



Productivity Banking Through Customized System

By

Ms. Suthiporn Sajjapanroj

A Final Report of the Three - Credit Course
CE 6998 Project

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Science
in Computer and Engineering Management
Assumption University

November 1999

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Project Title Productivity Banking through Customized System


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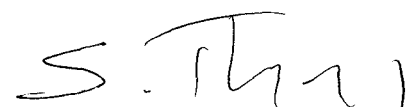
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November 1999

ABSTRACT

The purpose of this project is to present the banking operation system on the customization basis confined in the export division. The result of that automatic function leads to the systematical processes and effectiveness in achieving the department's goals. Complementary with the proposed system, this project also provides the system restoration implemented during the time of the proposed system 's development.

The major transactions in the export division including automatic progression are advising L/C and transfer L/C, bill purchase, fund transfer, and packing credit. They will be supported with the program customized for specific branch system providing the special kinds of advice and report for being further references to the customers, the Bank of Thailand, and management executives. This results in higher productivity and less dependent upon human.

ACKNOWLEDGEMENTS

To attain the glorious acknowledgement page would never have been possible without declaring my gratefulness to all the benefactors who helped me accomplish this project. The first gratitude is placed on my advisor Assist.Dr.Boonmark Sirinaovakul who always stayed at my side motivating me with incentive consultations, and who patiently waited for the day that this project is accomplished. As well, I also appreciate all instructors who assisted me in reaching the right way to propose the project. I am also thankful to Assumption University for the study place during the time I sacrificed myself to accomplish my Master's degree, especially on this project.

My company and all the staffs also deserve my heartfelt thanks in the International Commercial Bank of China, Bangkok Branch for providing me all the beneficial information and suggestions to derive at the idea and the dimension of the proposed system.

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I. INTRODUCTION

1.1 Background to the Project

In general, everybody agrees that most of the banking operation system is a kind of traditional system, not only because of the use the old programming language, but also because of not accepting the new technology. Fortunately, the management executives of the Millenium Bank had considered this matter. They would like the bank to pertain the effective and efficient operation system. Hence, they decided to upgrade their system by purchasing the written program from their Head Office under the long-term maintenance contract. They expected that the situation should be smoothened and the bank would gain a lot of benefits from such system with support by the Head Office. However, after one year, there are many excessively noticeable deficiencies.

In the following page, the problems that happened from those deficiencies would be defined from the user's viewpoint confined in the Export Division. There will be the unachieved requirements of the users under the existing system. On the other hand, the restoration program suggests as the immediate solution. Ultimately, the proposed system illustrates what kind of system helps to achieve the users' requirements. Interestingly, there will be the feasibility analysis of both the restoration program and the proposed systems in terms of tangible and intangible benefits.

This project will lead the bank to implement this recommended system to get higher productivity from using the customized system. This is because there will be no more wasted time, wasted money, and wasted tasks input in the ineffective system as before. The proposed system is supposed to automatically run the process exactly as the users need. Thus, the bank can handle more tasks with the highly effective work. The objectives, scope, and deliverables of the project are as follows:

1.2 Objectives

- (a) To assess the effectiveness of the existing system being bought for a year
- (b) To identify the requirements of users in order to place in the proposed system
- (c) To suggest the support program for reducing deficiencies of the existing system
- (d) To design the proposed system that is customized for our branch
- (e) To provide a feasibility study on the proposed system to check whether it provides the worthwhile solution
- (f) To recommend the steps needed to penetrate the new system to all users

1.3 Scope

- (a) To identify deficiencies between computer-based work and people work
- (b) To identify users' requirements which the existing system can not achieve
- (c) To offer the restoration program for the existing system as the short-term solution
- (d) To suggest the proposed system for long-term solution
- (e) To provide the feasibility Analysis on the proposed system

1.4 Deliverables

- (a) The compliance between computer-based system and human resource
- (b) Systematic work flow for further development
- (c) The system restoration program for the existing system
- (d) The customized system that provides all kinds of what people need

II. LITERATURE REVIEW

This project applies some theories from various academic departments which may be summarized as follows:

2.1 Data Flow Diagram (DFD)

Data Flow Diagram concept is the diagrammatic picture that explains the data flow of any system. In theory, Data flow is usually the first component to be defined for system inputs and outputs as determined from interviewing, observing users, and analyzing documents and other existing systems. The information captured for each data flow may be summarized using a form containing the following information:

- (1) ID, and optional identification number. Sometimes the ID is coded using a scheme to identify the system and the application within the system.
- (2) A unique descriptive name for this data flow. This name is the text that should appear on the diagram and be referenced in all descriptions using the data flow.
- (3) A general description of the data flow.
- (4) The source of the data flow. This could be an external entity, a process, or a data flow coming from a data store.
- (5) The destination of the data flows (the same items listed under the source).
- (6) An indication of whether the data flow is a record entering or leaving a file, or containing a report, form, or screen. If the data flow contains data that are used between processes, it is designated as internal.
- (7) The name of the data structure describes the elements found on this data flow. For a simple data flow, this could be one or several element.

(8) The volume per unit of time could be recorded per day or any other unit of time.

(9) An area for further comments and notations about the data flow.

The details of each data flow is described using a data structure, which is a group of elements sometime called fields. Data structures are usually described using algebraic notation. This allows the analyst to produce a view of the elements that make up the data structure, along with information about those elements. For instance, the analyst will denote whether there are many of the same elements within the data structure (a repeating group) or whether two elements may exist mutually exclusive of each other. When data structures are first defined, only the data elements that the user would see, such as a name, address, and balance due are included. This stage is the logical design, showing what data the business needs for day-to-day operation. Using the logical design as a basis, the analyst then designs the physical data structures. These include additional elements necessary for implementing the system. Indeed, Physical DFDs and Logical DFDs are interchangeable by converting them to be another. There are many steps to convert physical DFDs to logical DFDs widely used starting with removing all the processes that refer to physical activities only and do not transform information. The remaining processes are physical because they describe physical components. Then, take each physical process, find out what it does, and replace it by a leveled DFD of logical functions that represent the physical object's logical activities, or what the object does. All physical processes can be expanded in this way and their expansion combined into a lower-level logical DFD. This lower-level DFD is then examined. Any common or similar functions are combined, and these combined higher-level processes become the

higher-level DFD. There are four kinds of symbols to represent system components in DFD as shown in Figure 2.1.

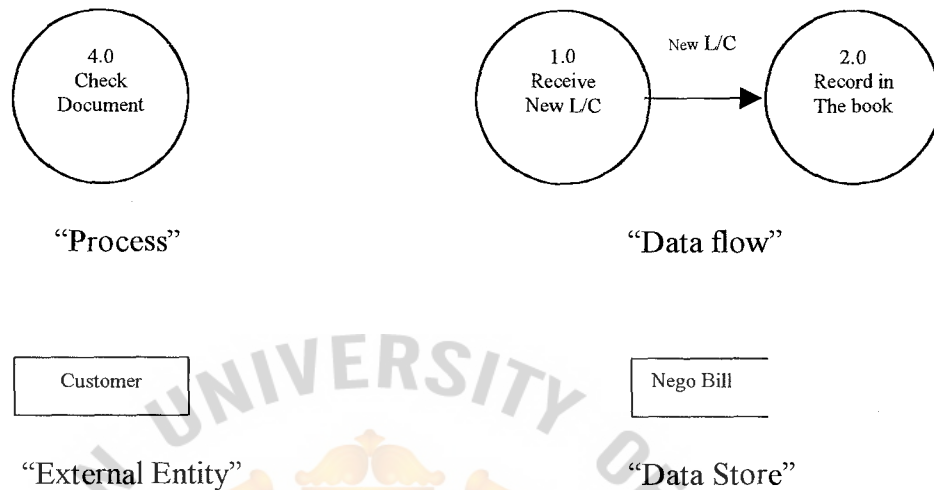


Figure 2.1. Data Flow Diagram Symbol.

2.2 Nijssen's Information Analysis Methodology (NIAM)

In the restoration program, the database design method used in this project is NIAM. It is a popular design method that captures the meaning, relationships and integrity constraints of data in symbolic diagrams. There exists an algorithm that transforms a NIAM conceptual schema into a fifth normal form relational database schema. The result database is an integrated data structure of all functional departments in an organization, which is suitable for MIS. Each department can manipulate only its data structures from its own external schema.

NIAM data model consists of the following components:

- (1) Entity category is a generic collection of abstract or real entities.
- (2) Label category has label instances which are used to identify an individual entity within an entity category.

- (3) Object category is the generic name given to entity categories and label categories.
- (4) Elementary fact categories are used to represent associations between two or more object categories through the use of roles.
- (5) The roles of an elementary fact category show the involvement of the object categories in the elementary fact category.
- (6) Subcategories are used to specify complex hierarchies of entity categories. A subcategory inherits all the fact categories of its super-categories.
- (7) A nest fact category is always treated as an entity category when it is involved in other elementary fact categories.
- (8) Constraints or Validation Rules are conditions that ensure the consistency and integrity of the database at all times.

2.3 Visual Basic Programming

Not only is NIAM used in supporting existing system, but there is also one application to help creating database management that is Visual Basic. It is a rapid application development tool set for creating Microsoft Window applications soon to expand to other platforms. It helps to link database between and among each Window application. By the way that the users can cut and paste text and images to and from any other window application into the Visual Basic workbench. Most important, Visual Basic is a component-oriented development environment that is fully extensible. The user can add or remove components to and form the system during development and then instantly be able to use these components while developing the applications. Finally, Visual Basic is an event-driven program. It processes code not in a simple serial fashion as to traditional programs but also as triggering events occur. This represents an entirely

new kind of programming called object-oriented programming. This type of programming breaks a program up into discrete objects, each of which has its own code and data, associated with it. In this way, each of which can be somewhat independent from the others. The programmer is no longer completely responsible for the flow of the program. Rather, the user is. The user selects among all the options presented to them, and it is up to the program to respond correctly.

2.4 Time Measurement

Another theory used in this project in the part of feasibility analysis is Time measurement. As a matter of fact, there are a number of work measurement methods that can be used for work measurement depending on the application, time measurement is the best for our project because of these reasons:

- (a) Data flow of the proposed system can be compared with the time taken.
- (b) The new design changes some tasks; this method helps to specify detail of the work elements.
- (c) Standard time is not necessary since this job does not take a large volume.

Time measurement is one of the simplest approaches of work measurement. A job is divided into a series of smaller work elements representing the accepted work methods for the job. Observation is needed to record the time needed per transaction. Then, the analyst sums up the total time taken for one job. The less time taken, the more efficient the task emerges due to more utilization on the time.

2.5 Benefits/Costs Analysis

In analyzing the proposed system, only time measurement is not enough for making decision since the new system needs investment. As a result, we have to be assured that benefits precede the total costs. Benefits and Costs can be thought of as

either tangible or intangible. Both of them must be taken into account when systems are considered.

Tangible Benefits are advantages measurable in the currency that accrue to the organization through the use of the information system. Examples of tangible benefits are an increase in speed of processing, access to otherwise inaccessible information, access to information on a more timely basis than was possible before, the advantage of the computer's superior calculating power, and decreases in the amount of employee time needed to complete specific tasks. Although measurement is not always easy, tangible benefits can actually be measured in terms of dollars, resources, or time saved.

Intangible Benefit accrued to the organization from the use of the information system is difficult to measure but are important nonetheless. They may include improving the decision-making process, enhancing accuracy, becoming more competitive in customer service, maintaining a good business image, and increasing job satisfaction for employees by eliminating tedious tasks. As you can judge from the list given, intangible benefits are extremely important and can have far reaching implications for the business as it relates to people outside the organization as well as within it.

While intangible benefits of an information system are important factors in deciding whether to proceed with a system, a system built solely for its intangible benefits will not be successful. You must discuss both tangible and intangible benefits in your proposal. Since presenting both will allow decision-makers in the business to make a well-informed decision about the proposed system.

Apart from benefits, Costs should always be taken into consideration in both senses of tangible and intangible costs. Tangible costs are those that can be accurately projected by the systems analyst and the business' accounting personnel, including the

cost of equipment such as computers and terminals, costs of systems analysts' time, cost of programmers' time, and other employees' salaries. These costs are typically well established or can be found out quite easily and are the costs that will require a cash outlay of the business.

On the other hand, intangible costs are difficult to estimate and may not be known. They include losing a competitive edge, losing the reputation for being the first with an innovation or the leader in a field, declining company image due to increased customer dissatisfaction, and ineffective decision making due to untimely or inaccessible information. As you can imagine, it is next to impossible to accurately project a dollar amount for intangible costs. In order to aid decision-makers that want to weigh the proposed system and all of its implications, you must include intangible costs, even though they are not quantifiable.

2.6 Payback Period

Payback Period provides straightforward ways of yielding information to decision-makers about the worthiness of the proposed system. Payback is a simple way to assess whether a business should invest in a proposed information system based on how long it will take for the benefits of the system to pay back the costs of developing. Briefly, the payback method determines the number of years of operation that the information system needs to pay back the cost of investing in it. Payback can be determined in one of two ways-either by increasing revenues or increasing savings. Alternatively, a combination of the two methods can also be used. Since this is a popular way to assess alternative investments, businesses will typically have a set time period for payback assessments. If the proposed system has a projected payback of six years in a company that adheres to a three-year maximum payback on projects involving fast-changing technology, the system

will be rejected. Payback that is made within the range used by the business but is still longer than typical may not be rejected outright but may be subject to scrutiny through other methods.

2.7 Gantt Chart

In implementing the new system, the operation scheduling is very important to keep the step of working and ease for checking the result at each stage of development. This project applies the Gantt Chart in project scheduling so as to monitor the progress of jobs. It is essentially a chart on which bars represent each task or activity. The length of each bar represents the relative length of the task. We use a two-dimensional Gantt Chart where time is indicated on the vertical dimension and a description of activities makes up the horizontal dimension. The Gantt Chart depicts the sequence of work and can also be used to monitor progress. The bars representing activities or tasks are drawn to scales; that is, the size of the bar indicates the relative length of time it will take to complete each task. In other words, if the preceding step is not finished on time, the Gantt Chart may have to be monitored from the next step till the end of the process so that all parties can update their tasks according to the plan. The main advantage of the Gantt Chart is its simplicity. The system analyst will find not only that this technique is easy to use but also that it lends itself to worthwhile communication with end users.

III. EXISTING SYSTEM DEFINITION

3.1 Company's Profile

The Millennium Bank is one of the most time-honored banks in the Republic of China under the name of “The BC Bank”, which was the earliest government owned and operated bank ever established in China. It served in the capacity as a Central Bank of China unto the year of 1928 that the Republic of China established the Central Bank of China. Then, the bank moved to Taipei in 1949 due to the year of the evacuation of the Nationalist Government from the mainland China. In compliance with Taiwan Government policy for promontory privatization of the banking industry and international trade, the Bank was again reorganized and assumed its present status as a public owned banking corporation under the new name of the Millennium Bank on December 17, 1971. Our Bangkok Branch was established on October 10, 1947, which was renamed later according to the Head Office as the Millennium Bank. Nowadays the bank has 71 people of local staffs and 5 people of home staffs. The organization chart is provided in Figure 3.1.

