



A Personnel Information System for Durbell Co., Ltd.

by

Mr. Sukit Nakmai

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

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Project Title            A Personnel Information System for Durbell Co., Ltd.

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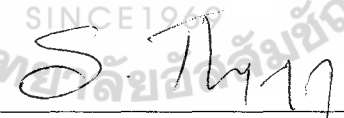
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The Graduate School of Assumption University has approved this final report of the three-credit course, CE 6998 PROJECT, submitted in partial fulfillment of the requirements for the degree of Master of Science in Computer and Engineering Management.

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## ABSTRACT

Human resource department is a vital department in almost every organization. The current system of Durbell Co., Ltd. is manual. Most data are stored on papers, while some parts are kept in Microsoft Excel, and stored in the file server. Each branch has its own staff to manage the human resource process. There are some problems in the organization with high error rates, data redundancy, and require many administrative staffs to maintain the system. The existing system is studied and analyzed using the data flow diagrams as a structured tool. The new system is developed to solve the current problems and support the decision making at the management level.

The proposed system is a database system which is connected to a limited area as the intranet that connects every branch to use the same database or the data centralization system. In this project, it includes system specification, system design, hardware and software requirement, security and control of the proposed system in order to support the decision making of this system

The proposed system will be implemented after the process of analysis and design. It includes the testing of the whole system, installation both hardware and software, Training users and conversion from the current system to the proposed system.

After evaluation of the proposed system, it was found that the performance of the proposed system takes less time than the current system and brings the benefits to the organization in several ways such as reduce the data redundancy, human error and increase the performance of management.

## ACKNOWLEDGEMENTS

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## **I. INTRODUCTION**

### **1.1 Background of the Project**

Nowadays, the most important thing in the business is the information. The information system is the part of every organization. The organization that has no information system may be out of the business easily. One important key of an organization is the personnel process. The organization can grow and compete with others if they have the qualified personnel working. The organization required different kinds of skills and people. The most major problems are the time-consumption in operating and retrieving the employee information, data redundancy, inconsistent information, large volumes of papers especially when the current system is the manual system.

Human resource department is the major organization function. It manages the employee such as developing, training, motivating the employee. This department involves the employee records in the database directly.

Personnel Information System for Durbell Co., Ltd is developed to support the quick growth of the employees of the organization. It is developed in the computer because now it uses the manual system and every branch has it own process to manage the personnel such as the recruiting and training of the employees. That makes the data redundant and hard to manage information. This project will reduce the errors.

This project focuses on keeping the employee information or the personnel information module only. It does not include the other modules of the human resource management system such as recruit module, promotion module, time-record module, welfare module, etc.

### **1.2 Objectives of the Project**

- (1) Record all information of employees of the company including General data, Address, Family, Education, Parent, and Salary.
- (2) Reduce the personnel problem – find the employee information easier
- (3) Trackable employee information when they are resigned
- (4) Increase the performance of Human resource Management

### **1.3 Scope of the Project**

The project covers the Personnel Information System that includes:

- (1) Personnel Information management
- (2) Employee personnel information
- (3) Employee movement transaction management such as resigned



## **II. THE EXISTING SYSTEM**

### **2.1 Background of the Organization**

Durbell Co., Ltd. is the distributor company to the wholesale and retail shop. It was established in 2000. The company has grows very quickly and now it has the around 1000 employees. The company has 20 distribution centers in the regional areas of Thailand. Every branch is linked together through leased line and data can be managed at the Headquarters or data centralization system.

Now the company is using the manual system to keeps the information of employee that makes the problems when the Human Resource Department wants to find the information of the employee and high maintenance cost to deal with these tasks.

The general personal information system will include the following:

- (1) General Data such as ID Card No., Status, Position
- (2) Address data
- (3) Education Data
- (4) Family Data
- (5) Parent Data

This project will be developed to keep all this information and replace the manual system for solve the problem of manual system and decrease the high maintenance cost.

### **2.2 Current Problems and Area for Improvements**

#### **2.2.1 Current Problems**

The current problems of the existing system can be identified as follows:

- (a) inaccuracy and unavailability of information needed

Most information is kept on paper so the data gathering may be inaccurate and take time. The information cannot be provided to top management as it has mistakes.

(b) Too much paper work

Mostly the information concerning employees is recorded on paper. The large volume of personnel can cause the company to waste space in keeping those papers. The work may be loaded at somebody's department in the process.

(c) Repetitive work

Some work may be done repetitively which creates inaccurate information and some data are lost in the process.

(d) Not enough facility to support workflow

Due to the manual operation, all work can be done very slowly. It is very difficult and takes more time in filling and searching for information needed. There is no convenient equipment to increase speed of work.

(e) Human errors

Personnel staff can make mistakes during gathering the employee's information or when making reports. Poor handwriting can make a big trouble.

(f) Redundancy

Inconsistent redundancy in data processing stages and takes a long time in preparing information.

### 2.2.2 Areas of Improvements



The existing system is the manual system. It is not suitable in updating employee records. When people deal with much information, there are chances to make errors.

Furthermore, the speed in processing is quite slow as well. It is very difficult to improve the consistency.

Administration and Human Resource Department needed to improve the personnel filling system, which will facilitate employee performance, evaluation, planning and managing. The new way of filling employee's information should reduce the amount of paper work in order to reduce the operating cost spent on storing and maintaining data.

New facilities, hardware and software, should be introduced to the Human Resource Department. So the personnel staff must learn to use them effectively. This can reduce the mistake from human errors as well. With the new tools, the security control will be better and guaranteed. The chance of losing data in the process will be decreased.

### **2.3 Existing Business Function**

The existing information system of Administration and Human Resource Department mostly is a manual operation.

- (1) Planning and Forecasting the organization in short-term and long-term  
Admin and Human Resource Requirement
- (2) Administration staff status such as resignation and retirement
- (3) Handling staff information
- (4) Manage human resource effectively
- (5) Prepare requested report
- (6) Governing staff salary

- (7) Setting staff function in job description
- (8) Keeping and record of staff information



### III. THE PROPOSED SYSTEM

After defining the problems, the next step is to design the proposed system. This system will include inputs, outputs, and operations including the resources required by the new system. This new system has the objective to meet the present and future needs of Administrator and Human Resource Department as well as sharing the information with other departments.

