INTERNAL CONTROL SYSTEMS IMPLEMENTATION FROM PRIVATE COMPANY TO PUBLIC COMPANY: ROYNET PUBLIC COMPANY LIMITED

by

Mr. Kosol Withoonsomboon

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, 2001

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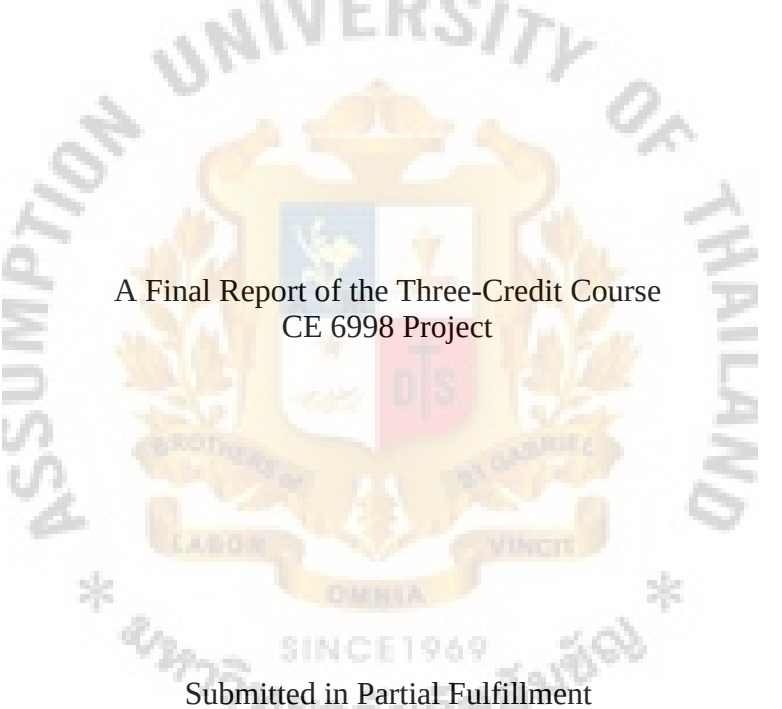

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Project Title	Internal Control Systems Implementation from Private Company to Public Company: Roynet Public Company Limited
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Acadamic Year	November 2001

The Graduate School of Assumption University has approved this 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.

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ABSTRACT

The project presents an understanding of internal control systems implementation from private company to public company: Roynet Public Company Limited provides an overview of the introduction of SEC's requirement, MAI listing requirement and income and expend workflow. In Thailand, the preliminary analysis, investigated problems from the private companies are led by effective management teams or shareholder power use formal managerial concepts, methods and systems, while the public companies are led by SEC's requirement, so internal control in the private company will cause a lack of confidence among investors.

Reengineer the existing private company internal control system to the proposed system which is the public company internal control system, which is income and expend system, is the objective of this project. As the proposed system concentrates on computerizing the system, the company needs to investigate the internal control system according the SEC's requirement. To find the implementation, I used interviewing and observation tools and combining in SEC's requirement, so there are no alternatives because everything is according to implementation.

Finally, after the completion of this project, the management of the Roynet Public Company Limited has a plan to implement an internal control system before listing in the Market for Alternative Investment (MAI) for increase the internal control performance of the company.

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I. INTRODUCTION

1.1 Background of Project

Nowadays, Thailand is experiencing economic crisis situation, so the government tries to enter the company into the stock market of Thailand because the government wants to know their performance for forecasting the Macro economic of Thailand. However, the government tries to make the condition to motivate companies to stock market of Thailand such as decreasing company's tax from 30% to 20% and so on.

The Office of the Securities and Exchange Commission (SEC) takes responsibility in determining a company that would like to be listed in the stock market of Thailand. The SEC of Thailand has a lot of requirements for companies that would like to be listed in the stock market of Thailand, so companies must prepare themselves in every function.

The important function that SEC is concerned with is the internal control system. Normally, a general company has status of a private company; they have simple internal control system. When they would like to be listed in the stock market of Thailand, they must change their status from the private company to the public company and also change their internal control system.

For this project, I would like to present the requirements from SEC and concentrate on the internal control system between the private company and the public company. I would like to deeply study the difference of the detail of requirement in necessary content.

II. LITERATURE REVIEW

2.1 Introduction of The Office of the Securities and Exchange Commission (SEC)

The development of the country's capital market is considered to be important medium to long-term source of funds. This enables entrepreneurs who are in needs of capital for their business operations to mobilize funds directly from the public by issuing and offering diversity of securities. Public issuing and offering of various securities allows businesses to raise funds with lower expenditure than conventional medium through loans from domestic and foreign financial intermediaries. The development of capital market, thus, plays a crucial role in enhancing as well as fortifying stability of the overall economic system.

In spite of the fact that the Thai capital market has been playing such a pivotal role in the country's economic system, in the past, the supervision and development of the Thai capital market were governed under various laws and regulations. To emanate the new legal framework and mark the new era for the Thai capital market, on March 16, 1992, the Securities and Exchange Act B.E. 2535 (1992) or "the SEC Act" was promulgated and came into force on May 16, 1992 so as to reinforce the unity, consistency, and efficiency in supervision and development of the Thai capital market. The enactment of the SEC Act is empowered by the Office of the Securities and Exchange Commission (the Office) to be established as an independent state agency who is responsible for supervision and development of the capital market under the direction and guidance of the Securities and Exchange Commission (the SEC).

The Securities and Exchange Commission (The SEC)

The SEC has been established to supervise and develop the primary and secondary markets of the country's capital market system as well as financial or securities related participants and institutions. Its prime roles are to formulate policies, rules and regulations regarding the supervision, promotion, and development of securities businesses as well as other activities pertaining to the securities businesses; such as issuance and offer of securities for sale to the public; securities exchange, the Over-the-Counter Center, and entities related to securities businesses: acquisition of securities for business take-overs; and prevention of unfair securities trading practices.

The SEC Comprises:

(1) Minister of Finance as the Chairman;

(2) Governor of the Bank of Thailand;

(3) Permanent-Secretary of the Ministry of Finance;

(4) Permanent-Secretary of the Ministry of Commerce;

(5) Four to six well-qualified persons, appointed by the Cabinet upon the recommendation of the Minister of Finance, that must include experts from each of the following fields: legal, accounting, and finance; and

(6) Secretary-General of the Office of the Securities and Exchange Commission.

The policy objectives of the SEC in supervising and developing the capital market are as follows:

(1) To maintain fairness in capital market and financial market;

(2) To develop and enhance efficiency of the capital market and financial market;

(3) To maintain long-term stability of the financial system; and

(4) To strengthen international competitiveness of the Thai capital market.

Mission of the Office of the Securities and Exchange Commission

(1) Public Issuing and Offering of Securities. The SEC Act allows business sector to issue and offer various kinds of securities, namely equities, debt instruments or hybrid instruments for sale to mobilize funds from the public. The issuance and offer must be beneficial to the country's economic and social prosperity. Under the SEC Act, eligible equities or hybrid instruments issuers are restricted to public limited companies (including the incorporators of public limited companies who can issue and offer equities) while issuers of debt instruments can either be public limited companies or limited companies. Any issuers who wish to make a public offering of securities must first obtain approval from the Office. The issuers must file the registration statement and draft prospectus which must disclose and contain accurate, reliable, and sufficient information necessary for investors to make investment decisions. Furthermore, issuers must report updated information for public disclosure. However, if securities issuing and offering to the public is privately placed (not offered to the public), an approval shall automatically be granted and regulations on public disclosure are also exempted. This is, however, depending upon type and characteristic of securities. The private placement is defined as one of the following activities:

(a) The issuance and offering of securities not more than 20 million bahts during the period of 12 months;

(b) The issuance and offering of securities to be not more than 35 investors during the period of 12 months; or

(c) The issuance and offering of securities to the prescribed 17 types of institutional or sophisticated investors.

For public offering, due to different risks and return characteristics of each type of securities, the approved criteria are different accordingly. However, the common qualifications for applicants are as follows:

(a) The applicants must have definite objectives for the use of proceeds raised from securities offering;

(b) The business of applicants must be economically and socially beneficial to the country;

(c) The management must be ethical and competent as well as have no adverse track record and the companies auditors must be auditors who are recognized by the Office;

(d) The applicants must have good financial status and performance record as well as must be able to do business on an ongoing basis. A project feasibility study is required in case of a new and large project which is not in line with the existing one.

(2) Securities Businesses. Under the SEC Act, securities businesses mean securities brokerage; securities dealing; securities underwriting; investment advisory service; mutual fund management; and private fund management. Private sector is allowed to take part in securities businesses by applying for licenses from the Minister of Finance upon the recommendation of the SEC. Under the SEC Act, mutual fund management is one of securities businesses which offers investment units for sale to the public and takes the proceeds raised from offering to invest in securities and other assets to diversify risks for mutual benefit. Prior to the launch of each mutual fund, a mutual fund

management company must obtain an approval from the Office. In comparison with the previous laws, major changes have been introduced into the SEC Act in relevant to management of mutual fund which are as follows:

(a) A mutual fund must be registered as a juristic person;

(b) A mutual fund supervisor, who is a financial institution person, must be appointed to act as a trustee to supervise the operations of a mutual fund management company as well as act as custodian of mutual fund's assets; and

(c) The prospectus must be provided for the offering of investment units in a mutual fund to ensure that investors have adequate and accurate information for making investment decision. Prospectus of the open-ended fund must be made annually.

In addition, the SEC has set out policies to encourage and increase greater numbers of institutional investors so as to strengthen stability in the capital market by raising number of operators in mutual fund management, setting up of various funds and issuing of licenses to operate new securities businesses which were not in existence in the past such as private fund management. Private fund management provides an opportunity for investors who have interest in securities investment but are unable to make investment by themselves. These investors can retain financial institutions who have expertise and are professional managing to manage their fund, and also permission for securities companies and mutual fund management companies to operate as provident fund manager.

(3) The Securities Exchange. The Stock Exchange of Thailand (the SET) is considered as an important secondary market for trading securities which were initially issued and offered for sale to the public in the primary market. The SEC Act is empowered the SEC to supervise securities exchanges which include the SET and the Bangkok Stock Dealing Center (BSDC). In addition, the SEC Act stipulates that securities, listed on the SET, are not allowed to be traded in any other exchanges. However, to add liquidity to securities which are offered for sale to the public but are not listed on the SET, the BSDC is, therefore, established to accommodate this purpose. Prior to coming into existence, the BSDC must be granted approval from the SEC. In September 1995, the SEC approved the establishment of the BSDC and officially began its operation on November 14, 1995.

In terms of relationship between the SEC and the SET's Board of Governors, the SEC plays an important role in setting out policies and approving main regulations for the SET, for example, listing and delisting rules and commission fee structure. As for the day-to-day operation of the SET, the SET is empowered by the SEC to work independently toward supervision the related personnel and institutions. Furthermore, as the SET is the immediate monitor of the securities trading information, whenever any suspicious practices in securities trading occur, the SET will hold the primary responsibility for inspection and gathering all related evidences and facts for further actions and coordination with the Office.

(4) Acquisition of Securities for Business Take-overs. The SEC Act protects the interests of shareholders or holders of any convertible securities of listed

companies on the SET or traded in the BSDC or public limited company regarding the acquisition of securities for business take-overs as follows:

(a) Disclosure of Information: A person acquiring or disposing such securities, including shares, share warrants, or convertible securities which can be converted into shares of companies having their securities listed on the SET, traded in the BSDC or of public limited company, must file an acquisition or disposition report to the Office within the next business day when such acquisition or disposition causes the aggregate holding of the same type of securities to reach or pass a multiple of 5 percent of the total number of the securities of a business sold.

(b) Tender Offer: A person who acquires or holds securities of a business up to the point at which the change in control of a business taken place must make a tender offer to provide all securities holders with an equal opportunity to sell their securities to the offerer at the same price. Furthermore, the securities holders must receive adequate information and advice to assist them in making such decision. The trigger points which regard as changes in the control of a business and require making a tender offer to purchase all securities are as follows:

    (a) An increasing of the number of securities held by a person from less than 25 percent up to 25 percent or more,

    (b) An increasing of the number of securities held by a person from less than 50 percent up to 50 percent or more,

    (c) An increasing of the number of securities held by a person from less than 75 percent up to 75 percent or more,

(d) Any acquisition of more than 5 percent within any 12-month period while holding securities between 25-50 percent.

The offered price for the tender offer must be the same for all shareholders or securities holders and must not be less than the highest price at which the acquirers had acquired such securities within 90 days prior to the tender offer.

Apart from the mentioned mandatory offer, a person may also make a voluntary offer in order to purchase and hold 25 percent or more of securities of a business under the provision of the Take-over Codes of the SEC Act.

(5) Unfair Securities Trading Practices. The SEC Act states that unfair securities trading practices include dissemination of misleading information related to the facts of securities to the public, dissemination of any false news to become rumor, trading of securities by using inside information and causing the unusual price movement by the continual practices of price manipulation that howsoever tempt the investors. Unfair securities trading practices are criminal offences with severe penalties under the SEC Act. The SET and the BSDC are primary responsible agencies to monitor securities trading prior to submitting the cases to the Office. The Office is empowered to examine the report and gather all related evidences prior to take further legal proceeding. In addition, investigation and gathering evidences of the Office are not simply confined to unfair securities trading practices, acts in contravention of the SEC Act submitted by other organizations and complaints will also be fallen under the responsibilities of the Office.

2.2 Introduction of MAI's Requirements

In our globalized economic environment, it is apparent that small and medium ventures, as well as large firms, are encountering increasingly intense competition, both domestically and internationally. One of the challenges we are now facing in Thailand is how we will fund our businesses efficiently at the lowest cost possible in order to maximize our return.

Raising funds for business expansion can be undertaken through either loan funding or capital funding. Capital funding by means of an Initial Public Offering (IPO) enables companies to raise funds without interest burdens. Nevertheless, the IPO approach is currently feasible only for large firm, as there is a secondary market to trade their stocks. Smaller firms, on the other hand, are unable to raise funds in the capital market, causing higher funding costs, and thereby weakening their competitiveness.

In order to facilitate accessibility to the capital market by small and medium enterprises, the Stock Exchange of Thailand (SET) has introduced the Market for Alternative Investment (MAI) with approval by the Securities and Exchange Commission (SEC). The Market officially commenced its operation on June 21, 1999.

MM Establishment Objectives

The establishment of the MM is another development of the Thai capital market, providing a new fund-raising alternative to firms with potential growth. It will also provide a nursing ground for small companies to expand until they are large enough for the main market. The main objectives for the MM, therefore, are as follows:

(1) To provide an alternative funding channel for small and medium-sized enterprises.

(2) To facilitate debt restructuring, especially through debt-equity conversion by providing an exit from investment undertaken by creditors.

(3) To promote venture capitalist investment in small and medium-sized firms.

(4) To provide more investment choices to public investors.

Investment in MAI

(1) Listing criteria and supervision will place particular emphasis on the disclosure-based principle to provide investors with complete, transparent and sufficient information to make investment decisions.

(2) MAI trading system is the Automatic Matching System, similar to that of the main market to ensure credibility and liquidity.

(3) MM Information Disclosure System uses the same electronic media as that of the main market in order to disseminate information promptly and broadly to investors.

(4) Retail investors will also enjoy capital gain tax exemption when trading in the MAT, the same as in the main market.

Listing Benefits

(1) Unlike loan funding, going public and listing provides an additional long-term source of funds without interest, therefore, lowering the firm's capital costs.

(2) Listing could help increase the premiums to a firm's shares as well as better liquidity to its shareholders.

(3) A firm's image is improved by its listing status. Bargaining power to customers, suppliers and creditors will also increase, leading to a strengthening of its competitiveness.

(4) With a certain standard of financial reporting disclosure and a stronger equity base, a listed firm will also realize higher debt capacity compared to a non-listed one. A listed firm's financial leverage is therefore optimized.

(5) MAI provides both pre-and post-listing training to interested firms in order to help develop the firm's standards of business practices in various areas, including financial reporting, management and corporate governance.

MAI Structural Overview

Under the supervision of the SET board of Directors, the MAI committee will set out its own policies and oversee the Market's operation and its front offices responsibilities, such as listing and public relations. However, back-office functions such as the trading system, clearing and settlement procedures, trading surveillance and supervision, as well as disclosure requirements, will be entirely based on the SET existing operations.

MAI Listing Procedures

The MAI listing procedure is quite simple and flexible. It will take only five working days to grant any approval.

(1) Listing examination will be disclosure-based rather than merit-based.

(2) Listing fees will be lowered to reduce the issuer's cost.

(3) Listing applicants must fulfill the IPO requirement of the SEC as well as the listing requirements of MAI.

Table 2.1. MM Listing Requirement in Brief.

Topic	Section 1 (Mid-Sized)	Section 2 (Hi-Growth)
Main Business	Main business must be economically and socially beneficial to the country.	Same as Section 1
Paid-up Capital (After Public Offering)	>= 40 million baht	No requirement
Minor Shareholding Distribution	- Number of minor shareholders >= 150 - Total shares held by all minor shareholders >= 20% of paid-up capital or >= 10 million shares, whichever is lower.	Same as Section 1
Initial Public Offering	Public offering must be granted approval by the SEC.	Same as Section 1
Track Record	Must have track record >= 2 financial years before the application data.	No requirement
Financial Standing	Shareholder's equity >= 40 million baht	Shareholders' equity >0
Conflict of Interest	No existing or potential conflicts of interest between the applicant company with the management, and major shareholders or other companies with the same management or controlling shareholders.	Same as Section 1

Table 2.1. MAI Listing Requirement in Brief. (Continued)

Topic	Section 1 (Mid-Sized)	Section 2 (Hi-Growth)
Internal Audit and Control	Internal control and archiving system must be in compliance with the SEC requirements as follows:- 1. Management system of the company and its subsidiaries must be able to prevent damages resulting from fraud or any other misconduct by the management. Transactions must be approved by the authorized management and must be recorded in order to achieve reliable and complete financial statements. 2. Efficient archiving system for the company and its subsidiaries is required and all documents must be available to directors, auditors or legally authorized persons for their reference whenever needed. 3. The company must consistently comply with its management system guidelines and archiving system guidelines and archiving system. Opinions from audit committees or independent directors regarding both matters are required.	Same as Section 1

Table 2.1. MM Listing Requirement in Brief (Continued)

Topic	Section 1 (Mid-Sized)	Section 2 (Hi-Growth)
Management	- Competent and experienced in the business. - Qualifications must comply with what are specified by the SEC - >= 2 independent directors	Same as Section 1
Audit Committee	- Must be established within 3 years after listing. - Consist of >= 3 directors with qualifications as required by the MM	Same as Section 1
Financial Statements and Auditors	- The applicant company and its subsidiaries must have the same auditor/auditing firms as approved by the SEC. - Most recent 4-month financial statements must be provided and reviewed or audited by the SEC-approved auditor. - Financial Statements must be unconditional audited reports. Any other conditions should be clearly indicated. - Equity method accounting must be applied.	- The applicant company and its subsidiaries must have the same auditor/auditing firms as approved by the SEC. - Most recent 4-month financial statements must be provided and reviewed or audited by the SEC-approved auditor. - A newly-established applicant company (accounting period < 1) must submit its most recent quarterly financial statement audited by the SEC-approved auditor. - Financial statements must be unconditional audited reports. Any other conditions should be clearly indicated. - Equity method accounting must be applied.

Table 2.1. MAI Listing Requirement in Brief. (Continued)

Topic	Section 1 (Mid-Sized)	Section 2 (Hi-Growth)
Lock-up Rules	- Management shareholders and management - Deposit a total of 35% of paid-up capital - 6 months — 1 year after listing	- Management shareholders and management - Deposit a total of 35% of paid-up capital - 1-2 years after listing
Financial Advisor	Continue advisory services for one year after listing	Same as Section 1
Business Plan	No requirement	- Business plan for the current year and the next two financial years must be disclosed in the prospectus. - Business plan must be reviewed every six months for the initial 2-year period after listing
Corporate Presentation	No requirement	In cooperation with the MAI, a corporate presentation to analysis and public investors is required at least twice a year for a period of two years after listing.

Listing Fees

As an incentive, discounted listing fees will be offered for any listings granted before Dec. 31, 2000 as shown below:

(1) Application Fee will be 50% of nominal rate

(Nominal rate = Bht 75,000)

(2) Admission Fee will be waived

(Nominal rate = 0.03% of paid-up capital, but not less than Bht 50,000)

(3) Annual Fee will be waived/discounted only if the applicant appoints an audit committee by the specific periods of time as follows:

Period	Incentive Condition
(a) by the first 1-12 months of listing	waived
(b) by the next 13-24 months of listing	50% discount of nominal rate
(c) by the next 25-36 months of listing	25% discount of nominal rate

(Nominal rate = 30,000 + 0.025% of paid-up capital, but not less than Bht 50,000)

Trading and Settlement System

MAI trading and settlement systems are the same as those of the main market. The trading system, namely "ASSET", consists of 2 methods, the Automated Order Matching Method (AOM) and the Put-Through Method (PT). MAI trading hours are also the same as those of the main market. However, the MAI has its own index, calculated separately from the SET index.

2.3 Introduction of SEC's Internal Control System

SEC. Of Thailand has been concentrated to quality of the internal control system of the company and organization related to the Investment market of Thailand. So SEC would like the committee of each company to review and audit the effectiveness of the internal control system of the company and report the result to the shareholders.

Because most of the directors of each company does not have guidance for evaluating the effectiveness of internal control system, in order to help the director of the company to have effectiveness of internal control system, SEC would like to develop "Guidance for Directors on Internal Control" document. Also Accountant association and auditor of Thailand would like to develop this document before. Then SEC assigns the responsibility to accountant association to develop guidance for directors on internal control document.

SEC would like to thank you for account association and auditor of Thailand and every body who has invested the time to develop guidance document. Also thank you Prof. Sangvian Inthonvichai and K. Jumras pinkkarasai for the suggestion.

SEC

March 2000

Objective

The principle to have high quality control is the director of the company should review the efficiency of the internal control system and they should report result to the shareholder.

So, the guidance for director to set up the policy and the committee should control, take care and review the efficiency of the internal control system according to the policy.

Important

Internal Control System is the important engine to create the reasons and confidence for the management team.

(1) To reduce company's risk.

(2) To protect company's assets from the corruption.

(3) Increase the reliability and validity of the company's financial report.

(4) Act as law and related policy guidance for the employee to perform according the law and related policy.

(5) To have the efficiency business by meeting company target and having good quality of management assets control.

(6) Take care of investment fund of the shareholder.

In the past, many companies have been bankrupted because they do not have efficiency of internal control system such as a bank in England, which has long history of business. They were bankrupted because of a management staff has invested the company's money on bond (onirmailtha) in Japan stock market by making the decision alone, no risk control and unlimited authority to invest the company's money in every stock/investment market. Another example: In the USA, Bank of Japan was

closed by USA government because they lost more than 10k million baht. Bank of Japan lost all that money because the top management of the bank bought bonds without the approval and used his authority over limited.

As the 2 examples above, we can see that the director of the company who has responsibility in business control should concentrate on internal control system of the company.

Meaning

The internal control system means the process of internal control system that is set up by director, management team and staff of the company in order to make sure that:

(1) Company meets target by running business efficiently and effectively (including taking care of the company assessment in the right way).

(2) Financial report should be reliability and validity.

(3) Company should run business according the law and the related policy.

Duty and Responsibility

The committee of the company has duty and responsibility to provide high efficiency of the internal control system and control the company's risk in the suitable level by setting up the policy, following up the evaluation result regularly and making sure that the system has run on the efficiency basis.

The management team has the duty and responsibility to receive the policy from the director and manage according to the policy until everything has been done. Staff of the company has duty and responsibility to perform according to the internal control system from the management team.

Guidance of the Efficiency Monitoring and Evaluation

The efficiency of the internal control system should be composed of 5 factors:

(1) The business should have good control environment.

(2) The business should have the suitable evaluation and analysis process for risk assessment.

(3) The business should have good control activities.

(4) The business should have good information and communication.

(5) The business should have good monitoring and evaluation system.

So, the committee should beware of the above guideline and each factor of the guideline should be done completely with high efficiency, then they will know that the company has the efficiency of the internal control system or not.

Factor 1:

Good Control Environment

The control environment means the situation or the factors that support the internal control system to process according to the company's guideline. It is the environment creation to make everybody in the company by aware of the necessity of the internal control system. Such as the management team is concerned with honesty and ethics of the business, manage the right organization structure, set up the right and clear responsibility and authority, and create the policy document. So the good environment control is the important factor of the efficiency of the internal control system.

Factor 2:

The Suitable Evaluation and Analysis Process for Risk Assessment

Either small or big company, in any industry or locate in any geography, The company has business risk all the time. The cause of risk can be from the internal and external of the business. The example of the business risk is:

Internal Factor

(1) The management team does not have honest and ethic.

(2) Non skillful staff

(3) Change computer systems of the company makes change on the internal control system.

(4) The system of the company cannot support the fast expanding of the company.

(5) Changing management teams and staff very often.

(6) Cannot control every department/branch of the company such as the branch which is very far from the head quarter.

External factor

(1) Change of technology makes change of company's work process of the company.