3.2 Background of Export Division

Traditionally, the international trade involves simply buyers and sellers directly contacting each other. The sellers send the merchandises to the buyer, then the buyers pay them back, as shown in Figure 3.2. However, this may lead to the suspicion, especially in the case that they are not familiar with each other. Thereafter, the idea of having someone who is trusted by both parties emerged to take care of these transactions in looking after their benefits. The export division is established to serve this kind of international trade, as the intermediate third party to complement transactions between buyers (importers) and sellers (exporters), see Figure 3.3.

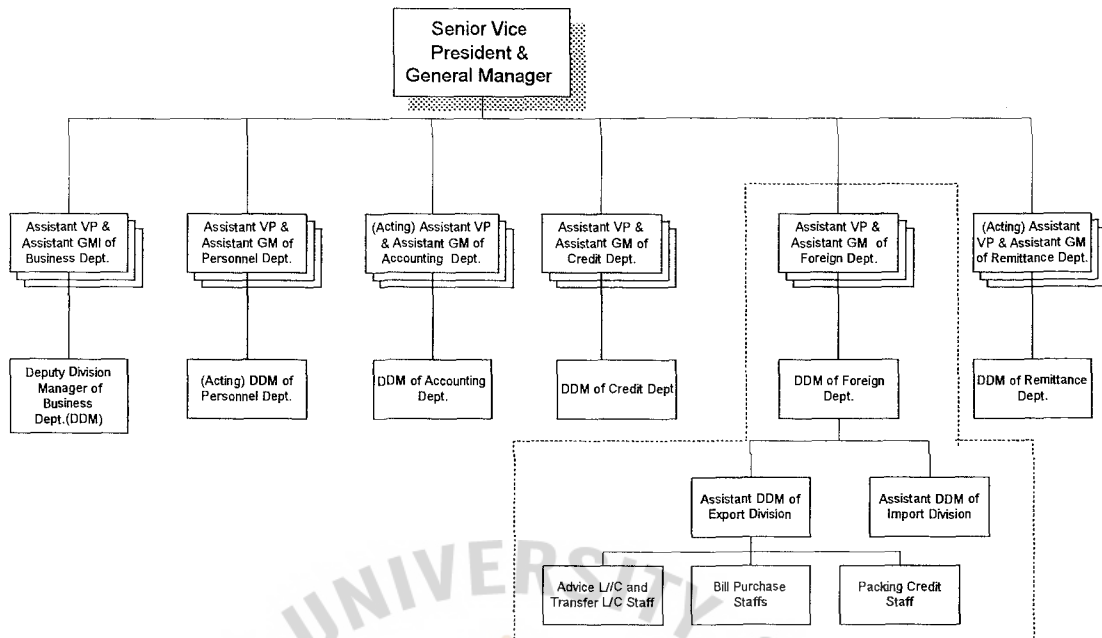


Figure 3.1. Organization Chart.

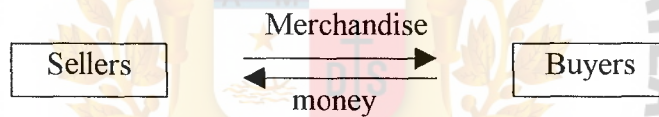


Figure 3.2. Traditional Process of International Trade.

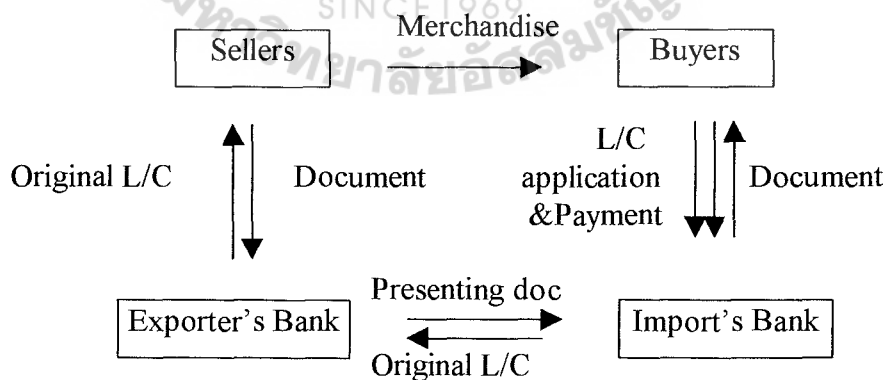


Figure 3.3. Existing Process of International Trade.

At this point, the export division can be divided into 3 main areas, which are Advising L/C and Transfer L/C, Bill purchase, and Packing Credit as shown in Figure 3.4 Export Division Chart.

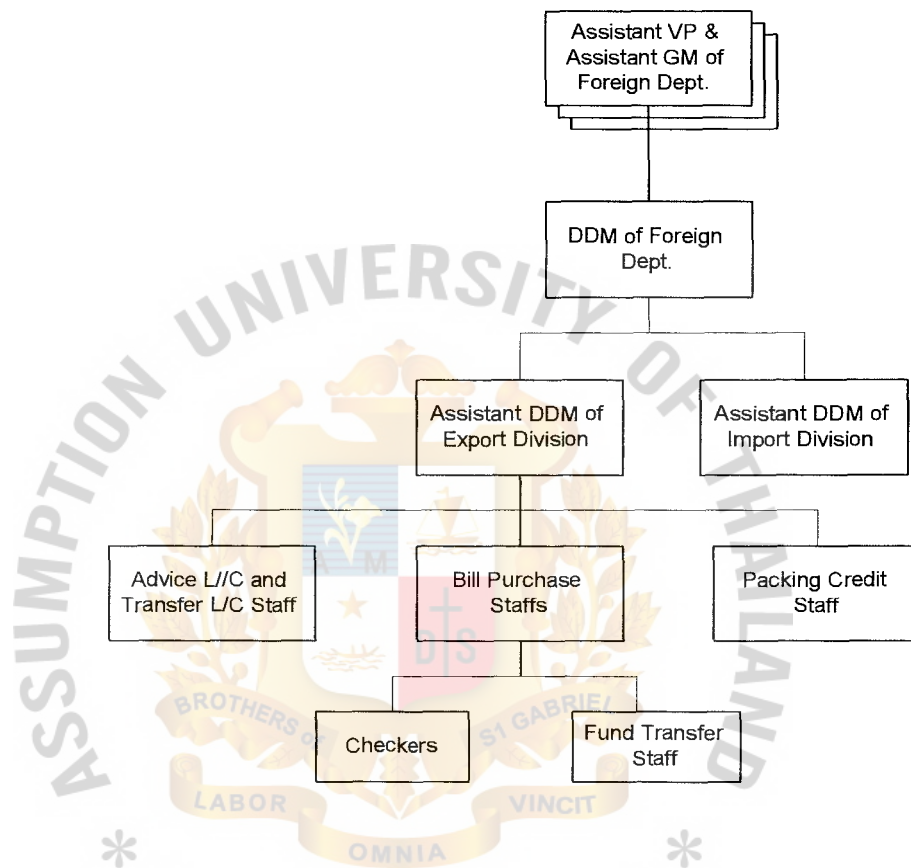


Figure 3.4. Export Division Chart.

The tasks of export division are highly related as they have the major conductor as the Letter of Credit, which is the instrument for sellers to draw money from buyers through their bankers. Or else, they can mortgage this credit to loan money on the packing credit process in order to have money for running the business before getting payment from buyers. In other case, they can transfer their privilege of being beneficiary to others called second beneficiary, i.e. the manufacturers, who will be able to draw money on such L/C. The 3 major tasks can be detailed as follows:

3.2.1 Advice L/C and Transfer L/C Section

After importers received merchandises from exporters, they would submit request of opening L/C to their banker. Then, the bank sends authorized message to the exporter's bank (the beneficiary's bank) by swift/telex, or mailing original L/C. The beneficiary's bank advises the original L/C to their customers. The customers come to pick up L/C for utilizing them in the negotiation. In the case that the L/C beneficiary (mostly as trader) wants to transfer his right to the second beneficiary (mostly as manufacturer), they can submit the request of transferring L/C to the authorized transferring bank. Thereafter, the second beneficiary has partially or totally joined such L/C according to the agreement of the first beneficiary.

3.2.2 Bill Purchase Section

After receiving original L/C, the exporters would prepare documents according to L/C instructions to submit to their bankers. Those documents may include Bill of Exchange, Invoice, Bill of lading, Packing/Weight list, Beneficiary's certificate, Inspection certificate, etc. Then, the bank (the negotiating bank) would check the presented documents according to L/C conditions, the compliance among each kind of documents, and the international rules i.e. UCP500, in order to make sure that no discrepancies happened. After confirming with customers about the result of checking, the negotiating bank would send the said document to the issuing bank in order to collect money. Obviously, the negotiating bank might advance credit money to their customers before collecting money from the buyers, and the bank will debit the interest charges if the money comes later than 7 days.

3.2.3 Packing Credit Section

The exporters may need money for running their business during the time they manufacture the products; hence, Packing Credit section was established to support the exporters' solvency in this case. Sellers can use L/C or purchase order (sales contract) to be as the guarantee for making a loan. Normally, the bank lends them 80 percent of L/C amount, and/or 70 percent of the purchase order (sales contract) amount.

3.3 System Analysis

The existing system of the export division implemented on client/server access connects with the main system on AS/400 program. The configuration as seen in Figure 3.5 are detailed as follows:

- | | |
|----------|--|
| Hardware | (1) Mainframe Mini System AS/400, version V3R4 |
| | (2) 64 MB RAM |
| | (3) 9.7 GB Hard disk |
| | (4) Window NT 4.0 server |
| | (5) Window NT 3.5 workstation |
| | (6) Dot matrix Printer |
| | (7) Laser Printer |
| Software | (1) OS/400 Operating System |
| | (2) Window 95 Operating System |
| | (3) Overseas Branch System (OBS Application) |
| Network | (1) TCP/IP Protocol |
| | (2) IEEE 802.2 |
| | (3) Modem 56 K |

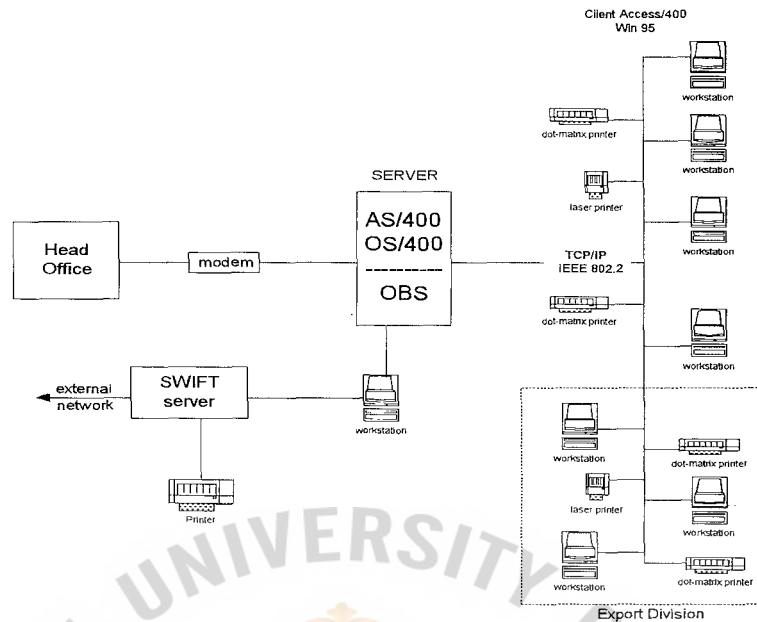


Figure 3.5. Existing Configuration of Export Division.

This program is totally supported by the Head Office; any alteration in the program without permission from the Head Office is prohibited. The Head Office is on-line connected with the existing program, hence, the support and maintenance implementation are entirely controlled by the Head Office connecting through the network. Due to the client/server access system that each client connects directly with the main system on AS/400 program, the CA/400 input data transaction during the working time, and then all kinds of transactions will be consolidated at the end of the day. Finally, the report will be provided on the following day. The Export Division input screens and reports in the existing system are shown in Appendix B. Although, this OBS application helps reduce some manual processes in the export transaction as the workflow shown in Appendix A, it still contains many deficiencies on users' requirements that will be mentioned in the next section.

3.4 Problem Definition

To the mentioned existing configuration, there are many deficiencies that generate problems for each section as follows:

3.4.1 Advice L/C & Transfer L/C Section

- (a) Idle time during approval process
- (b) Manual work process i.e. Issue voucher, Writing receipt, Counting L/C items
- (c) Insecurity in work process i.e. Signed receipt before filling out received amount

3.4.2 Bill Purchase Section

- (a) Manual work in typing cover letter
- (b) Workload on one person i.e. Asst.DDM is responsible for categorizing document, run no. document, recheck document, tracing overdue case, etc.
- (c) Unsatisfactory report from the existing system, so there is a need for operation to daily manual keep record
- (d) Non-customized report is provided, for example, L/C Outstanding, Invoice Outstanding, Overdue Bill, etc.

3.4.3 Packing Credit Section

Fortunately, almost every process of the packing credit is well settled in the existing system. Thus, this project will not mention the restructure of its process.

These above problems are overlooked by the staffs and management team who seemed to be able to handle those tasks by the skillful manual processing. However, it wastes a lot of time that our staffs can utilize for other jobs. Furthermore, the resistant to change hamper the path for further system development, and finally leads to using only the ineffective and inefficient system.

IV. SYSTEM RESTORATION

Due to the mentioned problems, the existing system needs improvement on many processes. However, as the existing system has just been run for a year, the solution to terminate the program and customizing the new system has hardly happened in the real world. There is an interesting choice for the short-term solution that is restoring the flows by using Microsoft Access to serve Database management in creating report, and Microsoft Excel to serve many kinds the input form.

4.1 Process Design

To restore the existing system, the process is designed for each section as follows:

In advising L/C section, the manual work and redundant process cause the longer time taken in the overall process. Specifically, the writing receipt process during the time a customer takes the voucher to pay cash at the teller counter should be eliminated, by printing out the receipt before hand and keeping cash at advice L/C counter. All cash received will be issued on one piece of voucher at the end of the day. This new process not only saves the time taken for the total processes, but also raises up the security policy in specifying received amount on each receipt. The receipt designed on Microsoft Excel is shown in Appendix C.

In another section of Bill Purchase, we create the form of cover letter attached with the export document sent to the issuing bank. This form provides advantages not only the cover letter, but also the entry screen of Bill Purchase database. It will link the data input from Microsoft Excel to Microsoft Access in order to create the reports including BP outstanding by L/C, Invoice outstanding by customer, L/C outstanding by customer, Overdue Bill, and Monthly Report of total items. The data input in the form of

cover letter would be linked by visual basic programming and filled in each items needed for these reports.