#### 3.1 System Specification

Administrator and Human Resource Department does not work alone. It has to coordinate with other departments. In order to know user requirements, all the existing forms were analyzed, some activities had been observed and some employees had been interviewed. The user requirements can be defined as follows:

- (1) The system should always keep only the updated information in order to produce accurate reports. It is necessary for the system to be able to provide timely information to the top management for future use.
- (2) Information can be shared among several users at the same time
- (3) The system should reduce the volume of paper work in order to save the storage space and reduce the operating cost in searching them
- (4) There must be some way to keep, protect, and backup the database and recover it when it is damaged or lost
- (5) The system should reduce the operating cost as much as possible
- (6) The reports required should be produced correctly as desired
- (7) The system should be more reliable and consistent in procedure to eliminate error.
- (8) The system is easy to maintain

## 3.2 System Design

From the scope of project concerning the functional areas of Administrator and Human Resource Department, Some repetitive tasks have been eliminated and there is increasing productivity of work. Existing procedure and user requirement are used as a basis for designing a new computerized information system that is proposed as the solution of current problems.

### 3.2.1 Input Design

The form of input for Administrator and Human Resource Department will include:

- (a) General information
- (b) Address information
- (c) Family information
- (d) Education and work background information
- (e) Salary information

### 3.2.2 Output Design

Output is mostly in the form of reports that can also support the decision of the management level. The form of report will be shown in Appendix B

- (a) Employee list by department
- (b) Employee report to calculate yearly tax

### 3.2.3 Screen Design

The interface design of Personnel Information System will be shown in Appendix A.

### 3.2.4 Process Design



As the existing system has some defects, the new system needs to be designed. The new process has been restructured to increase the working performance of the employee. The process is designed for Administrator and Human Resource Department. The new process can be viewed in Figure 3.1 – 3.4. The process specification is illustrated in Appendix D.



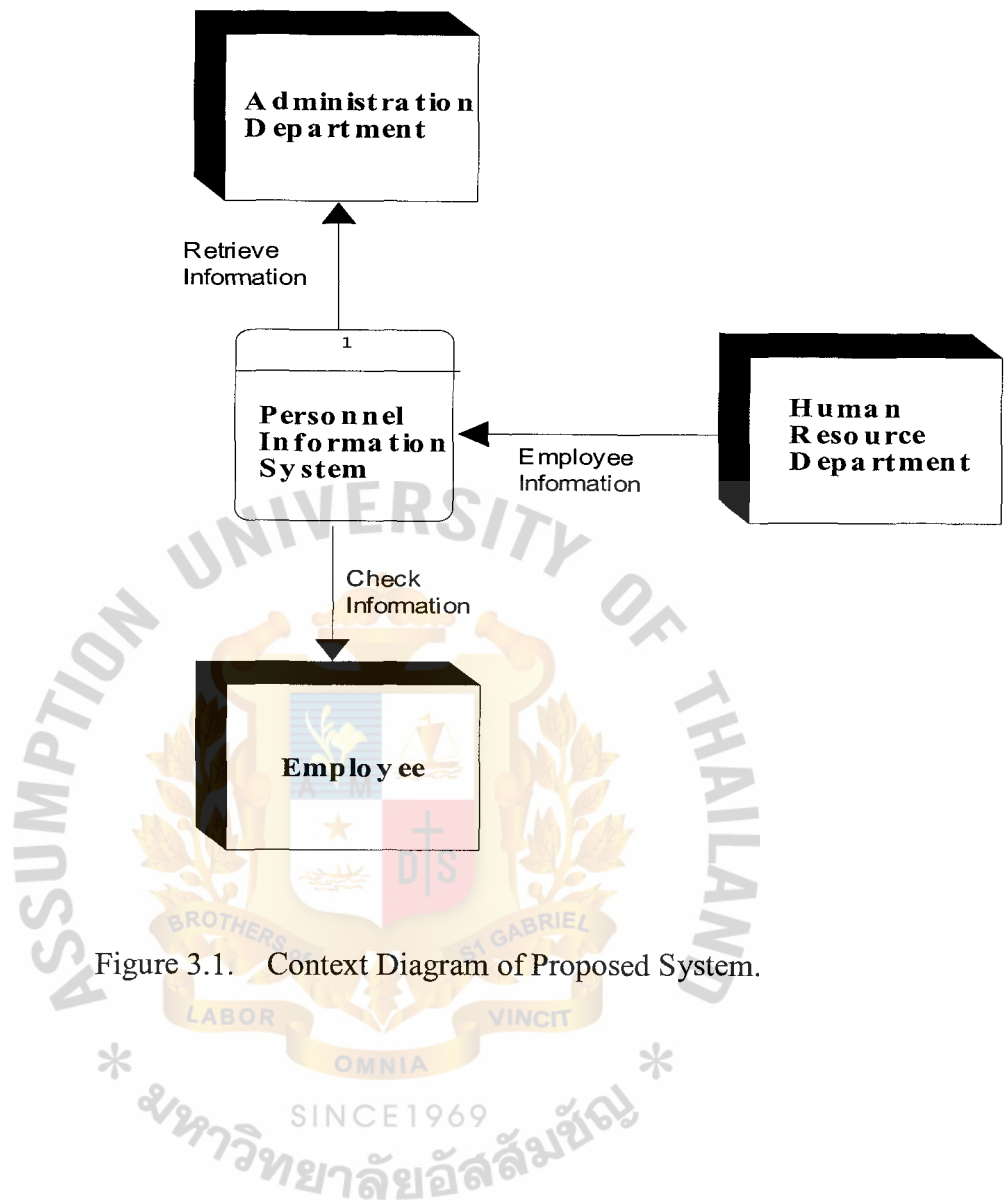


Figure 3.1. Context Diagram of Proposed System.