(2) Consumer behavior of goods or service causes the existing goods or service out of date.

(3) High competition effects the price of good and market share.

(4) New law from government effects the company's work flow.

(5) So, to monitor the company to go to the right way and without losing their asset from business risk, the committee of the company should perform the following activities regularly.

(6) Identify the existing risk and the forecast risk

(7) Analysis the effect of each risk

(8) Set up policy to reduce the risk

Factor 3:

Good Control Activities

Control activities mean the process and policy, which is set up from management team. It will increase confidence of the company. Everybody within the company

should accept and response according to the guidance, set up by management team. This will help the company to reduce business risk and meet business target. For example:

(1) The process should create company confidence by having correct and complete of account information, IT information and financial report of the company.

(2) Everybody should have the suitable level of authority.

(3) Set up the protection and inspection method to protect the loss of company's assets including the corruption. (Example: count on assets and separate the duty).

(4) Make sure that the company has process of work according to the law and related policy.

Factor 4:

Good Monitoring and Evaluation System

The quality information (Either financial information, accounting information, market information or other necessary information) including the communication process of the above information to the related person, is the necessary function of each level of staff within the company. It will increase capacity of efficiency of internal control system.

The quality information should be composed with:

(1) Decision making information.

(2) Correct and complete.

(3) Up to date.

(4) Easy to understand.

Factor 5:

Good Monitoring and Evaluation System

The monitoring and evaluation system means the monitor and evaluation process that the company set up for the committee and the top management of the company to make them have confidence that the internal control system process is working properly and can be modified according to the situation change, such as to review and report the internal system control by the internal audit and top management who has responsibility. Everybody in the company should sign on the document to guarantee that they already perform according to the policy of the company. (See index 3)

Index 1

The examples of the question that the committee of the company should ask the management team to monitor the efficiency are:

(1) Control Environment

(a) Does the company have the code of conduct of the ethics and the rules that do not allow to have benefit conflict between the management team and staff? (see index 2)

(b) Does the company ask the staff to sign the document to guarantee that he/she has to perform according to the rules of the company?

(c) Is the management team performing good example for the lower level of staffs?

(d) Does the company have well organization structure in order to plan, command and control the workflow?

(e) Does the company have internal auditor who will work under the management team or top management? The internal auditor should have authorization to audit the internal control system according to the

international standard, report audit result and present the clear and direct idea.

(0 Does the company have the document of financial and general management policy and performance rules?

(g) Does the company have the document of the human resources management policy to motivate the staff to have loyalty and high performance such as recruitment standard, training, performance evaluation, promote, compensation and benefit?

(h) Does the company have to explain the job description to potential people in order to offer the right job to the suitable, knowledgeable, capable, and qualified people?

(i) Does not the company have the exceed target or high motivate compensation which can bring to the way of cheating such as setting the over sales volume?

(j) Does the company have the accounting policy that is certified and suitable with the type of business? Does the company try to use incorrect accounting policy which causes wrong result of the profit and less of the company incorrect?

(k) Does the company have the process of job rotation and annual leave for the staff who works on risk position or who can be cheating?

(2) Risk Assessment

(a) Does the company specify clearly the business target (such as target and planning and performance target) in order to make operation guidance?

(b) Does the company estimate the business risk from internal factor and external factor such as exchange rate risk, competitive risk and regularly analyze the effect?

(c) Does the management team specify and announce the standard or risk deduction processes the level of risk that the company can accept?

(3) Control Activities

(a) Does the company use the budget and/or the performance evaluation index as a tool to plan and expect control work process?

(b) Is the company up to date work reported regularly and compared with the plan in order to control work process and solve decision making basis problem of management team?

(c) Does the company have separate work responsibility clearly into 3 parts as below:

(1) Approval responsibility.

(2) Accounting and IT record responsibility.

(3) Assessment management responsibility.

The purpose to separate work responsibility clearly is having cross check of each other.

(d) For each type of business transaction, have the company set up a person who has authority in money approval in form of the document?

(e) Has the company provided the standard policy to use as a tool for measure of each person responsibility and follow up the performance at any time?

(f) Does the company have the protection strategy to protect the asset or the method to show how to use the asset such as checking asset randomly, hire security guard, insurance or replacement cost?

(g) Does the company have protection policy of the approval of private expense list for the management team (including management term) such as travel expense, guarantee cost?

(4) Information and Communication

(a) Does the company provide up to date and submit information report regularly to the management team and board of directors?

(b) Does the company provide good channel of communication for every level of staff? Having a good channel of communication will make every level of staff understand the company's policy and rule and regulation of the company and make sure that the company gives the right information to the right person.

(c) Does the company provide the communication channel for staff to report the unusual activity such as setting up committee or high level of staff to receive the complaint document or idea receive box?

(d) Does the company have the computer security system to protect the method of information distribution?

(e) Does the company have Disaster Recovery Plan or Contingency Plan for the Information technology system to protect less of information?

(f) Is the company distributing all the related and useful business information?

(5) Monitoring and Evaluation

(a) Does the company provide comparison report between the expectation and the actual status and also edit regularly?

(b) Does the company have internal inspection by the skillful, knowledgeable staff and also he/she must report the result to the company committee and top executive management?

(c) Does the important error of internal control system found by the internal auditor or accounting auditor have to be reported to top executive management also the board of directors in order to correct on time?

(d) Does the company have policy that allows the management team to report to the board of company board of directors suddenly if the cheating within the company occurs or they are curious of cheating that may effect the image of the company?

Index 2

Example of Situation of Benefit Conflict.

The benefit conflict is the situation from the person who has 2 duties. He/she has different objective or benefit. The conflict may occur because private benefit is not the same as business benefit. He/she must perform one choice one way and it may cause the cheating or bad performance. So the committees and all staff in the company should avoid the situation that may cause the benefit conflict.

Example of the benefit conflict.

(1) Distribution the secret information of company either for private benefit or intend to damage image of the company or distribute those information to the customer, supplier, service provider, competitor or external people except the public information.

(2) Used secret information of the company in order to buy and sell the company's stock.

(3) Receive or offer the present or prize more than negotiated value to motivate other people to do something special.

(4) To take care of customer, contractor, supplier, service provider or organization staff more than the value or in the unsuitable place such as nightclub bar.

(5) Ask or receive benefit such as money or present from customer, sale representative or representative entrepreneur, contractor, Supplier, service provider, any person or any related firm (money or present including gift, loan, fee, commission, profit sharing, special service, recruitment or approval contract).

(6) Investment or in the committees title or being staff of the customer's business, being sales representative in service provider's company, competitor company.

(7) Business information which is related to or has chain between private section and business section, also management team relatives and company.

2.4 Definition of Management Control System

Definition of Management Control System is interpreted differently by different authors. According to Maciariello (1979), Management control is the process of ensuring human, physical, and technological resources allocated so as to achieve the overall purposes of an organization. Management control systems refer to the design, installation, and operation of management planning and control systems. Management control system attempt to bring unity of purpose to the diverse efforts of a multitude of organizational sub-units so as to steer the overall organizations and its managers toward its objectives and goals.

A management control system consists of a structure and a process. The structure of a control system is its relatively permanent part, consisting of the organizations structure, the autonomy that is delegated to managers, the responsibility center designations, the relationships among responsibility centers, the performance measures and rewards, and the systems of information flows among parts of the organizations. The process consists of establishing goals and objectives, evaluating performance, making decisions to keep the organization on track, implementing these decisions through people, and obtaining feedback on the results of these decisions.

Management control system (Anthonyl998) is a process by which managers influence other members of the organizations to implement the organization's strategies. Management control systems are tools to aid management in moving an organization toward its strategic objectives. Thus, management control focuses on strategy execution.

As illustrated in Figure 2.1, strategies get implemented through management control, organization structure, human resource management and culture.

Organization structure specifies the roles, reporting relationships, and responsibilities that shape the actions of organizational members. Human resource

management affects actions through selection, training, development, evaluation, promotion and firing of employees. Culture refers to the set of common beliefs, attitudes and norms that explicitly or implicitly guide managerial actions.

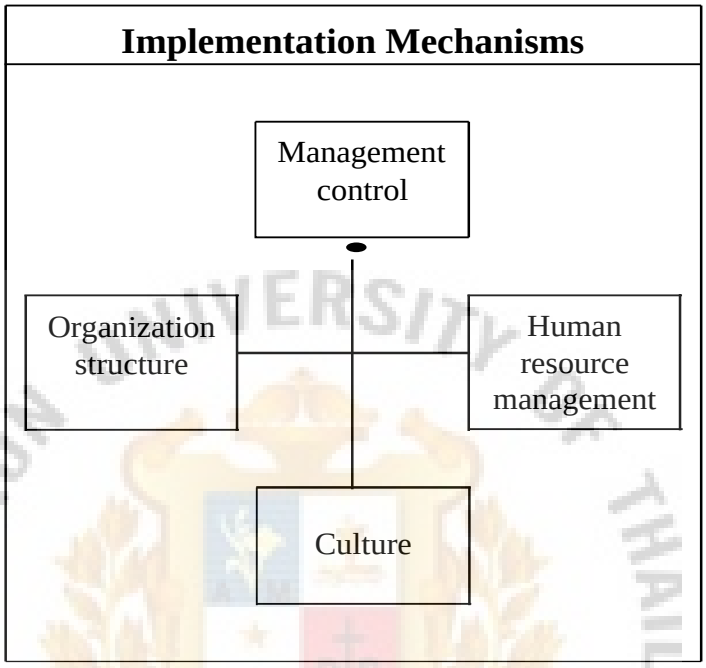

Figure 2.1. Management Control as a Strategy Implementation.

Purpose of Management Control Systems

The purpose of management control systems is to assist the management in allocating its resources so as to facilitate the attainment of the goals and the objectives of an organization (Maciariello 1979).

The purpose of the management control is to ensure that strategies are carried out so that the organization's goals are attained, and to achieve unity of purpose out of diverse activities (Anthony 1998).

Management Control Activities

Management control involves all actions carried out by human resources to achieve goals and objectives of organizations; it includes a variety of activities (Anthony 1998):

Planning what the organization should do

Coordinating the activities of several parts of the organizations

Communicating information

Deciding what, if any, action should be taken

Influencing people to change their behavior

Allocating resources

Motivating, and

Measuring performance

Maciariello (1979) described the following essential elements of the repetitive control process:

Set goals and performance measures

Measure achievement

Compare achievement with goals

Compute the variances as the results of the preceding comparison

Report the variances

Determine cause(s) of the variances

Take action to eliminate the variances

Follow-up to ensure that goals are met

Boundaries

Management control is one of the several types of planning and control activities that occur in an organization. Management control fits between strategy formulation and task control activities. Strategy formulation is the process of deciding on the goals of the organization and the strategies for attaining these goals. Task control is the process of assuring that specified tasks are carried out effectively and efficiently. (Anthony, 1998)

It is important to understand that management control differs from the two other planning and control processes: strategic formulation and task control. Mistakes may be made if generalizations that are applicable to one process are applied to another. Distinctions among them are clearly defined by Anthony (1998).

Strategy formulation is made at top-management levels, task control occurs at the lowest levels in the organizations and management control is in between. Strategy formulation is the least systematic and task control is the most systematic activity; and management control is in between these two. Strategy formulation focuses on the long run, task control focuses on the short run operating activities; and management control is concerned with medium term. Strategy formulation uses rough approximations of the future, task control uses current accurate data; and management control is in between the two. Both planning and control are of approximately equal importance in management control.

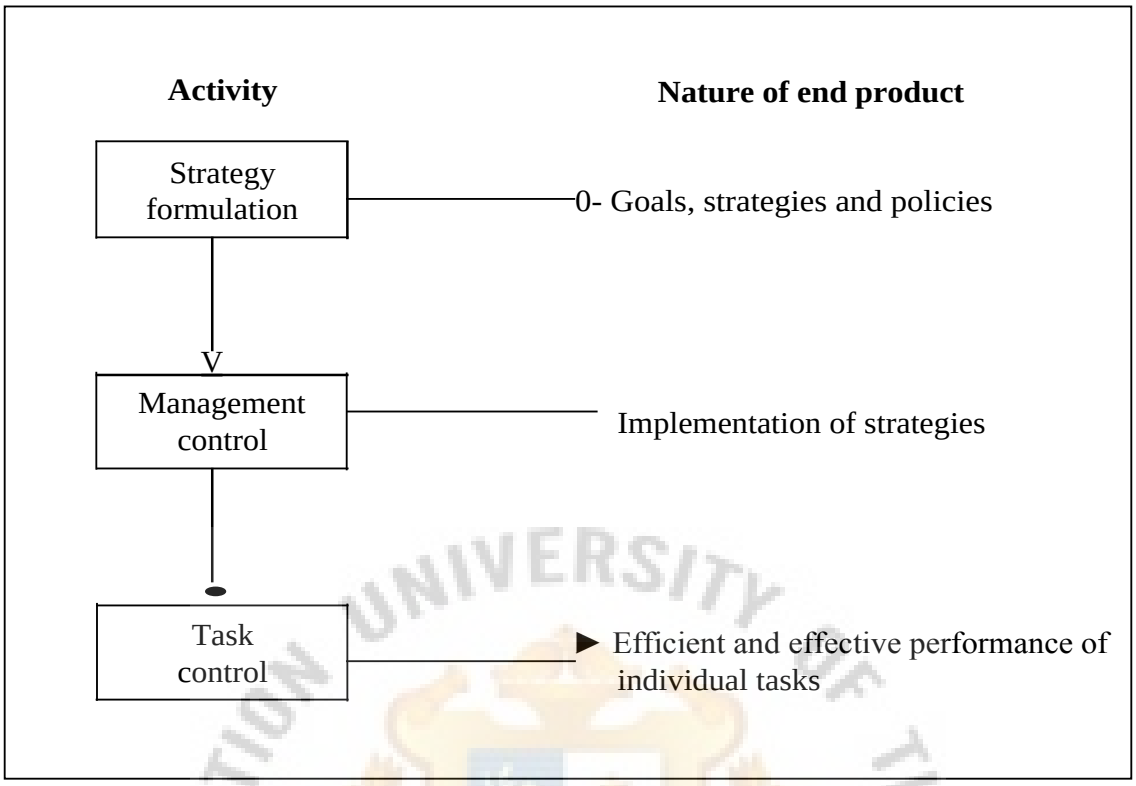

Figure 2.2. General Relationship between Planning and Control Function.

Management Control Process

Management control process involves both formal and informal communications and interactions between managers and other managers and between managers and workers. Information communications occur by means of memoranda, meetings, conversations and facial expressions. These informal activities take place within a formal planning and control system. Such a formal system includes the following activities: (1) strategic planning (2) budget preparation (3) execution and (4) evaluation. Each activity leads to the next. They recur in a regular cycle, and collectively they constitute a closed loop.

Strategic Planning

- Strategic planning is the process of deciding on the major programs that the organization will undertake to implement its strategies and the approximate amount of resources that will be devoted to each. The output of the process results in a document of resources that will be devoted to each. The output of the process results in a document called the strategic plan (long range plan). The information about a program covers a period of several years, usually three of five. Strategic planning is the first step in the management control cycle. When it takes place, decisions are made that take account of any changes in strategies that have occurred since the last program was developed. The monetary consequences and other information about the anticipated effect of decisions over the planning period are forth in the strategic plan.

Budget Preparation

An operating budget is the organization's financial plan for a specified period, usually one-year. In the budget, the program is realigned to correspond to responsibility centers, rather than individual programs. The process of preparing budget is essentially one of negotiation between the manager of a responsibility center and his or her superior. The end product of these negotiations is an agreed-upon statement of the expenses that are expected to be incurred during the year or the planned profit or expected return on investment according to the nature of responsibility center.

Execution and Evaluation

During the concerned year, managers execute the program and prepare reports on the progress made. Reports on responsibility centers are structured, and show both budgeted and actual information, financial and non-financial performance measures, and both internal and external information. These reports keep management at higher

levels informed about what is going on; these also help ensure that the work of the various responsibility centers is coordinated.

Reports are also used as a basis for control. Basically, the process of evaluation is a comparison of actual amounts with the amounts that should have been expected under the circumstances. Unless circumstances have changed, the comparison is between the budgeted and actual amounts. If circumstances have changed, the changes are taken into account in the analysis. The analysis leads to praise or constructive criticism of responsibility center managers.

The Formal Control Process

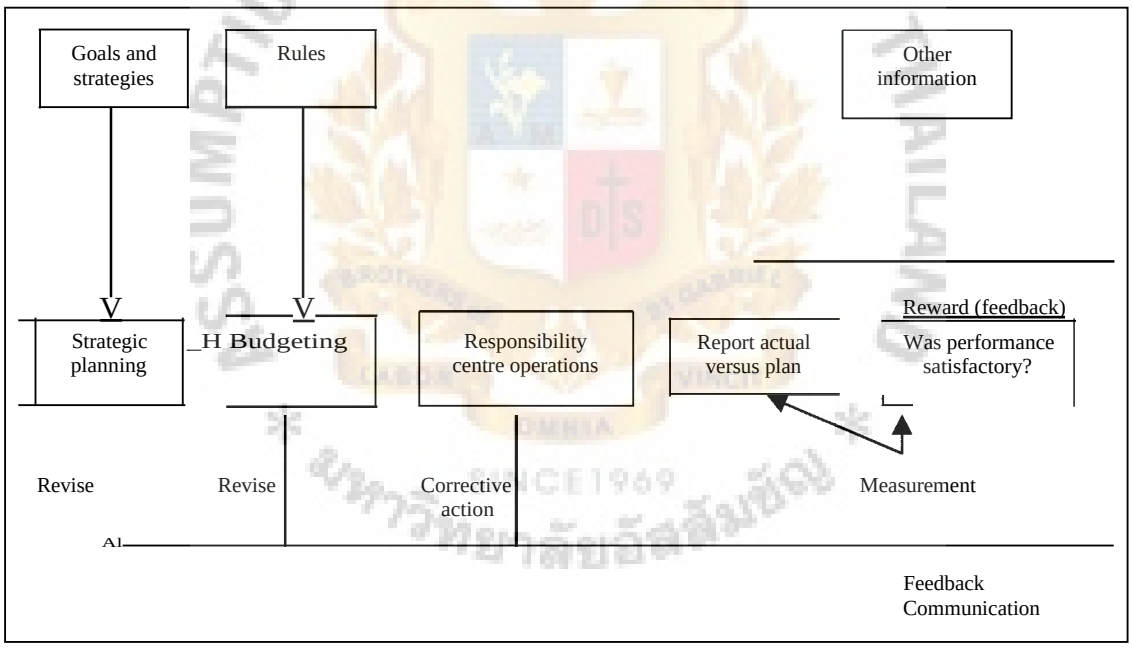

Figure 2.3. The Formal Control Process.

Figure 2.3. is a sketch of the formal management control process. Its foundation is the organization's goals and its strategies for attaining these goals. A strategic plan is prepared in order to implement these strategies; all available information are used in making this plan. The strategic plan is converted to an annual budget that focuses on the

planned revenues and expenses for individual responsibility centers. Responsibility centers are also guided by a large number of rules. The results of their operations are measured and reported. Actual results are compared with the plan in order to ensure satisfactory performance. If it is found satisfactory, there is feedback to the responsibility center in the form of praise or other rewards. If performance is found unsatisfactory, there is feedback leading to corrective action.

Control Strategy

Managers use different strategies of control. The strategies employed have a lot to do with organizational climate and individuals style, which again are influenced by personalities and organizational environment. Cammann and Nadler (1976) have summarized these influences very well. Their model is based upon three premises:

(1) Control systems influence the behavior of these controlled in that the controller focuses his or her energies on the matters "that count" because this is the manner in which the controllee's performance is evaluated.

(2) The precise manner is which the control system influences behavior depends upon just how the formal controls are used by managers.

(3) Managers differ in their use of formal controls; this is, they have different style of control.

From these premises, the authors turn to the considerations that should be taken into account by management to choose an appropriate control style. Three major control styles or strategies are:

(1) External control style

(2) Internal control style

(3) Modified control style

External Control Style

The external control style assumes a rather mechanical, authoritative, control system whereby goals are set at a demanding level; comprehensive measures are developed so as to cover complete areas of performance. The measurement system is designed so as to prevent manipulatory behavior on the part of the controllee, and rewards are tied very closely to performance measures. This style is likely to produce considerable tension and world limit the flow of negative information from the subordinate to superior.

Internal Control Style

The internal control style is participative and attempts to capitalize upon the internal needs and motivations of the subordinates such as the need for accomplishment, mastery, socialization, power and self-esteem in an attempt to build internal commitment for organizational goals. The formal controls then emphasize self-control and steering control. Plans are set and problems are solved in a participative manner. The reward system emphasizes broader measures, including progress toward long-term goals of the responsibility center.

The internal strategy should reduce functional "game playing" and it should encourage quick reporting of problems since a more open atmosphere is created. On the other hand, this strategy may lead to goals that are easily met. There is no outward pressure for the above average performance.

Modified Control Style

The modified style involves some combination of the two extreme styles. If seeks participation without abandoning central direction. The rewards emphasize both formal performance measures and other subjective criteria. The atmosphere is open, but there is a certain insistence that performance attain certain levels.

There are certain measurement and reward systems that are consistent with each style. Management must ensure that it attains certain levels of internal consistency between style and the remainder of the control structure.

Decisions Making

Decisions are made in response to perceived problems or potential problems. The strategies and goals can be achieved by making the optimal decisions. Decision making is one of crucial parts in the management control systems. Many authors have described decision making as follows:

Drucker (1980) has described the task of management specially during turbulent times, is to make sure of the institution's capacity for survival, to make sure of its structural strength and soundness, of its capacity to survive a blow, to adapt to sudden change, and to avail itself of new opportunities.

Vickers (1957) stated that the manager has a battery of statistics to describe periodically the situation in regard to production, costs, deliveries, stocks, cash balances and so on. Generally speaking, these indices deal better with money than with materials, with materials than with men, with external relations than with internal relations.

Barnard (1947) mentioned that the making of decisions, as everyone knows from personal experience, is a burdensome task. Offsetting the exhilaration that may result from a correct and successful decision and the relief that follows the terminating of a struggle to determine issues, is the depression that comes from failure or error of decision and the frustration which generates from uncertainty. Accordingly, it would be observed that people try to avoid making decisions, beyond a limited degree, when decisions are rather uncritical responses to conditions.

The Goals of the Organizations

The function of every organization is to attain its goals. The goals are arrived at by the chief executive officer (CEO) of the corporation, with the advice of senior members of the management, and usually ratified by the board of directors. Other goals of the profit organizations are attaining maximum shareholder value, organizational effectiveness, high productivity, good organizational leadership, high morale, good organizational reputation, high organizational efficiency, organizational growth, organizational stability, value to local community, and service to the public. For the non-profit organization, their principal goal is to provide service. Measuring the quality and quantity of these services is difficult and measuring the attainment of goals in much less precise than similar measurements in a business.

Goal congruence in the management process means that those actions which it leads people to take, in accordance with their perceived self-interest are also in the best interest of the organization. The central purpose of a management control system is to assure goal congruence that is effected by some external and internal informal factors of organizations.

External factors are norms of desirable behavior that exist in the society of which the organization is a part. They are referred to the work ethics. They are manifested in employees' loyalty to the organizations, their diligence, their spirit, and their pride in doing a good job.

Some internal informal factors also influence the goal congruence of the organizations. The most important internal factor is the organization's culture, or climate. Organization culture refers to the set of common beliefs, attitudes, and norms, relationships and assumptions that are explicitly or implicitly accepted and evidenced

throughout the organizations. The other factor, which has a strong impact on management control, is the management style.

In addition, the perception of the top management, managers, staff and the communication systems among managers are needed to be considered for the management control process. Organizations should attempt to maintain an appropriate balance between the forces that create conflict and those that create cooperation. The management control systems must help to maintain the appropriate balance between conflict and coordination within the organizations.

ASSUMPTION UNIVERSITY OF THAILAND
SINCE1969

III. EXISTING DATA FLOW DIAGRAM

Background of the Company

Roynet Public Co., Ltd. was established by Mr. Kittipat Yaowapruk in 1998. The first name of Roynet Public Co., Ltd. is Roynet Co., Ltd. and located at Yaowarat. The company is located at 1550 Grand Amarin Tower 9th Floor, New Petchburi Rd., Makkasan, Rajathevee, Bangkok 10310.

Most of the products of Roynet Public Co., Ltd. are Internet service and training Microsoft product. The company acts as the Internet Service Provider. We are provided Internet access service to end user and also provide training course under Microsoft Certified.

Existing Business Function

The existing of Internal Control System Implementation for Roynet Public Co., Ltd. Is base on manual perform area work:

(1) Sales and training staff received order from the customers. They are manually writing the order to the purchasing order form and submit to Inventory Department.

(2) Inventory, Accounting and law firm issued the document such as Delivery Document, Invoice, Tax Invoice and Purchase Order. The document will submit to customer.

(3) After accounting staff received payment from customer, they will Issue Receipt to customer.

(4) Once accounting staff received invoice from supplier, they will provide payment document and cash. Payment document and cash will send to supplier as requested.

The above functions of the existing system are shown in the context and data flow diagram.