4.2 System Improvement

According to the above restoration program, the system would be improved as follows:

- (a) Security level increased
- (b) Save time consumption of the total processes
- (c) Reduce work redundancy
- (d) Utilize existing resources
- (e) Provide customized reports
- (f) Save time in recording each transaction from the number file
- (g) Save cost of carbonized cover letter paper
- (h) Reduce the manual routine work such as typing cover letter
- (i) Create trust worthy reports
- (j) Provide user-friendly program implementation

V. THE PROPOSED SYSTEM

5.1 Constituents and Configuration of the Proposed System

Even though the mentioned restoration program provides the well-designed application to support the existing system, it is not the best way to solve the problems since it does not correct the primary cause that is the improper system. The customization is needed in system design in order to construct the most suitable system for specific area. The proposed system recommended, as illustrated in Appendix D, is the mostly automatic process due to majoring in computer-based transactions. The problems in the existing system such as the manual work in the running number of L/C; recording received document; categorizing swift; creating customer file and approving inquiries before inputting any data, would not happen in the proposed system. The major constituents of the proposed system can be concluded as follows:

- (1) Single database management system
- (2) Object-oriented design for retrieving data
- (3) Data transferable from swift server to export client
- (4) Operations mainly exist on the screen
- (5) Providing customized report

To obtain these functions, the new system needs to attain the following configurations (as shown in Figure 5.1):

- (1) Same Hardware Server as the existing system
- (2) Software Module in connecting between swift server and export client
- (3) 2 workstation Units
- (4) 2 Dot Matrix Printers
- (5) OS License

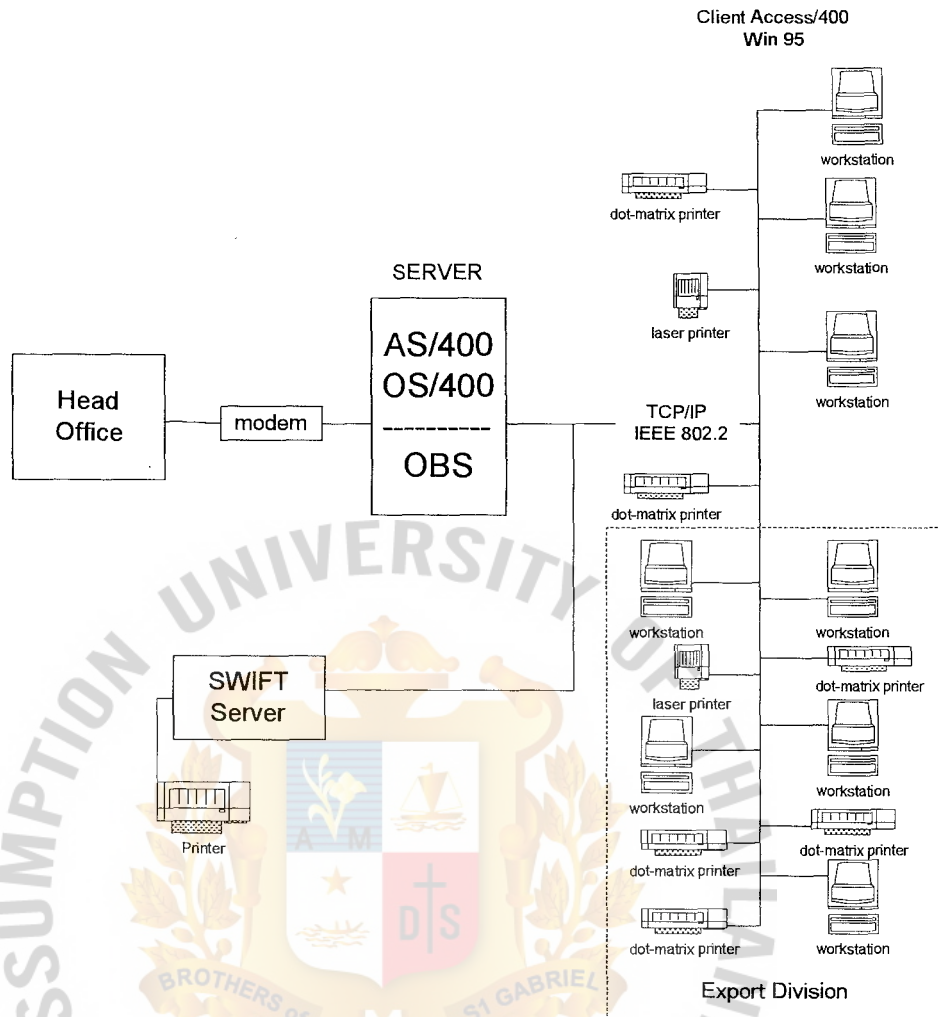


Figure 5.1. Proposed Configuration of Export Division.

5.2 Features of the Proposed System

In applying these above mention in the proposed system, the features of the new system can be briefly explained as follows:

- (1) Inputting data without pre-generating reference since object-oriented language allows nullity of object in the database
- (2) Automatically coding reference number for each transaction
- (3) Searching existing document file and spontaneously creating new file for firsthand input

- (4) Providing report by extracting data input from the central database
- (5) Creating advice letter, covering letter, credit/debit advice, and many other authorized documents at any time
- (6) Directly linking with swift server on sending message function
- (7) Accounting department has permission to directly retrieving data from the database to audit each transaction
- (8) Move unrelated task of Packing Credit from the Export Division to the Credit Department due to the similar work process

These features serve the users' requirements by the input screens provided as shown in Appendix E. Obviously, the input screen for Advice L/C and Fund Transfer process is quite good to keep the data. Therefore, the input screens needed more are those tasks in the Bill Purchase process.

To assess the proposed system, the elaborate feasibility study will be provided in the next section so as to be noticeable in its costs and benefits.

VI. FEASIBILITY ANALYSIS

6.1 Qualitative Analysis

The automate-customized system can be analyzed for its benefits in the qualitative basis as follows:

- (1) Eliminate tedious tasks such as recording and running number of received document, swift categorizing, etc.
- (2) Shortened time consumption for the total processes
- (3) Generate user's happiness in the working environment
- (4) Provide better service for the customer such as reducing waiting time
- (5) Reduce redundancy of keeping many database
- (6) Provide user-friendly system
- (7) Provide accurate and trustable report
- (8) Distribute workload to many people
- (9) Eliminate reworking process
- (10) Enhance know-how of employees
- (11) Introduce the important stage for further system development
- (12) Generate more functional tasks since the packing credit majoring in lending money is moved to the credit department

6.2 Time Measurement

From restructuring the Bill Purchase and Advice L/C activities, time measurement is used as a tool to support decision making.

Starting from the Bill Purchase section, as shown in Tables 6.1-6.3, the system restoration helps reduce the total time taken by eliminating the transactions of typing cover letter, reimbursement, claim, separating the number file, and categorizing

document by the result of implementing Microsoft Access Application. However, the proposed system is recommended further to develop the system and it provides the result of a half of the time taken in the restoration system. The summary of the development in time taken are shown in Table 6.4 and Figure 6.1.

Table 6.1. Time Measurement for the Activities of Bill Purchase per Transaction in the Existing System.

No.	Activities	Time Taken (in seconds)
1	Arrange and run number of document	35
2	Type a Cover Letter and claim reimbursement	558
3	Key in the L/C data	255
4	Print out Voucher and Advice	102
5	Separate Number File	17
6	Recheck the document and claim	310
7	Inquiry the transaction for approveal	45
8	Record Number File	31
9	Recheck record with report print out	452
	Total Time Taken per transaction	1805

Table 6.2. Time Measurement for the Activities of Bill Purchase per Transaction in the System Restoration.

No.	Activities	Time Taken (in seconds)
1	Arrange and run thenumber of document	35
2	Input Cover Letter Data	342
3	Input AS/400 Data	255
4	Print out Cover Letter and claim reimbursement	49
5	Print out Voucher	37
6	Print out report	116
7	Inquiry transaction for approval	45
8	Recheck document and claim	310
	Total Time Taken per transaction	1154

Table 6.3. Time Measurement for the Activities of Bill Purchase per Transaction in the Proposed System.

No,	Activities	Time Taken (in seconds)
1	Input export document data	342
2	Input claim reimbursement	49
3	Print out cover letter and claim reimbursement	116
4	Recheck all data (by inquiry)	295
	Total Time Taken per transaction	802

Table 6.4. Summary of Time Taken for each System of Bill Purchase.

Bill Purchase System	Total Time Taken (in seconds)
The Existing System	1805
The Restoration System	1154
The Proposed System	802

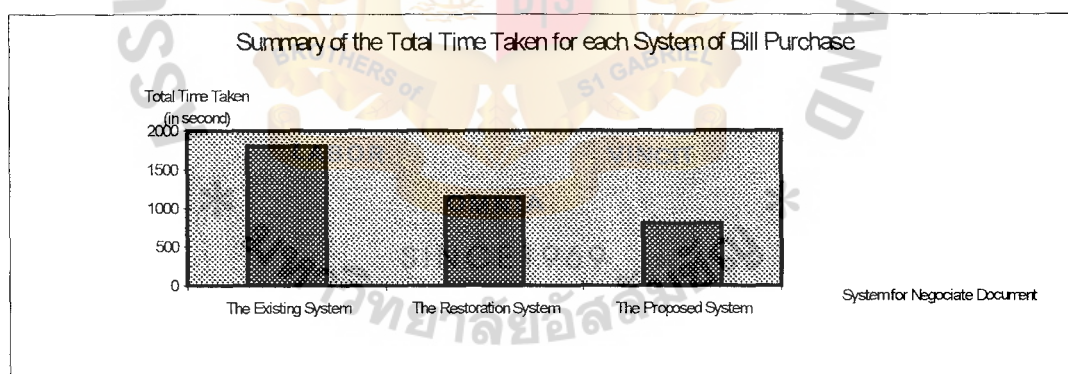


Figure 6.1. A Summary of the Total Time Taken for each System of Bill Purchase.

Identically, the result of the time measurement for the activities of advice L/C is reduced by the system development because the work process of issuing voucher for the customer to pay at the counter, writing receipt, creating customer number are eliminated. Tables 6.5-6.7 illustrate the time measurement for the activities of advice

6.8 and Figure 6.2 summarize the development of the total time taken of each system including the existing system, the restoration system, and the proposed system.

Table 6.5. Time Measurement for the Activities of Advice L/C per transaction in the Existing System.

No.	Activities	Time Taken (in seconds)
1	Key L/C data and customer number	253
2	Print out Advice L/C Cover	46
3	Issue cash voucher	28
4	Wait for customer to pay cash at the counter	45
5	Write receipts	30
6	Prepare the signed receipt	326
7	Send advice to the authorized person	142
	Total Time Taken per transaction	870

Table 6.6. Time Measurement for the Activities of Advice L/C per transaction in the System Restoration.

No.	Activities	Time Taken (in seconds)
1	Key L/C Data and customer number	253
2	Print out Advice L/C Cover	46
3	Key Receipt	39
4	Print out receipt	18
5	Sent advice and receipt to authorized person	167
	Total Time Taken per transaction	523

Table 6.7. Time Measurement for the Activities of Advice L/C per transaction in the Proposed System.

No.	Activities	Time Taken (in seconds)
1	Input L/C data	197
2	Confirm all data key in	46
3	Print out advice and receipt	39
4	Send advice and receipt to authorized person	134
	Total Time Taken per transaction	416

Table 6.8. Summary of Time Taken for each System of Advice L/C.

Advice L/C	Total Time Taken (in seconds)
The Existing System	870
The Restoration System	523
The Proposed System	416

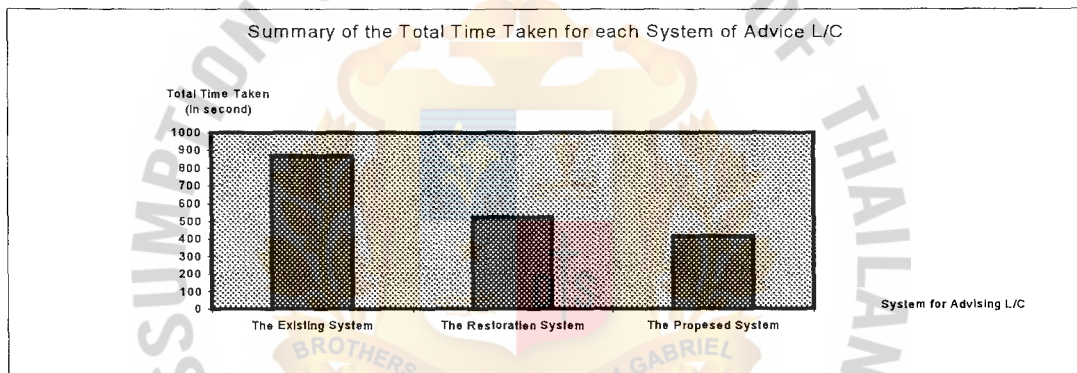


Figure 6.2. A Summary of the Total Time Taken For each System of Advice L/C.

6.3 Benefits – Costs Analysis

Time measurement displays the development of time taken for restoration system and the proposed system. Notwithstanding, the worthiness of the proposed system is not cleared by such analysis, since the benefits and costs are not clarified. Therefore, this section tries to illustrate the numerical results by estimating and comparing the benefits and costs of the proposed system.

The total costs of the proposed system consisting of fixed costs and variable costs as follows:

Fixed Costs	:	Hardware - Workstation 2 units	35,000 baht per each
		- Dot Printer 1 unit	3,000 baht
		Software - License	15,000 baht
Variable Costs	:	Programmer salary 2 persons	40,000 baht per each
		Maintenance	50,000 baht per year
		Utilities	20,000 baht per year

Assuming that the proposed system has 5 years life (the worst case), with the interest rate at 5 percent p.a.

$$\begin{aligned} & \text{Total costs per year} \\ &= \{[(35,000 \times 2) + 3,000 + 15,000] (A/P, 5\%, 5)\} + (40,000 \times 2) + 50,000 + 20,000 \\ &= (88,000 \times 0.23097) + 550,000 \\ &= 20,325.36 + 550,000 \\ &= 570,325.36 \quad \text{baht} \end{aligned}$$

The benefits of the proposed system are estimated in terms of increasing work ability to handle more transactions per day, as follows:

	No. of transactions		Revenue
	Old	New	
- Checking Doc.& Funds transfer @ 1,500 baht	40	80	40x1,500
- Sending swift @ 400 baht	10	25	15x400
- Provide advice L/C @ 400 baht	25	60	35x400
- Transferring L/C @ 2,000 baht	5	10	5x2,000
Revenue increased per month	= (40x1,500) + (15x400) + (35x400) + (5x2,000)		

$$= 90,000$$

$$\text{Revenue increased per year} = 90,000 \times 12$$

$$= 1,080,000 \text{ baht}$$

$$\text{Hence, Benefit/Cost Ratio} = 1,080,000/570,325.36$$

$$= 1.8936$$

The result of the ratio is greater than 1.0, it means that this investment is worthwhile.

6.4 Payback Period

Payback period is used to check for how long the benefits can cover the cost of the proposed system. Starting with the finding of the cost of each year as

$$\text{The costs of each year} = \text{Fixed cost} + \text{Variable cost} \times (\text{Number of year})$$

$$= 88,000 + 550,000 (n)$$

$$\text{The benefits are equal every year} = 1,080,000 \times (n)$$

These costs and benefits can be posted in Table 6.9 to show the cumulative costs and benefits for years. Then, it is used to find the intersection between them.