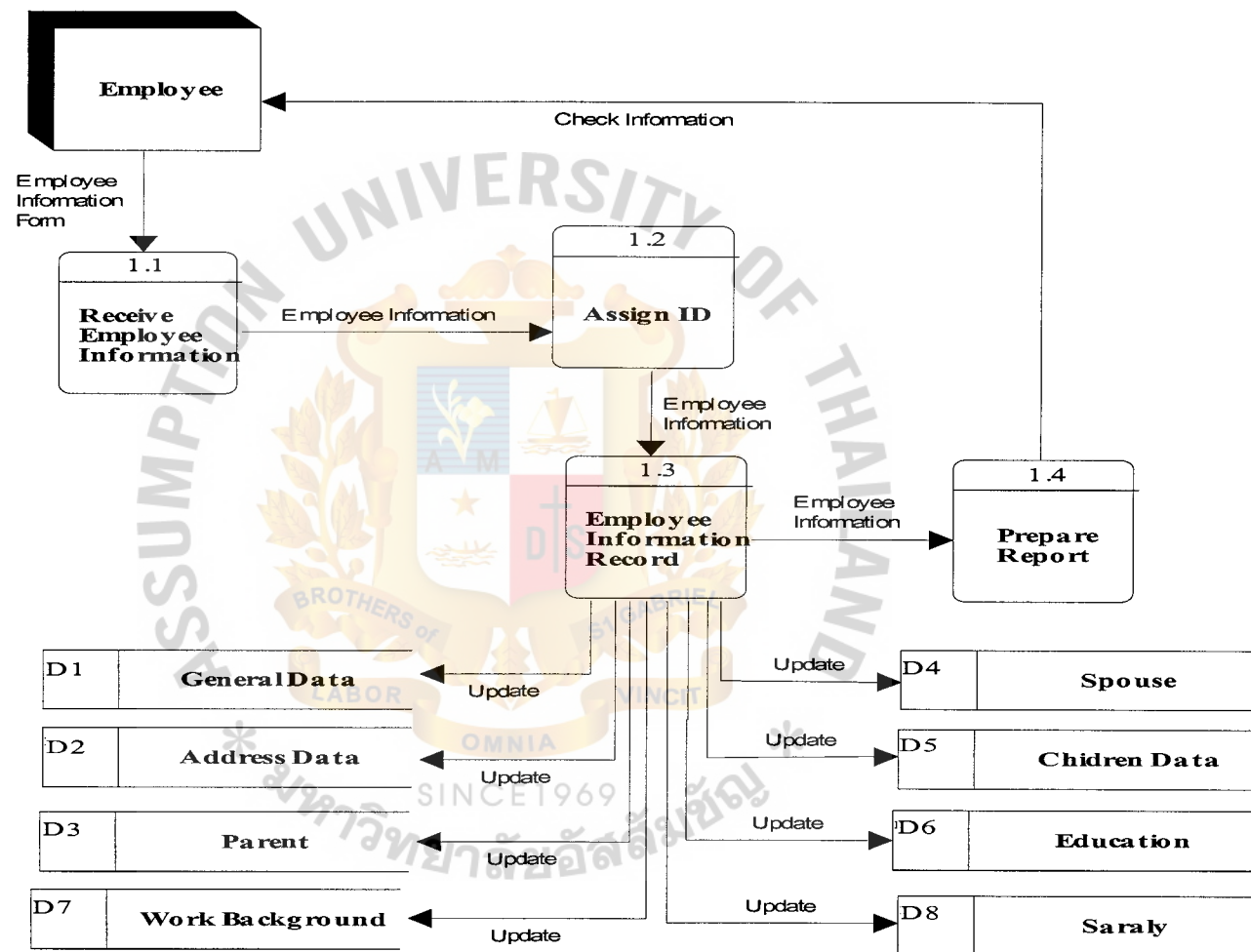


Figure 3.2. Data Flow Diagram of Purposed System.

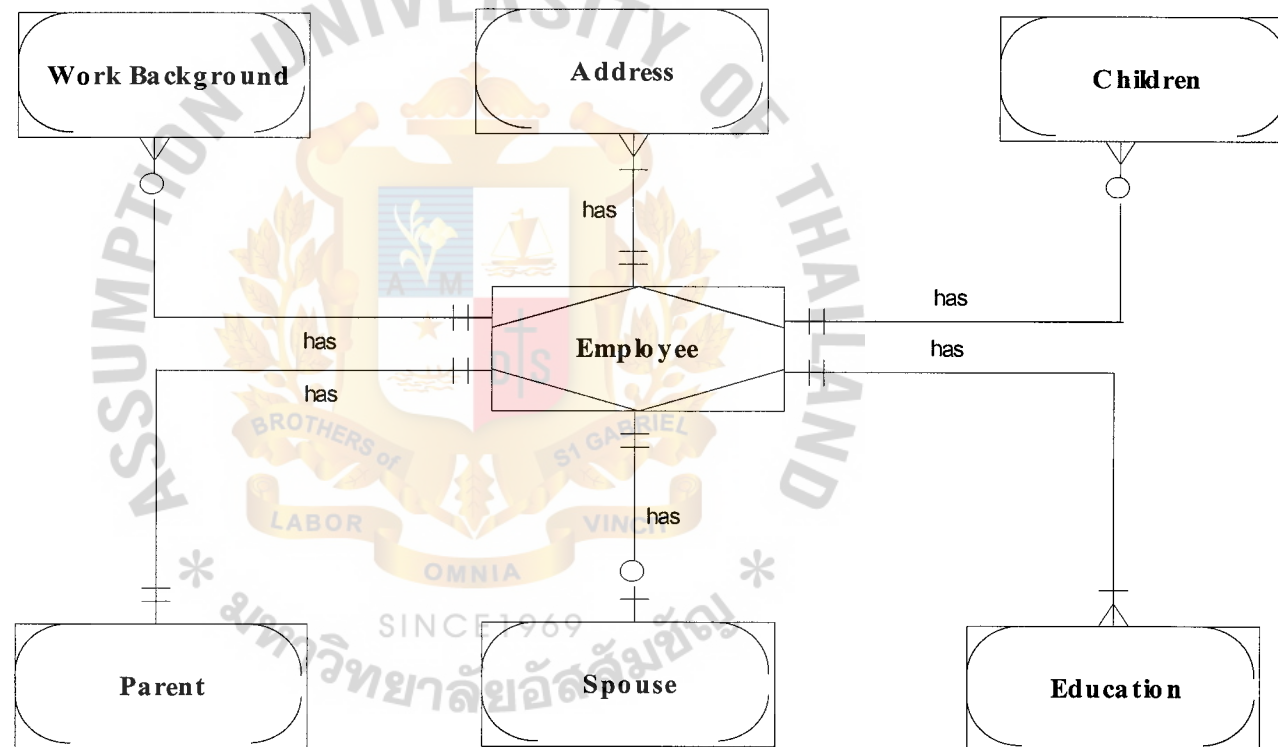


Figure 3.3. Context Data Model of Personnel Information System.



