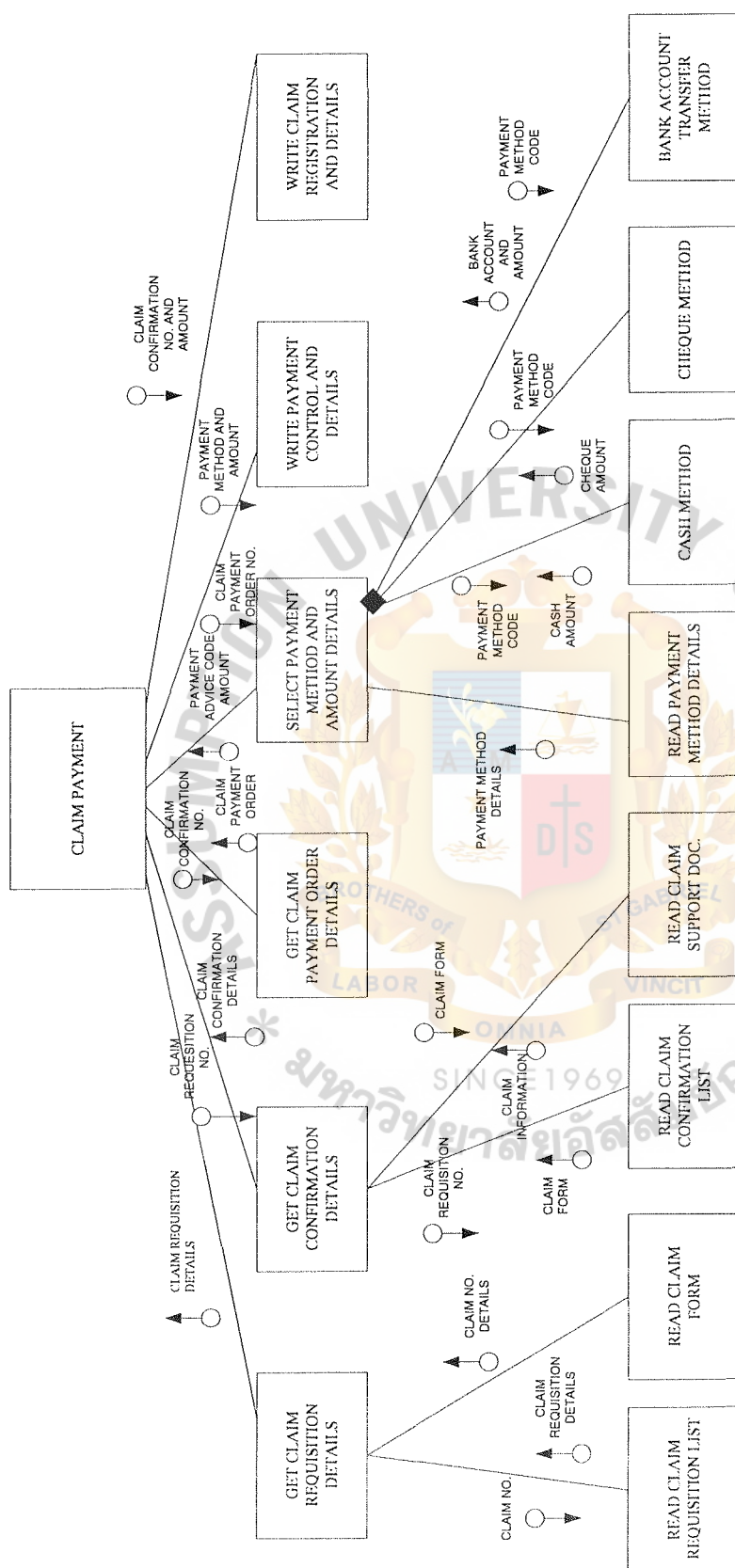


Figure F.1. Structure Chart of Claim Payment Information System.