Table 6.9. Cumulative Costs and Benefits.

Year	Costs	Cumulative Costs	Benefits	Cumulative Benefits
1	638,000	638,000	0	0
2	550,000	1,188,000	1,080,000	1,080,000
3	550,000	1,738,000	1,080,000	2,160,000
4	550,000	2,288,000	1,080,000	3,240,000

According to Table 6.9, the intersection should be between the second year and the third year. To find the exact month of the intersection, we calculate

$$\text{Cost per month during the second to the third year} = (1,738,000 - 1,188,000) / 12$$

$$= 45,833.33 \text{ baht}$$

$$\text{Benefit per month during the second to the third year} = (2,160,000 - 1,080,000) / 12$$

$$= 90,000 \text{ baht}$$

Thereafter, the costs and benefits on a monthly basis of the second and third month are

Month	Costs	Benefits
1	$(1,188,000 + 45,833.33) = 1,233,833.33$	$(1,080,000 + 90,000) = 1,170,000$
2	$(1,233,833.33 + 45,833.33) = 1,279,666.66$	$(1,170,000 + 90,000) = 1,260,000$
3	$(1,279,666.66 + 45,833.33) = 1,325,499.99$	$(1,260,000 + 90,000) = 1,350,000$

The summarized calculation is shown in Figure 6.3 providing the conclusion that the payback period is at the third month of the second year.

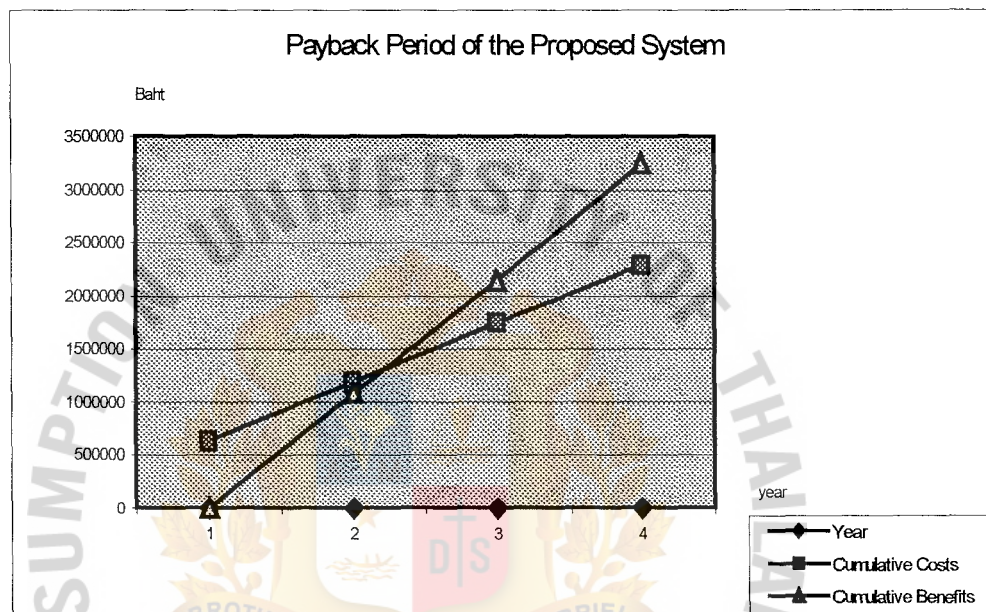


Figure 6.3. Payback Period of the Proposed System.

VII. IMPLEMENTATION

There 3 steps in implementation of system development are as follows:

Step 1: Reengineering Culture

All processes must start from the bottom stage, that is, developing human resource. The company will be fully developed whenever all staffs attend the same goal. Hence, we should start reengineering the traditional culture that many staffs tend to keep all tasks smoothly but overlook the effective way of solving problems. We should be exposed to the new idea and the know how of technology integration that would be beneficial for the next step.

Step 2: System Restoration

This starts with analyzing the existing system by observing the workflow and interviewing the users' requirement. Then, identify which part of the system should be developed in order to design the restoring system. The design of form, report and input screen would be generated. Consequently, the restoration is applied during the planning time of the proposed system.

Step 3: The Proposed System

This section should be considered first, but gradually implemented. In other word, it needs time to plan and prepare to achieve the proposed system. We have to find out the best suitable customized system by interviewing to find out what users need and how to achieve them, then design the proposed system to serve such needs. Recruiting the programmer or specialist is recommended since developing this complicated system requires experienced people. This step may take time and money to invest. However, it finally provides the long-term benefits.

The Gantt Chart is shown in Figure 7.1.

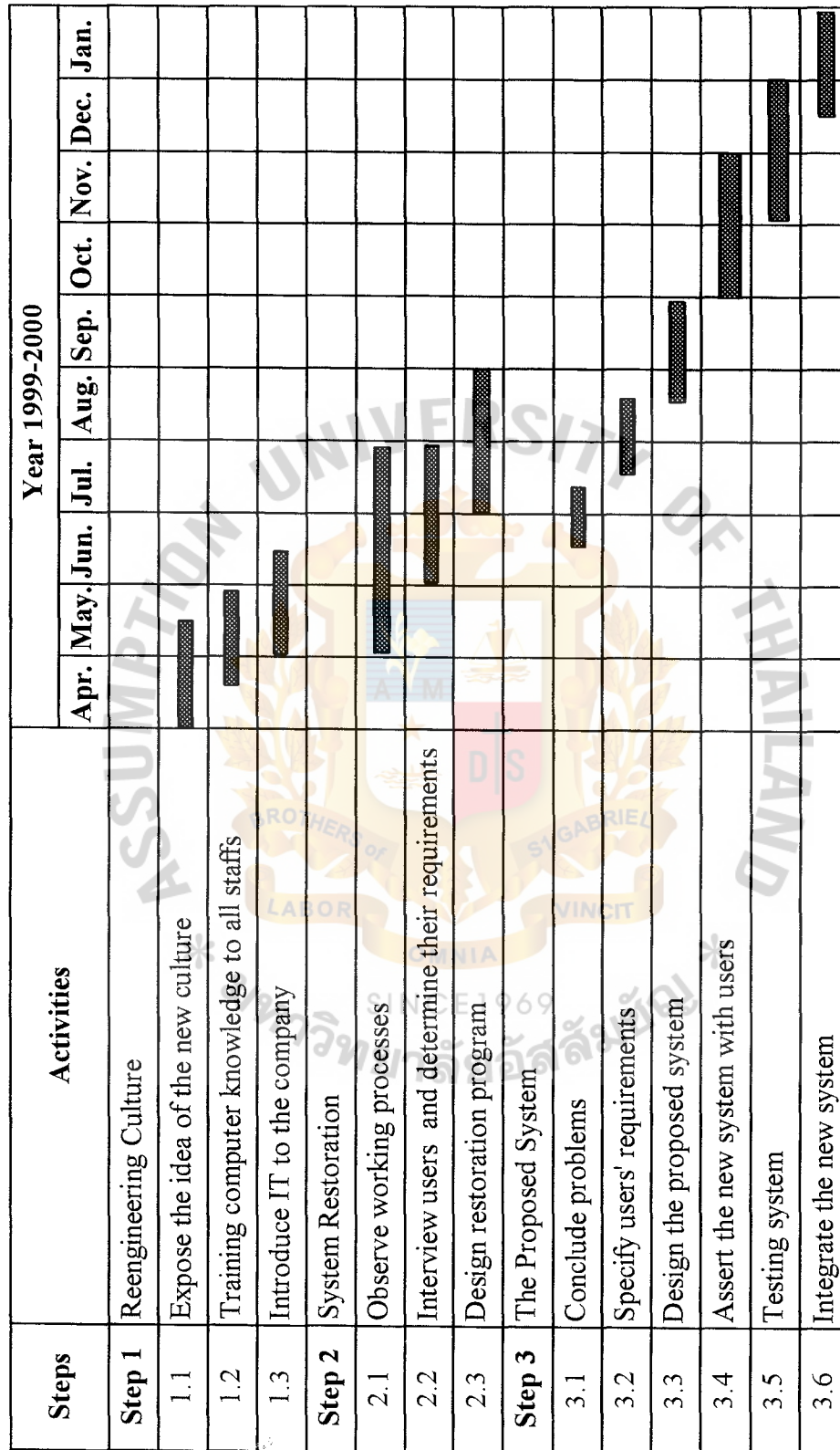


Figure 7.1. Gantt Chart of the Implementation Plan.

VIII. CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

Due to the deficiencies of the Existing Export Division System such as manual working process; insecurity policy; non-customized report provided, the restoration program is created to support these flaws. Intentionally in the Checking process and Advice L/C process, the restoration program provides the cover letter and receipts designed in Microsoft Excel Program, which automatically link to the database in Microsoft Access Application in order to provide the customized report for special purpose. It helps reduce the time consumption of the manual routine tasks. According to the time measurement analysis, it can be seen that the total time taken for Bill Purchase process in the existing system is 1,805 seconds, but in the restoration system it is only 1,154 seconds. Besides, the total time taken for Advice L/C process in the existing system is 870 seconds, it is decreased to 523 seconds in the restoration system. Nevertheless, the restoration system helps to decrease the time taken per transaction. The restoration program creates redundancy of database in both Microsoft Access Program and AS/400 server.

The proposed system, therefore, is established so as to provide the computer-based process with the customized system. It not only the time taken which is reduced for both Bill Purchase transactions and Advice L/C transactions; 1,805 seconds to 802 seconds for Bill purchase; and 870 seconds to 416 seconds for Advice L/C, but also the reasonable choice of investment due to the 1.8936 of the Benefit/Cost ratio. In addition, the payback period is only 2 years and 3 months to recover the total investment. This means that this project is not the desperate investment for development.

8.2 Recommendations

As the project has the scope on developing the tedious tasks of the Export Division in Foreign Department, it is a good sign to further developed this idea in other sections such as the Import division, Credit department, Business department, etc. This is because just developing only one part of the company is not sufficient to generate the full capacity for the total operations. Developing overall areas of the company would bring up the efficient working processes to achieve higher effectiveness in the large scale of the company.

In addition to the idea of spreading the system development to other sections, the complementary of such a program could be the establishment of IT division in maintenance and support functions. It is recommended for further development to have special team directly handles these tasks during the time development since to accomplish this important project, the support division and controller are needed to achieve the overall goals and missions.

On the other side, as earlier mentioned, most banks utilize the traditional language in the existing application. It is hard to develop their banking system since there are only few experts in this area. The new language for the next generation of the banking system is recommended in further research in order to generate revolution to the elderly system being used nowadays.



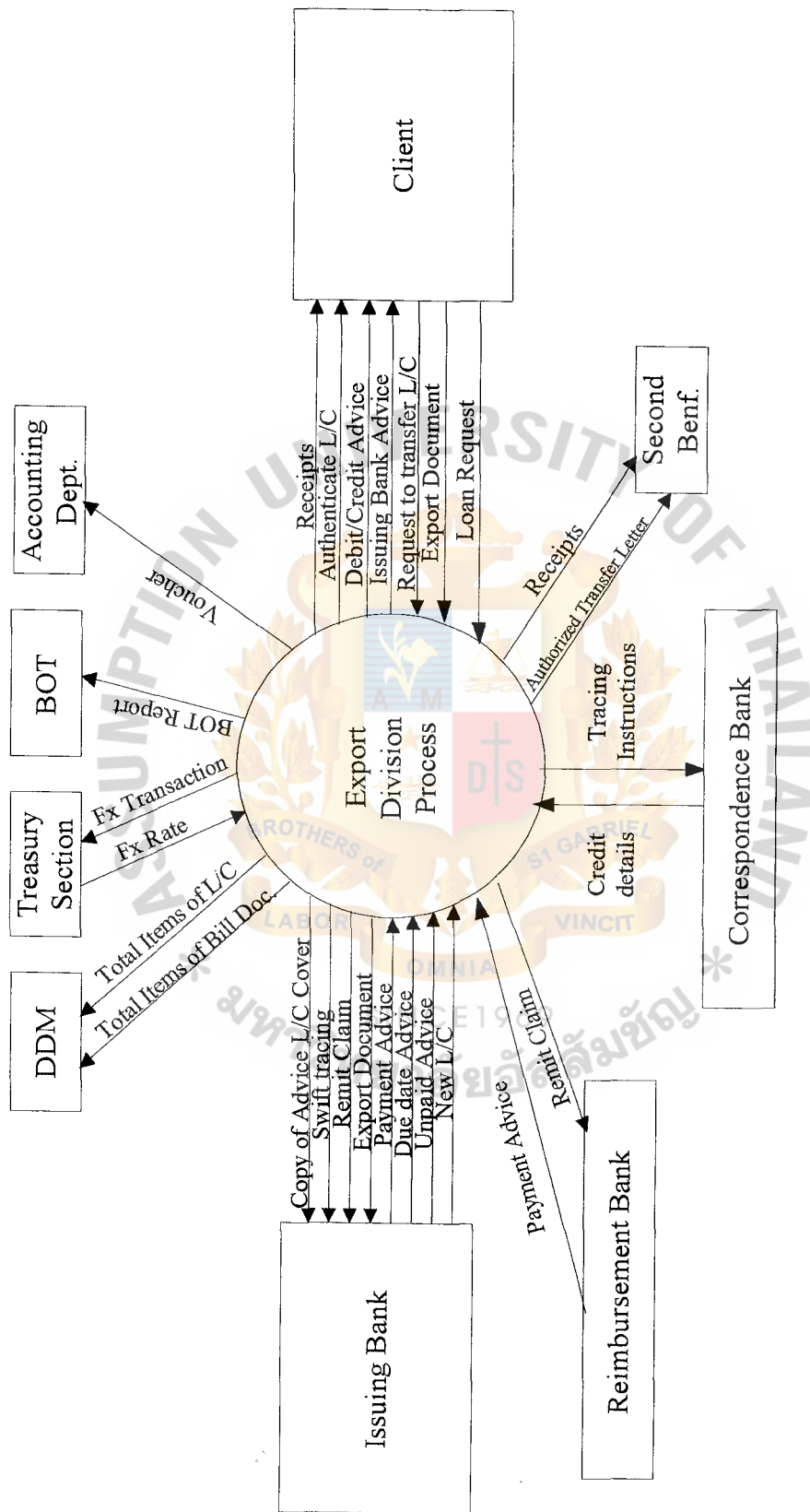


Figure A.1. The Context Diagram of the Existing System.