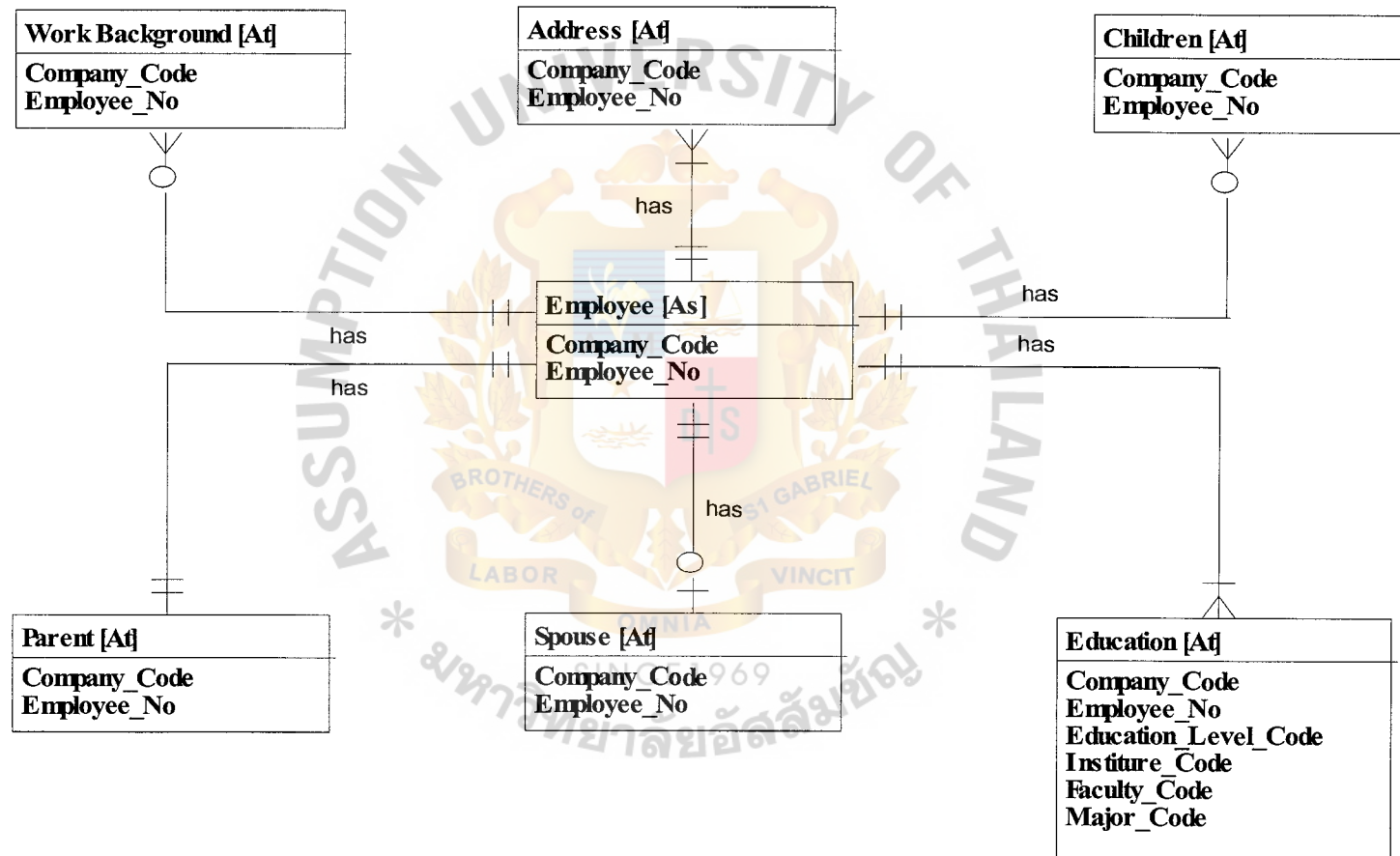


Figure 3.4. Key-Based Data Model of Personnel Information System.

### 3.2.5 Database Design

Relational database is selected as database architecture. The Microsoft SQL 2000 Standard Edition has been selected. The database is shown in Appendix C.

### 3.3 Hardware and Software requirement

The appropriate hardware and software specification will save costs in implementing a new project. The cost of hardware and software has to be calculated because it is an important factor in deciding to change to the new system. It needs to know the amount to be paid by comparing the cost of existing system and new system that will help to make the decision.

In this project, it focuses on the network system that will change from the manual system to a computer system in order to use computers more efficiently. As the data are kept in the database, the information can be shared.

The star topology is the best choice of connection. The server manages the transmission of data and message between the other clients. The connection of Durbell Network can be viewed in Figure 3.5. The hardware and software specification, is shown in Table 3.1 – 3.4