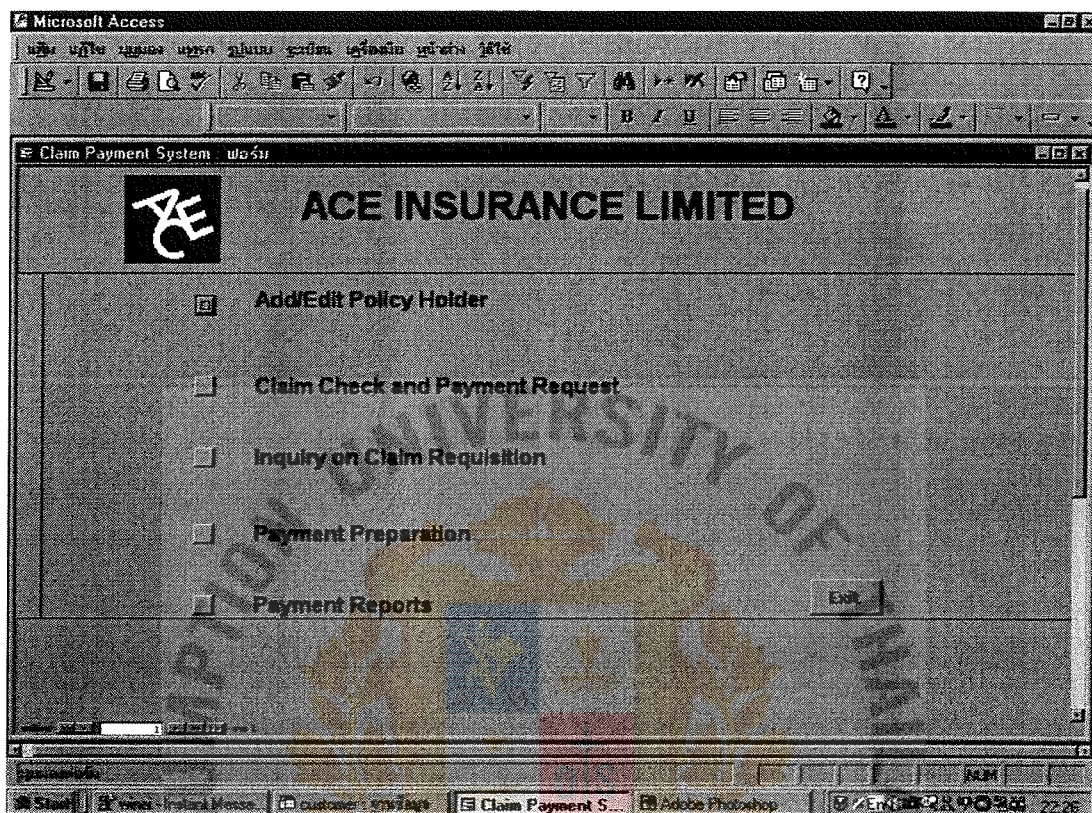


Figure G.1. Main Menu Screen of Claim Payment Information System.

Microsoft Access

Policyholder ฟอร์ม

ACE INSURANCE LIMITED

CUSTOMER_ID:

NAME:

SURNAME:

BIRTHDAY:

AGE:

SEX:

ADDRESS:

Figure G.2. Add/Edit Policyholder (Input Screen).

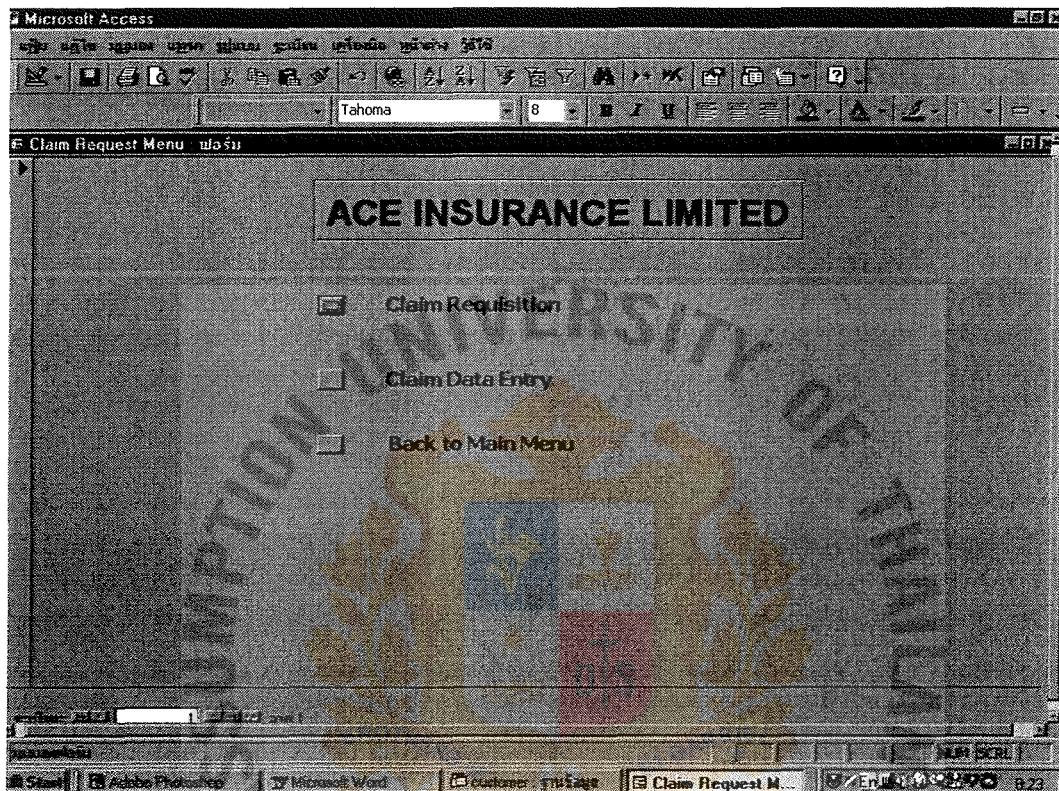


Figure G.3. Submenu Screen : Claim Requisition Menu.

Microsoft Access

Claim request

Claim Number

Claimant Number

Claim Officer ID

Date of Inform

Save

Cancel

Back

Windows taskbar: Start, Adobe Photoshop, Microsoft Word, Customer, Claim request, 8:13

Figure G.4. Claim Requisition Screen (Input Screen).

Microsoft Access

Policy Details : ฟอร์ม

Policy Number:	HIPTH0000011075	
Policyholder Name:	Jirang Kamnuanta	Find
Effective Date:	22/5/95	Cancel
Coverages:	Hospital Income <input checked="" type="checkbox"/>	Save
Beneficiaries:	Surath Kamnuanta	
Premiums:	\$192.00	
Sum Insured:	\$500,000.00	
Policy Status:	<input checked="" type="radio"/> Active <input type="radio"/> Cancelled	

Figure G.5. Policy Detail Screen (Input Screen).

Microsoft Access

Claimant Information : ฟอรั่ม

Claim Number: 422 0227856 Type of Claim: SICKNESS

Customer ID: 0004585 Payment: Cheque

Policy Number: HIPTH0000012022 Due Date: 10-11-00

Policyholder Name: Sudarat Tonthong

Address: 44/2 SUKHUMVIT RD., PRAKANONG, BANGKOK

NUM

Start Adobe Photoshop claim entry - 7/11/2000 Claimant Information : 7/11/2000 7:33

Figure G.6. Claim Data Entry Screen (Input Screen).