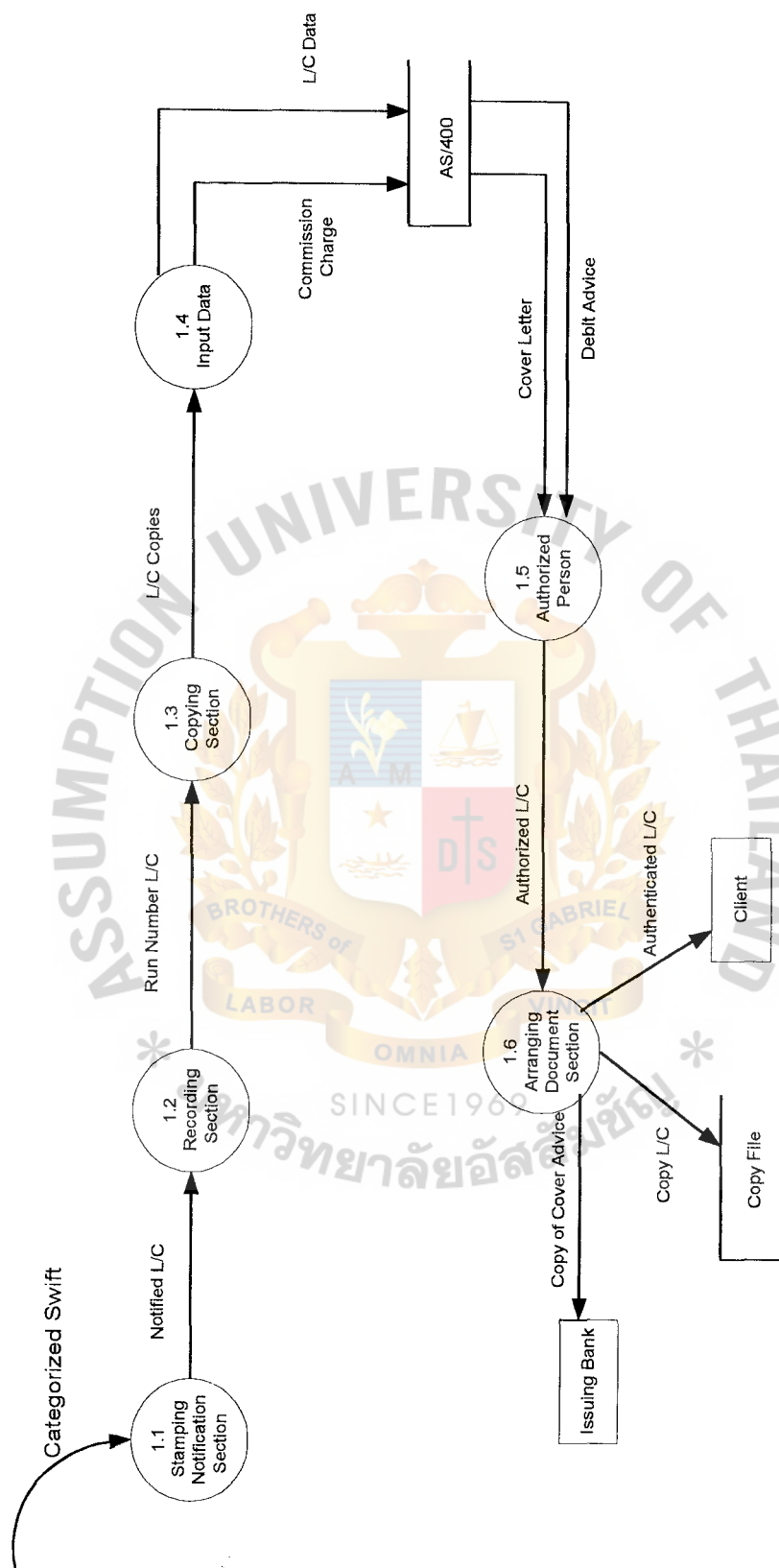


Figure A.4. Level 1 Physical Data Flow Diagram of Advice L/C.

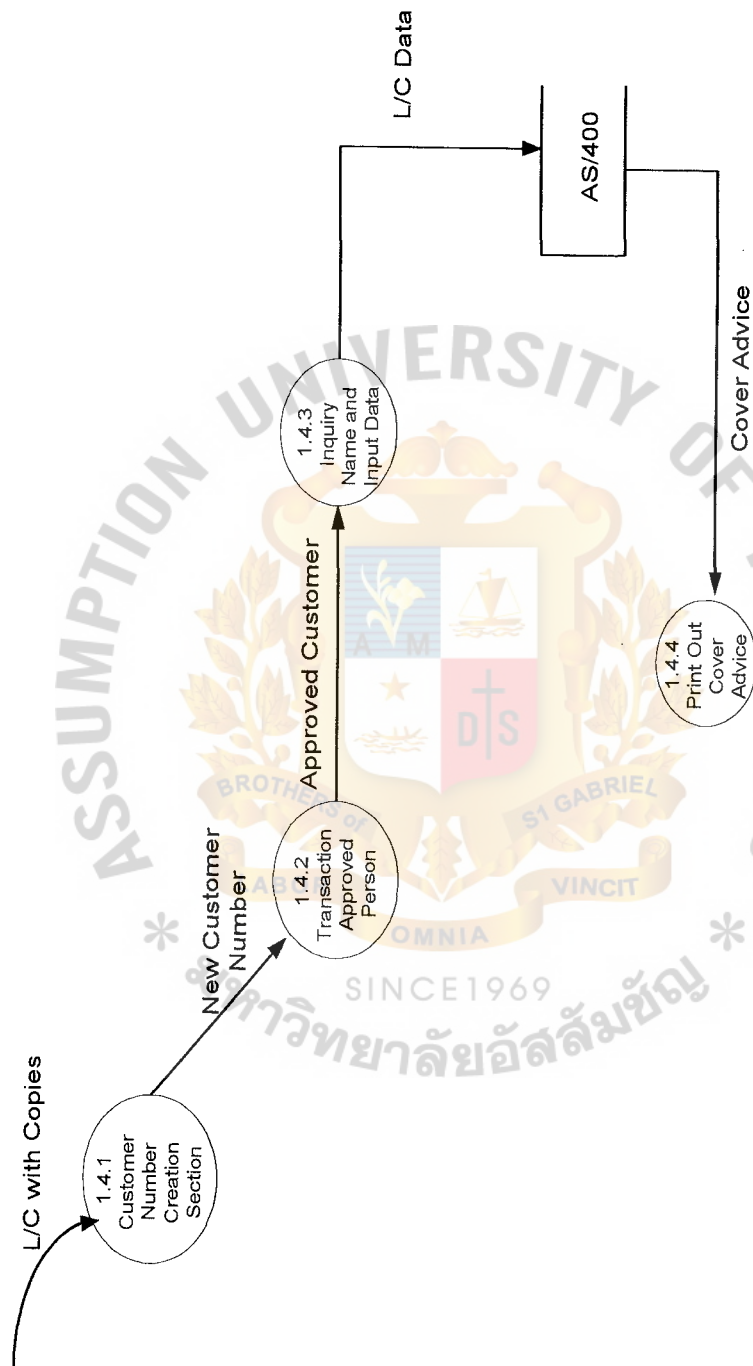


Figure A.5. Level 2 Physical Data Flow Diagram of Advice L/C.

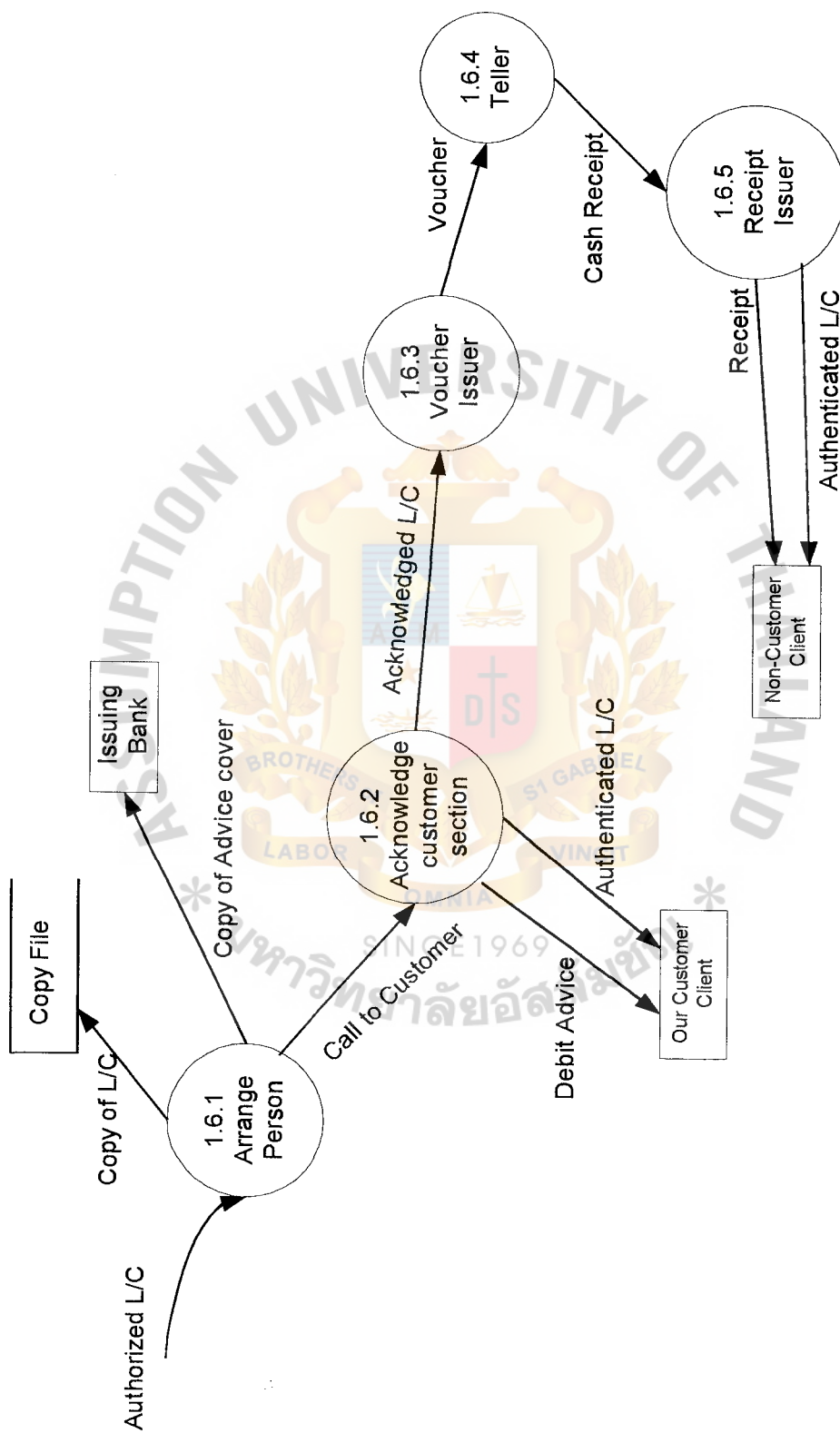


Figure A.6. Level 2 Physical Data Flow Diagram of Advice L/C.

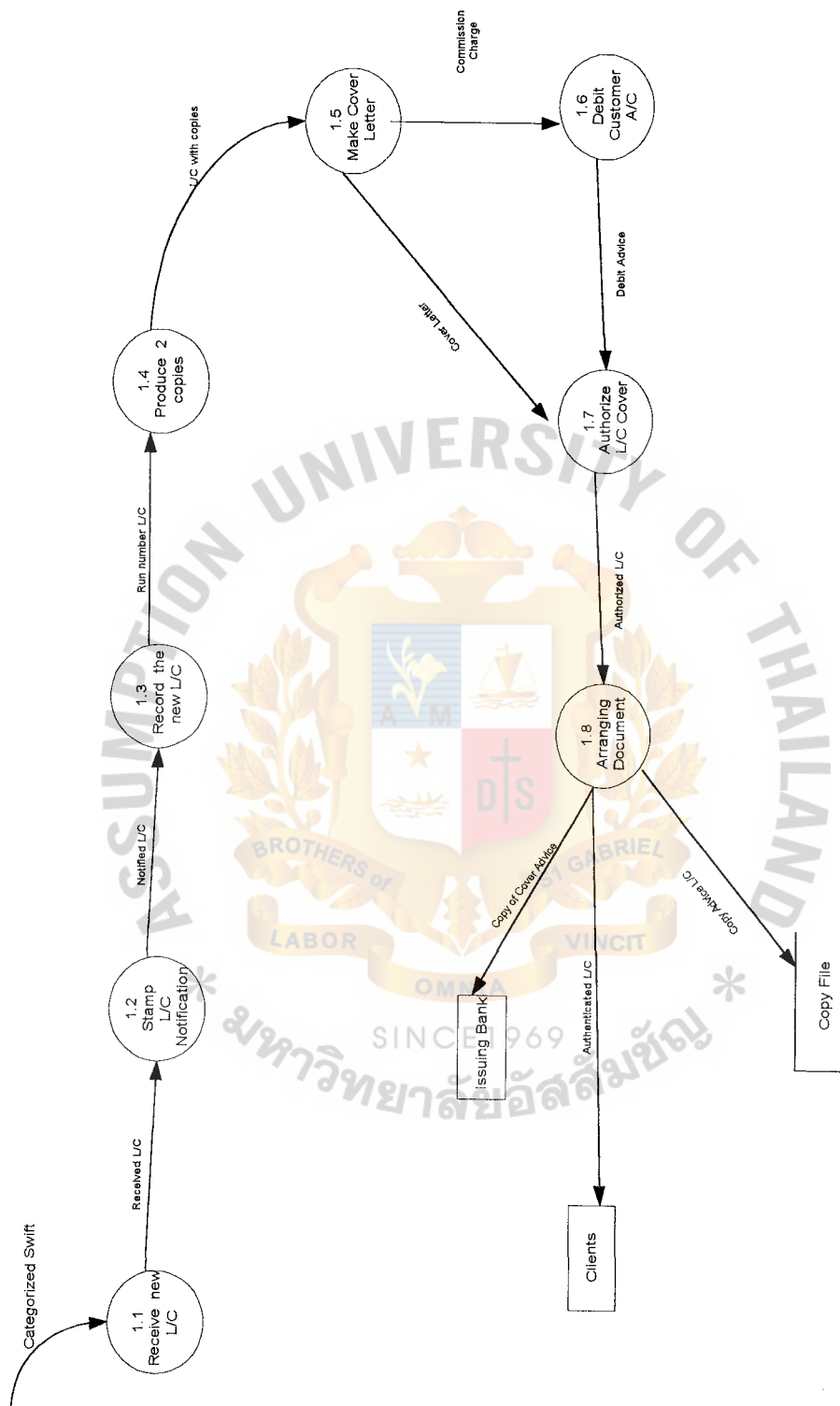


Figure A.7. Level 1 Logical Data Flow Diagram of Advice L/C.