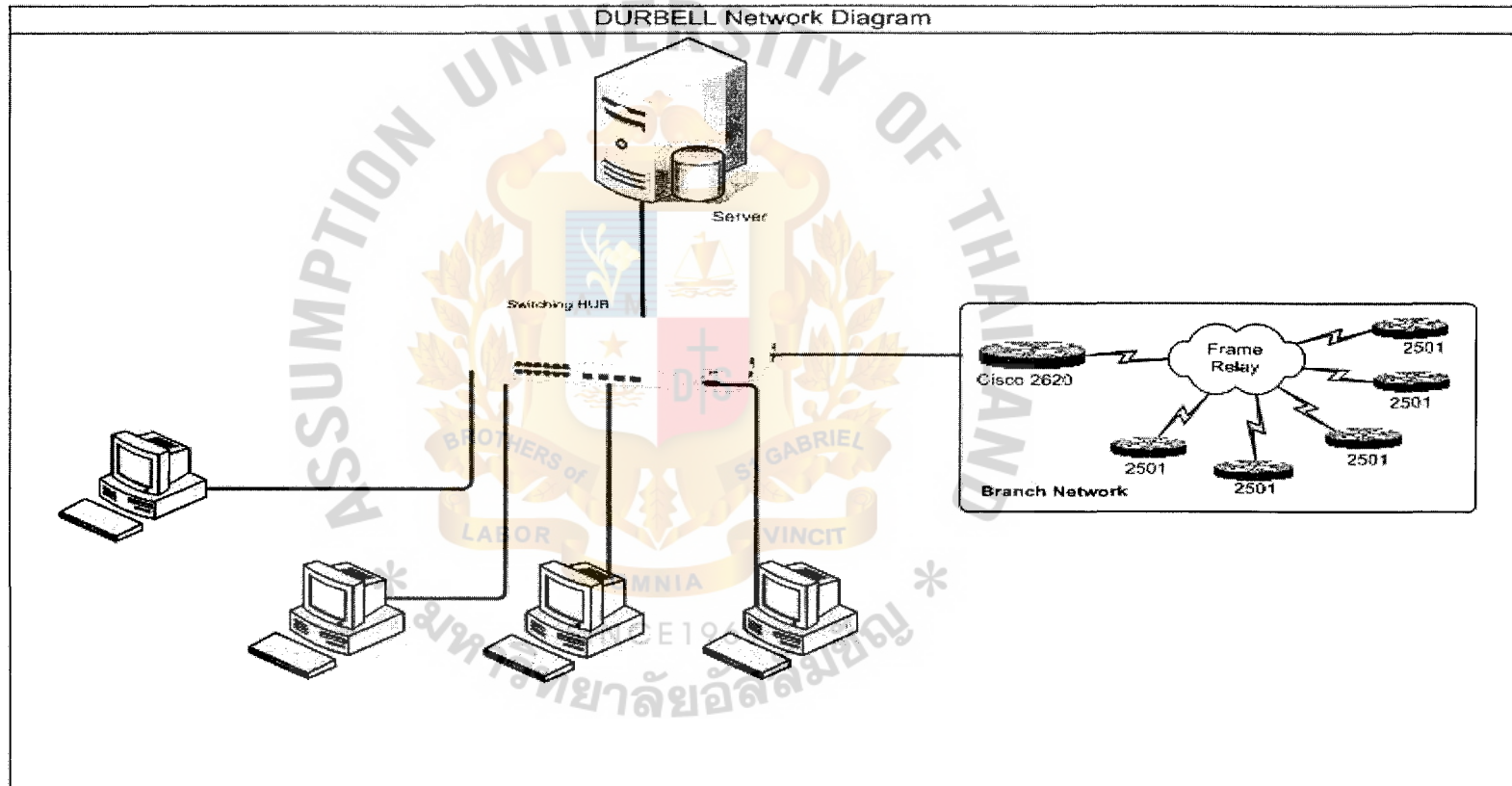


Figure 3.5. The hardware configuration of Personnel Information System

Table 3.1. The hardware specification for Server.

Hardware	Specification
CPU	Intel Xeon 2.8 GHz or higher
Memory	512 MB
Hard disk	36.4 GB
Monitor	14" SVGA
Input Device	Keyboard 104 keys, Mouse
Floppy Disk	3.25" 1.44 MB
Network Adaptor	On Mainboard
CD-ROM Drive	40X or higher

Table 3.2. The hardware specification for workstation.

Hardware	Specification
CPU	Celeron 1.5 GHz or higher
Memory	256 MB
Hard disk	40 GB
Monitor	14" SVGA
Input Device	Keyboard 104 keys, Mouse
Floppy Disk	3.25" 1.44 MB
Network Adaptor	On Mainboard
CD-ROM Drive	40X or higher



Table 3.3. Other hardware specifications.

Hardware	Specification
Printer	HP LaserJet 1300 HP DeskJet 5550
Scanner	HP ScanJet 3500C
UPS	Leonics
Tape Backup	HP DLT VS 40/80

Table 3.4. Software specification.

Software	Specification
Operating System	Microsoft Windows 2000 Server Microsoft Windows XP
DBMS	Microsoft SQL 2000 Server
Development Software	Microsoft Visual Basic 6.0
Document preparation software	Microsoft Office XP

3.4 Security and Controls

Security and control are divided into 3 types as follows:

3.4.1 Operational Security

This type of security protects hardware and software from either intentional or inadvertent treats. At this level of security, 3 more securities can be classified as follows:

- (1) Hardware security

- (a) Limit access to the computer server room.
  - (b) Backup data by using tape backup storage.
  - (c) UPS are used in order to prevent the damage occurring from electricity problems.
- (2) Software security
- (a) It can be used for protection of data from unauthorized or non privileged users.
- (3) Password security
- (a) User must enter the username and password before using the system. Each user has different authorization and role on the database. System Administration will control the environment in accessing any application of each user.
  - (b) The users must change their passwords frequently and keep password privately.

#### 3.4.2 Data security

- (1) Backup data everyday in order to prevent data losts and to make a recovery when data are damaged.
- (2) Restrict access to certain data items such as read only data access.
- (3) Keep logs of all transaction in the database.

#### 3.4.3 User Security

- (1) Personnel staffs should be trained how to use the hardware and software in order to prevent human errors.
- (2) Inform users to know the danger of computer viruses and the procedure to deal with it.

### 3.5 Cost/Benefit Analysis

One of the tasks for the system designer is to show the management saving and improving the organization with the new system substantial enough to justify replacing the existing system. Therefore, the system design should not only detail the capabilities of the new system, but it should also show the costs and benefits of the new system.