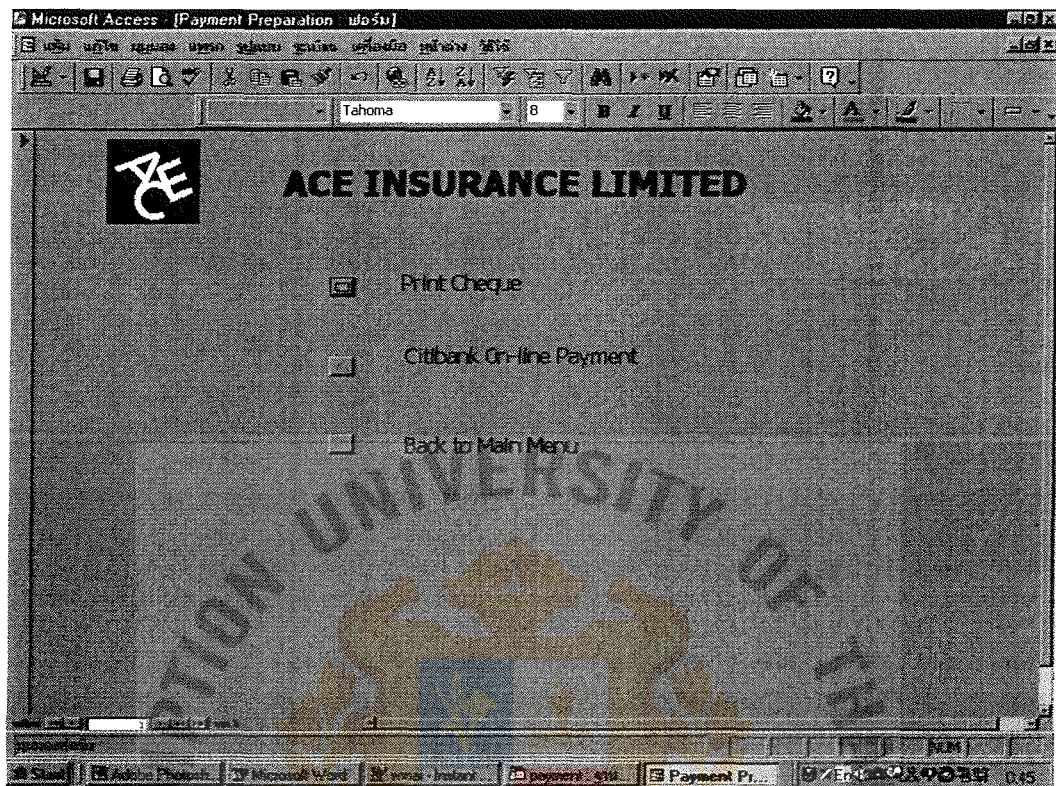


Figure G.7. Submenu Screen: Payment Preparation.

Microsoft Access - [Cheque Issue - มอช] 12:13

Font: Tahoma, Size: 8

Cheque No.

Cheque Date

Cheque Amount

Payeeholder Name

Clear Payment No.

Microsoft Word, Adobe Photoshop, Microsoft Word, Winamp - Internet, Payment Form, Cheque Issue, 100%

Figure G.8. Cheque Issue Screen (Input Screen).

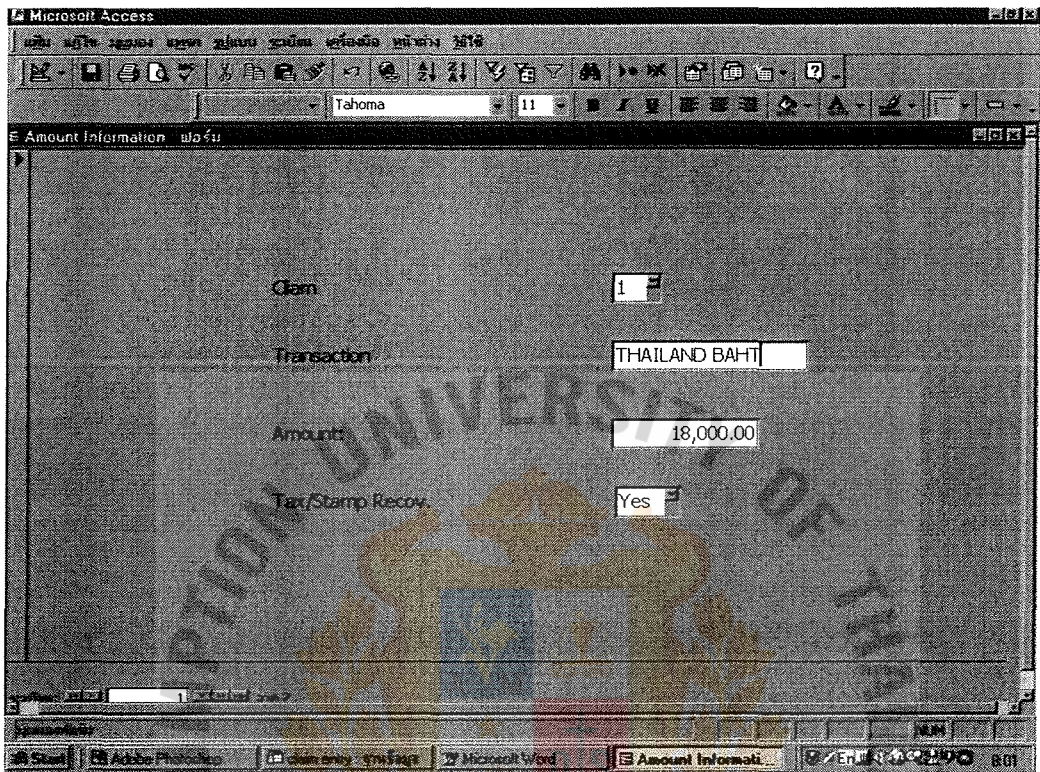


Figure G.9. Amount Information Screen (Input Screen).