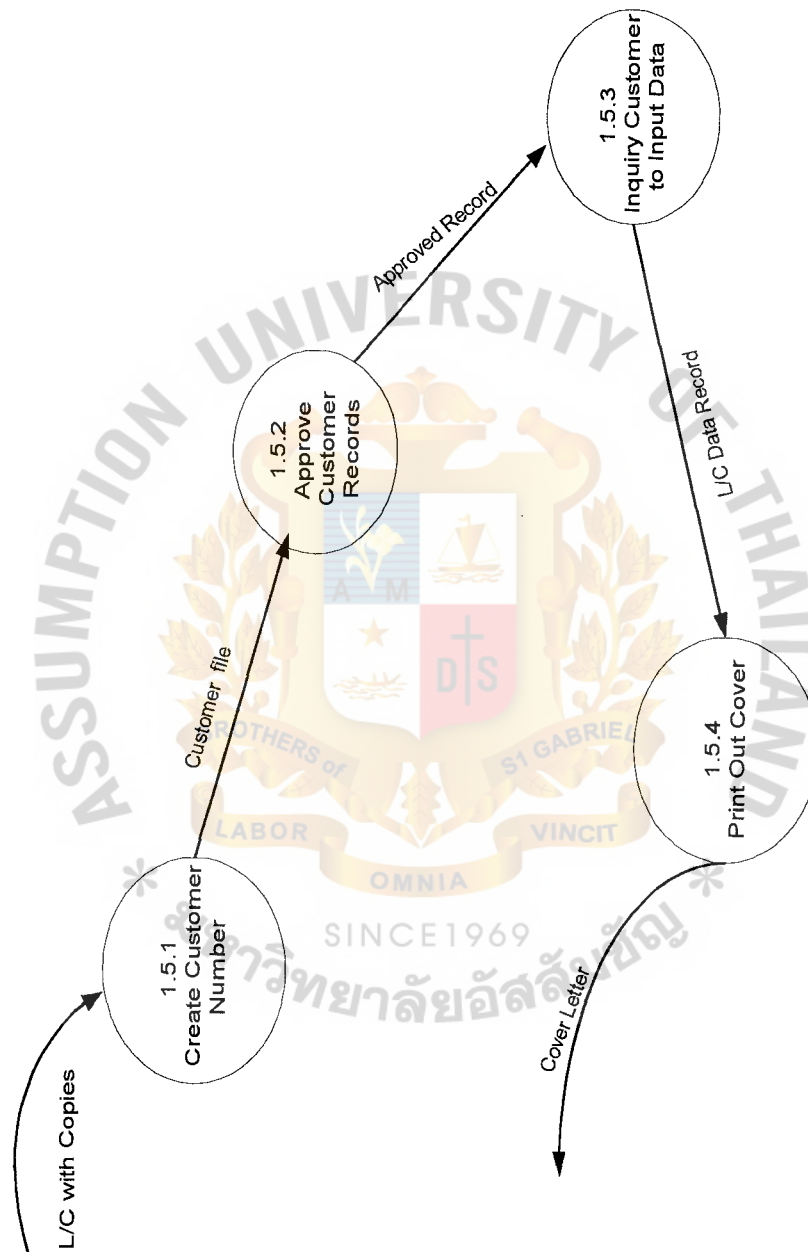


Figure A.8. Level 2 Logical Data Flow Diagram of Advice L/C.

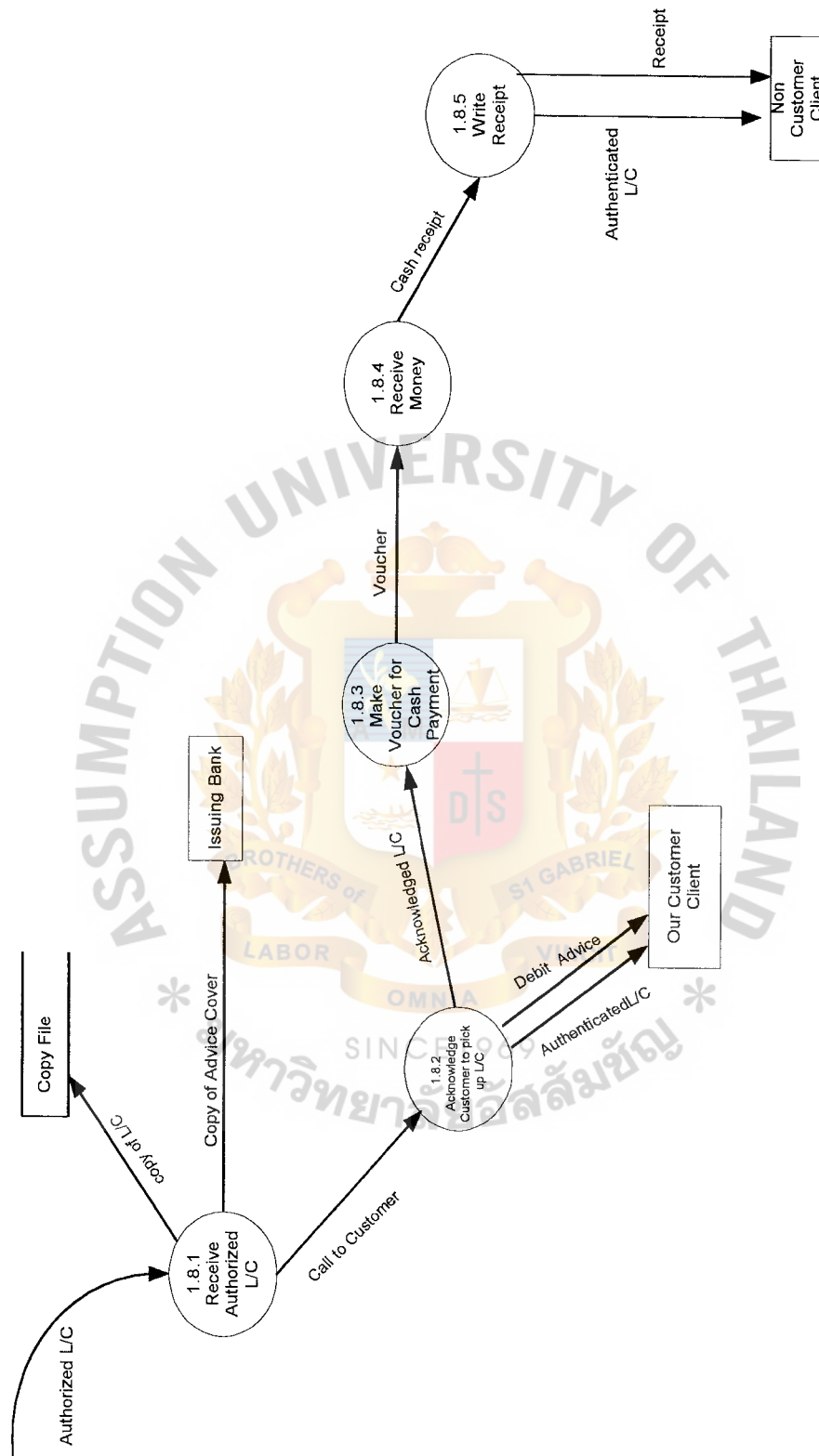


Figure A.9. Level 2 Logical Data Flow Diagram of Advice L/C.

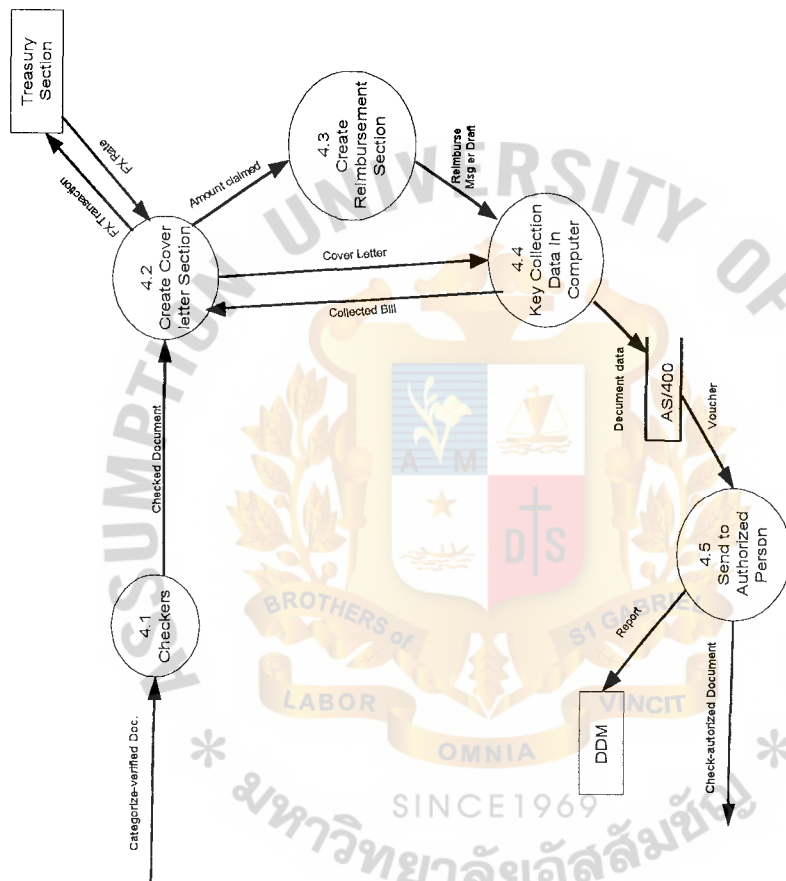


Figure A.10. Level 1 Physical Data Flow Diagram of Checking Process.

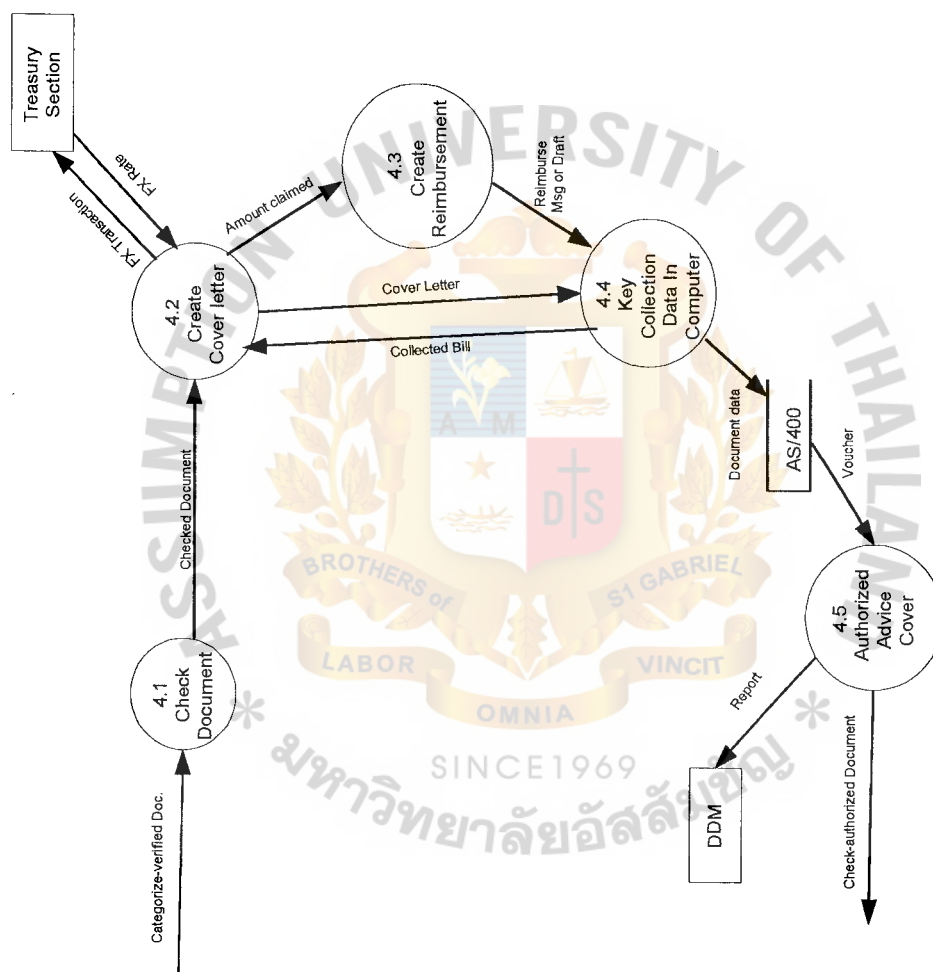


Figure A.11. Level 1 Logical Data Flow Diagram of Checking Process.

APPENDIX B
INPUT SCREEN, ADVICE, AND REPORT OF EXISTING SYSTEM



Print Key Output

5763SS1 V3R2M0 960517 BANGKOK 11/15/99 11:51: Page

Display Device : DSP20A

User : BE004

SCR:7200-1 <<< EXPORT DOCUMENT NEGOTIATION >>> 11/15/9

Currency: USD Our Ref: BKKE L A/C Type: 908981036

Nego Ref: BKKNB Adv Ref: Fee Curr: THB

Customer no:

Isu Bk Ref: L/C No: Stamp: 23.00

L/C Amt: .00 L/C Bal: SWIFT To:

Nego(Draft)Amt: . .00 Bal: Sight/Usance:

Coll Amt: .00 Bal: Debit Chk No:

Paid Coll: .00 Comm: .0000 % = 800.00

Cable: 0 DHL: 500 Pay By Appl/Benf: B

Int Days: X .0000 % = .00 Pay By Appl/Benf: B

Reim Amt: .00 Debit From Bank: Jrnl: 0000000000

Credit to Customer: Exchg Rate: .00000 Post Date: 0/00/00 P

F1=Add F7=Next P F4=Inq F8=Update F9=Post F17=Delt F19=AMD-L F22=ACP

F2=Nego F14=SWIFT F15=EC F16=ADV-L F10=Reim F20=Telx F13=Paid-Coll <>C

Figure B.1. The Input Screen of Export Document Negotiation and Advice L/C.

```

                                Print Key Output
5763SS1 V3R2M0 960517          BANGKOK          Page
                                           11/15/99 11:51:

Display Device . . . . . : DSP20A
User . . . . . : BE004

SCR:7300-1          <<<  D/P D/A  COLL. -- EXPORT  >>>          11/15/9
Currency: USD  Our Ref: BKKEC          Their Ref:
Send To:          Customer No:          A/C Type:

Draft-Date: 11/15/99  Due-Date: 0/00/00  Final(Y/N):          Fee curr: THB
Amount:          $0.00  Balance:          DHL/Airmail:          $
Com: .0000 %          $.00  Pay Thru:          (Corr Bank)  Debit Chk:
Proceeds:          $0.00  Debit Amt:          $0.00  Jrn-No: 0000000000
Exchg Rate: .00000  Coll-Date: 0/00/00  Retire-Date: 0/00/00
0000 0000
0000 0000
0000 0000
0000 0000
0000 0000
0000 0000
0000 0000
0000 0000
F1=Add  F4=Inquiry  F7=Next page  F8=Update  F9=Post  F17=Delt o
F6=Next One  F10=Reim  F15=E.C.  F11=Signoff  F18=Clear  F5=Prev ?

```

Figure B.2. The Input Screen of Bill Collection.

THE MILLENNIUM BANK
Bangkok Branch

CREDIT NOTE - B/P PAYMENT ADVICE(CODE: P7552P)

DATE: 11/18/99

OUR B/P REF: BKKELBP994106
L/C NO: LC-031429-RL
CLIENT'S NAME: A/C NO: 305706

YOUR REF:
INV. NO:TH990092

CONSIGNEE: FLORISTS' TRANSWORLD DELIVERY ,USA.