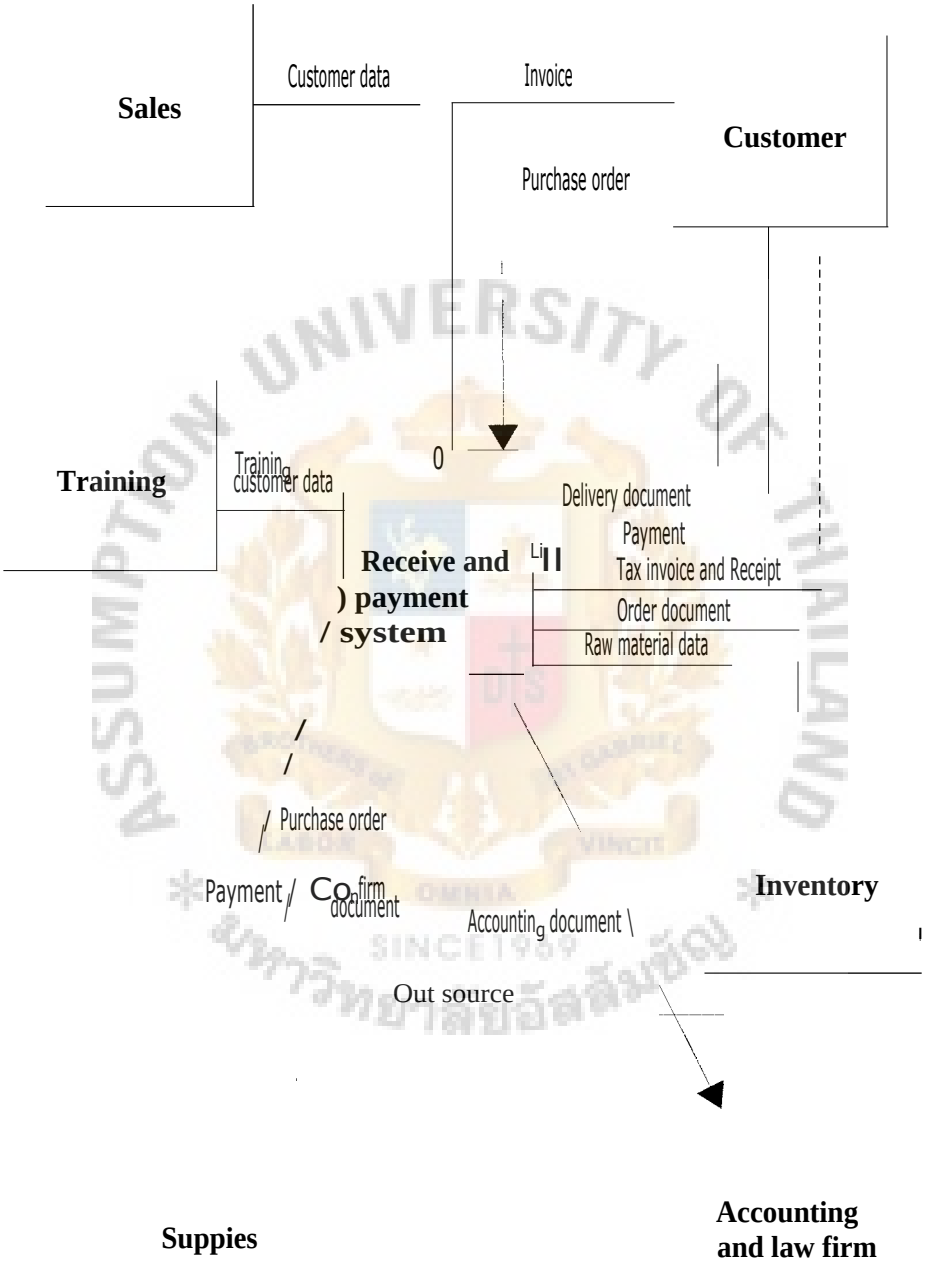

Figure 3.1. Context Diagram of Roynet Co., Ltd. — The Receive and Payment System.

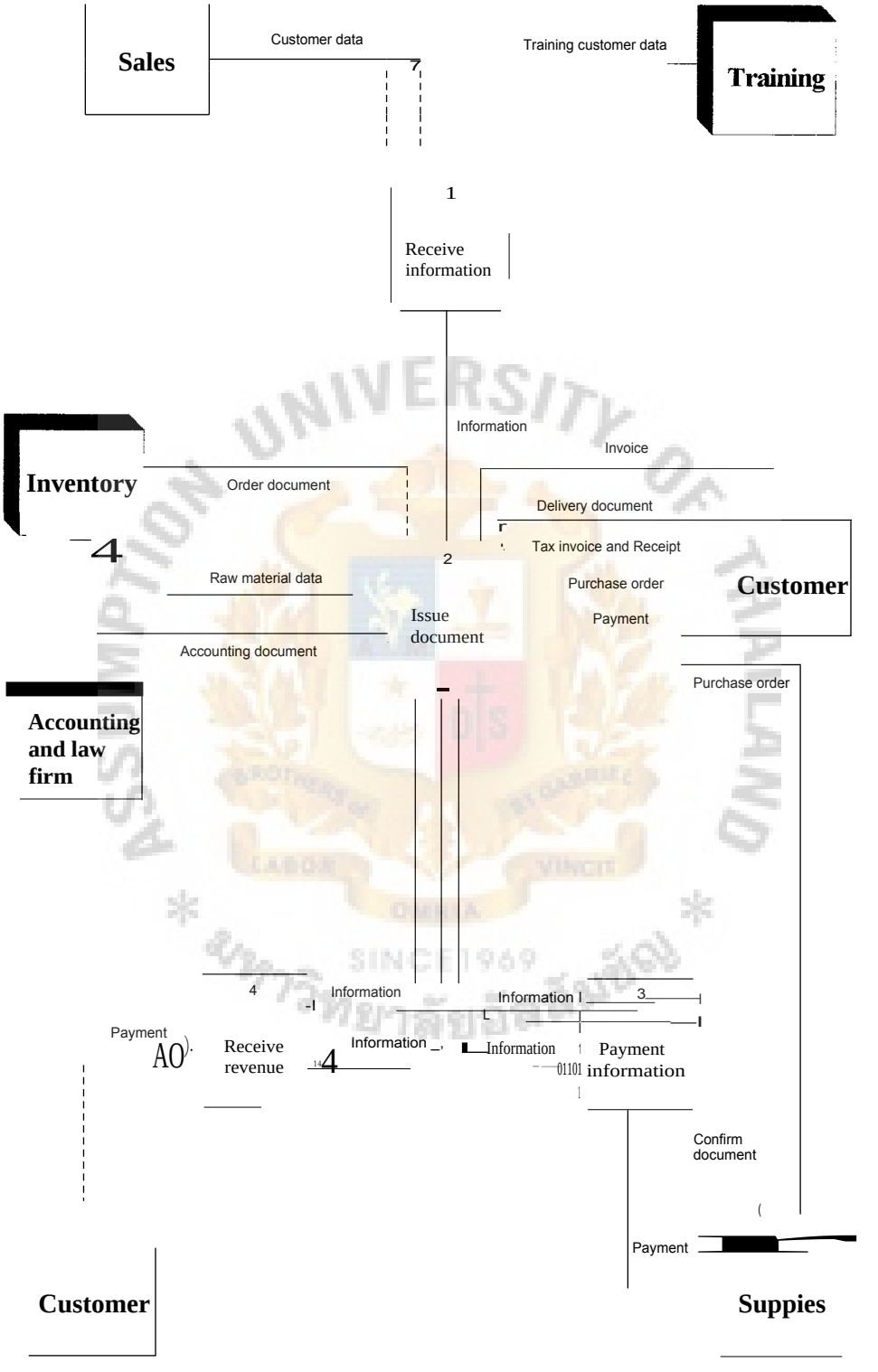

Figure 3.2. Data Flow Diagram (Level 0) — The Receive and Payment System.

IV. PROPOSED DATA FLOW DIAGRAM

User Requirement

During the system development, good communication with the users and fulfillment of their needs is very important. Users require the better performance and a more reliable system.

There is 2 main function of the internal control system: Income System and Expend System.

4.1 Proposed Data Flow Diagram — The Income System

(1) Record data

The staff keeps all the data which is related with the income such as customer information, quotation data, invoice data, order inventory data, barcode data etc. If the information records are new code for those of information the system will crosscheck and create a new code for them.

(2) Verify document

Staff will retrieve information from database and verify document such as order inventory data, training application, income data AUS application, member application, invoice data, tax invoice and delivery document data, extra time data, daily invoice report and with holding tax data. Staff will send all those document to the financial department, Inventory department and accounting department after the verification result is pass.

(3) Check Internet usage time

When the due date of Internet usage will come, staff will retrieve Internet usage time from database. They will evaluate and calculate the extra

time from the condition. Once the Internet usage time of customer is exceeding, then staff will keep record of extra time and send the information to Sales and Account department.

(4) Issue Invoice, tax invoice and receipt

Staffs need to prepare receipt according to the customer payment. They need to check all the information of selling records, extra time, customer's purchase order, confirm sending good from factory before issuing invoice, tax invoice and receipt.

(5) Issue sale on credit document

Staff will prepare credit document for customer who is good grade of customer. They send the sale on credit document to Inventory and Account for cross check information.

(6) Issue delivery document

Staff will check sales on credit document and issue delivery document before product has to delivery to the customer. The delivery document will submit to account department for the information.

(7) Issue income report

Staffs must retrieve all the information needs from the database and generating income report and output tax report. The income report will submit to financial department and the output tax report will submit to account department.

4.2 Proposed Data Flow Diagram — The Expend System

(1) Record Data

The staff keeps all the data which is related with the income such as purchase order data, invoice data, goods document data, list testing applicant, salary data, pre-cash data, pretty cash data, tax invoice and delivery data, raw material document data, finish goods data, barcode data, employee data.

(2) Verify document data

Before staff has submit all the information to each department, they need to verify all the information for the correction and reliable of the information.

(3) Process for issue purchase voucher

Staff will retrieve the purchase information and issue purchase voucher. The purchase voucher will submit to accounting in order to notice them.

(4) Process for issue purchase order

Staff will issue purchase order when the inventory department sends the raw material requirement into the system. The purchase order will submit to account and admin department.

(5) Process for issue receiving goods document

Once the supplier has send the goods to the company, the staff will receive the goods and issue internal goods document. The good document will send to inventory department.

(6) Process for issue payment voucher

After inventory staff confirm of good received, staff will issue payment voucher. The payment voucher will send to account department.

(7) Check stock raw material

Inventory's staff will check the raw material on stock and inform the number of stock into the system.

(8) Process for issue input tax report

Staffs must retrieve all the information needs from the database and generating input tax report. The input tax report will submit to account department.

(9) Process for issue salary, tax, social securities, and providence fund voucher

Each month the company has to pay the salary to the employee, so staff will retrieve information from the database. They will generate and prepare the salary base, tax, social securities and providence fund voucher.

Both of the proposed of income and expend system, we are using computerize system to generate work for them.

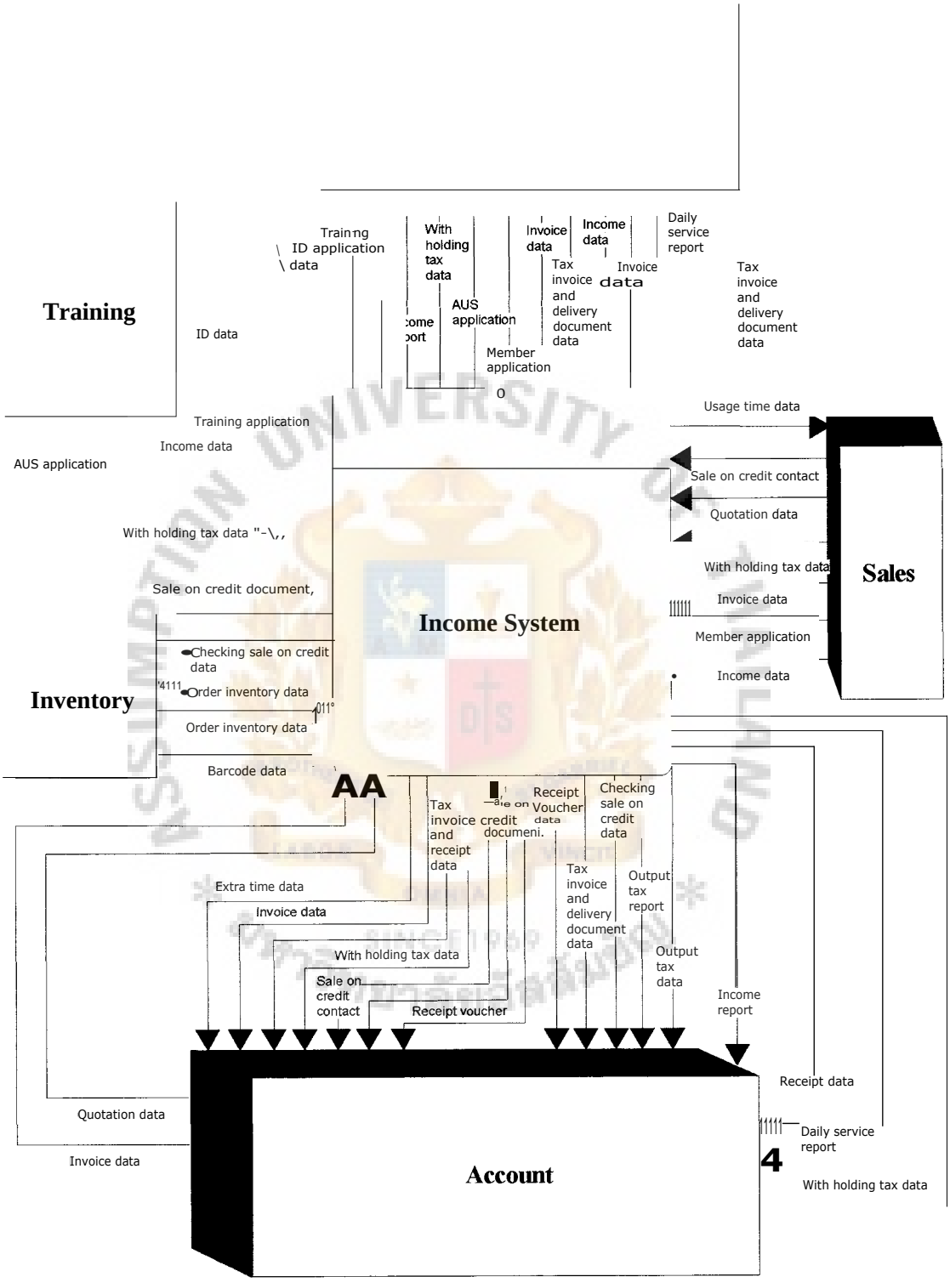

Figure 4.1. Context Diagram of Roynet Public Co., Ltd. - The Income System.

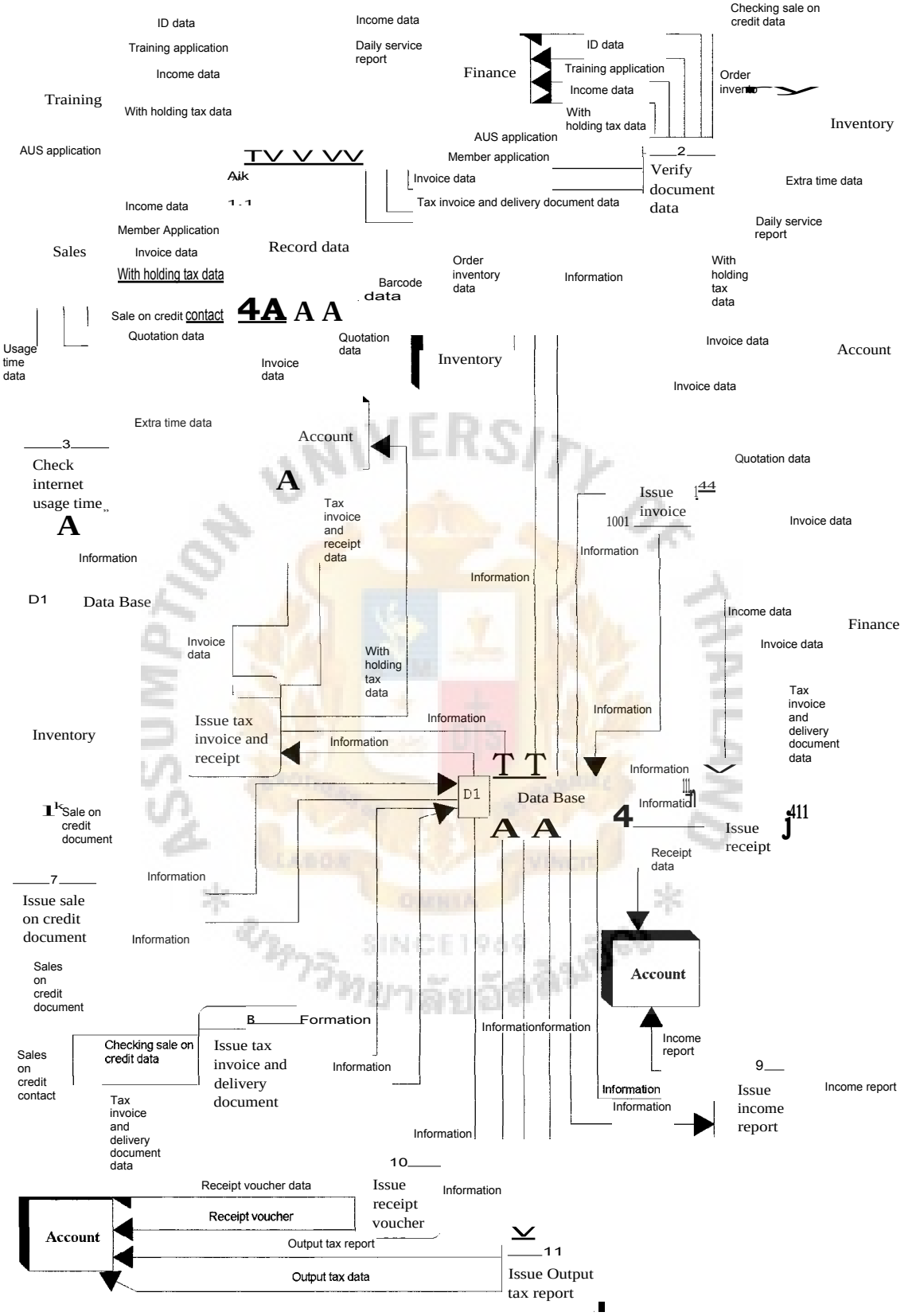

Figure 4.2. Data Flow Diagram (Level 0) — The Income System.

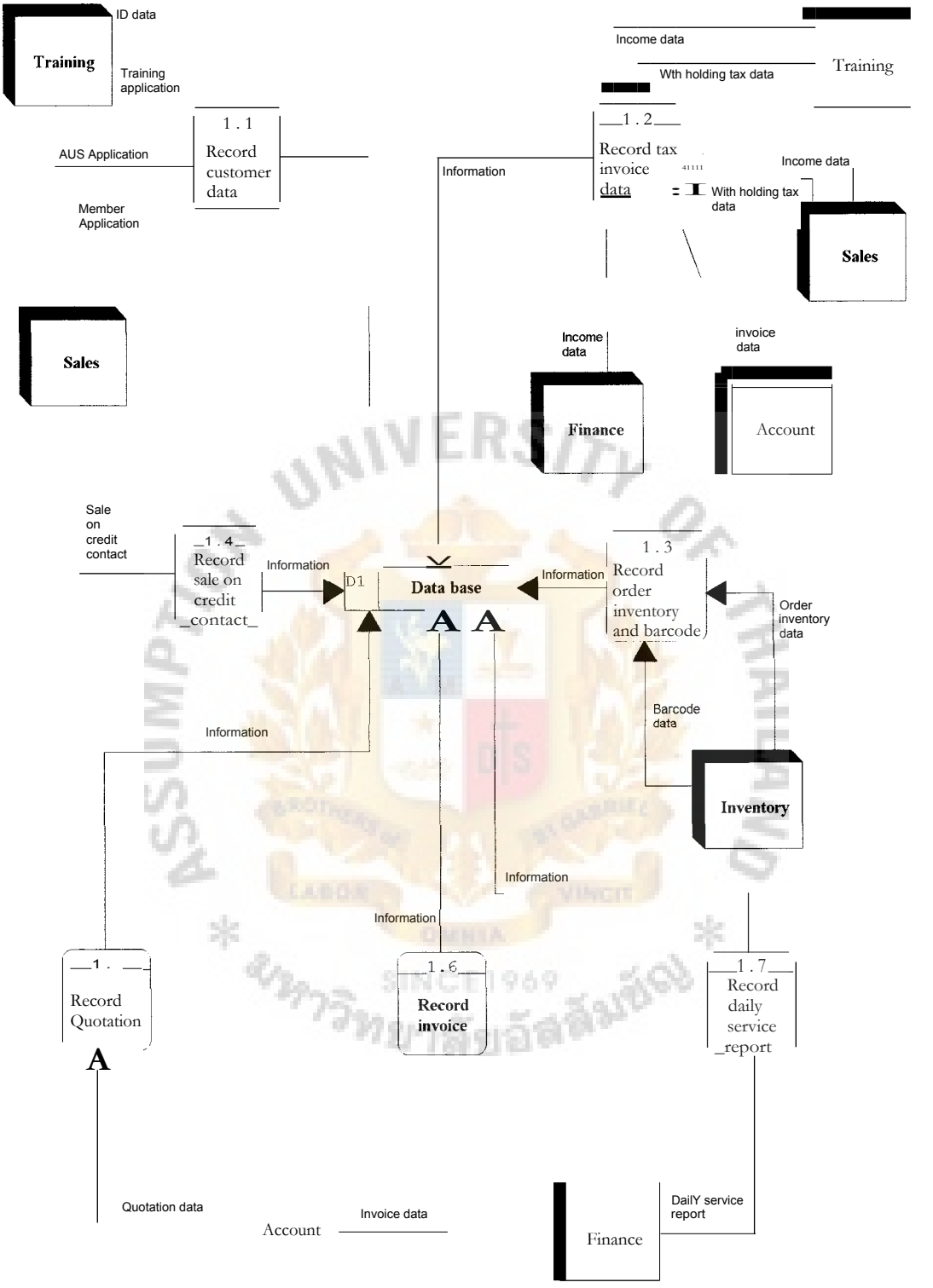

Figure 4.3. Data Flow Diagram (Level 1 Process 1) — The Income System.

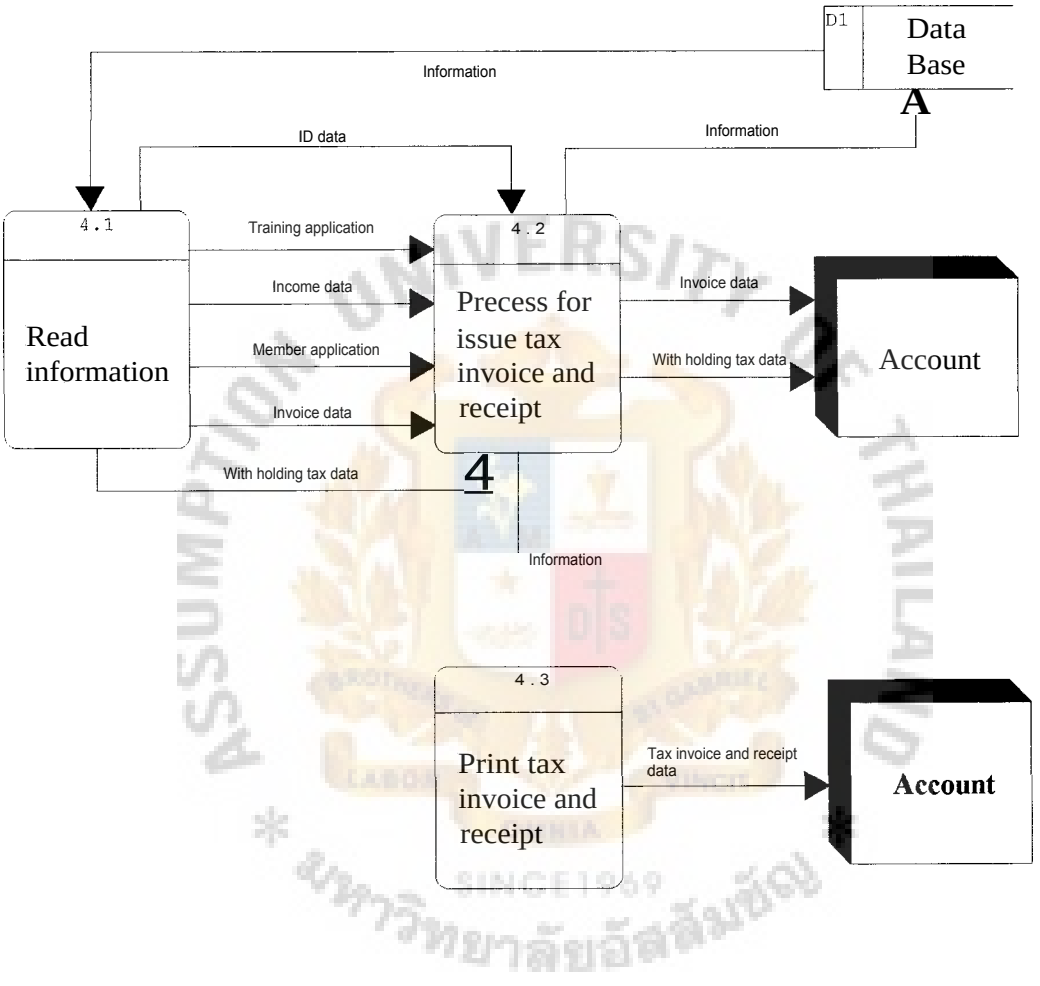

Figure 4.4. Data Flow Diagram (Level 1 Process 4) — The Income System.