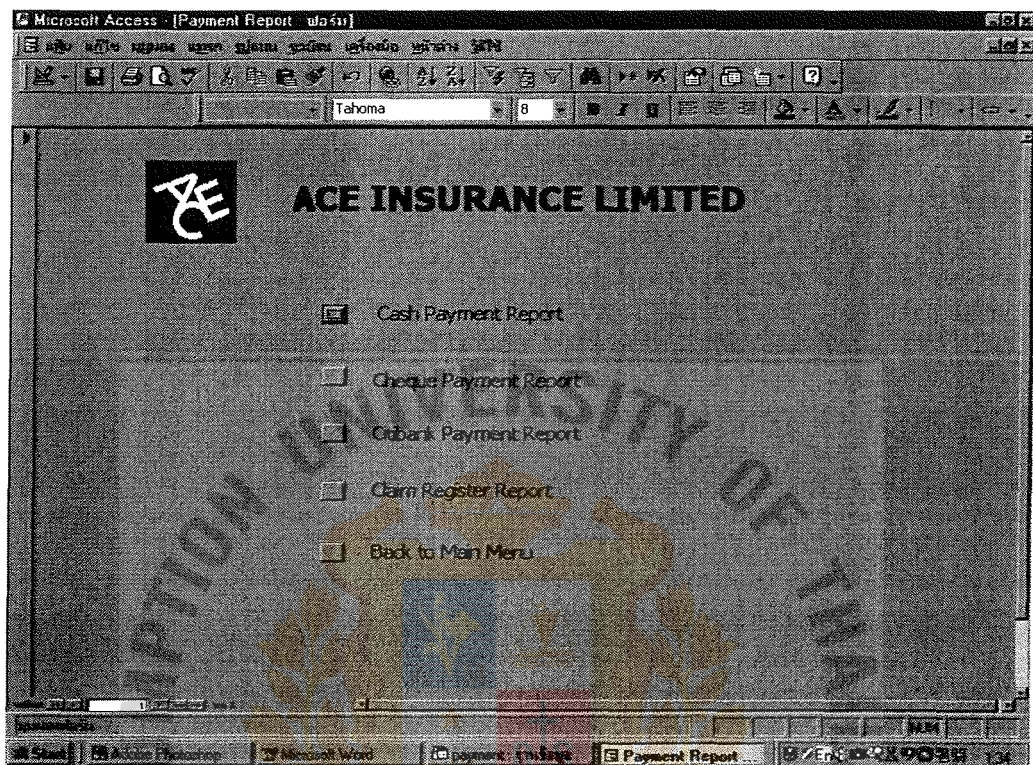


Figure G.10. Submenu Screen: Payment Reports.