#### 3.5.1 Cost of Existing System

The costs of existing system include paper work, and human operations. The average cost per year of the existing system is shown on Table 3.5

#### 3.5.2 Cost of the Proposed System

The costs of the system include hardware costs, software costs, implementation cost, and operation costs, which are needed for this Personnel Information System. The average cost per year of the existing system is shown on Table 3.6

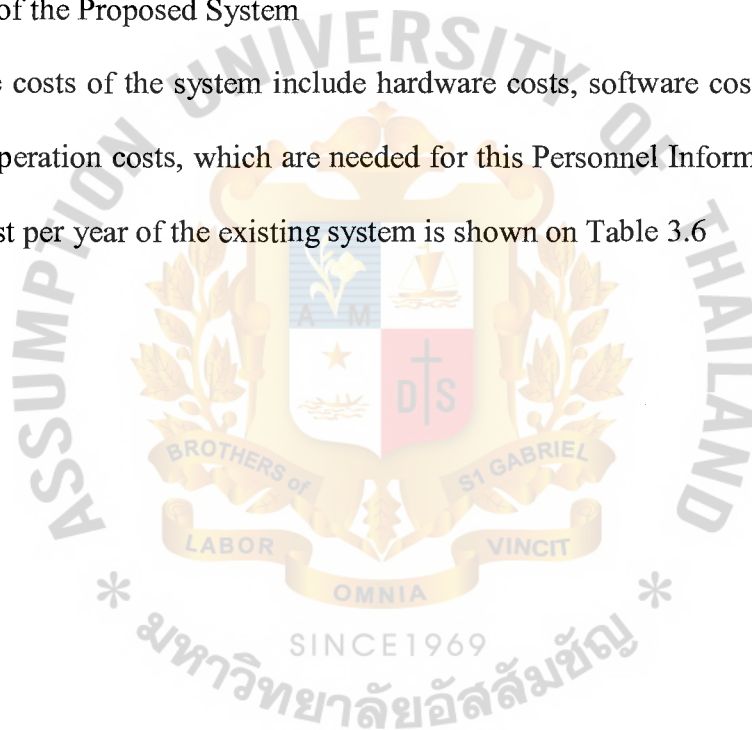


Table 3.5. Manual System Cost Analysis, Baht.

Cost Items	Years				
	1	2	3	4	5
<b>Fixed Cost</b>					
Computer 20 units@40,000	160,000	160,000	160,000	160,000	160,000
Calculator 20 units@ 1,200	4,800	4,800	4,800	4,800	4,800
<b>Total Fixed Cost</b>	164,800	164,800	164,800	164,800	164,800
<b>Maintenance Cost</b>	-	7,000	8,000	9,000	10,000
<b>Operation Cost</b>					
<b>Salary:</b>					
HR Manager 1 person@ 50,000	50,000	55,000	60,500	66,550	73,205
Personnel officer 20 person@8,000	160,000	176,000	193,600	212,960	234,256
<b>Total Monthly Salary Cost</b>	210,000	231,000	254,100	279,510	307,461
<b>Total Annual Salary Cost</b>	2,520,000	2,772,000	3,049,200	3,354,120	3,689,532
<b>Office Supplies &amp; Utility Cost:</b>					
Stationary Cost Per Annum	9,000	9,900	10,890	11,979	13,177
Office Equipment Cost Per Annum	13,000	14,300	15,730	17,303	19,033
Utility Cost Per Annum	8,000	8,800	9,680	10,648	11,713
<b>Total Annual Office Supplies &amp; Utility Cost</b>	30,000	33,000	36,300	39,930	43,923
<b>Total Annual Operation Cost</b>	2,550,000	2,805,000	3,085,500	3,394,050	3,733,455
<b>Total Existing System Cost</b>	2,714,800	2,976,800	3,258,300	3,567,850	3,908,255

Remark: Costs come from Human Resource Manager and Buycoms Magazine

Table 3.6. Proposed System Cost Analysis, Baht.

Cost Items	Years				
	1	2	3	4	5
<b>Fixed Cost</b>					
<u>Hardware Cost:</u>					
Computer Server 1 unit@80,000	16,000	16,000	16,000	16,000	16,000
Workstation 20 units@40,000	160,000	160,000	160,000	160,000	160,000
Laser Printer 20 units@ 13,000	52,000	52,000	52,000	52,000	52,000
Deskjet Printer 1 unit@ 5,000	1,000	1,000	1,000	1,000	1,000
Scanner 1 unit@4,000	800	800	800	800	800
Tape Backup 1 unit@20,000	5,000	5,000	5,000	5,000	5,000
Total Hardware Cost	234,800	234,800	234,800	234,800	234,800
<u>Maintenance Cost</u>	-	-	-	30,000	33,000
<u>Software Cost:</u>					
Windows 2000 Server	4,000	4,000	4,000	4,000	4,000
Office XP	64,000	64,000	64,000	64,000	64,000
Visual Basic 6.0	4,800	4,800	4,800	4,800	4,800
Microsoft SQL 2000 Standard Edition	4,000	4,000	4,000	4,000	4,000
Total Software Cost	76,800	76,800	76,800	76,800	76,800
<u>Implementation Cost:</u>					
Software Developer Cost	40,000				
Basic Training Cost	30,000	10,000	10,000	10,000	10,000
HR System Training Cost	35,000	10,000	10,000	10,000	10,000
Development and Installation Cost	38,000				
Total Implementation Cost	143,000	20,000	20,000	20,000	20,000
Total Fixed Cost	454,600	331,600	331,600	361,600	364,600
<u>Operation Cost</u>					
<u>Salary:</u>					
HR Manager 1 person@ 50,000	50,000	55,000	60,500	66,550	73,205
Personnel officer 2 person@ 8,000	16,000	17,600	19,360	21,296	23,426
Key Operator 20 person@5,000	100,000	110,000	121,000	133,100	146,410
Total Monthly Salary Cost	166,000	182,600	200,860	220,946	243,041
Total Annual Salary Cost	1,992,000	2,191,200	2,410,320	2,651,352	2,916,487
<u>Office Supplies &amp; Utility Cost:</u>					
Stationary Cost Per Annum	25,000	27,500	30,250	33,275	36,603
Office Equipment Cost Per Annum	20,000	22,000	24,200	26,620	29,282
Utility Cost Per Annual	32,000	35,200	38,720	42,592	46,851
Total Annual Office Supplies & Utility Cost	77,000	84,700	93,170	102,487	112,736
Total Annual Operation Cost	2,523,600	2,275,900	2,503,490	2,753,839	3,029,223
Total Proposed System Cost	2,978,200	2,607,500	2,835,090	3,115,439	3,393,823

Remark: Costs come from Human Resource Manager, IT Manager and Buycoms

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

Year	Total Manual Cost	Accumulated Cost
1	2,714,800	2,714,800
2	2,976,800	5,691,600
3	3,258,300	8,949,900
4	3,567,850	12,517,750
5	3,908,255	16,426,005

Table 3.8. Five Years Accumulated Proposed System Cost, Baht.