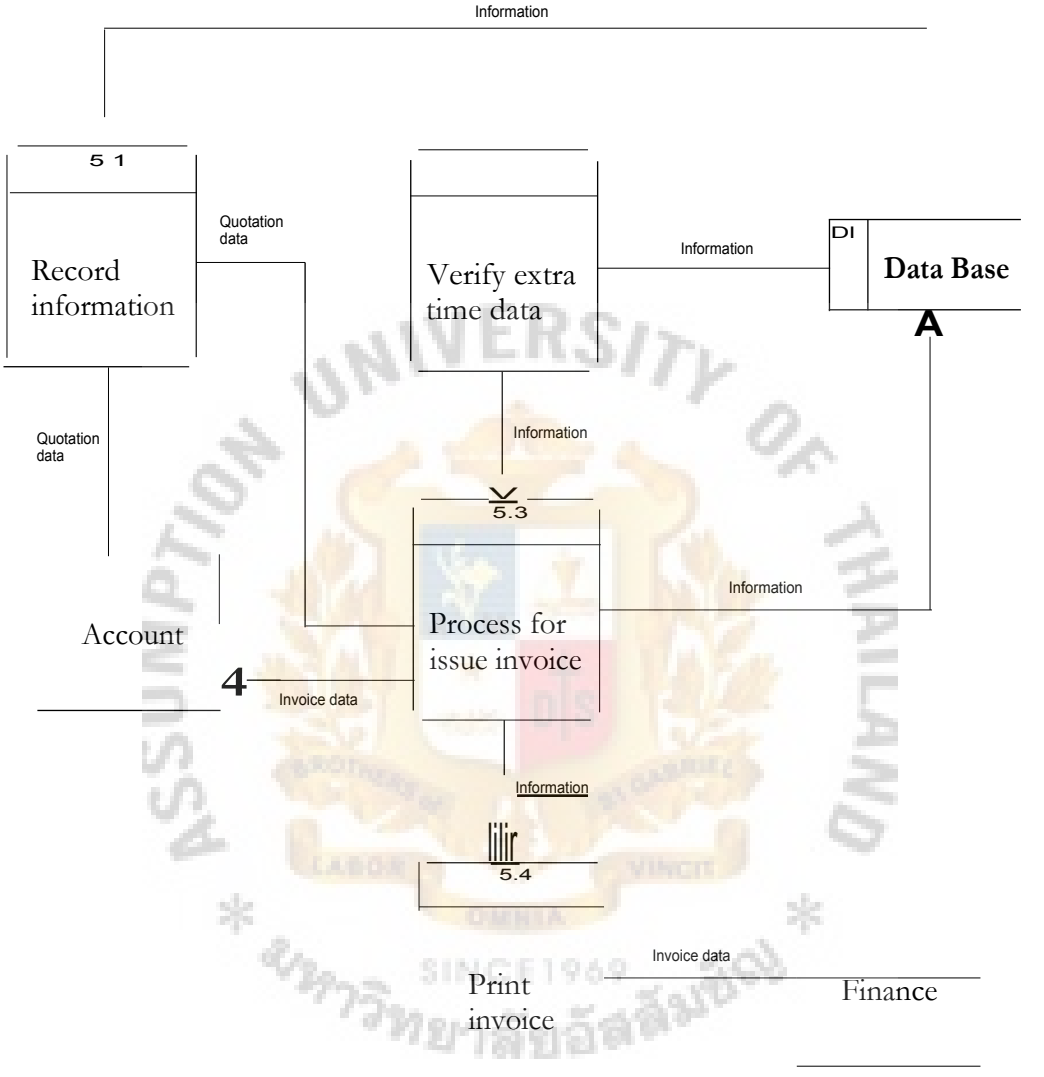

Figure 4.5. Data Flow Diagram (Level 1 Process 5) — The Income System.

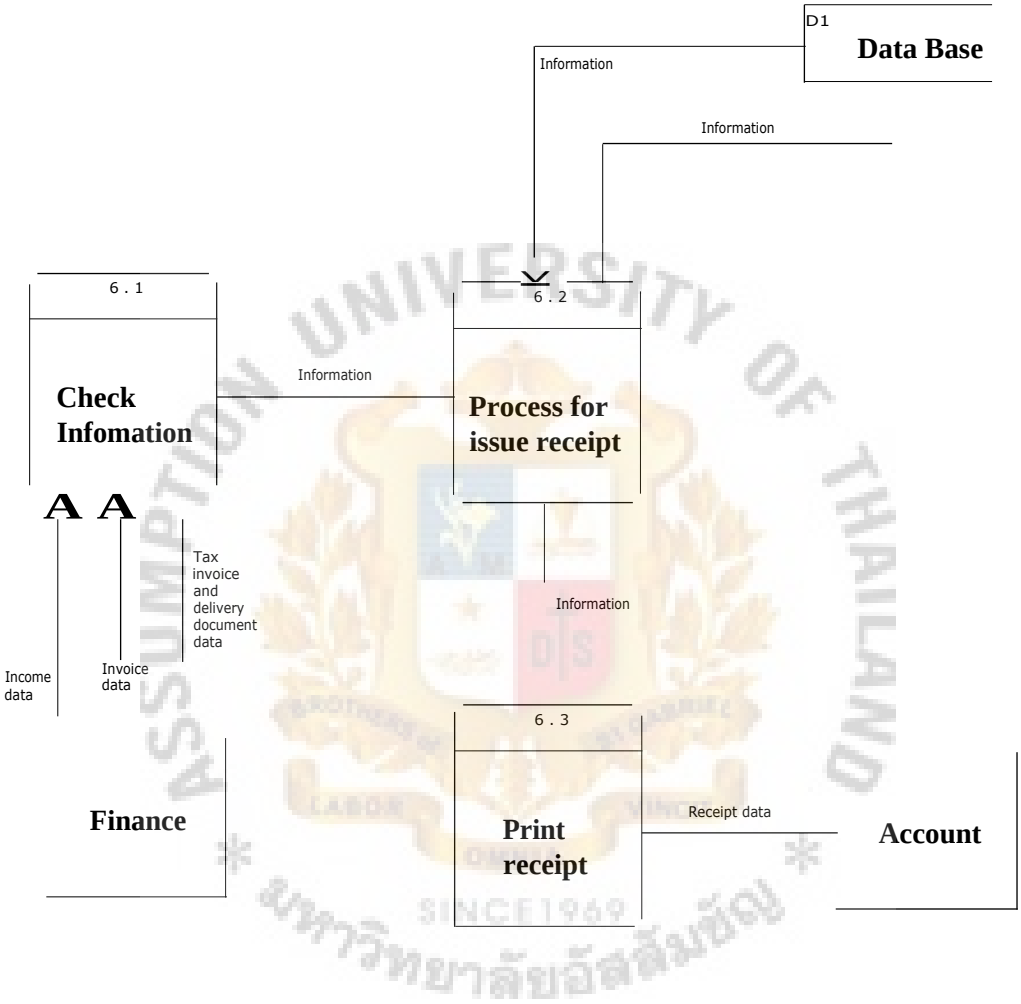

Figure 4.6. Data Flow Diagram (Level 1 Process 6) — The Income System.

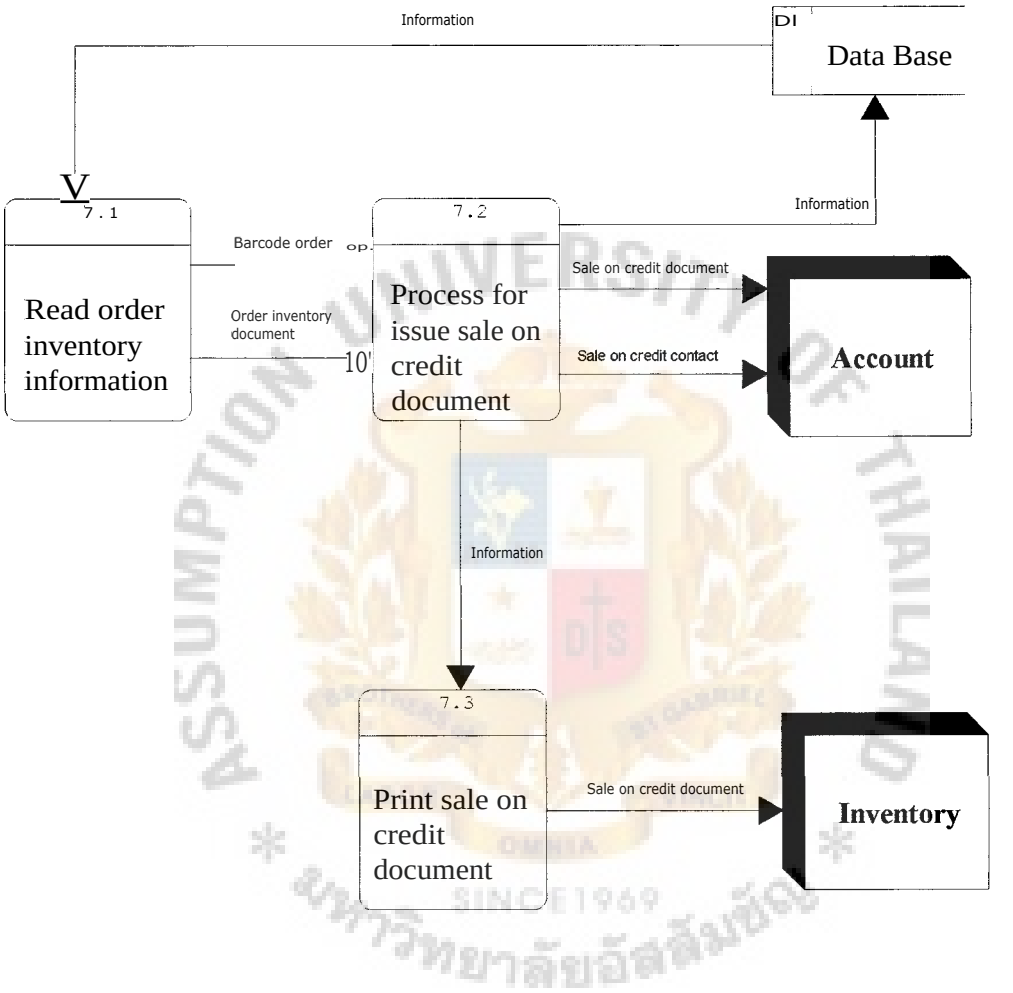

Figure 4.7. Data Flow Diagram (Level 1 Process 7) — The Income System.

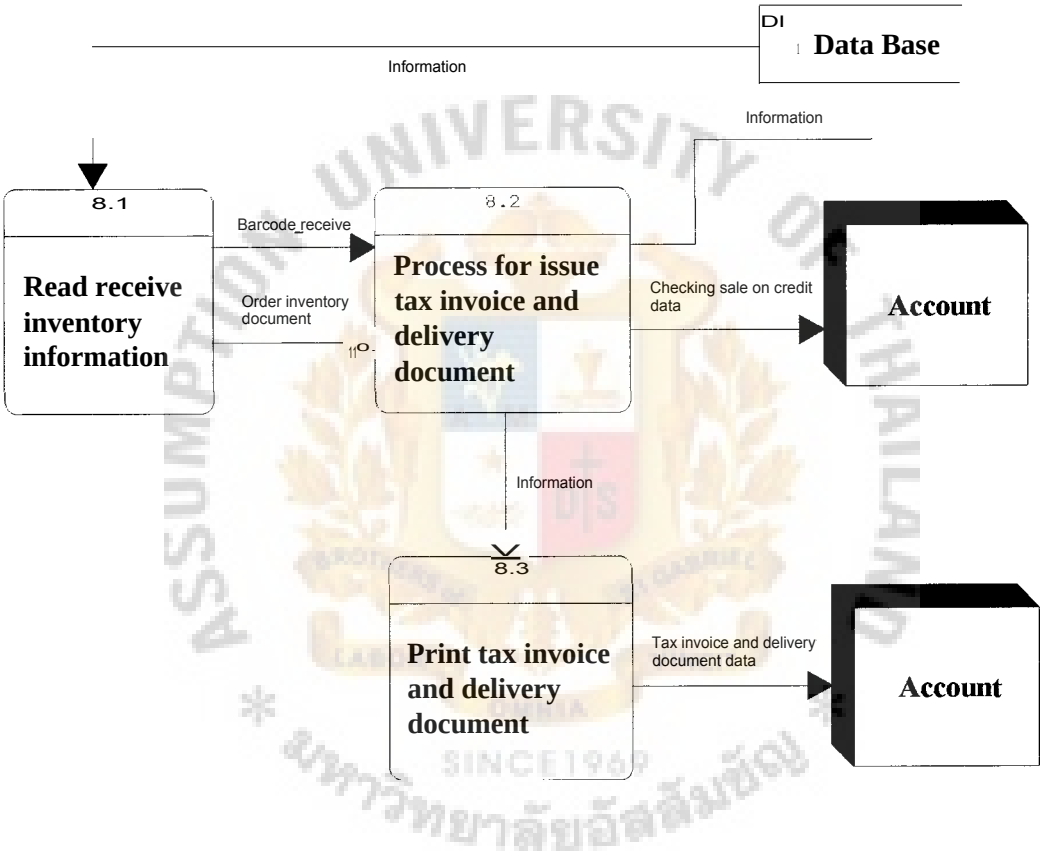

Figure 4.8. Data Flow Diagram (Level 1 Process 8) — The Income System.

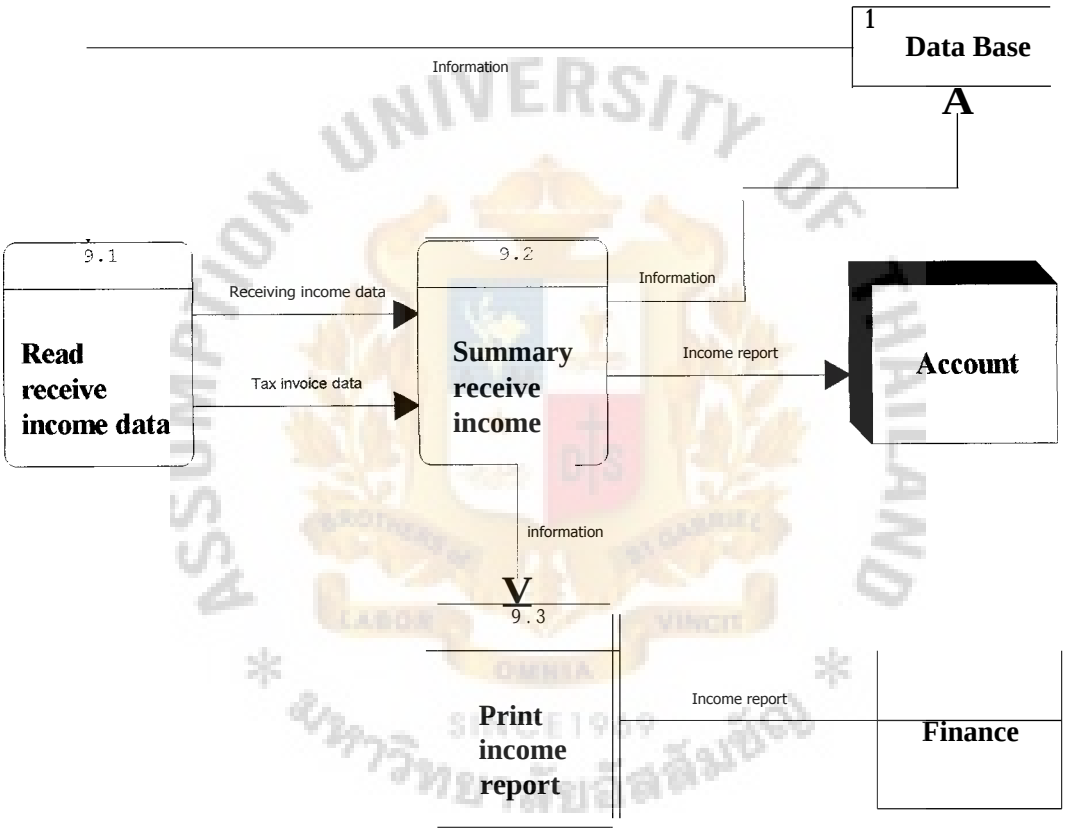

Figure 4.9. Data Flow Diagram (Level 1 Process 9) — The Income System.

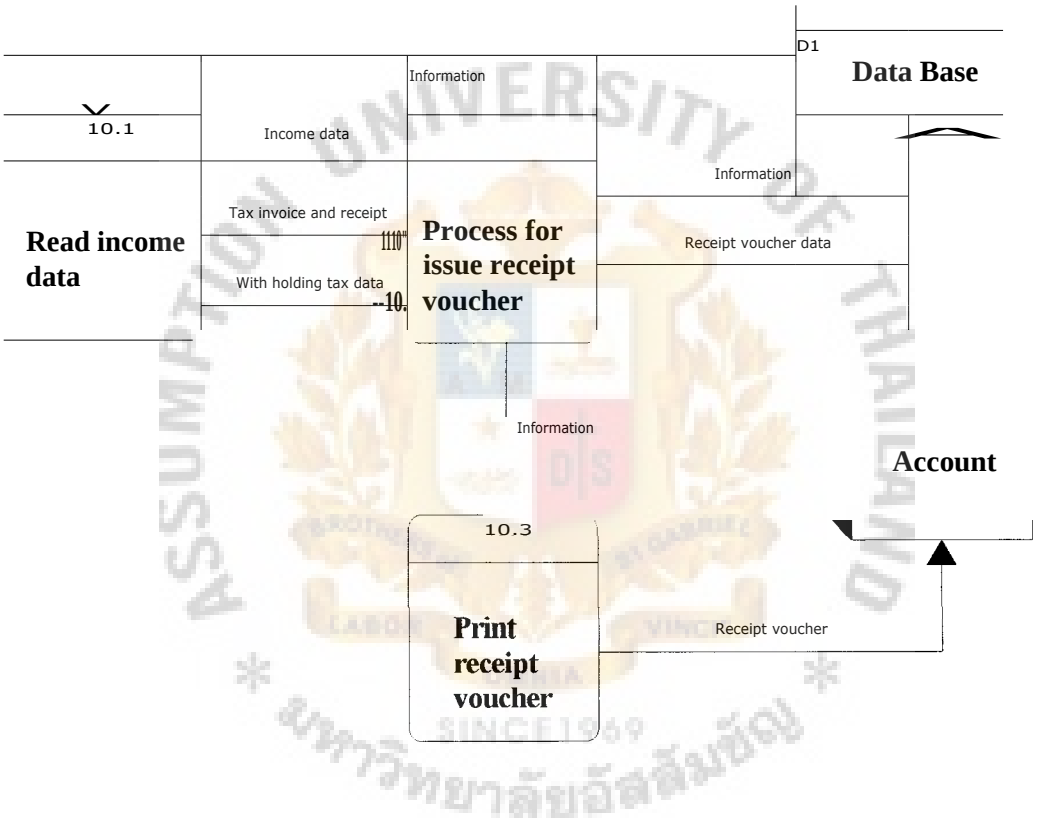

Figure 4.10. Data Flow Diagram (Level 1 Process 10) — The Income System.

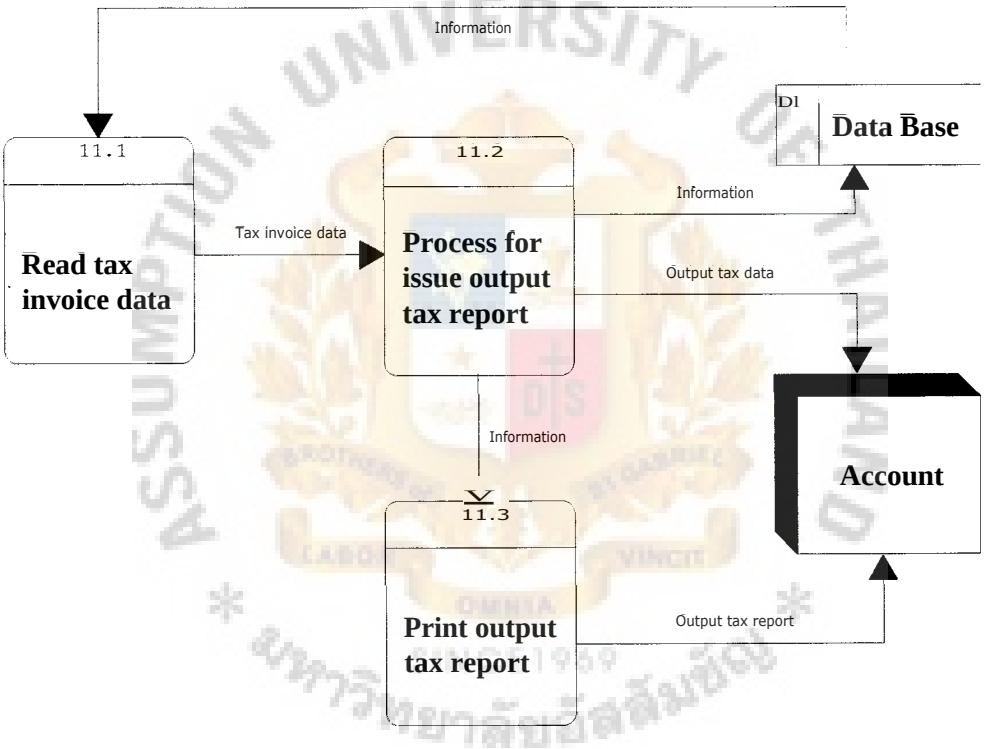

Figure 4.11. Data Flow Diagram (Level 1 Process 11) — The Income System.

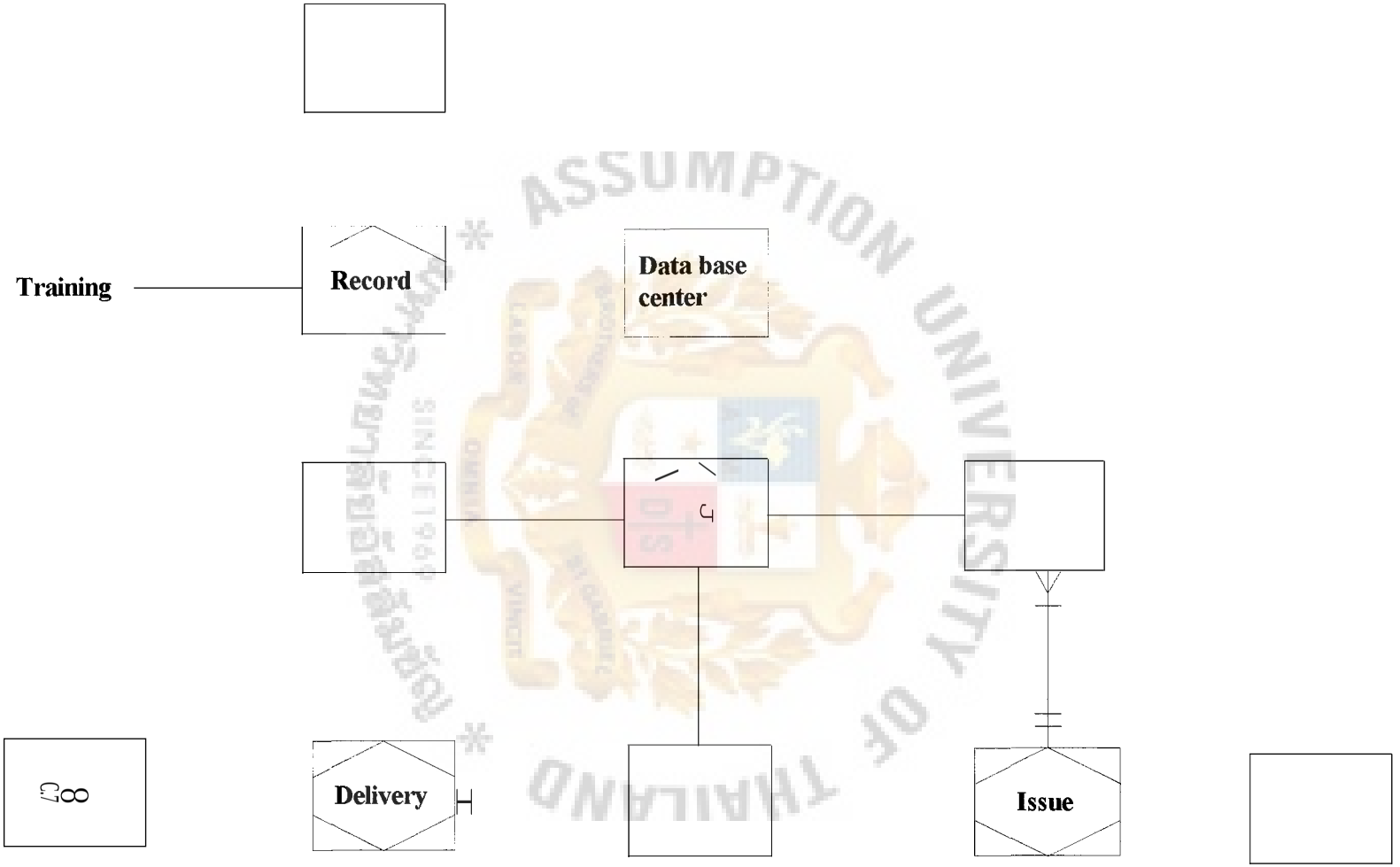

Figure 4.12. Entity Relationship — The Income System.