APPENDIX H
REPORT DESIGN AND FORMS


 ACE Insurance Limited 14 th Floor, Alma Link Building, 25 Chidlom Road, Lumpini, Pathumwan, Bangkok 10330		Tel : 655-4099 Fax : 655-4095	บริษัท เอช อินซัวรันซ์ จำกัด เลขที่ 25 อาคารอลมา ลิงค์ ชั้น 14 ถนนชิดลม แขวงภูมิพินี เขตปทุมวัน กรุงเทพฯ 10330	โทรศัพท์ : 655-4099 โทรสาร : 655-4095
คำแนะนำ: เอกสารที่ต้องยื่นประกอบการพิจารณาเคลม 1. แบบเรียกร้องค่าเสียหายฉบับนี้ พร้อมใบรับรองแพทย์หรือแพทย์ออกเอกสารยืนยัน 2. สำเนาใบเสร็จรับเงินค่าบริการทางการแพทย์หรือมัลติ (กรณีเรียกร้องค่าเสียหายวัน) 3. สำเนาใบเสร็จรับเงินค่าบริการทางการแพทย์หรือมัลติ (กรณีเรียกร้องค่าเสียหาย) 4. สำเนาบัตรประชาชนและสำเนาทะเบียนบ้าน		INSTRUCTION : PLEASE ATTACH SUPPORTING CLAIM DOCUMENTS AS FOLLOWS 1. CLAIM FORM WITH MEDICAL REPORT 2. PHOTOCOPIED MEDICAL BILL (FOR DAILY BENEFITS) 3. ORIGINAL MEDICAL BILL (FOR MEDICAL REIMBURSEMENT) 4. ID CARD WITH HOUSE CENSUS		
Part 1. แบบเรียกร้องค่าเสียหายเนื่องจากอุบัติเหตุ / ค่าชดเชยรายวันการรักษาในโรงพยาบาล CLAIM FORM				
ชื่อผู้เอาประกันภัย INSURED		เลขที่กรมธรรม์ POLICY NO.		
ชื่อผู้ป่วยหรือบาดเจ็บ CLAIMANT		เพศ SEX	อายุ AGE	
หมายเลขบัตรเครดิตที่เรียกเก็บค่าเบี้ยประกันภัย CREDIT CARD NUMBER		บัตรออกโดย ISSUED BY		
ที่อยู่ ADDRESS		โทรศัพท์ TELEPHONE		
สถานที่ทำงาน PLACE OF EMPLOYMENT		โทรศัพท์ TELEPHONE	อาชีพและตำแหน่งงาน OCCUPATION	
รายละเอียดเกี่ยวกับอุบัติเหตุ ACCIDENT CLAIM INFORMATION				
วันที่เกิดเหตุ DATE OF ACCIDENT		เวลาที่เกิดเหตุ TIME OF ACCIDENT		
สถานที่เกิดเหตุ PLACE OF ACCIDENT				
รายละเอียดการเกิดเหตุ CIRCUMSTANCES				
ลักษณะการบาดเจ็บ บาดแผล และอวัยวะที่ได้รับบาดเจ็บ NATURE OF INJURY				
รายละเอียดเกี่ยวกับการเจ็บป่วย ILLNESS CLAIM INFORMATION				
วันที่เริ่มเจ็บป่วย DATE OF SICKNESS		อาการ NATURE OR CONDITION OF SICKNESS		
ท่านเคยมีอาการดังกล่าวมาก่อนหรือไม่ เมื่อใด ANY SYMPTOM BEFORE, WHEN		สถานที่ที่เคยรับการรักษาเกี่ยวกับอาการดังกล่าว เมื่อใด ANY PRIOR TREATMENT FOR THIS CONDITION, WHEN		
ผลการวินิจฉัยของแพทย์ DIAGNOSIS		การรักษา TREATMENT RENDERED		
ข้อมูลเกี่ยวกับการรักษาพยาบาลและอื่น ๆ TREATMENT INFORMATION				
ชื่อแพทย์และสถานพยาบาลที่ไปรับการรักษา NAME & ADDRESS OF HOSPITAL OR DOCTOR		วันที่รับการรักษา DATE OF TREATMENT		
วันที่เข้าและออกจากโรงพยาบาล (ถ้ามี) จากวันที่ ถึงวันที่ HOSPITAL CONFINEMENT DATE FROM TO		ผลการวินิจฉัย DIAGNOSIS		
วันที่รับการรักษาครั้งสุดท้าย DATE OF LAST TREATMENT		อาการปัจจุบัน PRESENT CONDITION		
รายละเอียดเกี่ยวกับประกันรถยนต์ ประกันอุบัติเหตุ ประกันค่ารักษาพยาบาล หรือประกันชีวิตของบริษัทอื่น OTHER INSURANCE				
ชื่อบริษัท NAME		เลขที่กรมธรรม์ POLICY NO.	จำนวนเงินเอาประกัน AMOUNT	ประเภทของการประกัน TYPE OF INSURANCE
1. 2.				
ใบมอบอำนาจ ข้าพเจ้ามอบอำนาจแก่โรงพยาบาล แพทย์ บริษัทประกันภัย หรือบุคคลอื่นใดที่ได้ทำการตรวจ รักษา หรือรับประกันข้าพเจ้าหรือบุคคลในครอบครัวของข้าพเจ้า ทั้งในอดีตและปัจจุบัน มีอำนาจแจ้งข้อความใด ๆ เกี่ยวกับกรเจ็บป่วย บาดเจ็บ ประวัติทางการแพทย์ การปรึกษา การให้ยาหรือการรักษา และดำเนินการบริหารจัดการการแพทย์ทั้งหมด รวมถึงรายละเอียดเกี่ยวกับการประกันและการเรียกร้องค่าชดเชยต่อ บริษัท เอช อินซัวรันซ์ จำกัด หรือผู้ที่ได้รับ มอบหมายจากบริษัทฯ ดังนี้ สำเนาใบมอบอำนาจฉบับนี้ถือว่ามีผลใช้บังคับได้เช่นเดียวกับต้นฉบับ		AUTHORIZATION I HEREBY AUTHORIZE ANY HOSPITAL PHYSICIAN OR OTHER PERSON WHO HAD ATTENDED OR EXAMINED ME, TO FURNISH TO THE COMPANY OR AUTHORIZED REPRESENTATIVE, ANY AND ALL INFORMATION WITH RESPECT TO ANY SICKNESS OR INJURY, MEDICAL HISTORY, CONSULTATION PRESCRIPTIONS OR TREATMENT, AND COPIES OF ALL HOSPITAL OR MEDICAL RECORDS A PHOTO STATIC COPY OF THIS AUTHORIZATION ALL BE CONSIDERED AS EFFECTIVE AND VALID AS THE ORIGINAL.		
วันที่ / DATE		ลายมือชื่อผู้ป่วย / ผู้บาดเจ็บ SIGNATURE OF CLAIMANT		

Figure H.1. Claim Form.

DETERMINE BENEFITS

DATE RECEIVED _____ CLAIM NO. 422 - _____

COVERAGE :

POLICY NO. _____ EFFECTIVE DATE _____
 CLAIMANT _____ AGE _____
 RELATIONSHIP TO INSURED _____ DEPENDENCY CONF. _____
 PRIMARY INSURED _____
 CONFIRMED BY _____ DATE _____ PREMIUM _____ INITIALS _____
 DAILY BENEFIT : BAHT _____ MED. EXP. BEN. BAHT _____ SUR. BEN. BAHT _____
 BROKEN BONE : _____

CLAIM CONSIDERATION/ADJUSTMENT:

INCURRED/EVEN DATE _____ INJURY _____
 DIAGNOSIS _____ TREATMENT RENDERED _____
 HOSPITAL CONFINEMENT DATE 1st PERIOD FROM _____ TO _____ TOTAL _____ DAYS
 2nd PERIOD FROM _____ TO _____ TOTAL _____ DAYS
 BENEFIT AMOUNT-BAHT _____ PAYABLE DAYS _____ TOTAL PAYABLE _____ BAHT
 MED. EXP. BAHT _____ BROKEN BONE: _____ % AMOUNT: _____ BAHT
 TOTAL AMOUNT _____
 REMARKS _____

Date	Description / Payee	Act	Cimt	Status	Amount

SUPPORTIVE DOCUMENTS

☐ CLAIM FORM ☐ ATTENDING PHYSICIAN / MEDICAL REPORT ☐ PAYMENT INVOICE / RECEIPT ☐ COPY ID.
☐ BIRTH CERTIFICATE ☐ CENSUS RECORD ☐ POLICE REPORT ☐ OTHER _____

COMMENT:

Claim4/4/00

Figure H.2. Determine Benefits Form.