WE HAVE CREDITED/DEBITED YOUR ACCOUNT WITH THE FOLLOWING ITEMS:

L/C NEGOTIATION AMOUNT:	USD27,060.00	
L/C AMOUNT RECEIVED:		
- NEGO. COMM.	THB800.00	
- CABLE FEE		
- COURIER/POSTAGE	THB100.00	
- STAMPS	THB3.00	
- INTEREST		(days X .0000%
- COM. TO USD A/C		(USD .00)
- CREDIT TODAY IN LIEU:		(USD .00)
=====		
TOTAL CREDITED 2200207830	THB1,038,471.60	(38.4100)

THANKS FOR BANKING WITH US

YOURS SINCERELY,

AUTHORIZED SIGNATURE

Figure B.3. The Credit Note of Bill Purchase Payment Advice.

**THE MILLENNIUM BANK
BANGKOK**

36/12 P.S. TOWER, ASOKE, SUKHUMVIT 21, BANGKOK 10110 THAILAND. Tel. 2592000-9 Fax. 2591330, 6640309 TELEX : 87369 ICBCBKK TH SWIFT : ICBCBTHBK

Bangkok,

Please quote this No.

OC

TO

Dear Sirs,

We sent these documents on **COLLECTION BASIS** subject to **URC522**

Drawer's No.	Amount	Date of Draft	Due Date/Tenor	Drawee

Drawn by :

For A/C of :

Accompanied by the following documents :

Document	Draft	Invoice	B/L	Cons./ Cust. Invoice	Cert. of Origin	Insurance Cert.	Packing/ Weight/ List	Insp./ Survey Cert.	Analysis Cert.	Benefit/ Shipper Cert.	Quantity Cert.	Quality Cert.			
Original															
Duplicate															

Covering shipment of

Shipped per S.S. :

Deliver documents. against

☐ payment

☐ acceptance

WHEN PAID :

☐ Please credit the proceeds to our account with you under swift/telex advice to us.

☐ Please remit the proceeds by swift/telex through CHIPS to our New York office ABA No. 908 for credit our account UID No. 024075 with them under swift/telex advice to us.

☐ Please pay the proceeds to _____ for our account UID No.024075with them .

☐ Please favour us with your D/D _____ and bill us your charges.

☐ Please advise us date of maturity. Upon maturity : _____ please pay us the face amount of draft.

*** ALL BANK'S CHARGES OUTSIDE THAILAND ARE FOR DRAWEE'S ACCOUNT ***

Cable

Protest in case of

☐ Non acceptance

☐ Non acceptance

☐ Non payment

☐ Non Payment

☐ Payment

Yours Faithfully

For

**THE Millennium Bank
BANGKOK**

Authorized Signature (s)

FX.1327/500N

Figure B.4. The Export Document Negotiation Cover Letter.

THE MILLENNIUM BANK
BANGKOK

36/12 P.S. TOWER, ASOKE, SUKHUMVIT 21, BANGKOK 10110 THAILAND. Tel. 2592009-9 Fax. 2591330, 6640309 TELEX : 87369 ICBCBKK TH SWIFT : ICBCBTHBK

Bangkok,

Please quote this No.

OC

TO

Dear Sirs,

We sent these documents on **COLLECTION BASIS** subject to **URC522**

Drawer's No.	Amount	Date of Draft	Due Date/Tenor	Drawee

Drawn by :

For A/C of :

Accompanied by the following documents :

Document	Draft	Invoice	B/L	Cons./ Cust. Invoice	Cert. of Origin	Insurance Cert.	Packing/ Weight/ List	Insp./ Survey Cert.	Analysis Cert.	Benefit/ Shipper Cert.	Quantity Cert.	Quality Cert.		
Original														
Duplicate														

Covering shipment of

Shipped per S.S. :

Deliver documents. against

☐ payment

☐ acceptance

WHEN PAID :

- ☐ Please credit the proceeds to our account with you under swift/telex advice to us.
- ☐ Please remit the proceeds by swift/telex through CHIPS to our New York office ABA No. 908 for credit our account UID No. 024075 with them under swift/telex advice to us.
- ☐ Please pay the proceeds to _____ for our account UID No.024075 with them .
- ☐ Please favour us with your D/D _____ and bill us your charges.
- ☐ Please advise us date of maturity. Upon maturity : _____ please pay us the face amount of draft.

* ALL BANK'S CHARGES OUTSIDE THAILAND ARE FOR DRAWEE'S ACCOUNT *

Cable

Protest in case of

☐ Non acceptance

☐ Non acceptance

☐ Non payment

☐ Non Payment

☐ Payment

Yours Faithfully

For

This Millennium Bank
BANGKOK

Authorized Signature (s)

F x 138/7500N

Figure B.4. The Export Document Negotiation Cover Letter.

THE MILLENNIUM BANK
BANGKOK

36/12 P.S. TOWER, ASOKE, SURGHUMIT 21, BANGKOK 10110 THAILAND. Tel. 2592000-9 Fax. 2591330, 6640309 TELEX : 87369 ICBCBKK TH SWIFT : ICBCBTHK

Bangkok,

Please quote this No. **BP**

TO

Dear Sirs,

We have negotiated the sight draft(s)/documents

Drawer's No.	Amount	Date of Draft	Due Date/Tenor	Drawee

Drawn by :

Under L/C No.

Issued by :

Dated :

For A/C of :

Accompanied by the following documents :

Document	Draft	Invoice	B/L AWB FCR	Cons/ Cust. Invoice	Cert. of Origin	Insurance Cert.	Packing/ Weight/ List	Insp./ Survey Cert.	Analysis Cert.	Benef/ Shipper Cert.	Quantity Cert.	Quality Cert.	Fax Adv.	
Original														
Duplicate														

- ☐ Please credit the proceeds to our account with you under swift/telex advice to us.
- ☐ Please remit the proceeds by swift/telex through CHIPS to our New York office ABA No. 908 for credit our account UID No. 024075 with them.
- ☐ Please pay fed fund to Bangkok as attached payment sticker.
- ☐ Please favour us with your D/D on New York
- ☒ We confirm that the amount of the drawing has been duly endorsed on the reverse of the relative original credit
- ☐ We certify that all terms and conditions of the credit have been complied with.
- ☐ Please advise/confirm us date of maturity. Upon maturity please remit the proceeds as above instruction.
- ☐ Please pay us at sight while your interest/discount charges are for buyer's account.
- ☐

for Intl. Commercial Bank of China,

Yours Faithfully
For The Millennium Bank
BANGKOK

Authorized Signature

F. 19/8/2500

This document is subject to Uniform Customs and Practice for Documentary Credits (1993 Revision), ICC Publication No.500.

Figure B.5. The Export Document Bill Collection Cover Letter.

BANGKOK BRANCH			
EXPORT DOC. BILLS OUTSTANDING REPORT			
DATE: 11/15/99			
USD			
BENEFICIARY	OUR REF NO	NEGO REF	NEGO-AMT
TOTAL:			1,223,750.22
806265 KENT ART CHINA(T) CO.	BP993800	BP993800	6,778.40
806265 KENT ART CHINA(T) CO.	BP993855-6	BP993855-6	44,715.52
806265 KENT ART CHINA(T) CO.	BP993857	BP993857	20,309.28
806265 KENT ART CHINA(T) CO.	BP993965	BP993965	17,400.00
806265 KENT ART CHINA(T) CO.	BP993966-7	BP993966-7	18,609.46
806265 KENT ART CHINA(T) CO.	BP993968	BP993968	12,957.60
806265 KENT ART CHINA(T) CO.	BP993969	BP993969	7,392.00
806265 KENT ART CHINA(T) CO.	BP994046-7	BP994046-7	23,505.62
TOTAL:			151,667.88
7127000 J.M.APPAREL CO.,LTD.	BP993924	BP993924	21,906.50
TOTAL:			21,906.50
GRAND TOTAL:			12,230,479.49

Figure B.6. The Monthly Report of Export Document.

THE MILLENNIUM BANK
BANGKOK
CASH RECEIVED

借：現金
DEBIT: CASH RECEIVED

貸：臨存欠
CREDIT: RECEIVING ADVICE

Date _____

Nature of Transaction:	Amount
Being advising Commission under our CA as follows:	
CA No. _____	
CA No. _____	
CA No. _____	
CA No. _____	
CA No. _____	
CA No. _____	

FX 036/311000 Aug 87

經理

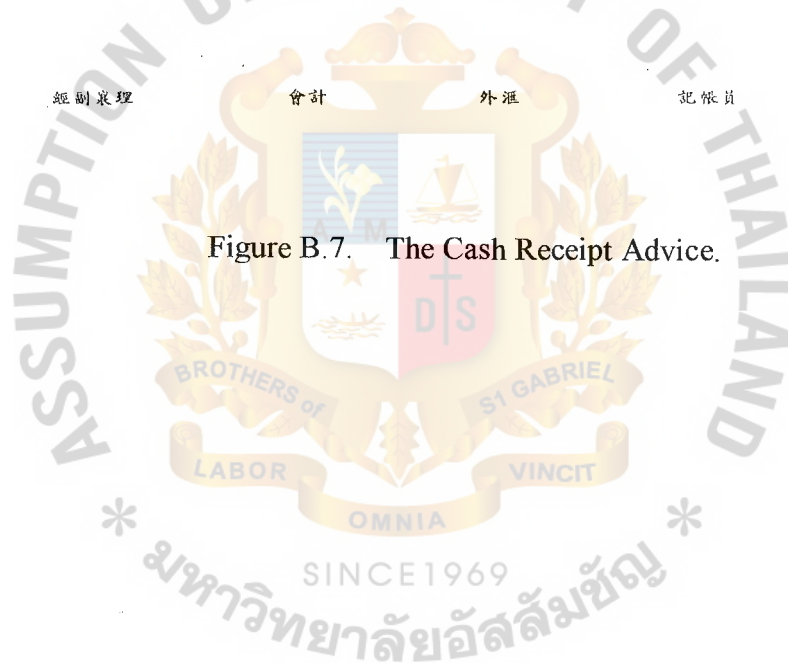
會計

外匯

記帳員

製票員

Figure B.7. The Cash Receipt Advice.



ADVICE

THE MILLENNIUM BANK
BANGKOK BRANCH

(P9F00P)

TXN-DATE:18-NOV-1999 A/C NO:2120-0100-0500406612
OUR REF: BKKCA991118
THE FOLLOWING TRANSACTION WAS APPLIED TO YOUR ACCOUNT TODAY

TYPE	PARTICULARS	CURRENCY: THB	AMOUNT	VALUE DATE
DEBIT	ATF AUTO-TRANSFER FROM 0500406612 TO 2200707043		400.00	11/18/99

TO - NEW UNIT ENTERPRISE CO.,LTD.
56 SOI AUTHAPATH PETKASEM RD.
OMNOI KRATUMBAN SAMUTSAKORN
74130
TEL:(0)4313188-89 FAX:4200577

AUTHORIZED SIGNATURE

Figure B.8. The Debit Note of Advice L/C.

เล่มที่ 2716

ใบเสร็จรับเงิน

เลขที่ 135781

THE MILLENNIUM BANK

เลขประจำตัวผู้เสียภาษีอากร

Bangkok,

ได้รับเงินจาก 茲收到

Received from

จำนวนเงิน 文來泰幣

the sum of Baht

เป็นเงินค่า 為支付附單所列手續費/利息/其他費用

in payment of

as per advice/ meno. attached.

For

The Millennium Bank

บาท

Baht

Authorized Signature

Figure B.9. The Receipt Form of Advice L/C.



APPENDIX C

ADVICE LETTER AND REPORT OF SYSTEM RESTORATION

BP Outstanding by L/C

L/C number

BPnumber	Invoice number	Drawer name	Drawing amount
<div style="text-align: center; opacity: 0.5; font-size: 2em; font-weight: bold;"> ASSUMPTION UNIVERSITY OF THAILAND  SINCE 1969 * * * </div>			

Grand Total
#Error

27 September 1999
Page 1 of 1

Figure C.1. The Report of Export Negotiation Document Outstanding by L/C.

Invoice Outstanding by Customer

(continued)

Date of cover



Page 1 of 1

Figure C.2. The Report of Invoice Outstanding by Customer.

L/C Outstanding by Customer

Drawer Number

Drawer Name	L/C number	Drawing amount	L/C Balance
-------------	------------	----------------	-------------

ASSUMPTION UNIVERSITY OF THAILAND



BROTHERS of
LABOR OMNIA VINCIT
S1 GABRIEL

SINCE 1969

มหาวิทยาลัยอัสสัมชัญ

Grand Total	#Error	#Error
-------------	--------	--------

27 September 1999

Page 1 of 1

Figure C.3. The Report of L/C Outstanding by Customer.



Figure C.4. The Monthly Report of Total Items of Export Document.

Overdue Bill			
BPnumber	Drawer name	Drawing amount	Due date
			
<div> <div>27 September 1999</div> <div>Page 1 of 1</div> </div>			

Figure C.5. The Report of Overdue Bill.

St. Gabriel's Library

Please quote this No. **BP 993692** Bangkok, _____

TO: _____

Dear Sirs,

We have negotiated the draft(s)/documents

Drawer's No.	Amount	Date of draft	Due Date/Tenor	Drawee
	US\$11111111			

Drawn by: _____

Under U/C No _____ Issued by: _____ Dated _____

For A/C of _____

Accompanied by the following documents

Document	Draft	Inv.	B/L	Chart Inv / Visa	Cert of origin	Insur Policy	Benef's cert.	Analysis cert.	Quality cert.	Quantity cert.	Fax Adv.	Multiple country declar.				
Original	2/2															
Duplicate																

x Please credit the proceeds to our account with you under swift/telex advice to us.

Please remit the proceeds by swift/telex through CHIPS to our New York Office ABA No. 909 for credit our account UID No. 024075 with them.

Please pay led fund to the correspondence bank for our account as attached payment sticker.

Please favour us with your D/D on New York.

We confirm that the amount of the drawing has been duly endorsed on the reverse of the relative original credit.

We certify that all terms and conditions of the credit have been complied with.

Please advise/confirm us date of maturity. Upon maturity please remit the proceeds as above instruction.

Please pay us at sight while your interest/discount charges are for buyer's account

Yours Faithfully
for THE MILLENNIUM BANK
BANGKOK

Authorized Signature _____

This document is subject to Uniform Customs and Practice for Documentary Credits (1993 Revision), ICC Publication No. 500

Figure C.6. The Export Document Negotiation Cover Letter (in MS Excel).

RECEIPT
THE MILLENNIUM BANK
 25/9 C.N..TOWER, SUKHUMVIT 55, BANGKOK 10250

Bangkok, _____

Received from _____
 the sum of five hundred baht
 in payment of _____ as per advice/memo attached.

For The Millennium Bank

Baht 500 _____
 authorized Signatu

RECEIPT
THE MILLENNIUM BANK
 25/9 C.N..TOWER, SUKHUMVIT 55, BANGKOK 10250

Bangkok, _____

Received from _____
 the sum of five hundred baht
 in payment of _____ as per advice/memo attached.