Year	Total Proposed Cost	Accumulated Cost
1	2,978,200	2,978,200
2	2,607,500	5,585,700
3	2,835,090	8,420,790
4	3,115,439	11,536,229
5	3,393,823	14,930,052

Table 3.9. The Comparison of the System Cost, Baht.

Year	Accumulated Manual Cost	Accumulated Proposed Cost
1	2,714,800	2,978,200
2	5,691,600	5,585,700
3	8,949,900	8,420,790
4	12,517,750	11,536,229
5	16,426,005	14,930,052



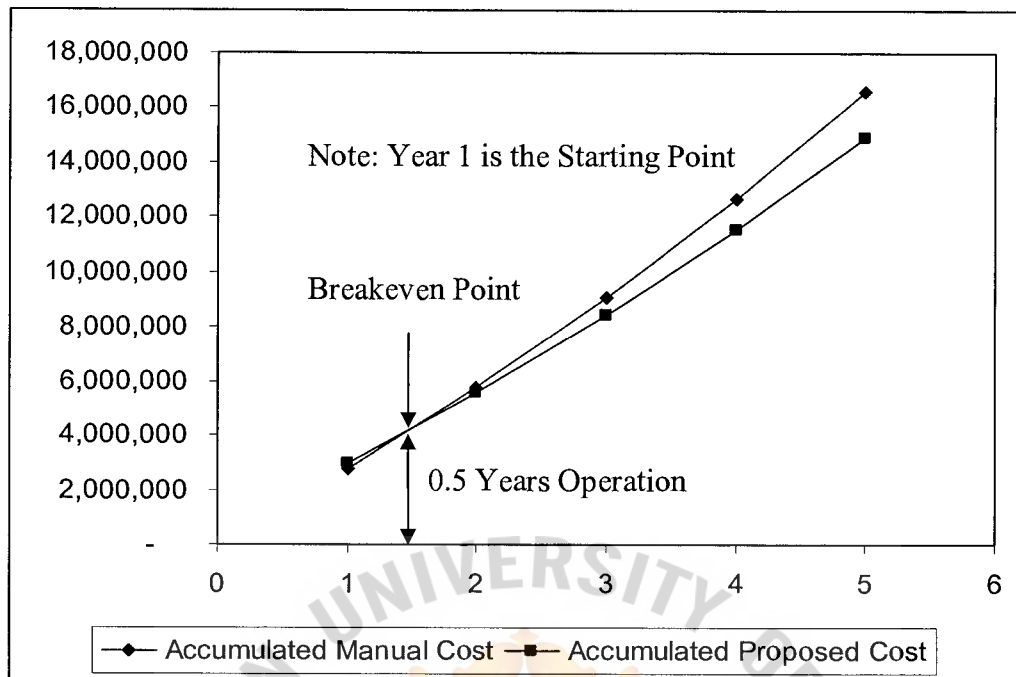


Figure 3.6. Comparison of System Cost.

The benefit of the proposed system may be divided in two parts: tangible and intangible benefits. The tangible might include decreasing amount of paperwork and asset loss, decreasing job steps and response time or any other advantage which lends itself to qualification. Intangible benefits include the ability to have more accurate information, better control of the organization, better decision making, and improved morals within the organization.

### 3.5.3 Tangible Benefits

Tangible benefits can be measured in value (Baht). After implementing the new system for the Personnel Information System. The organization will receive benefits which are as follows:

- (a) Decreasing in paper work in which some paper might be lost and that can cause management to reduce the cost of paper.
- (b) More efficient work which means reducing processing time

- (c) Reduce costs of employment

#### 3.5.4 Intangible Benefits

Intangible benefits might be brings benefits to the organization in some other ways. The benefits are as follows:

- (a) Enhance the decision making
- (b) Better manpower management
- (c) Confidential control
- (d) Faster information retrieval
- (e) Better time management



## IV. PROJECT IMPLEMENTATION

In this project, the new system will construct and deliver into the real time operation. The project will be implemented after the process of analysis and design of proposed system is accepted. Program must be written and tested for all programs carefully for which a few months may be required. New requirement may be needed during the implementation of the system. The development team must be prepared to solve all the unexpected problems.

### 4.1 Testing the System

After programming, it needs to test the whole system. The test is to ensure that the system will work correctly. If the system cannot perform the required functions, it has to make improvements.

#### (1) Network Testing

Test the connectivity of the network and the security of the network

#### (2) Program Testing

The purpose of program testing is to reveal errors in programs. It consists of running a new program, which appears to be working correctly. The program will be tested to ensure that there is no error and free of bugs and also to check their outputs.

#### (3) Database Testing

To test the new database for use by the new system by generating test data for database tables and load tables with sample data.

#### (4) Recovery Testing

To test the unexpected event that can cause damage to data. To prevent the loss of data, the backup data process everyday. The recovery and

backup of the data has to be re-tested to ensure that all data are not destroyed and can be recovered.

(5) Human Testing

It is to test the users after the training to ensure that the users can work correctly without the problem with the new system and see how they can handle the problems.

## 4.2 Installation

After all programs in the system have been tested and passed, the next phase is to convert the old to the new system. The new system will be installed for the test version and the system starts to be tested. The following should be included in the installation process

(1) Hardware Installation

Install the workstations, printers, UPS, and server

(2) Software Installation

All software should be installed on both workstations and server.

(3) Network Installation

The involvement of network specialist will be included in connecting with the new system

(4) Database Installation

The new system is tested by end users using simulated data over some period of time in simulated environment and after that the real data are used in environment testing. The existing data will be converted into the database to be used in the new system.

## 4.3 Training

Training is the way to guide users through the new system. If users do not understand the new procedures they will be responsible for conducting if they are unsure about how the new system will affect their jobs. All users will know the basic computer knowledge and all functions of the program. The training also includes the way to handle the problem and make use of data. The training will be more detailed on the job itself, handling some specific problems, the way to contact specific persons on the network and the security of information.

#### **4.4 Conversion**

System conversion is a process of switch from one system to another. Users and computer operations personnel should be trained in application software for the new system should be available and ready to use when the data conversion is complete, it can begin preparations to place the new system into operation. The users are already familiar with computers and there is just a minor change in the user interface design. The existing information is converted to store in database system. The users will be trained before using the new system.