CLAIMS MONTHLY ACTIVITY REPORT AS OF SEPTEMBER 2000 DEATH & INHOSPITAL

Claims Classification Statistics

A & H Claim

SPONSOR	CLAIM TYPE	Death		Cur Mnth 2000		Year to Date 2000		Current Month 1999		Year to Date 1999	
		Vol	Q/S Resv	Paid	Total Amt	Total Vol	Total Amt	Total Vol	Total Amt	Total Vol	Total Amt
AMEX		0	0.00	0.00	0.00	5	9,400,000.00	1	1,000,000.00	3	5,000,000.00
Bangkok Bank		0	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00
Bank of Ayudhya		0	0.00	0.00	0.00	1	1,000,000.00	0	0.00	0	0.00
Bangkok Metropolitan bank		0	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00
Basic Book		0	0.00	0.00	0.00	5	176,000.00	0	0.00	23	3,460,000.00
Central		0	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00
Citibank		0	0.00	0.00	0.00	2	3,000,000.00	0	0.00	1	1,000,000.00
Diners		0	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00
First Bangkok City Bank		0	0.00	0.00	0.00	1	2,180,000.00	0	0.00	0	0.00
Krungthai Bank		0	0.00	0.00	0.00	1	1,000,000.00	0	0.00	0	0.00
Non Sponsor		0	0.00	0.00	0.00	1	1,000,000.00	0	0.00	0	0.00
Robinson		0	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00
Siam Commercial Bank		0	0.00	0.00	0.00	0	0.00	0	0.00	2	750,000.00
Thai Farmers Bank		0	0.00	0.00	0.00	0	0.00	0	0.00	3	3,000,000.00
The Mail		0	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00
The Thai Military Bank		0	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00
Worldphone		0	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00
Standard Charter Bank		0	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00
Total		0	0.00	0.00	0.00	14	17,860,000.00	1	1,000,000.00	32	13,230,000.00

SPONSOR	CLAIM TYPE	In Hospital		Cur Mnth 2000		Year to Date 2000		Current Month 1999		Year to Date 1999	
		Vol	Q/S Resv	Paid	Total Amt	Total Vol	Total Amt	Total Vol	Total Amt	Total Vol	Total Amt
AMEX		35	118,000.00	320,760.00	438,760.00	37	3,460,000.00	35	248,000.00	264	2,142,256.00
Bank of Ayudhya		0	0.00	0.00	0.00	5	234,000.00	1	36,000.00	7	87,000.00
Bangkok Metropolitan bank		10	0.00	69,000.00	69,000.00	67	477,000.00	5	37,000.00	79	414,592.00
Basic Book		0	0.00	0.00	0.00	2	8,000.00	1	4,000.00	5	37,000.00
Central		2	0.00	18,000.00	18,000.00	6	73,000.00	0	0.00	18	204,000.00
Citibank		17	14,000.00	6,000.00	20,000.00	17	69,500.00	4	23,800.00	28	232,200.00
Diners		0	0.00	131,000.00	131,000.00	116	691,000.00	12	158,500.00	110	968,500.00
First Bangkok City Bank		4	0.00	64,500.00	64,500.00	12	130,500.00	1	3,000.00	24	254,000.00
Krungthai Bank		2	0.00	6,000.00	6,000.00	17	83,500.00	3	14,000.00	20	118,500.00
Non Sponsor		66	32,000.00	368,500.00	400,500.00	462	2,809,250.00	55	333,000.00	504	3,456,257.00
Robinson		0	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00
Siam Commercial Bank		2	0.00	7,000.00	7,000.00	74	421,400.00	10	82,000.00	108	625,500.00
Thai Farmers Bank		11	0.00	70,000.00	70,000.00	98	575,000.00	12	75,000.00	141	808,000.00
The Mail		0	0.00	0.00	0.00	0	0.00	0	0.00	1	3,000.00
The Thai Military Bank		2	0.00	15,000.00	15,000.00	3	15,000.00	0	0.00	4	53,000.00
Worldphone		0	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00
Standard Charter Bank		1	0.00	0.00	0.00	1	6,000.00	0	0.00	0	0.00
Total		153	163,000.00	1,073,860.00	1,237,860.00	1261	9,332,195.00	139	1,012,100.00	1334	9,592,305.00

Figure H.3. Claim Monthly Activity Report.