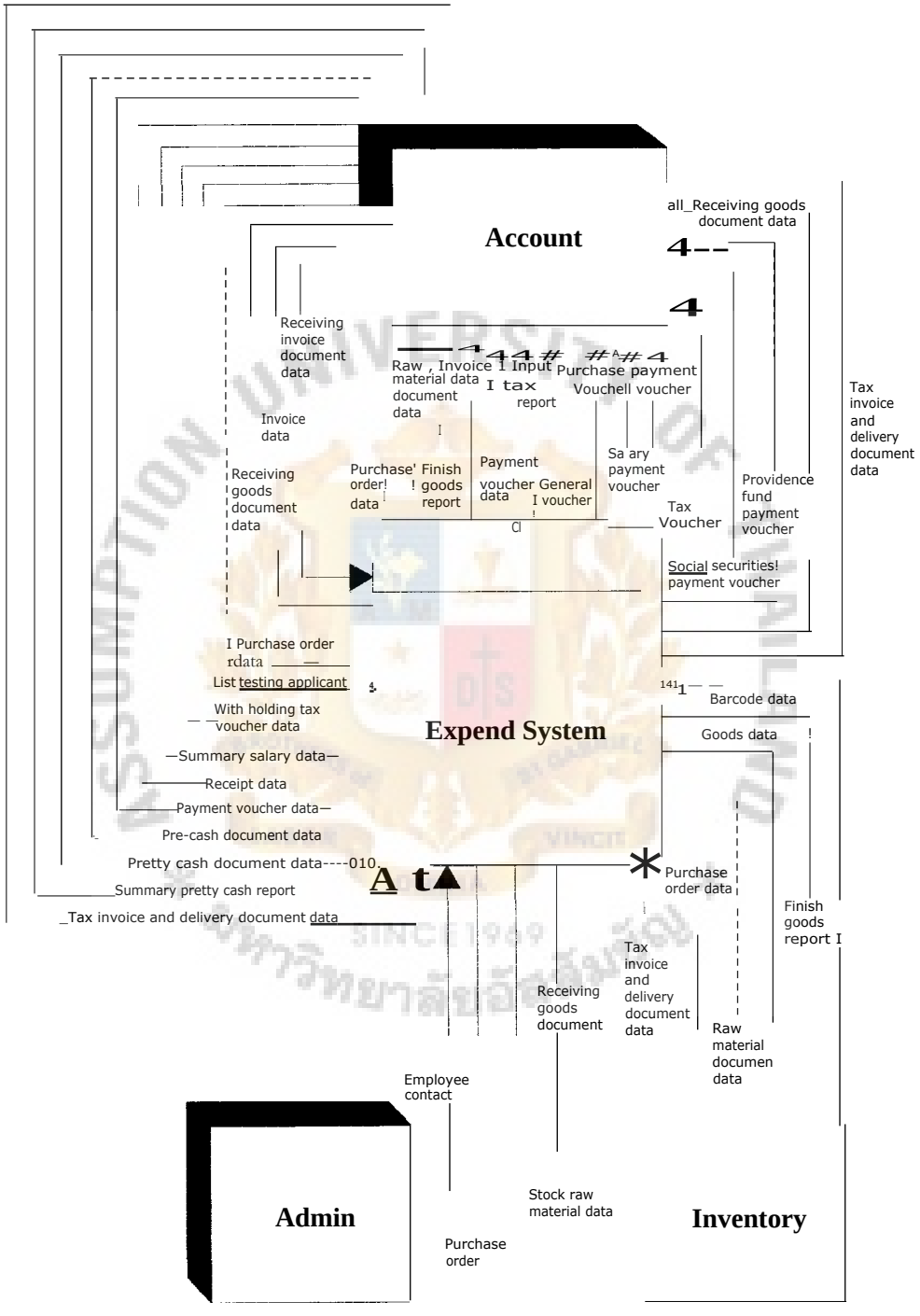

Figure 4.13. Context Diagram of Roynet Public Co., Ltd. — The Expend System.

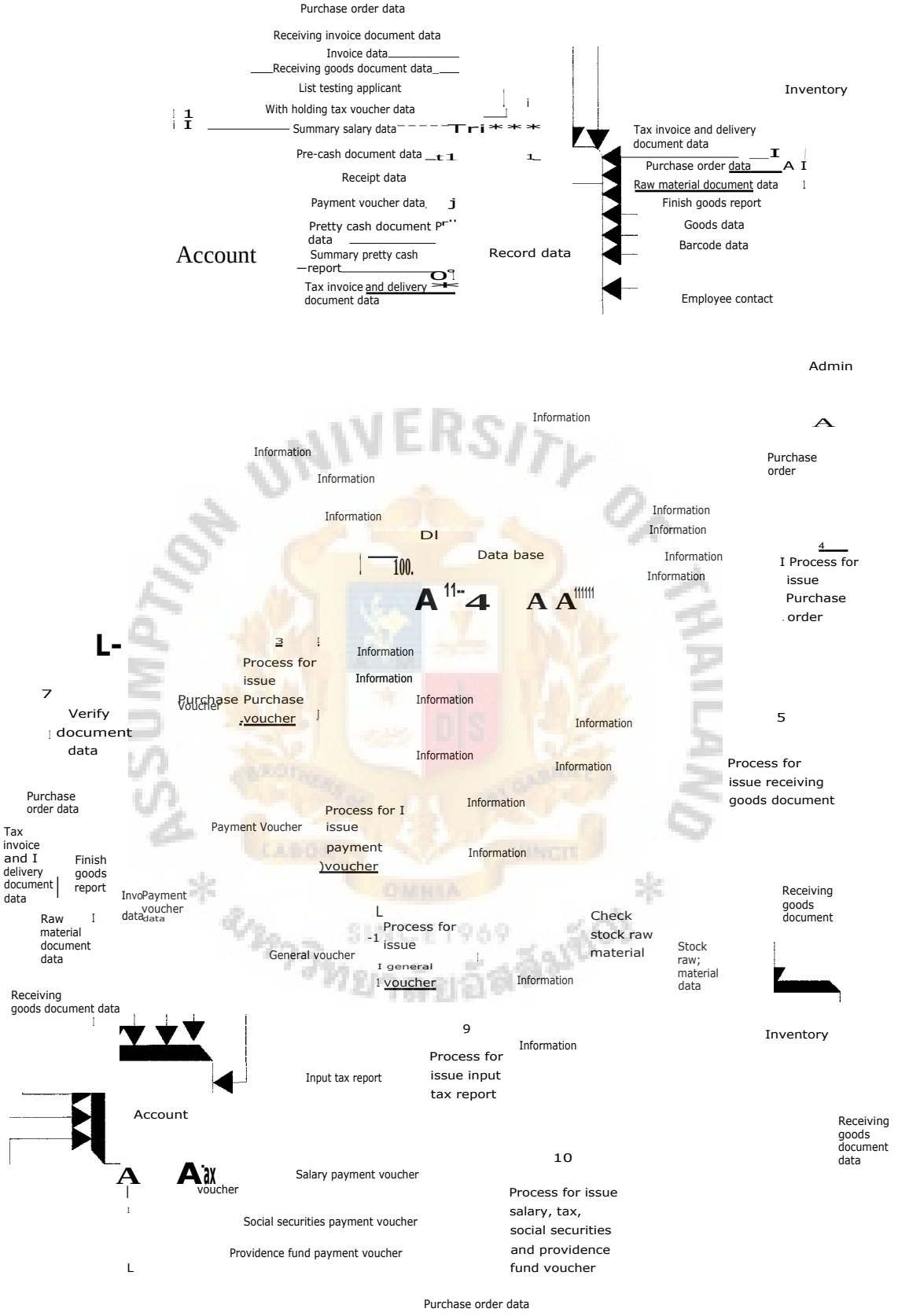

Figure 4.14. Data Flow Diagram (Level 0) — The Expend System

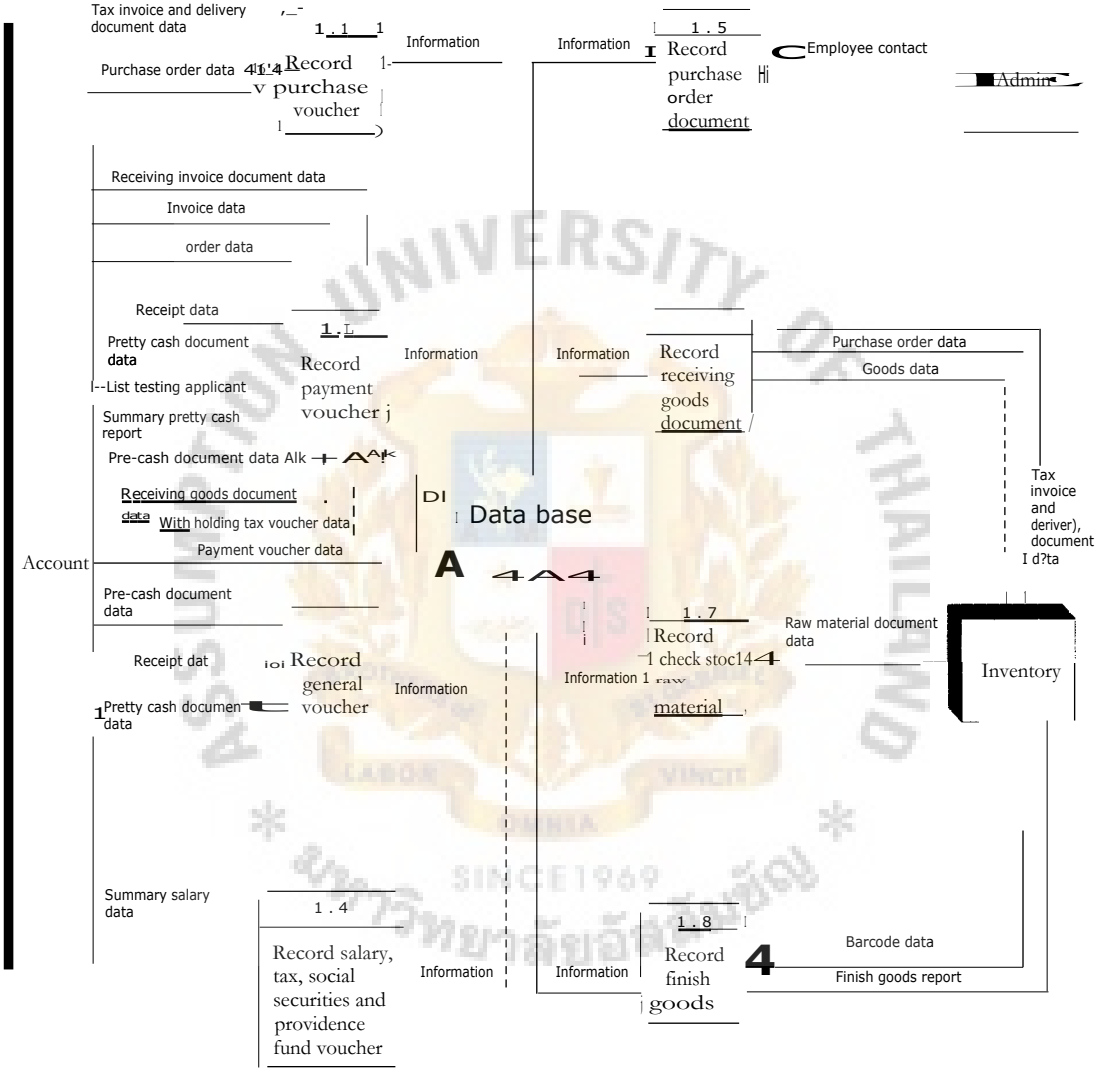

Figure 4.15. Data Flow Diagram (Level 1 Process 1) — The Expend System.

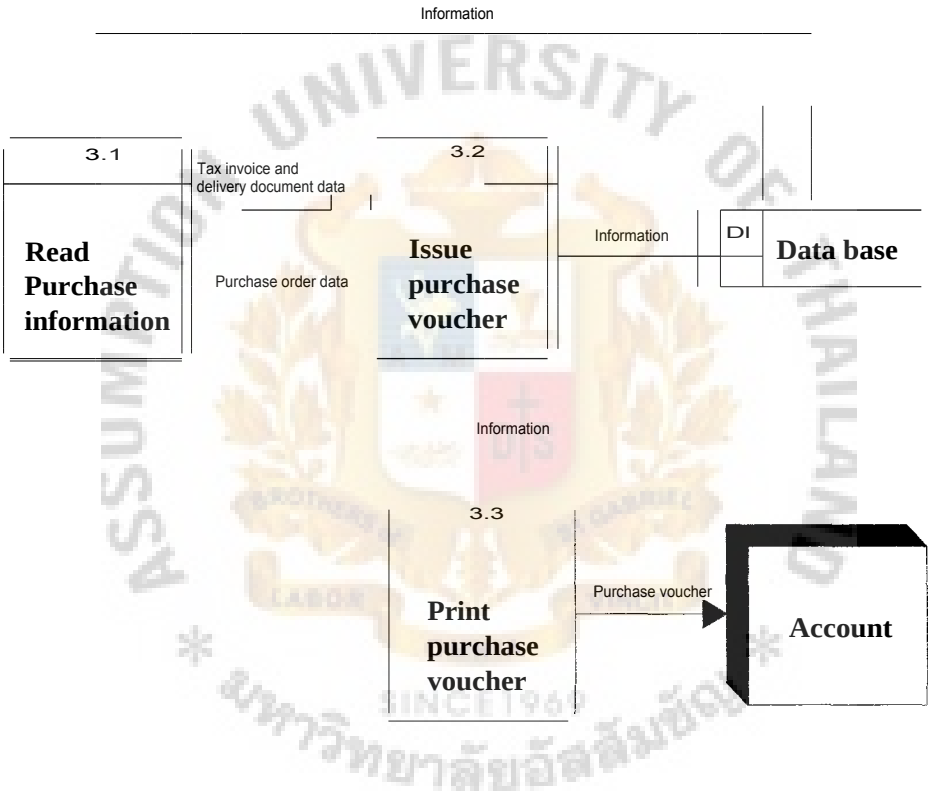

Figure 4.16. Data Flow Diagram (Level 1 Process 3) — The Expend System.

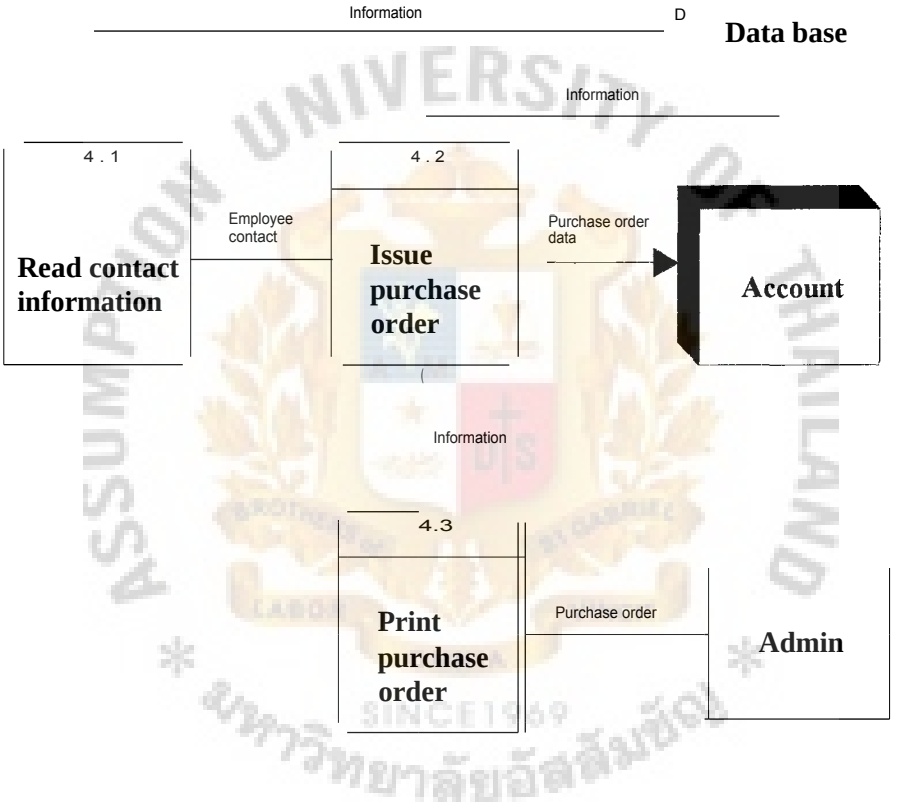

Figure 4.17. Data Flow Diagram (Level 1 Process 4) — The Expend System.

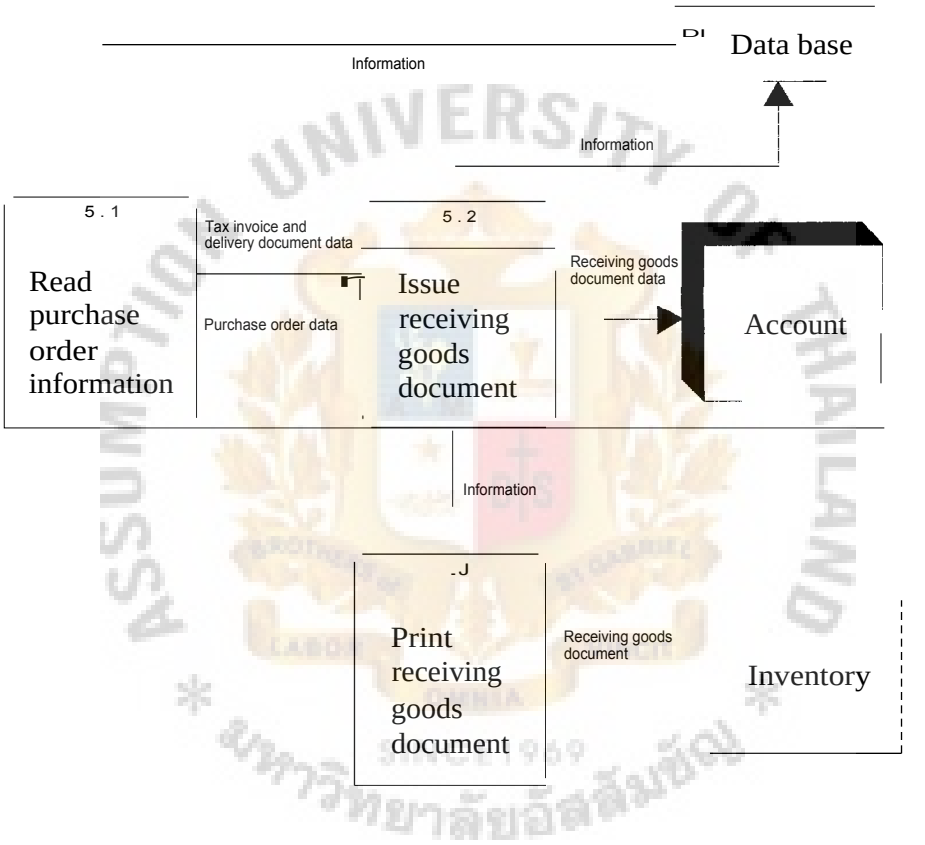

Figure 4.18. Data Flow Diagram (Level 1 Process 5) — The Expend System.

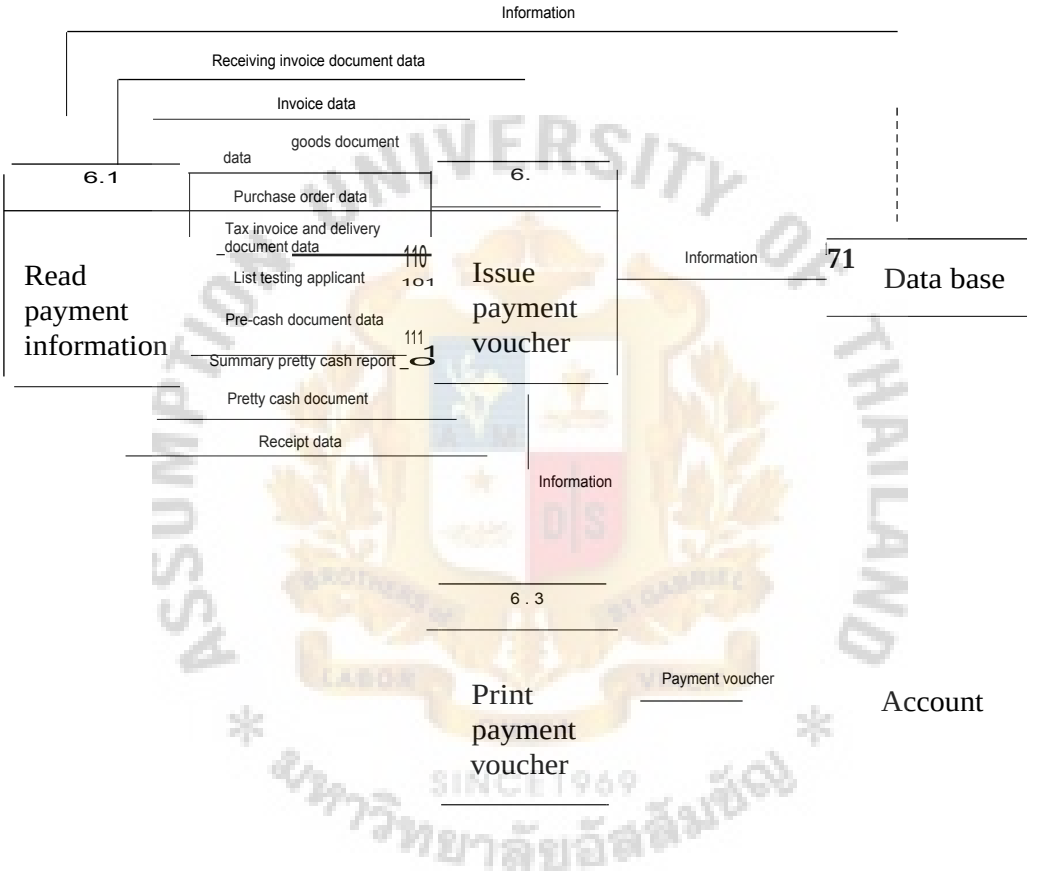

Figure 4.19. Data Flow Diagram (Level 1 Process 6) — The Expend System.

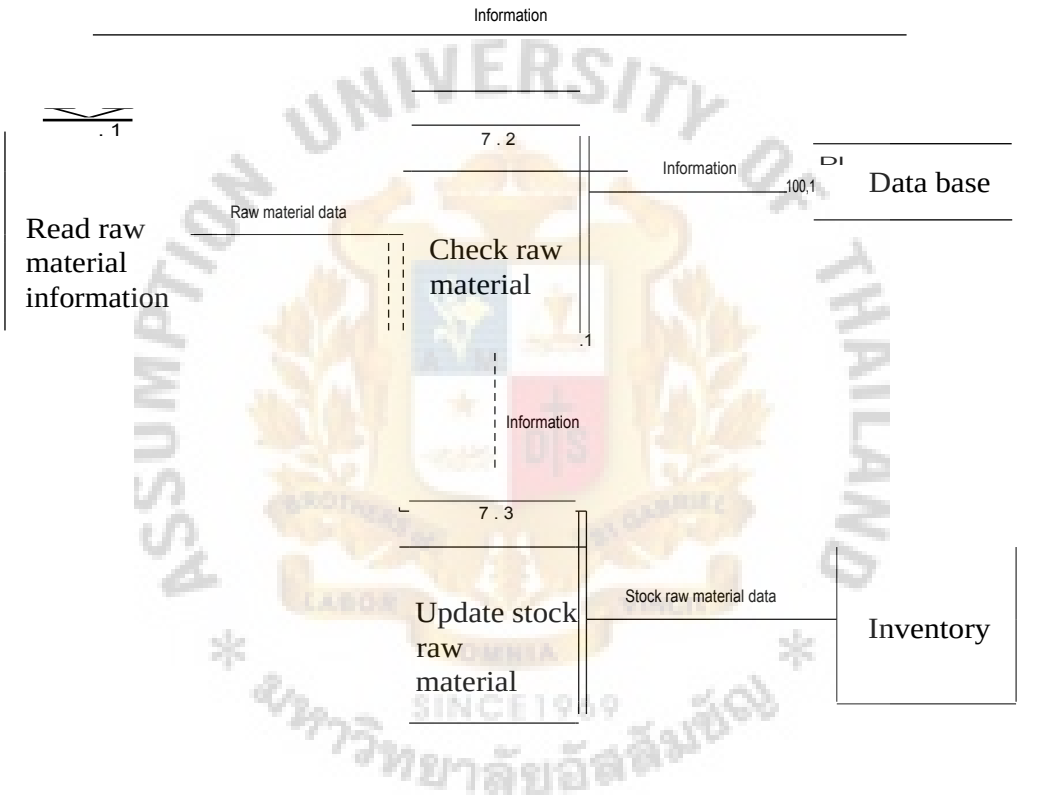

Figure 4.20. Data Flow Diagram (Level 1 Process 7) — The Expend System.