For The Millennium Bank

Baht 500 _____
 authorized Signatu

RECEIPT
THE MILLENNIUM BANK
 25/9 C.N..TOWER, SUKHUMVIT 55, BANGKOK 10250

Bangkok, _____

Received from _____
 the sum of five hundred baht
 in payment of _____ as per advice/memo attached.

For The Millennium Bank

Baht 500 _____
 authorized Signatu

Figure C.7. The Receipt Form of Advice L/C (in MS Excel).



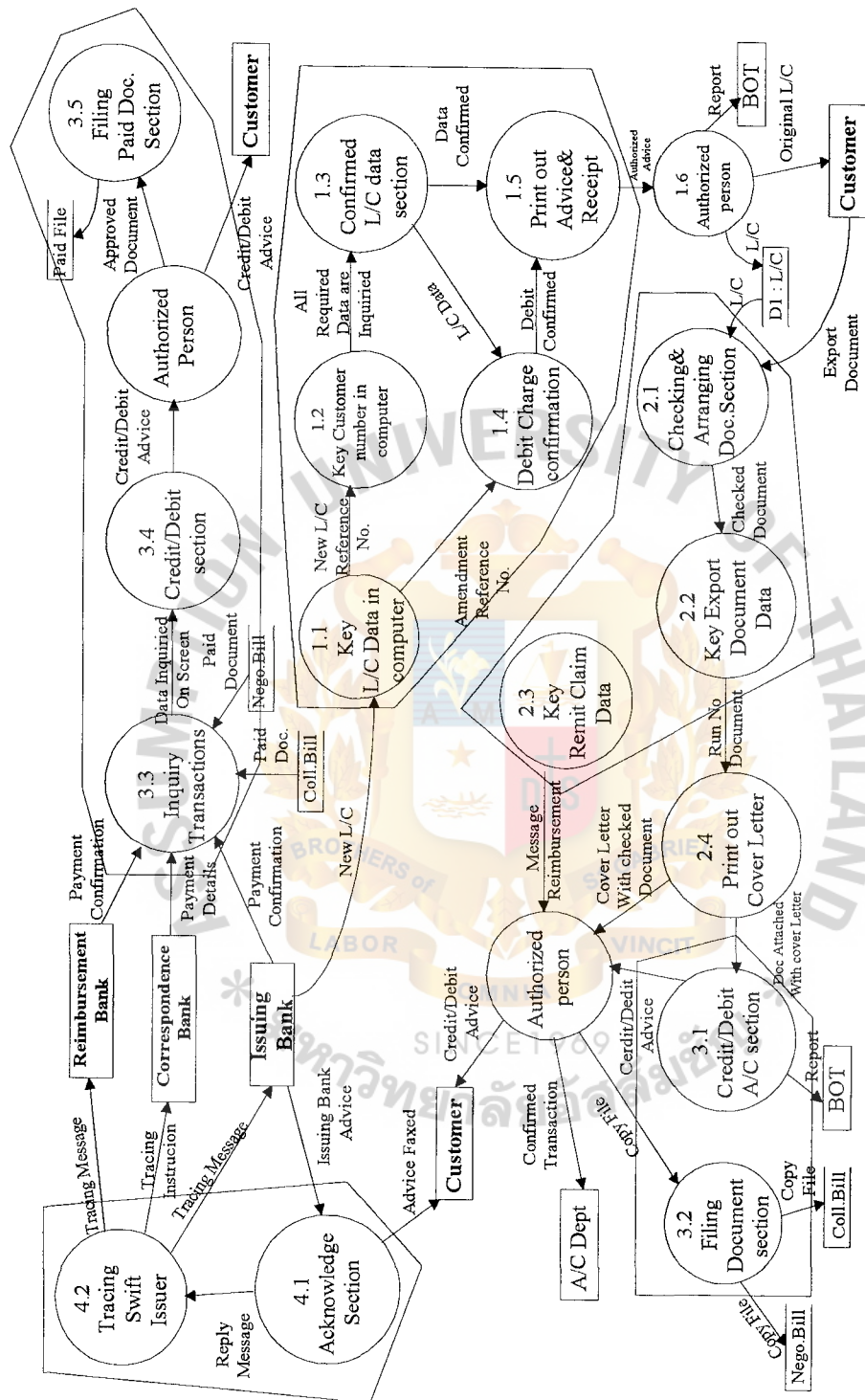


Figure D.1. Leveling Physical Data Flow Diagram of the Proposed System.

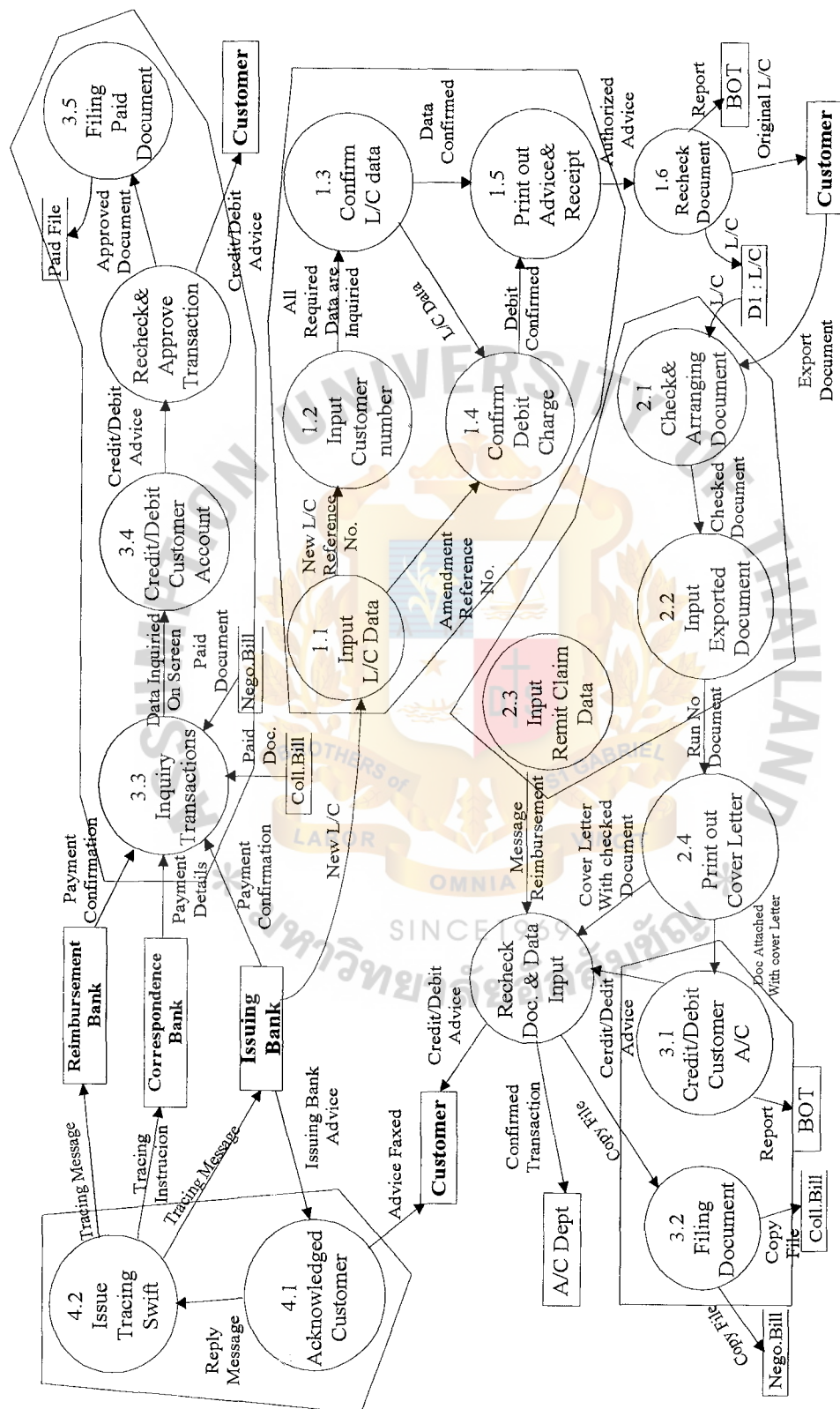
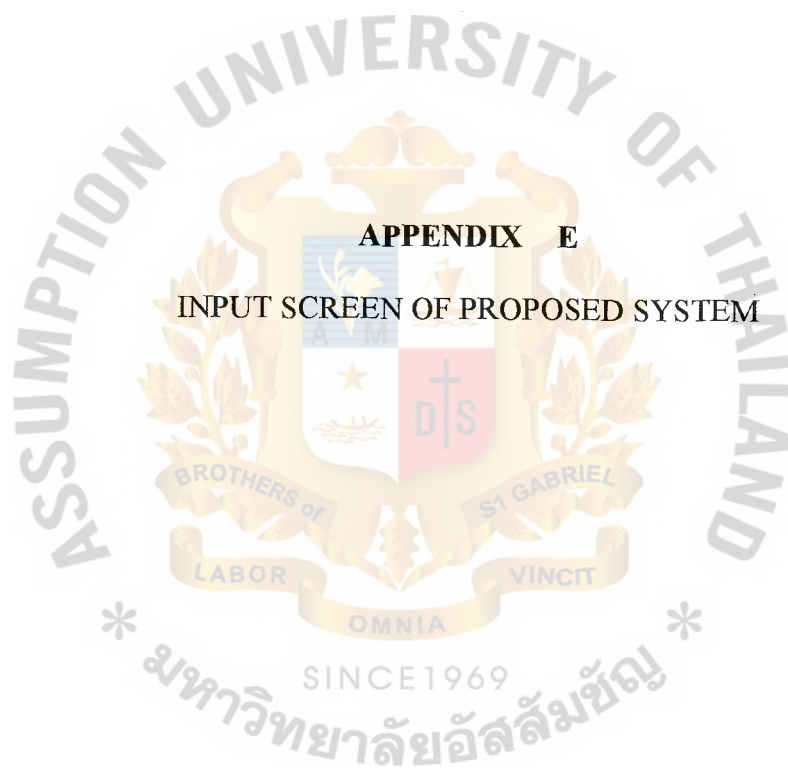


Figure D.2. Leveling of Logical Data Flow Diagram of the Proposed System.



Input Screen for Checker		
L/C Ref. :	<input type="text"/>	Discrepancies :
Customer Name :	<input type="text"/>	<input type="text"/>
Bill Purchase Ref.	<input type="text"/>	
Bill Currency :	<input type="text"/>	Amount : <input type="text"/>
Invoice No. :	<input type="text"/>	
Special Instruction :	<input type="text"/>	
Checker :	<input type="text"/>	
		<input type="button" value="SAVE"/>
		<input type="button" value="NO"/> <input type="button" value="RETURN"/>

Figure E.1. The Input Screen of Export Document Negotiation for Checker.

Bill Cover Data Entry

Page 1

Date :

L/C Ref. : L/C No.

Issuing Bank :

Bills Ref : Currency :

Amount :

- ☐ Please credit the proceeds to our account with you under swift/telex advice to us.
- ☐ Please remit the proceeds by swift/telex through CHIPS to our New York Office ABA No.908 for credit our account UID No.024075 with them.
- ☐ Please pay fed fund to the correspondence bank for our account as attached payment sticker.
- ☐ Please favour us with your D/D on New York
- ☐ We confirm that the amount of the drawing has been duly endorsed on the reverse of the original credit.
- ☐ We certify that all terms and conditions of the credit have been complied with.
- ☐ Please advise/confirm us date of maturity. Upon maturity please remit the proceeds as above instruction.
- ☐ Please pay us at sight while your interest/discount charges are for buyer's account

Figure E.2. The Input Screen of Export Document Cover Letter.

Documents required by L/C

Page 2

	Original	Copy
Bill of Exchange	<input type="text"/>	<input type="text"/>
Invoice	<input type="text"/>	<input type="text"/>
Bill of Lading	<input type="text"/>	<input type="text"/>
Packing List	<input type="text"/>	<input type="text"/>
Cert. of origin	<input type="text"/>	<input type="text"/>
Cert. of weight	<input type="text"/>	<input type="text"/>
Benf. Cert.	<input type="text"/>	<input type="text"/>
Analysis Cert.	<input type="text"/>	<input type="text"/>
Fax Advice	<input type="text"/>	<input type="text"/>
Other	<input type="text"/>	<input type="text"/>

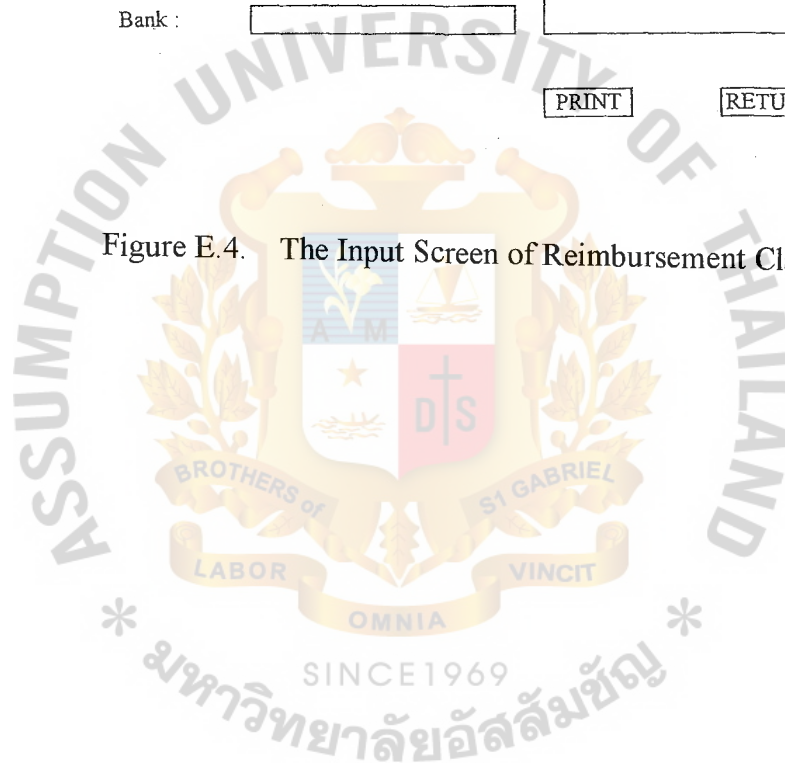
PRINT

RETURN

Figure E.3. The Input Screen of Document required by L/C.

Reimbursement Data Entry	
L/C Ref.:	<input type="text"/>
Bill Ref.:	<input type="text"/>
Currency:	<input type="text"/>
Bill Amount:	<input type="text"/>
SWIFT/TLX	<input type="text"/>
Bank:	<input type="text"/>
Issuing Bank:	<input type="text"/>
Reimbursing Bank:	<input type="text"/>
<input type="button" value="PRINT"/> <input type="button" value="RETURN"/>	

Figure E.4. The Input Screen of Reimbursement Claim.



Tracing swift	
Bill Ref.:	<input type="text"/>
Swift code	<input type="text"/>
Bank	<input type="text"/>
L/C No.	<input type="text"/>
Currency :	<input type="text"/>
Amount :	<input type="text"/>

PRINT

RETURN

Figure E.5. The Input Screen of Tracing Swift.