St. Gabriel's Library

MONTHLY ACTIVITY REPORT AS OF SEPTEMBER 2000

CLAIMS NO.	PRODUCT	SPONSER	CLAIMS TYPE	STATUS	AMOUNT	TOTAL
227637	CHP	AMEX	INHOSP	01	12,000.00	
227723	TRI	AMEX	INHOSP	01	6,000.00	
227579	HIP	AMEX	INHOSP	01	8,000.00	
227708	CHP	AMEX	INHOSP	01	16,000.00	
227660	HIP	AMEX	INHOSP	01	1,000.00	
227711	TCP	AMEX	INHOSP	01	18,000.00	
227712	HIP	AMEX	INHOSP	01	4,000.00	
227611	CHP	AMEX	INHOSP	01	2,000.00	
227690	CHP	AMEX	INHOSP	01	1,000.00	
227701	GAP	AMEX	INHOSP	01	18,280.00	
227591	HIP	AMEX	INHOSP	01	4,000.00	
227582	CHP	AMEX	INHOSP	01	8,000.00	
227588	CHP	AMEX	INHOSP	01	118,000.00	
227632	CHP	AMEX	INHOSP	01	2,000.00	
227689	CHP	AMEX	INHOSP	01	4,000.00	
227603	CHP	AMEX	INHOSP	01	1,500.00	
227695	HIP	AMEX	INHOSP	01	12,000.00	
227707	HIP	AMEX	INHOSP	01	16,000.00	
227732	HIP	AMEX	INHOSP	01	6,000.00	
227640	HIP	AMEX	INHOSP	01	8,000.00	
227635	CHP	AMEX	INHOSP	01	4,000.00	
227630	CHP	AMEX	INHOSP	01	4,000.00	
227741	CHP	AMEX	INHOSP	01	3,000.00	
227633	CHP	AMEX	INHOSP	01	2,000.00	
227626	CHP	AMEX	INHOSP	01	4,000.00	
227617	CHP	AMEX	INHOSP	01	16,000.00	
227729	HIP	AMEX	INHOSP	01	8,000.00	
227612	NCB	AMEX	INHOSP	01	2,000.00	
227605	HIP	AMEX	INHOSP	01	4,000.00	
227724	HIP	AMEX	INHOSP	01	2,000.00	
227645	CHP	AMEX	INHOSP	01	6,000.00	320,780.00
227655	HIP	AMEX	INHOSP	02	84,000.00	
227609	HAP	AMEX	INHOSP	02	10,000.00	
227654	HIP	AMEX	INHOSP	02	22,000.00	
227580	CHP	AMEX	INHOSP	06	0.00	116,000.00
227670	TAP	AMEX	ME	01	5,484.00	5,484.00
227620	HIP	BAY	INHOSP	01	1,000.00	
227610	HIP	BAY	INHOSP	01	4,000.00	
227746	HIP	BAY	INHOSP	01	24,000.00	
227642	HIP	BAY	INHOSP	01	4,000.00	
227623	HIP	BAY	INHOSP	01	4,000.00	
227624	HIP	BAY	INHOSP	01	4,000.00	
227666	HIP	BAY	INHOSP	01	4,000.00	
227682	HIP	BAY	INHOSP	01	4,000.00	
227584	HIP	BAY	INHOSP	01	6,000.00	
227622	HIP	BAY	INHOSP	01	14,000.00	69,000.00
227680	SOP	BAY	ME	01	2,127.00	
227677	SOP	BAY	ME	01	757.00	
227706	SST	BAY	ME	01	600.00	
227758	TIC	BAY	ME	01	849.14	
227658	SOP	BAY	ME	01	1,327.00	
227748	TIC	BAY	ME	01	3,762.00	
227678	SOP	BAY	ME	01	768.00	
227659	SOP	BAY	ME	01	1,472.00	
227681	TIC	BAY	ME	01	2,269.00	
227679	SOP	BAY	ME	01	673.00	
227757	BAS	BAY	ME	01	827.00	15,431.14
700460	HC	B/B	INHOSP	01	18,000.00	18,000.00
700455	SOS	B/B	ME	01	17,348.00	
700461	SPA	B/B	ME	01	3,271.00	
700462	SPA	B/B	ME	01	130.00	
700453	SPA	B/B	ME	01	2,035.00	
700454	SPA	B/B	ME	01	160.00	
700463	SOS	B/B	ME	01	30,000.00	

Figure H.4. Claim Monthly Activity Report.

COMPULSORY LOSS REGISTER

FORM ID PA1180
PAGE : 1

ENTITY : B AOK INSURANCE LIMITED

CLAIM NO.	POLICY NO.	INSURED/CLAIMANTS	BENEFICIARY	LOSS DATE	LINE TYPE	CURE	ESTIMATE	PAID DATE	DATE OF PAY	NO. RECOVERIES	END OF YEAR	REMARKS
422-0004610	000072		MECHI BESS CHANG HOTEL	21.09.00	02	TB	30000.00					EXPENSE
422-0004611	494024		THE MANUFACTURING CO., LTD.	23.09.00	02	TB	7800.00					EXPENSE
422-0004613	438025		DIETHELM TRADING CO., LTD.	27.09.00	02	TB	38000.00					EXPENSE
422-0004614	202-592		THAI ASIA INDUSTRIAL CO., LTD.	26.09.00	02	TB	217500.00					EXPENSE
422-0004617	CPA100100-PL-28004	WELAY BEACH CO., LTD.	WELAY BEACH CO., LTD.	5.08.00	02	TB	3100.00					EXPENSE
422-0004618	000002		THAI REINSURANCE PUBLIC		02	TB	155.00					EXPENSE
422-0004619	000002		CHIAHMAI RIVERSIDE PLAZA	13.09.00	02	TB	7400.00					EXPENSE
422-0004620	000002		THAI REINSURANCE PUBLIC		02	TB	190.18					EXPENSE
422-0004621	000002		THE GREAT RANGHOM AND/OR	11.12.99	02	TB	24000.00					EXPENSE
422-0004622	000002		THAI REINSURANCE PUBLIC		02	TB	1200.00					EXPENSE
422-0004623	000002		DIAMOND LITE JEWELRY CO., LTD.	20.09.00	02	TB	15200.00					EXPENSE
422-0004624	000002		THAI REINSURANCE PUBLIC		02	TB	760.00					EXPENSE
422-0004625	000002		T.I.T. TECHNOLOGY CO., LTD.	28.09.00	02	TB	178000.00					EXPENSE
422-0004626	000002		THAI REINSURANCE PUBLIC		02	TB	150000.00					EXPENSE
422-0004627	000002		THAI REINSURANCE PUBLIC		02	TB	8500.00					EXPENSE
422-0004628	000002		JOHNSON & JOHNSON	1.07.00	02	TB	28500.00					EXPENSE
422-0004629	000002		THAI REINSURANCE PUBLIC		02	TB	1425.00					EXPENSE
422-0004630	000002		HANA SEMICONDUCTOR (SEA)	3.10.00	02	TB	80000.00					EXPENSE
422-0004631	000002		THAI REINSURANCE PUBLIC		02	TB	6000.00					EXPENSE

Figure H.5. Compulsory Loss Register Report.