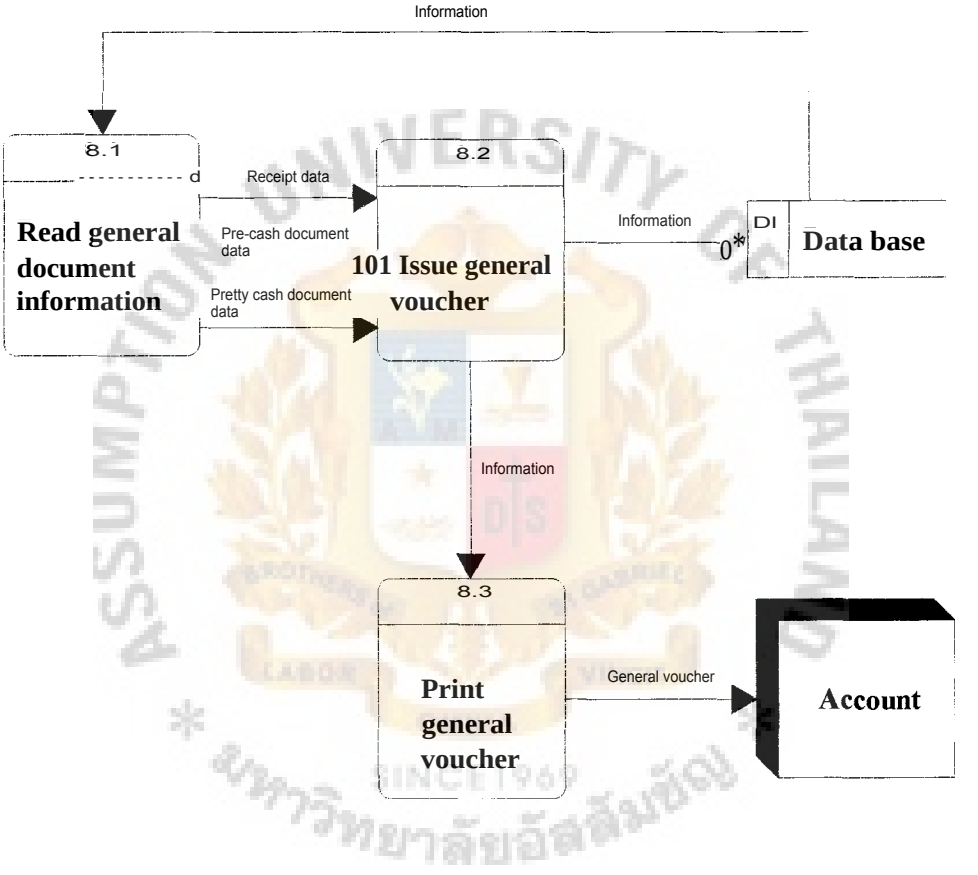

Figure 4.21. Data Flow Diagram (Level 1 Process 8) — The Expend System.

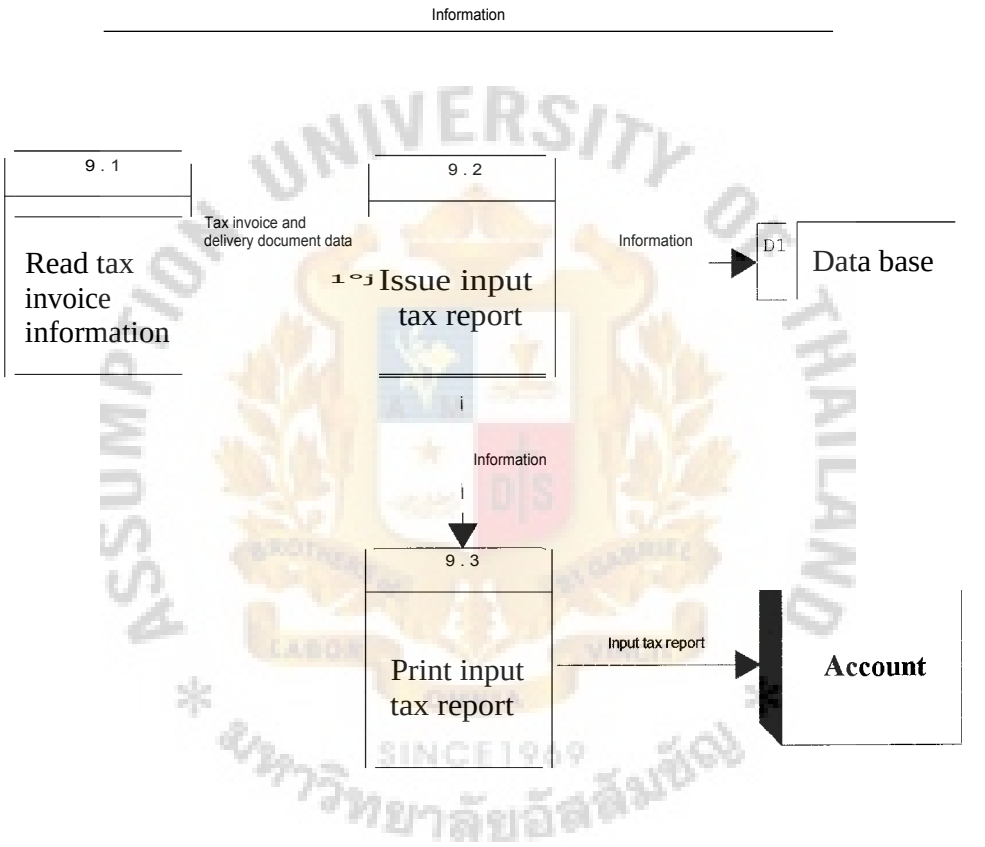

Figure 4.22. Data Flow Diagram (Level 1 Process 9) — The Expend System.

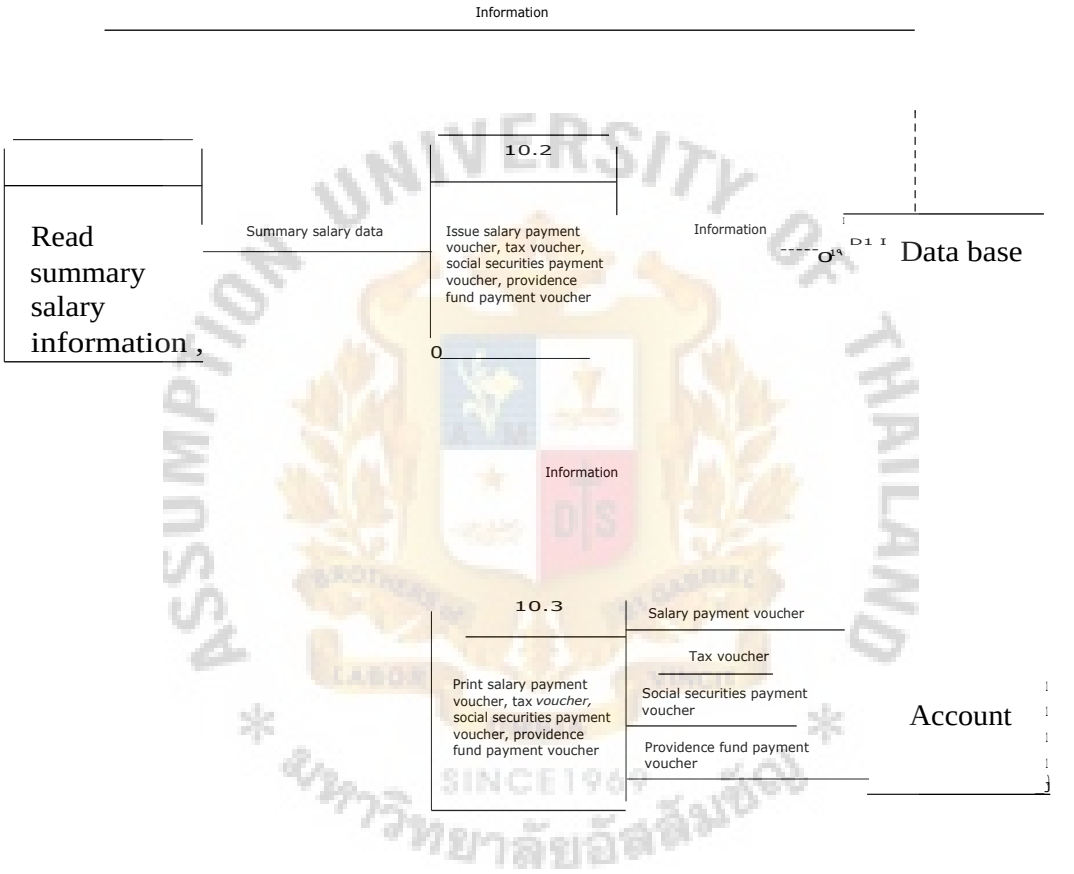

Figure 4.23. Data Flow Diagram (Level 1 Process 10) — The Expend System.

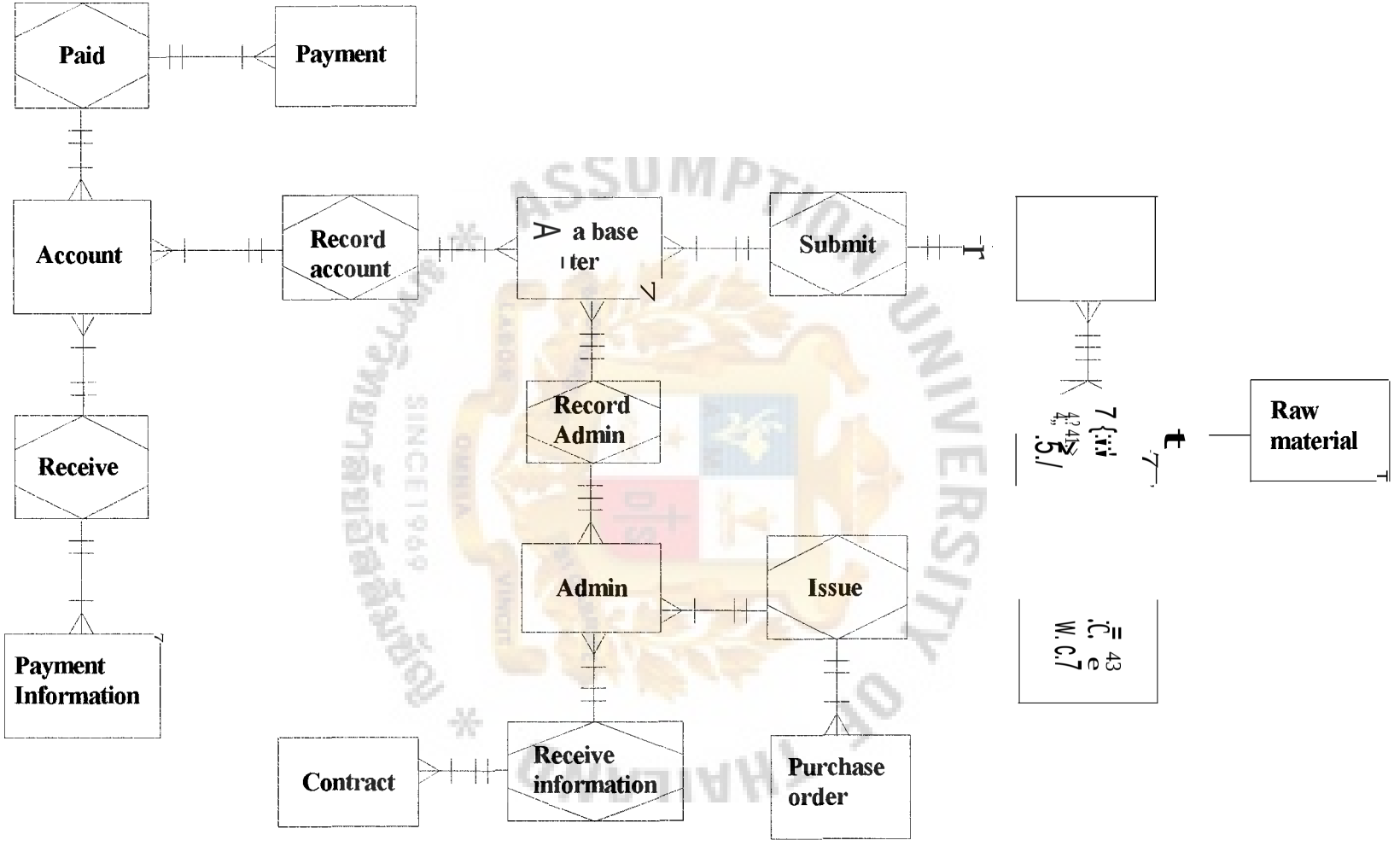

Figure 4.24. Entity Relationship — The Expend System.

Implementation Schedule Plan

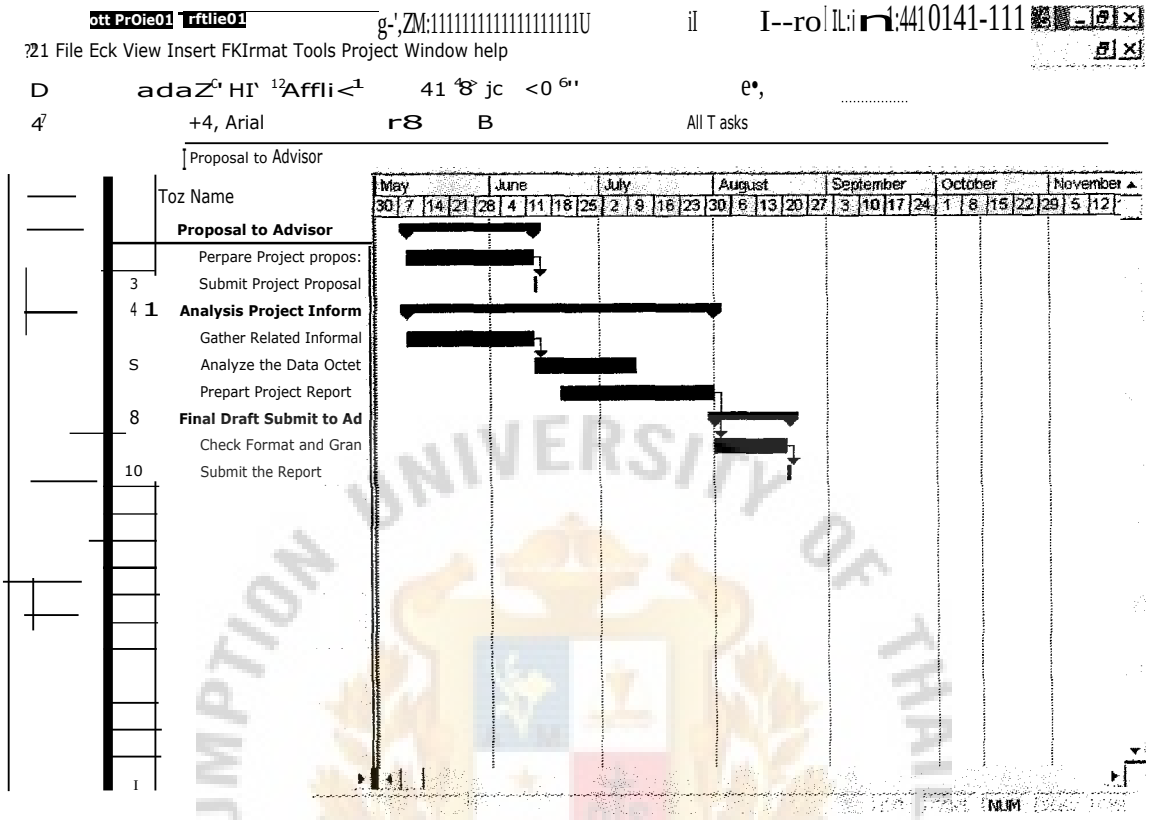

Figure 4.25. Implement Schedule Plan.

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

In the past, Roynet Co., Ltd. has started its business from a few numbers of staffs. They ran the income and expend systems by an accounting department only. At present, they can not perform as in the past because the size of the organization has increased. They need to re-organize the income and expend system and add a Computer Information System to the income and expend system in order to increase productivity for the company.

The proposed system will improve the performance of the income and expend system by helping them manage the company system more efficiently and effectively, and of course support the organization structure in the future. In addition, the system would help making the income and expend system ready and compatible with Stock Market Exchange System when the company becomes member of the Stock Market Exchange of Thailand.

Moreover, the investors and shareholders will be confident and be interested in investing on the company because of the reliability and the accuracy of the proposed system from which, they can also monitor the income and expend of the company at any time.

5.2 Recommendations

The key success factor to develop the proposed system for the Roynet Public Co., Ltd. is that their staffs need to concentrate on the existing system of the company, and make sure that they understand the requirements as well as the policy of the Stock Market Exchange of Thailand, in order to make them understand the changing mechanism from the existing manual system to the new computerized system.

5.3 Future research

The analysis of the system can use the interviewing and observation tools, but the result of the systems may have different Data Flow Diagrams depending upon the analyst's tool such as the Database System. However, every systems must have a process specification and a data dictionary, which are the important elements programmers use to develop the program.

ASSUMPTION UNIVERSITY OF THAILAND
SINCE1969

APPENDIX A

PROCESS SPECIFICATION: THE INCOME SYSTEM

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SINCE1969

PROCESS SPECIFICATION

Table A.1. Process (Record Data).

Process number:	1
Name:	Record data
Input:	Daily service report, Income data, ID data, Training application, Income data, With holding tax data, AUS application, Member application, Invoice data, Sale on credit contact, Quotation data
Output:	Information
Process description — Record data and send to database.	

Table A.2. Process (Verify Document Data).

Process number:	2
Name:	Verify document data
Input:	Information
Output:	ID data, Training application, Income data, with holding tax data, AUS application, Member application, Invoice data, Tax invoice and delivery document data, Checking sale on credit data, order inventory data, Extra time data, Daily service report
Process description — Get information form database and verify document data.	

Table A.3. Process (Check Internet Usage Time).

Process number:	3
Name:	Check Internet usage time
Input:	Information
Output:	Usage time data, Extra time data
Process description — Get information from database and check Internet usage time.	

Table A.4. Process (Issue Tax Invoice and Receipt).

Process number:	4
Name:	Issue tax invoice and receipt
Input:	Information
Output:	Information, With holding tax data, Tax invoice and receipt data, Invoice data
Process description — Get information from database and issue tax invoice and receipt.	

Table A.5. Process (Issue Invoice).

Process number:	5
Name:	Issue invoice
Input:	Information, Quotation data
Output:	Information, Invoice data
Process description — Get information from database and issue invoice	

Table A.6. Process (Issue Receipt).

Process number:	6
Name:	Issue receipt
Input:	Information, Income data, Invoice data, Tax invoice and delivery document data
Output:	Information, Receipt data
Process description — Get information from database and issue receipt.	

Table A.7. Process (Issue Sale on Credit Document).

Process number:	7
Name:	Issue sale on credit document
Input:	Information
Output:	Information, Sale on credit document, Sale on credit contact
Process description — Get information from database and issue sale on credit document.	

Table A.B. Process (Issue Tax Invoice and Delivery Document).

Process number:	8
Name:	Issue tax invoice and delivery document
Input:	Information
Output:	Information, Checking sale on credit data, Tax invoice and delivery document data
Process description — Get information from database and issue tax invoice and delivery document.	

Table A.9. Process (Issue Income Report).

Process number:	9
Name:	Issue income report
Input:	Information
Output:	Information, Income report
Process description — Get information from database and issue income report	

Table A.10. Process (Issue Receipt Voucher).

Process number:	10
Name:	Issue receipt voucher
Input:	Information
Output:	Information, Receipt voucher data, Receipt voucher
Process description — Get information from database and issue receipt voucher	

Table A.11. Process (Issue Output Tax Report).

Process number:	11
Name:	Issue output tax report
Input:	Information
Output:	Information, Output tax report, Output tax data
Process description — Get information from database and issue output tax report.	

Table A.12. Process (Record Customer Data).

Process number:	1.1
Name:	Record customer data
Input:	ID data, Training application, AUS application, Member application
Output:	Information
Process description — Record customer data and send to database.	

Table A.13. Process (Record Tax Invoice Data).

Process number:	1.2
Name:	Record tax invoice data
Input:	Income data, With holding tax data, Invoice data
Output:	Information
Process description — Record tax invoice data and send to database.	

Table A.14. Process (Record Order Inventory and Barcode).

Process number:	1.3
Name:	Record order inventory and barcode
Input:	Order inventory data, Barcode data
Output:	Information
Process description — Record order inventory and barcode and send to database.	

Table A.15. Process (Record Sale on Credit Contact).

Process number:	1.4
Name:	Record sale on credit contact
Input:	Sale on credit contact
Output:	Information
Process description — Record sale on credit contact and send to database.	

Table A.16. Process (Record Quotation).

Process number:	1.5
Name:	Record quotation
Input:	Quotation data
Output:	Information
Process description — Record quotation and send to database.	

Table A.17. Process (Record Invoice).

Process number:	1.6
Name:	Record invoice
Input:	Invoice data
Output:	Information
Process description — Record invoice and send to database.	

Table A.18. Process (Record Daily Service Report).

Process number:	1.7
Name:	Record daily service report
Input:	Daily service report
Output:	Information
Process description — Record daily service report and send to database.	

Table A.19. Process (Read Information).

Process number:	4.1
Name:	Read information
Input:	Information
Output:	ID data, Training application, Income data, Member application, Invoice data, With holding tax data
Process description — Read information from database.	

Table A.20. Process (Process for Issue Tax Invoice and Receipt).

Process number:	4.2
Name:	Process for issue tax invoice and receipt
Input:	ID data, Training application, Income data, Member application, Invoice data, With holding tax data
Output:	Information, Invoice data, With holding tax data
Process description — Get information from Process 4.1 and issue tax invoice and receipt.	

Table A.21. Process (Print Tax Invoice and Receipt).

Process number:	4.3
Name:	Print tax invoice and receipt
Input:	Information
Output:	Tax invoice and receipt data
Process description — Get information from Process 4.2 and print tax invoice and receipt.	

Table A.22. Process (Record Information).

Process number:	5.1
Name:	Record information
Input:	Quotation data
Output:	Information, Quotation data
Process description — Get Quotation data from Account and send to database.	

Table A.23. Process (Verify Extra Time Data).

Process number:	5.2
Name:	Verify extra time data
Input:	Information
Output:	Information
Process description — Get information from Process 5.1. Verify extra time data and send to process 5.3.	

Table A.24. Process (Process for Issue Invoice).

Process number:	5.3
Name:	Process for issue invoice
Input:	Information, Quotation data
Output:	Information
Process description — Get information from Process 5.1 and 5.2. Issues invoice and send information to process 5.3.	

Table A.25. Process (Print Invoice).

Process number:	5.4
Name:	Print invoice
Input:	Information
Output:	Invoice data
Process description — Get information from Process 5.3 and print invoice.	

Table A.26. Process (Check Information).

Process number:	6.1
Name:	Check information
Input:	Income data, Invoice data, Tax invoice and delivery document data
Output:	Information
Process description — Get information from finance. Check information and send to process 6.2.	

Table A.27. Process (Process for Issue Receipt).

Process number:	6.2
Name:	Process for issue receipt
Input:	Information
Output:	Information
Process description — Get information form Process 6.1 and database. Issue receipt and send to process 6.3.	

Table A.28. Process (Print Receipt).

Process number:	6.3
Name:	Print receipt
Input:	Information
Output:	Receipt data
Process description — Get information from Process 6.2 and print receipt.	

Table A.29. Process (Read Order Inventory Information).

Process number:	7.1
Name:	Read order inventory information
Input:	Information
Output:	Barcode order, Order inventory document
Process description — Get information from database and read order inventory information.	

Table A.30. Process (Process for Issue Sale on Credit Document).

Process number:	7.2
Name:	Process for issue sale on credit document
Input:	Barcode_order, Order inventory document
Output:	Information, Sale on credit document, Sale on credit contact
Process description — Get information from process 7.1. Issue sale on credit document and send it to Account and database.	

Table A.31. Process (Print Sale on Credit Document).

Process number:	7.3
Name:	Print sale on credit document
Input:	Information
Output:	Sale on credit document
Process description — Get information from process 7.2. Print sale on credit document.	

Table A.32. Process (Read Receive Inventory Information).

Process number:	8.1
Name:	Read receive inventory information
Input:	Information
Output:	Barcode_receive, Order inventory document
Process description — Get information from database and read receive inventory information.	

Table A.33. Process (Process for Issue Tax Invoice and Delivery Document).

Process number:	8.2
Name:	Process for issue tax invoice and delivery document
Input:	Barcode_receive, Order inventory document
Output:	Information, Checking sale on credit data
Process description — Get information from process 8.1 and issue tax invoice and delivery document.	

Table A.34. Process (Print Tax Invoice and Delivery Document).

Process number:	8.3
Name:	Print tax invoice and delivery document
Input:	Information
Output:	Tax invoice and delivery document data
Process description — Get information from process 8.2 and print tax invoice and delivery document.	

Table A.35. Process (Read Receive Income Data).

Process number:	9.1
Name:	Read receive income data
Input:	Information
Output:	Receiving income data, Tax invoice data
Process description — Get information from database and read receive income data.	

Table A.36. Process (Summary Receive Income).

Process number:	9.2
Name:	Summary receive income
Input:	Receiving income data, Tax invoice data
Output:	Information, Income report
Process description — Get information from process 9.1. Summary receive income and send to Account and database.	

Table A.37. Process (Print Income Report).

Process number:	9.3
Name:	Print income report
Input:	Information
Output:	Income report
Process description — Get information from process 9.2 and print income report.	

Table A.38. Process (Read Income Data).

Process number:	10.1
Name:	Read income data
Input:	Information
Output:	Income data, Tax invoice and receipt, With holding tax data
Process description — Get information from database and read income data.	

Table A.39. Process (Process for Issue Receipt Voucher).

Process number:	10.2
Name:	Process for issue receipt voucher
Input:	Income data, Tax invoice and receipt, With holding tax data
Output:	Information, Receipt voucher data
Process description — Get information from process 10.1. Issue receipt voucher and send to Account and database.	

Table A.40. Process (Print Receipt Voucher).

Process number:	10.3
Name:	Print receipt voucher
Input:	Information
Output:	Receipt voucher
Process description — Get information from process 10.2 and print receipt voucher.	

Table A.41. Process (Read Tax Invoice Data).

Process number:	11.1
Name:	Read tax invoice data
Input:	Information
Output:	Tax invoice data
Process description — Get information from Database and read tax invoice data.	

Table A.42. Process (Process for Issue Output Tax Report).

Process number:	11.2
Name:	Process for issue output tax report
Input:	Tax invoice data
Output:	Information, Output tax data
Process description — Get information from process 11.1. Issue output tax report and send to Account and database.	

Table A.43. Process (Print Output Tax Report).

Process number:	11.3
Name:	Print output tax report
Input:	Information
Output:	Output tax report
Process description — Get information from process 11.2 and print output tax report.	

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APPENDIX B

DATA DICTIONARY: THE INCOME SYSTEM

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DATA DICTIONARY

Table B.1. Record Data.

Object Name	Object Type	Long Description
Record data	Data Flow	*ID data + Training application + AUS application + Member application + Income data + With holding tax data + Invoice data + Order inventory data + Barcode data + Quotation data* ID data = *ID number + Name + Address* ID number = *Digit Number* Name = *Character* Address = *Character* Training application = *Name Surname + ID number + Address + Telephone + Emergency call + Fax + Email + Homepage + Course + Date of training + Fee + Payment + Remark + Date* Name Surname = *Character* ID number = *Digit Number* Address = *Character* Telephone = *Digit Number* Emergency call = *Digit Number* Fax = *Digit Number* Email = *Character* Homepage = *Character*

Table B.1. Record Data. (Continued)

Object Name	Object Type	Long Description
Record data	Data Flow	Course = *Character* Date of training = *Digit Number* Fee = *Digit Number* Payment = *Digit Number* Remark = *Digit Number* Date = *DD + MM + YY* AUS application = *Character* Member application = *Name Surname + Address + Telephone + Fax + Date of start membership + user ID + user Password + Payment* Name Surname = *Character* Address = *Character* Telephone = *Digit Number* Fax = *Digit Number* Date of start membership = *DD + MM + YY* user ID = *Character* user Password = *Character* Payment = *Digit Number* Income data = *Training application, Member application + Payment* With holding tax data = *Name Surname + With holding tax*

Table B.1. Record Data. (Continued)

Object Name	Object Type	Long Description
Record data	Data Flow	Name Surname = *Character* With holding tax = *Digit Number* Invoice data = *Invoice number + Date + Customer code + Name Surname + Address + Remark + Reference + Sale name + Term payment + Due date + Barcode + Description + Price per unit + Discount + Amount + Total Amount + VAT 7% + Net total* Invoice number = *Digit Number* Date = *DD + MM + YY* Customer Code = *Digit Number* Name Surname = *Character* Address = *Character* Remark = *Character* Reference = *Character* Sale name = *Character* Term payment = *Character* Due data = *Digit Number* Barcode = *Barcode* Description = *Character* Price per unit = *Digit Number* Discount = *Digit Number* Amount = *Digit Number*

Table B.I. Record Data. (Continued)

Object Name	Object Type	Long Description
Record data	Data Flow	Total Amount = *Digit Number* VAT7% = *Digit Number* Net total = *Digit Number* Order inventory data = *Inventory order number + Date + Name Surname + Address + Barcode + Barcode Number + Description + Unit + Type of sale* Inventory order number = *Digit Number* Date = *DD + MM + YY* Name Surname = *Character* Address = *Character* Barcode = *Barcode* Barcode Number = *Digit Number* Description = *Character* Unit = *Digit Number* Type of sale = *Character* Barcode data = *Barcode* Quotation data = *Quotation number + Name Surname + Address + Date + Date of delivery + Delivery number + Amount + Remark + Due date* Quotation number = *Digit Number* Name Surname = *Character*

Table B.1. Record Data. (Continued)

Object Name	Object Type	Long Description
Record data	Data Flow	Address = *Character* Date = *DD + MM + YY* Date of delivery = *DD + MM + YY* Amount = *Digit Number* Remark = *Character* Due date = *DD + MM + YY* Character = [A-Z I a-z I ti-d 1 antrmilcno10-9111 . I ID &i%1@i#1 *] Digit Number = 0 {Number} 9 DD = 1 {Number}31 MM = 1 {Number}12 YY = 00 {Number} 99

Table B.2. Issue Tax Invoice and Receipt.

Object Name	Object Type	Long Description
Issue tax invoice and receipt	Data Flow	*Tax invoice and receipt data + Training application + Member application + Income data + With holding tax data + ID data + Invoice data* Tax invoice and receipt data = *Customer code + Name Surname + Address + Remark + Date + Tax invoice number + Sale name + Term payment + Due

Table B.2. Issue Tax Invoice and Receipt. (Continued)

Object Name	Object Type	Long Description
Issue tax invoice and receipt	Data Flow	data + Barcode + Description + Unit + Price per Unit + Amount + Total Amount + VAT7% + Net total + Type of payment* Customer code = *Digit Number* Name Surname = *Character* Address = *Character* Remark = *Character* Date = *DD + MM + Yy* Tax invoice number = *Digit Number* Sale name = *Character* Term payment = *Character* Due data = *DD + MM + YY* Barcode = *Barcode* Description = *Character* Unit = *Digit Number* Price per Unit = *Digit Number* Amount = *Digit Number* Total Amount = *Digit Number* VAT7% = *Digit Number* Net total = *Digit Number* Type of payment = *Character* Training application = *Name Surname + ID number +

Table B.2. Issue Tax Invoice and Receipt. (Continued)

Object Name	Object Type	Long Description
Issue tax invoice and receipt	Data Flow	Address + Telephone + Emergency call + Fax + Email + Homepage + Course + Date of training + Fee + Payment + Remark + Date* Name Surname = *Character* ID number = *Digit Number* Address = *Character* Telephone = *Digit Number* Emergency call = *Digit Number* Fax = *Digit Number* Email = *Character* Homepage = *Character* Course = *Character* Date of training = *Digit Number* Fee = *Digit Number* Payment = *Digit Number* Remark = *Digit Number* Date = *DD + MM + YY* Member application = *Name Surname + Address + Telephone + Fax + Date of start membership + user ID + user Password + Payment* Name Surname = *Character* Address = *Character*

Table B.2. Issue Tax Invoice and Receipt. (Continued)

Object Name	Object Type	Long Description
Issue tax invoice and receipt	Data Flow	Telephone = *Digit Number* Fax = *Digit Number* Date of start membership = *DD + MM + YY* user ID = *Character* user Password = *Character* Payment = *Digit Number* Income data = *Training application, Member application + Payment* With holding tax data = *Name Surname + With holding tax* Name Surname = *Character* With holding tax = *Digit Number* ID data = *ID number + Name + Address* ID number = *Digit Number* Name = *Character* Address = *Character* Invoice data = *Invoice number + Date + Customer code + Name Surname + Address + Remark + Reference + Sale name + Term payment + Due date + Barcode + Description + Price per unit + Discount + Amount + Total Amount + VAT 7% + Net total* Invoice number = *Digit Number*

Table B.2. Issue Tax Invoice and Receipt. (Continued)

Object Name	Object Type	Long Description
Issue tax invoice and receipt	Data Flow	Date = *DD + MA/1 + YY* Customer Code = *Digit Number* Name Surname = *Character* Address = *Character* Remark = *Character* Reference = *Character* Sale name = *Character* Term payment = *Character* Due data = *Digit Number* Barcode = *Barcode* Description = *Character* Price per unit = *Digit Number* Discount = *Digit Number* Amount = *Digit Number* Total Amount = *Digit Number* VAT7% = *Digit Number* Net total = *Digit Number* Character = [A-Z I a-z I n-a I annitill.nu 10-9 I /I . IS 80%1@1#1 * i Digit Number = 0 {Number} 9 DD = 1 {Number} 31 MM= 1 {Number} 12

Table B.2. Issue Tax Invoice and Receipt. (Continued)

Object Name	Object Type	Long Description
Issue tax invoice and receipt	Data Flow	YY = 00 {Number} 99

Table B.3. Issue Invoice.

Object Name	Object Type	Long Description
Issue invoice	Data Flow	*Quotation data + Invoice data* Invoice data = *Invoice number + Date + Customer code + Name Surname + Address + Remark + Reference + Sale name + Term payment + Due date + Barcode + Description + Price per unit + Discount + Amount + Total Amount + VAT 7% + Net total* Invoice number = *Digit Number* Date = *DD + MM + YY* Customer Code = *Digit Number* Name Surname = *Character* Address = *Character* Remark = *Character* Reference = *Character* Sale name = *Character* Term payment = *Character*

Table B.3. Issue Invoice. (Continued)

Object Name	Object Type	Long Description
Issue invoice	Data Flow	Due data = *Digit Number* Description = *Character* Price per unit = *Digit Number* Discount = *Digit Number* Amount = *Digit Number* Total Amount = *Digit Number* VAT7% = *Digit Number* Net total = *Digit Number* Quotation data = *Quotation number + Name Surname + Address + Date + Date of delivery + Delivery number + Amount + Remark + Due date* Quotation number = *Digit Number* Name Surname = *Character* Address = *Character* Date = *DD + MM + YY* Date of delivery = *DD + MM + YY* Amount = *Digit Number* Remark = *Character* Due date = *DD + MM + YY* Character = [A-Z I a-z I n-a 1 annitnlvm I 0-9 I / I . I 13 &1%1@1#1 *] Digit Number = 0 {Number} 9

Table B.3. Issue Invoice. (Continued)

Object Name	Object Type	Long Description
Issue invoice	Data Flow	DD = 1 {Number} 31 MM = 1 {Number}12 YY = 00 {Number} 99

Table B.4. Issue Receipt.

Object Name	Object Type	Long Description
Issue receipt	Data Flow	*Income data + Invoice data + Tax invoice and delivery document data + Receipt data* Invoice data = *Reference + Due date + Invoice number* Reference = *Character* Due date = *DD + MM + YY* Invoice number = *Digit Number* Income data = *Payment* Payment = *Digit Number* Tax invoice and delivery document data = *Customer code + Name Surname + Address + Date of tax invoice + Tax invoice Number + Amount* Customer code = *Digit Number* Name Surname = *Character* Address = *Character*

Table B.4. Issue Receipt. (Continued)

Object Name	Object Type	Long Description
Issue receipt	Data Flow	Date of tax invoice = *DD + MM + YY* Tax invoice Number = *Digit Number* Amount = *Digit Number* Receipt data = *Receipt number + Date + Name Surname + Address + Customer code + Date of tax invoice + Tax invoice number + Amount + Total Amount + Type of payment* Receipt number = *Digit Number* Date = *DD + MM + YY* Name Surname = *Character* Address = *Character* Customer code = *Digit Number* Date of tax invoice = *DD + MM + YY* Tax invoice number = *Digit Number* Amount = *Digit Number* Total Amount = *Digit Number* Type of payment = *Character* Character = [A-Z I a-z I n-a I rinnitillm I 0-9 I/I. I S &I%I@I#1 *] Digit Number = 0 {Number}9 DD = 1 {Number}31 MM = 1 {Number} 12

Table B.4. Issue Receipt. (Continued)

Object Name	Object Type	Long Description
Issue receipt	Data Flow	YY = 00 (Number} 99

Table B.S. Issue Sale on Credit Document.

Object Name	Object Type	Long Description
Issue sale on credit document	Data Flow	*Barcode order + Order inventory document + Sale on credit document + Tax invoice and delivery document* Barcode order = *Barcode* Order inventory document = *Customer code + Name Surname + Address + Barcode + Barcode number + Description + Unit + Type of sale* Customer code = *Digit Number* Name Surname = *Character* Address = *Character* Barcode = *Barcode* Barcode number = *Digit Number* Description = *Character* Unit = *Digit Number* Type of sale = *Character* Sale on credit document = *Sale on credit number + Date + Name Surname + Customer code + Address +

Table B.S. Issue Sale on Credit Document. (Continued)

Object Name	Object Type	Long Description
Issue sale on credit document	Data Flow	Description + Total sale on credit + Receive sale on credit + Total Sale + Remark* Sale on credit number = *Digit Number* Date = *DD + MM + YY* Name Surname = *Character* Customer code = *Digit Number* Address = *Character* Description = *Character* Total sale on credit = *Digit Number* Receive sale on credit = *Digit Number* Total Sale + Remark = *Digit Number* Tax invoice and delivery document = *Customer code + Name Surname + Address + Remark + Date + Tax invoice number + Sale name + Term payment + Due date + Barcode + Description + Unit + Price per unit +Amount + Total amount + VAT7% + Net Total + Type of payment* Customer code Name Surname = *Character* Address = *Character* Remark = *Character* Date = *DD + MM + YY*

Table B.S. Issue Sale on Credit Document. (Continued)

Object Name	Object Type	Long Description
Issue sale on credit document	Data Flow	Tax invoice number = *Digit Number* Sale name = *Character* Term payment = *Character* Due date = *DD + MM + YY* Barcode = *Barcode* Description = *Character* Unit = *Digit Number* Price per unit = *Digit Number* Amount = *Digit Number* Total amount = *Digit Number* VAT7% = *Digit Number* Net Total = *Digit Number* Type of payment = *Character* Character = [A-Z I a-z I fl-Er I vnilitillim I 0-9 I /I . IS &1%1@1#1 * i Digit Number = 0{Number}9 DD = 1 {Number} 31 MM= 1 {Number} 12 YY = 00 {Number} 99

Table B.6. Issue Tax Invoice and Delivery Document.

Object Name	Object Type	Long Description
Issue tax invoice and delivery document	Data Flow	*Barcode receive + Order inventory document + Sale on credit document* Barcode_ receive = *Barcode* Order inventory document = *Customer code + Name Surname + Address + Barcode + Unit* Customer code = *Digit Number* Name Surname = *Character* Address = *Character* Barcode = *Barcode* Unit = *Digit Number* Sale on credit document = *Sale on credit number + Sale on credit book number + Date + Customer code + Name Surname + Address + Remark + Location + Barcode + Description + Unit + Price per unit + Discount + Amount + Net total* Sale on credit number = *Digit Number* Sale on credit book number = *Digit Number* Date = *DD + MM + YY* Customer code = *Digit Number* Name Surname = *Character* Address = *Character* Remark = *Character*

Table B.6. Issue Tax Invoice and Delivery Document. (Continued)

Object Name	Object Type	Long Description
Issue tax invoice and delivery document	Data Flow	Location = *Character* Barcode = *Barcode* Description = *Character* Unit = *Digit Number* Price per unit = *Digit Number* Discount = *Digit Number* Amount = *Digit Number* Net total = *Digit Number* Character = [A-Z I a-z i n-g 1 nla;nitrilma 10-9 1 /1 . Iti &I%I@I#I *] Digit Number = 0 {Number}9 DD = 1 {Number}31 MM = 1 {Number} 12 YY = 00 {Number} 99

Table B.7. Issue Income Report.

Object Name	Object Type	Long Description
Issue income report	Data Flow	*Income data + Tax invoice data + Income report* Income data = *Payment* Payment = *Digit Number* Tax invoice data = *Tax invoice number + Tax invoice book number + Description + Amount + With holding tax + Type of payment* Tax invoice number = *Digit Number* Tax invoice book number = *Digit Number* Description = *Character* Amount = *Digit Number* With holding tax = *Digit Number* Type of payment = *Character* Income report = *Tax invoice number + Tax invoice book number + Description + Amount + With holding Tax + Type of payment + Number of cheque + Number of Pay in* Tax invoice number = *Digit Number* Tax invoice book number = *Digit Number* Description = *Character* Amount = *Digit Number* With holding tax = *Digit Number* Type of payment = *Character*

Table B.7. Issue Income Report. (Continued)

Object Name	Object Type	Long Description
Issue income report	Data Flow	Number of cheque = *Digit Number* Number of Pay in = *Digit Number* Character = [A-Z I a-z I fi-o I rinintillm10-9 I II I. 1131 &I%I@I#I *] Digit Number = 0 {Number} 9

Table B.B. Issue Receipt Voucher.

Object Name	Object Type	Long Description
Issue receipt voucher	Data Flow	*Tax invoice data + Receipt voucher* Tax invoice data = *Tax invoice number + Amount* Tax invoice number = *Digit Number* Amount = *Digit Number* Receipt voucher = *Receipt voucher number + Date + Name Surname + Type of payment + Tax invoice data + Accounting + With holding tax* Receipt voucher number = *Digit Number* Date = * DD + IVIM + YY* Name Surname = *Character* Type of payment = *Character* Tax invoice data = *Digit Number* Accounting = *Character*

Table B.S. Issue Receipt Voucher. (Continued)

Object Name	Object Type	Long Description
Issue receipt voucher	Data Flow	With holding tax = *Digit Number* Character = [A-Z I a-z I n-o I finD11111118 I 0-9 1/1.1 14 | &I%I@1#1 * 1 Digit Number = 0{Number}9 DD = 1 {Number}31 MM = 1 {Number}12 YY = 00 {Number} 99

Table B.9. Issue Output Tax Report.

Object Name	Object Type	Long Description
Issue output tax report	Data Flow	*Tax invoice data + Out put tax report* Tax invoice data = *Tax invoice number + Date + Name Surname + Total Amount + VAT7%* Tax invoice number = *Digit Number* Date = * DD + MM + YY* Name Surname = *Character* Total Amount = *Digit Number* VAT7% = *Digit Number* Out put tax report = *Tax invoice number + Date + Name Surname + Total Amount + VAT7%* Tax invoice number = *Digit Number*

Table B.9. Issue Output Tax Report. (Continued)

Object Name	Object Type	Long Description
Issue output tax report	Data Flow	Date = * DD + MM + YY* Name Surname = *Character* Total Amount = *Digit Number* VAT7% = *Digit Number* Character = [A-Z I a-z 1 n-a 1 rozDitilleno I 0-9 1 II • I$ I &I%I@I#I *] Digit Number = 0{Number} 9 DD = 1 {Number}31 MM = 1{Number} 12 YY = 00 {Number} 99

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APPENDIX C

PROCESS SPECIFICATION: THE EXPEND SYS1EM

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PROCESS SPECIFICATION

Table C.1. Process (Record Data).

Process number:	1
Name:	Record data
Input:	Purchase order data, Receiving invoice document data, Invoice data, Receiving goods document data, List testing applicant, With holding tax voucher data, Summary salary data, Pre-cash document data, Receipt data, Payment voucher data, Pretty cash document data, Summary pretty cash report, Tax invoice and delivery document data, Raw material document data, Finish goods report, Goods data, Barcode data, Employee contact
Output:	Information
Process description — Record data and send to database.	

Table C.2. Process (Verify Document Data).

Process number:	2
Name:	Verify document data
Input:	Information
Output:	Tax invoice and delivery document data, Receiving goods document data, Purchase order data, Raw material document data, Finish goods report, Invoice data, Payment voucher data
Process description — Get information from database and verify document data.	

Table C.3. Process (Process for Issue Purchase Voucher).

Process number:	3
Name:	Process for issue purchase voucher
Input:	Information
Output:	Information, Purchase voucher
Process description — Get information from database and issue purchase voucher.	

Table C.4. Process (Process for Issue Purchase Order).

Process number:	4
Name:	Process for issue purchase order
Input:	Information
Output:	Information, Purchase order, Purchase order data
Process description — Get information from database and issue purchase order.	

Table C.S. Process (Process for Issue Receiving Goods Document).

Process number:	5
Name:	Process for issue receiving goods document
Input:	Information
Output:	Information, Receiving goods document, Receiving goods document data
Process description — Get information from database and issue receiving goods document.	

Table C.6. Process (Process for Issue Payment Voucher).

Process number:	6
Name:	Process for issue payment voucher
Input:	Information
Output:	Information, Payment voucher
Process description — Get information from database and issue payment voucher.	

Table C.7. Process (Check Stock Raw Material).

Process number:	7
Name:	Check stock raw material
Input:	Information
Output:	Information, Stock raw material data
Process description — Get information from database and check stock raw material.	

Table C.8. Process (Process for Issue General Voucher).

Process number:	8
Name:	Process for issue general voucher
Input:	Information
Output:	Information, General voucher
Process description — Get information from database and issue general voucher.	

Table C.9. Process (Process for Issue Input Tax Report).

Process number:	9
Name:	Process for issue input tax report
Input:	Information
Output:	Information, Input tax report
Process description — Get information from database and issue input tax report.	

Table C.10. Process (Process for Issue Salary, Tax, Social Securities and Providence Fund Voucher).

Process number:	10
Name:	Process for issue salary, tax, social securities and providence fund voucher
Input:	Information
Output:	Information, Salary Payment voucher, Tax voucher, Social securities payment voucher, Providence fund voucher
Process description — Get information from database and issue salary, tax, social securities and providence fund voucher.	

Table C.11. Process (Record Purchase Voucher).

Process number:	1.1
Name:	Record purchase voucher
Input:	Tax invoice and delivery document data, Purchase order data
Output:	Information
Process description — Record purchase voucher from Account and send to database.	

Table C.12. Process (Record Payment Voucher).

Process number:	1.2
Name:	Record payment voucher
Input:	Receiving invoice document data, Invoice data, Purchase order data, Receipt data, Pretty cash document data, List testing applicant, Summary pretty cash report, Pre-cash document data, Receiving goods document data, With holding tax voucher data, Payment voucher data
Output:	Information
Process description — Record payment voucher and send to database.	

Table C.13. Process (Record General Voucher).

Process number:	1.3
Name:	Record general voucher
Input:	Pre-cash document, Receipt data, Pretty cash document data
Output:	Information
Process description — Record general voucher and send to database.	

Table C.14. Process (Record Salary, Tax, Social Securities and Providence Fund Voucher).

Process number:	1.4
Name:	Record Salary, tax, social securities and providence fund voucher
Input:	Summary salary data
Output:	Information
Process description — Record salary, tax, social securities and providence fund voucher and send to database.	

Table C.15. Process (Record Purchase Order Document).

Process number:	1.5
Name:	Record purchase order document
Input:	Employee contact
Output:	Information
Process description — Record purchase order document and send to database.	

Table C.16. Process (Record Receiving Goods Document).

Process number:	1.6
Name:	Record receiving goods document
Input:	Tax invoice and delivery document data, Purchase order data, Goods data
Output:	Information
Process description — Record receiving goods document and send to database.	

Table C.17. Process (Record Check Stock Raw Material).

Process number:	1.7
Name:	Record check stock raw material
Input:	Raw material document data
Output:	Information
Process description — Record check stock raw material and send to database.	

Table C.18. Process (Record Finish Goods).

Process number:	1.8
Name:	Record finish goods
Input:	Barcode data, Finish goods report
Output:	Information
Process description — Record finished goods and send to database.	

Table C.19. Process (Read Purchase Information).

Process number:	3.1
Name:	Read purchase information
Input:	Information
Output:	Tax invoice and delivery document data, Purchase order data
Process description — Read purchase information from database.	

Table C.20. Process (Issue Purchase Voucher).

Process number:	3.2
Name:	Issue purchase voucher
Input:	Tax invoice and delivery document data, Purchase order data
Output:	Information
Process description — Get information from Process 3.1 and issue purchase voucher.	

Table C.21. Process (Print Purchase Voucher).

Process number:	3.3
Name:	Print purchase voucher
Input:	Information
Output:	Purchase voucher
Process description — Get information from Process 3.2 and print purchase voucher.	

Table C.22. Process (Read Contact Information).

Process number:	4.1
Name:	Read contact information
Input:	Information
Output:	Employee contact
Process description — Get contact information from database.	

Table C.23. Process (Issue Purchase Order).

Process number:	4.2
Name:	Issue purchase order
Input:	Employee contact
Output:	Information, Purchase order data
Process description — Get information from Process 1.1. Issue purchase order and send to process 5.3 and Account.	