APPENDIX I

HARDWARE CONFIGURATION

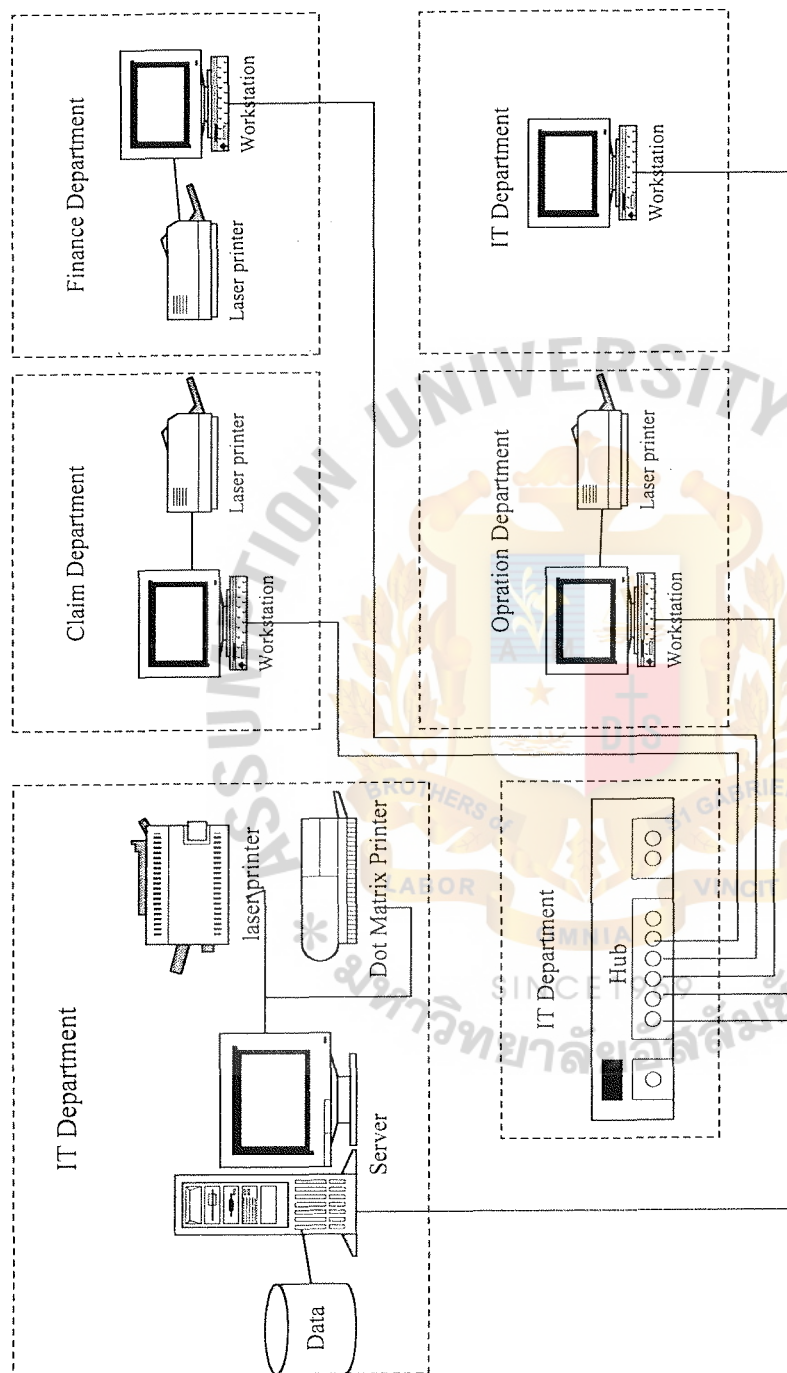


Figure I.1. Hardware Configuration of Claim Payment Information System.

BIBLIOGRAPHY

1. Date, C. J. An Introduction to Database System, 6th Edition. California: Addison-Wesley Publishing Company, 1996.
2. Dewire, D. T. Second-Generation Client/Server Computing. New York: McGraw-Hill, 1997.
3. Gerald, A. Silver. System Analysis and Design. California: Addison-Wesley Publishing Company, 1998.
4. Gildersleeve, Thomas. Successful Data Processing Systems Analysis, 2nd Edition. Englewood Cliff: Prentice Hall, 1985.
5. Krause, H. Thomas Insurance Information System. New York: Insurance Institution of America, Inc., 1990.
6. Kendell, Kenneth E. and Julie E. Kendell. System Analysis and Design. 3rd Edition. New Jersey: Prentice-Hall, 1995.
7. Pfleeger, Charles P. Security in Computer, 2 Edition. New Jersey: Prentice Hall International Editions, 1997.
8. Viescas, John L. Microsoft Access. California: Microsoft Press, 1999.
9. Whitten, Jeffery L. and Lonnie D. Bentley. System Analysis and Design Methods. New York: McGraw Hill, 1998.
10. Yourdon, Edward. Modern Structure Analysis. New Jersey: Prentice-Hall International, Inc., 1989.

St. Gabriel's Library