Table C.24. Process (Print Purchase Order).

Process number:	4.3
Name:	Print purchase order
Input:	Information
Output:	Purchase order
Process description — Get information from Process 4.2 and Print purchase order.	

Table C.25. Process (Read Purchase Order Information).

Process number:	5.1
Name:	Read purchase order information
Input:	Information
Output:	Tax invoice and delivery document data, purchase order data
Process description — Get information from database.	

Table C.26. Process (Issue Receiving Goods Document).

Process number:	5.2
Name:	Issue receiving goods document
Input:	Tax invoice and delivery document data, purchase order data
Output:	Information, Receiving goods document data
Process description — Get information from process 5.1. Issue receiving goods document.	

Table C.27. Process (Print Receiving Goods Document).

Process number:	5.3
Name:	Print receiving goods document
Input:	Information
Output:	Receiving goods document
Process description — Get information from Process 5.2. Print receiving goods document.	

Table C.28. Process (Read Payment Information).

Process number:	6.1
Name:	Read payment information
Input:	Information
Output:	Receiving invoice document data, Invoice data, Receiving goods document data, Purchase order data, Tax invoice and delivery document data, List testing applicant, Pre-cash document data, Summary pretty cash report, Pretty cash document, Receipt data
Process description — Get information from database.	

Table C.29. Process (Issue Payment Voucher).

Process number:	6.2
Name:	Issue payment voucher
Input:	Receiving invoice document data, Invoice data, Receiving goods document data, Purchase order data, Tax invoice and delivery document data, List testing applicant, Pre-cash document data, Summary pretty cash report, Pretty cash document, Receipt data
Output:	Information
Process description — Get information from process 6.1 and issue payment voucher.	

Table C.30. Process (Print Payment Voucher).

Process number:	6.3
Name:	Print payment voucher
Input:	Information
Output:	Payment voucher
Process description — Get information from process 6.2 and print payment voucher.	

Table C.31. Process (Read Raw Material Information).

Process number:	7.1
Name:	Read raw material information
Input:	Information
Output:	Raw material data
Process description — Get information from database.	

Table C.32. Process (Check Raw Material).

Process number:	7.2
Name:	Check raw material
Input:	Raw material data
Output:	Information
Process description — Get information from process 7.1 and check raw material.	

Table C.33. Process (Update Stock Raw Material).

Process number:	7.3
Name:	Update stock raw material
Input:	Information
Output:	Stock raw material data
Process description — Get information from process 7.2 and update stock raw material.	

Table C.34. Process (Read General Document Information).

Process number:	8.1
Name:	Read general document information
Input:	Information
Output:	Receipt data, Pre-cash document data, Pretty cash document
Process description — Get information from database.	

Table C.35. Process (Issue General Voucher).

Process number:	8.2
Name:	Issue general voucher
Input:	Receipt data, Pre-cash document data, Pretty cash document
Output:	Information
Process description — Get information from process 8.1 and issue general voucher.	

Table C.36. Process (Print General Voucher).

Process number:	8.3
Name:	Print general voucher
Input:	Information
Output:	General voucher
Process description — Get information from process 8.2 and print general voucher.	

Table C.37. Process (Read Tax Invoice Information).

Process number:	9.1
Name:	Read tax invoice information
Input:	Information
Output:	Tax invoice and delivery document data
Process description — Get information from database.	

Table C.38. Process (Issue Input Tax Report).

Process number:	9.2
Name:	Issue input tax report
Input:	Tax invoice and delivery document data
Output:	Information
Process description — Get information from process 9.1 and issue input tax report.	

Table C.39. Process (Print Input Tax Report).

Process number:	9.3
Name:	Print input tax report
Input:	Information
Output:	Input tax report
Process description — Get information from process 9.2 and print input tax report.	

Table C.40. Process (Read Summary Salary Information).

Process number:	10.1
Name:	Read summary salary information
Input:	Information
Output:	Summary salary data
Process description — Get information from database.	

Table C.41. Process (Issue Salary Payment Voucher, Tax Voucher, Social Securities Payment Voucher, Providence Fund Payment Voucher).

Process number:	10.2
Name:	Issue salary payment voucher, tax voucher, social securities payment voucher, providence fund payment voucher
Input:	Summary salary data
Output:	Information
Process description — Get information from process 10.1 and issue salary payment voucher, tax voucher, social securities payment voucher, providence fund payment voucher.	

Table C.42. Process (Print Salary Payment Voucher, Tax Voucher, Social Securities Payment Voucher, Providence Fund Payment Voucher).

Process number:	11.3
Name:	Print salary payment voucher, tax voucher, social securities payment voucher, providence fund payment voucher
Input:	Information
Output:	Salary payment voucher, Tax voucher, Social securities payment voucher, providence fund payment voucher
Process description — Get information from process 11.2 and print salary payment voucher, tax voucher, social securities payment voucher, providence fund payment voucher.	

APPENDIX D

DATA DICTIONARY: THE EXPEND SYSTEM

ASSUMPTION UNIVERSITY OF THAILAND
LABOR OMNIA VINCIT
SINCE1969

DATA DICTIONARY

Table D.1. Record Data.

Object Name	Object Type	Long Description
Record data	Data Flow	*Tax invoice and delivery document data + Purchase order + Employee contact + Receiving invoice document data + Invoice data + Receiving goods document data + List testing applicant + Pre-cash document data + Summary pretty cash report + Pretty cash document data + Receipt data + Raw material document data + Goods data + Summary salary data* Tax invoice and delivery document data = *Tax invoice number + Delivery document number + Date + Supplier's name + Location + Description + Unit + Price per unit + Amount* Tax invoice number = *Digit Number* Delivery document number = *Digit Number* Date = *DD + MM + YY* Supplier's name = *Character* Location = *Character* Description = *Character* Unit = *Digit Number* Price per unit = *Digit Number* Amount = *Digit Number*

Table D.1. Record Data. (Continued)

Object Name	Object Type	Long Description
Record data	Data Flow	Purchase order = *Purchase order number + Suppliers' name + Location + Date + Approve number + Description + Unit + Price per unit + Amount* Purchase order number = *Digit Number* Suppliers' name = *Character* Location = *Character* Date = *DD + MM + YY* Approve number = *Digit Number* Description = *Character* Unit = *Digit Number* Price per unit = *Digit Number* Amount = *Digit Number* Employee contact = *Supplier's name + Location + Date of delivery + Time + Description + Unit + Price per unit + Due data* Supplier's name = *Digit Number* Location = *Digit Number* Date of delivery = *DD + MM + yy* Time = *Digit Number* Description = *Digit Number* Unit = *Digit Number* Price per unit = *Digit Number*

Table D.1. Record Data. (Continued)

Object Name	Object Type	Long Description
Record data	Data Flow	Due data = *DD + MM + YY* Receiving invoice document data =*Receiving invoice document number + Date + Name of receiving invoice + Date of receiving invoice + Delivery document number + Amount + Remark* Receiving invoice document number = *Digit Number* Date = * DD + MM + YY* Name of receiving invoice = *Character* Date of receiving invoice = * DD + MM + YY* Delivery document number = *Digit Number* Amount = *Digit Number* Remark = *Character* Invoice data = *Invoice number + Date + Supplier's name + Location + Description + Unit + Price per unit + Discount + Amount + Total Amount + With holding tax + Net total* Invoice number = *Digit Number* Date = *DD + MM + YY* Supplier's name = *Character* Location = *Character* Description = *Character*

Table D.1. Record Data. (Continued)

Object Name	Object Type	Long Description
Record data	Data Flow	Unit = *Digit Number* Price per unit = *Digit Number* Discount = *Digit Number* Amount = *Digit Number* Total Amount = *Digit Number* With holding tax = *Digit Number* Net total = *Digit Number* Receiving goods document data = *Receiving goods number + Date + Supplier's name + Delivery document number + Purchase order number + Barcode + Description + Unit + Price per unit + Amount* Receiving goods number = *Digit Number* Date = *DD + MM + YY* Supplier's name = *Character* Delivery document number = *Digit Number* Purchase order number = *Digit Number* Barcode = *Barcode* Description = *Character* Unit = *Digit Number* Price per unit = *Digit Number* Amount = *Digit Number*

Table D.1. Record Data. (Continued)

Object Name	Object Type	Long Description
Record data	Data Flow	List testing applicant = *Name Surname + Number of testing applicant + Subject + Fee* Name Surname = *Character* Number of testing applicant = *Digit Number* Subject = *Character* Fee = *Digit Number* Pre-cash document data = *Pre-cash document number + Name + Department + Date + Date of Clearing cash + Amount* Pre-cash document number = *Digit Number* Name = *Character* Department = *Character* Date = *DD + MM + YY* Date of Clearing cash = *DD + MM + YY* Amount = *Digit Number* Summary pretty cash report = *Description + Accounting code + Amount + Remark + Total amount* Description = *Character* Accounting code = *Digit Number* Amount = *Digit Number* Remark = *Character*

Table D.1. Record Data. (Continued)

Object Name	Object Type	Long Description
Record data	Data Flow	Total amount = *Digit Number* Pretty cash document data = *Pretty cash number + Name of receiving + Date + Description + Type of Account* Pretty cash number = *Digit Number* Name of receiving = *Character* Date = *DD + MM + *)(Y** Description = *Character* Type of Account = *Digit Number* Receipt data = *Receipt number + Supplier's name + Location + Description + Amount + Total amount + VAT7/0 + Total amount* Receipt number = *Digit Number* Supplier's name = *Character* Location = *Character* Description = *Character* Amount = *Digit Number* Total amount = *Digit Number* VAT7% = *Digit Number* Total amount = *Digit Number* Raw material document data = *Raw material document number + Date + Description + Unit*

Table D.1. Record Data. (Continued)

Object Name	Object Type	Long Description
Record data	Data Flow	Raw material document number = *Digit Number* Date = *DD + MM + YY* Description = *Character* Unit = *Digit Number* Goods data = *Barcode number* Barcode number = *Digit Number* Summary salary data = *Month + Year + Department + Number of employee + Salary + Social Securities fund + With holding tax + Providence fund + Net salary* Month = *Digit Number* Year = *Digit Number* Department = *Character* Number of employee = *Digit Number* Salary = *Digit Number* Social Securities fund = *Digit Number* With holding tax = *Digit Number* Providence fund = *Digit Number* Net salary = *Digit Number* Character = [A-Z I a-z I n-a I 411111111[1]410 I 0-9 III.I$I &I%I@Iiii *] Digit Number = 0 {Number} 9

Table D.1. Record Data. (Continued)

Object Name	Object Type	Long Description
Record data	Data Flow	DD = 1 {Number} 31 MM = 1 {Number} 12 YY = 00 {Number} 99

Table D.2. Issue Purchase Voucher.

Object Name	Object Type	Long Description
Issue purchase voucher	Data Flow	*Tax invoice and delivery document data + Purchase order data* Tax invoice and delivery document data = *Tax invoice and delivery number + Supplier's name + Location + Date + Barcode + Description + Unit + Price per unit + Discount + Amount + Total amount + VAT7% + Net total* Tax invoice and delivery number = *Digit Number* Supplier's name = *Character* Location = *Character* Date = *DD + MM + YY* Barcode = *Barcode* Description = *Character* Unit = *Digit Number* Price per unit = *Digit Number*

Table D.2. Issue Purchase Voucher. (Continued)

Object Name	Object Type	Long Description
Issue purchase voucher	Data Flow	Discount = *Digit Number* Amount = *Digit Number* Total amount = *Digit Number* VAT7% = *Digit Number* Net total = *Digit Number* Purchase order data = *Purchase order number + Date + Supplier's name + Location + Date of delivery + Time + Description + Unit + Price per unit + Amount + Remark + Due date* Purchase order number = *Digit Number* Date = *DD + MM + YY* Supplier's name = *Character* Location = *Character* Date of delivery = *DD + MM + YY* Time = *Character* Description = *Character* Unit = *Digit Number* Price per unit = *Digit Number* Amount = *Digit Number* Remark = *Character* Due date = *DD + MM + YY*

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Table D.2. Issue Purchase Voucher. (Continued)

Object Name	Object Type	Long Description
Issue purchase voucher	Data Flow	Character = [A-Z 1 a-z 1 n-a I rfnflitrana 10-9 1 III. 11131 &1%1@1#1 *] Digit Number = 0 {Number} 9 DD = 1 {Number}31 MM = 1 {Number} 12 YY = 00 {Number} 99

Table D.3. Issue Purchase Order.

Object Name	Object Type	Long Description
Issue purchase order	Data Flow	*Employee contact + Purchase order data* Employee contact = *Supplier's name + Location + Date of delivery + Time + Description + Unit + price per unit + Due date* Supplier's name = *Character* Location = *Character* Date of delivery = *DD + MM + YY* Time = *Character* Description = *Character* Unit = *Digit Number* Price per unit = *Digit Number* Amount = *Digit Number*

Table D.3. Issue Purchase Order. (Continued)

Object Name	Object Type	Long Description
Issue purchase order	Data Flow	Due date = *DD + MM + YY* Purchase order data = *Purchase order number + Date + Supplier's name + Location + Date of delivery + Time + Description + Unit + Price per unit + Amount + Remark + Due date* Purchase order number = *Digit Number* Date = *DD + MM + YY* Supplier's name = *Character* Location = *Character* Date of delivery = *DD + MM + YY* Time = *Character* Description = *Character* Unit = *Digit Number* Price per unit = *Digit Number* Amount = *Digit Number* Remark = *Character* Due date = *DD + MM + YY* Character = [A-Z I a-z I n-g I =imam 10-9 1/ 1.1113 I &1%1@1#1 *] Digit Number = 0 {Number} 9 DD = 1 {Number}31 MM = 1 {Number} 12

Table D.3. Issue Purchase Order. (Continued)

Object Name	Object Type	Long Description
Issue purchase order	Data Flow	YY = 00 {Number} 99

Table D.4. Issue Receiving Goods Document.

Object Name	Object Type	Long Description
Issue receiving goods document	Data Flow	*Tax invoice and delivery document data + Purchase order data + Receiving goods document data* Tax invoice and delivery document data = *Delivery document number + Supplier's name + Location + Date + Barcode + Description + Unit + Price per unit + Amount + Remark* Delivery document number = *Digit Number* Supplier's name = *Character* Location = *Character* Date = *DD + MNI + YY* Barcode = *Barcode* Description = *Character* Unit = *Digit Number* Price per unit = *Digit Number* Amount = *Digit Number*

Table D.4. Issue Receiving Goods Document. (Continued)

Object Name	Object Type	Long Description
Issue receiving goods document	Data Flow	Remark = *Character* Purchase order data = *Purchase order number + Date + Supplier's name + Location + Date of delivery + Time + Description + Unit + Price per unit + Amount + Remark + Due date* Purchase order number = *Digit Number* Date = *DD + MM + YY* Supplier's name = *Character* Location = *Character* Date of delivery = *DD + MM + YY* Time = *Character* Description = *Character* Unit = *Digit Number* Price per unit = *Digit Number* Amount = *Digit Number* Remark = *Character* Due date = *DD + MM + YY* Receiving goods document data = *Receiving goods document number + Date + Supplier's name + Delivery document number + Purchase order number + Barcode + Description + Unit + Price per unit + Amount + Remark*

Table D.4. Issue Receiving Goods Document. (Continued)

Object Name	Object Type	Long Description
Issue receiving goods document	Data Flow	Receiving goods document number = *Digit Number* Date = *DD + M1V1 + YY* Supplier's name = *Character* Delivery document number = *Digit Number* Purchase order number = *Digit Number* Barcode = *Barcode* Description = *Character* Unit = *Digit Number* Price per unit = *Digit Number* Amount = *Digit Number* Remark = *Character* Character = [A-Z I a-z Ho I unDitillena I 0-9 I II . 113 &1%1@i#1 *] Digit Number = 0 {Number} 9 DD = 1 {Number}31MM = 1 {Number} 12 YY = 00 {Number} 99

Table D.S. Issue Payment Voucher.

Object Name	Object Type	Long Description
Issue payment voucher	Data Flow	*Receiving invoice document data + Tax invoice and delivery document data + Receiving goods document data + Purchase order data + Invoice data + List testing applicant + Pre-cash document data + Summary pretty cash report + Pretty cash document + Receipt data + Payment voucher* Receiving invoice document data =*Receiving invoice document number + Date + Name of receiving invoice + Date of receiving invoice + Delivery document number + Amount + Remark* Receiving invoice document number = *Digit Number* Date = * DD + MM + YY* Name of receiving invoice = *Character* Date of receiving invoice = * DD + MM + YY* Delivery document number = *Digit Number* Amount = *Digit Number* Remark = *Character* Tax invoice and delivery document data = *Delivery document number + Supplier's name + Location + Date + Barcode + Description + Unit + Price per unit + Amount + Remark*

Table D.5. Issue Payment Voucher. (Continued)

Object Name	Object Type	Long Description
Issue payment voucher	Data Flow	Delivery document number = *Digit Number* Supplier's name = *Character* Location = *Character* Date = *DD + MIM + YY* Barcode = *Barcode* Description = *Character* Unit = *Digit Number* Price per unit = *Digit Number* Amount = *Digit Number* Remark = *Character* Receiving goods document data = *Receiving goods number + Date + Supplier's name + Delivery document number + Purchase order number + Barcode + Description + Unit + Price per unit + Amount* Receiving goods number = *Digit Number* Date = *DD + MIIVI + YY* Supplier's name = *Character* Delivery document number = *Digit Number* Purchase order number = *Digit Number* Barcode = *Barcode* Description = *Character* Unit = *Digit Number*

Table D.5. Issue Payment Voucher. (Continued)

Object Name	Object Type	Long Description
Issue payment voucher	Data Flow	Price per unit = *Digit Number* Amount = *Digit Number* Invoice data = *Invoice number + Date + Supplier's name + Location + Description + Unit + Price per unit + Discount + Amount + Total Amount + With holding tax + Net total* Invoice number = *Digit Number* Date = *DD + MiN4 + YY* Supplier's name = *Character* Location = *Character* Description = *Character* Unit = *Digit Number* Price per unit = *Digit Number* Discount = *Digit Number* Amount = *Digit Number* Total Amount = *Digit Number* With holding tax = *Digit Number* Net total = *Digit Number* Name Surname = *Character* List testing applicant = *Name Surname + Number of testing applicant + Subject + Fee* Number of testing applicant = *Digit Number*

Table D.5. Issue Payment Voucher. (Continued)

Object Name	Object Type	Long Description
Issue payment voucher	Data Flow	Subject = *Character* Fee = *Digit Number* Pre-cash document data = *Pre-cash document number + Name + Department + Date + Date of Clearing cash + Amount* Pre-cash document number = *Digit Number* Name = *Character* Department = *Character* Date = *DD + MM + YY* Date of Clearing cash = *DD + MM + YY* Amount = *Digit Number* Summary pretty cash report = *Description + Accounting code + Amount + Remark + Total amount* Description = *Character* Accounting code = *Digit Number* Amount = *Digit Number* Remark = *Character* Total amount = *Digit Number* Pretty cash number = *Digit Number* Pretty cash document data = *Pretty cash number + Name of receiving + Date + Description + Type of

Table D.5. Issue Payment Voucher. (Continued)

Object Name	Object Type	Long Description
Issue payment voucher	Data Flow	Account* Name of receiving = *Character* Date = *DD + MM + YY* Description = *Character* Type of Account = *Digit Number* Receipt data = *Receipt number + Supplier's name + Location + Description + Amount + Total amount + VAT7% + Total amount* Receipt number = *Digit Number* Supplier's name = *Character* Location = *Character* Description = *Character* Amount = *Digit Number* Total amount = *Digit Number* VAT7% = *Digit Number* Total amount = *Digit Number* Payment voucher = *Payment voucher number + Name of receiver + Date + Cheque's number + Bank + Due date + Amount + Description + Amount Accounting* Payment voucher number = *Digit Number* Name of receiver = *Character*

Table D.S. Issue Payment Voucher. (Continued)

Object Name	Object Type	Long Description
Issue payment voucher	Data Flow	Date = *DD + MM + YY* Cheque's number = *Digit Number* Bank = *Character* Due date = *DD + MM + YY* Amount = *Digit Number* Description = *Character* Amount Accounting = *Character* Character = [A-Z I a-z I n-a ı fini111111118 I 0-9 I I I•1 ¹B1 &I%I@I#I *] Digit Number = 0 {Number} 9 DD = 1 {Number}31 MM = 1 {Number}12 YY = 00 {Number} 99

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Table D.6. Check Raw Material.

Object Name	Object Type	Long Description
Check raw material	Data Flow	*Raw material data + Stock raw material data* Raw material data = *Raw material document number + Date + Barcode + Description + Unit* Raw material document number = *Digit Number* Date = *DD + MM + YY* Barcode = *Barcode* Description = *Character* Unit = *Digit Number* Stock raw material data = * Stock raw material + Order raw material* Stock raw material = *Digit Number* Order raw material = *Digit Number* Character = [A-Z I a-z I t1-6 I anintillim 10-9 I /I. 1 SI &1%1@l#1 * 1 Digit Number = 0 {Number} 9 DD = 1 {Number}31 MM = 1 {Number} 12 YY = 00 {Number} 99

Table D.7. Issue General Voucher.

Object Name	Object Type	Long Description
Issue general voucher	Data Flow	*Receipt data + Pre-cash document data + Pretty cash document data + General voucher* Receipt data = *Receipt number + Supplier's name + Location + Description + Amount + Total amount + VAT7% + Total amount* Receipt number = *Digit Number* Supplier's name = *Character* Location = *Character* Description = *Character* Amount = *Digit Number* Total amount = *Digit Number* VAT7% = *Digit Number* Total amount = *Digit Number* Pre-cash document data = *Pre-cash document number + Name + Department + Date + Date of Clearing cash + Amount* Pre-cash document number = *Digit Number* Name = *Character* Department = *Character* Date = *DD + MM + YY* Date of Clearing cash = *DD + MM + YY* Amount = *Digit Number*

Table D.7. Issue General Voucher. (Continued)

Object Name	Object Type	Long Description
Issue general voucher	Data Flow	Pretty cash document data = *Pretty cash number + Name of receiving + Date + Description + Type of Account* Pretty cash number = *Digit Number* Name of receiving = *Character* Date = *DD + MIN4 + YY* Description = *Character* Type of Account = *Digit Number* General voucher = *General voucher number + Date + Name of Account + Accounting code + Accounting* General voucher number = *Digit Number* Date = *DD + MM + YY* Name of Account = *Character* Accounting code = *Digit Number* Accounting = *Character* Character = [A-Z 1 a-z I n-o 1 annitanv I 0-9 I / I . I C &1%1@i#1 * 1 Digit Number = 0 {Number} 9 DD = 1 {Number}31 MM = I {Number} 12 YY = 00 {Number} 99

Table D.B. Issue Input Tax Report.

Object Name	Object Type	Long Description
Issue input tax report	Data Flow	*Tax invoice and delivery document data + Input tax report* Tax invoice and delivery document data = *Tax invoice number + Date + Price + Amount + VAT7%* Tax invoice number = *Digit Number* Date = *DD + MM + YY* Price = *Digit Number* Amount = *Digit Number* VAT7% = *Digit Number* Input tax report = *Month + Year + Company's name + Name + Date + Tax invoice number + Price + Amount + VAT7%* Month = *MM* Year = *YY* Company's name = *Character* Name = *Character* Date = *DD + MM + YY* Tax invoice number = *Digit Number* Price = *Digit Number* Amount = *Digit Number* VAT7% = *Digit Number* Digit Number = 0 {Number} 9

Table D.B. Issue Input Tax Report. (Continued)

Object Name	Object Type	Long Description
Issue input tax report	Data Flow	Character = [A-Z I a-z I n-o I ffnnitrana I 0-9 I / I . 113 &1%1@1#1 * 1 DD = 1 {Number}31 MM = 1{Number}12 YY = 00 {Number} 99

Table D.9. Issue Salary Payment Voucher, Tax Voucher, Social Securities Payment Voucher, Providence Fund Payment Voucher.

Object Name	Object Type	Long Description
Issue salary payment voucher, tax voucher, social securities payment voucher, providence fund payment voucher	Data Flow	*Summary salary data + Salary payment voucher + Tax voucher + Social securities payment voucher + Providence fund payment voucher* Summary salary data = *Month + Year + Department + Number of employee + Salary + Social Securities fund + With holding tax + Providence fund + Net salary* Month = *Digit Number* Year = *Digit Number* Department = *Character* Number of employee = *Digit Number* Salary = *Digit Number*

Table D.9. Issue Salary Payment Voucher, Tax Voucher, Social Securities Payment Voucher, Providence Fund Payment Voucher. (Continued)

Object Name	Object Type	Long Description
Issue salary payment voucher, tax voucher, social securities payment voucher, providence fund payment voucher	Data Flow	Social Securities fund = *Digit Number* With holding tax = *Digit Number* Providence fund = *Digit Number* Net salary = *Digit Number* Character = [A-Z I a-z I n-o I rinfrarrana I 0-9 I /1 . 1131 &I%I@I#i *] Digit Number = 0 {Number} 9 DD = 1 {Number}31 MM = 1 {Number} 12 YY = 00 {Number} 99

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