## V. CONCLUSIONS AND RECOMMENDATION

### 5.1 Conclusions

Personnel Information System is developed to support the users to manage the employee information, by analyzing the existing system including inaccuracy and unavailability of information needed. The proposed system aims to correct the existing problems and support the growth of the organization.

Performance evaluation is a simple tool, which can be used to measure the productivity of hardware, software, and system. The database system will bring benefits to the organization in several ways.

- (1) The employee information record to the database system that has more efficiency than the manual system.
- (2) The new system reduces the personnel problems such as data redundancy, human errors and easy to find employee information.
- (3) The new system provides flexibility for tracking the resigned employees.
- (4) Increasing the performance of Human Resource Management

The performance on each process of the proposed system compared with the existing system, shows that each process of the proposed system performs with less time than as each process of the existing system. The result is shown on Table 5.1.



Table 5.1. The Degree of Achievement of the Proposed System

Process	Existing System	Proposed System
Record Employee Profile	10 Mins	5 Mins
Search Employee Information	20 Mins	1 Mins
Generate Report	30 Mins	1 Mins
Total	60 Mins	7 Mins

Remark: Information from the administration time record

## 5.2 Recommendations

The proposed system is not only for Human Resource Department. It can provide any employee in the organization to see and update their information with each security. The information will always update with less error and the work processes not load to the Human Resource Department.

However, the proposed system has only personnel information module that does not cover all the employee information. The whole employee information should contain the Time record, Bonus, Promotion, Welfare, Leave Record, Transference and Training, that will provide the whole information of each employee and it is a big system to implement in the next phase. This system is the database system that is easy to expand to cover all of them in the future.

This proposed system is working on the Windows system or the PC based system that is not flexible for use in the organization that has various systems such as Macintosh, UNIX, etc. It is suitable to convert to the web interface that can provide the information through the internet. It can be converted into the webpage style so that

every employee can access to the system from anywhere and not depend on system.

That will support the future technology





## APPENDIX A

### USER INTERFACE DESIGN

Personal Information

File

Company: 40 Durbell Co., Ltd. Employee No.:

CAPS NUM

Figure A.1. Main Menu Screen.

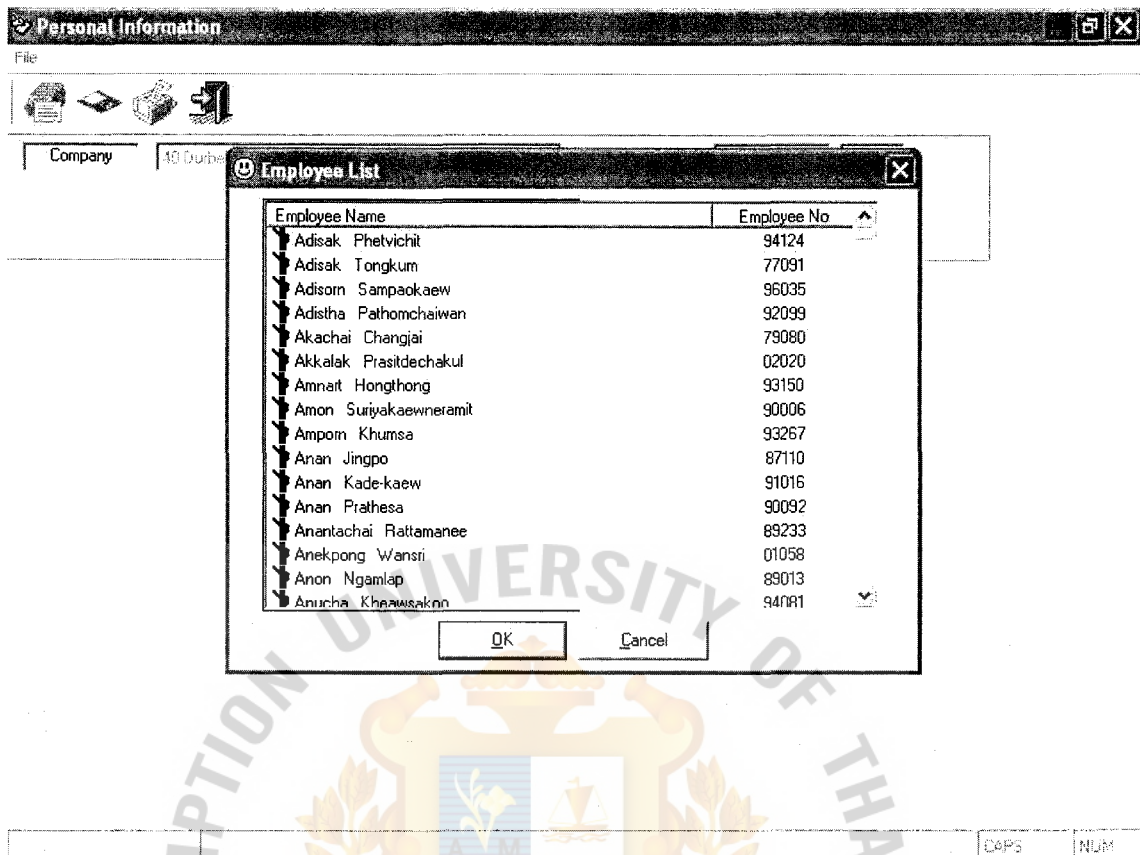


Figure A.2. Select Employee Menu.

**Personal Information**

File

Company: 40 Drabell Co., Ltd. Employee No.: 94134

Name (Thai): นาม อติศักดิ์ Surname (Thai): เพชรวิชิต

Name (English): Mr. Adisak Surname (English): Phetvichit

Sex: ☒ Male ☐ Female

Kind of Staff: ☒ Normal ☐ Shift ☐ Temporary

Marital Status: ☒ Single ☐ Marriage ☐ Divorce ☐ Widow

Group: 03 Bus Bus Group กลุ่มรถโดยสาร

Department: Won Wongsawang Center ศูนย์ซ่อมรถสายหลวง

Site Job: Staff Type: Thai Staff

Position: Mechanic Title: No Title

Employed Date: 18/07/1994 10.2 Birth Date: 22/08/1973 31.1

ID Card No.: 3411900585597 Expire Date: 01/02/2001

Social Security No.: 3411900585597 Tax ID No.: 1038516815

Working Status: Working

**General Data**

Address	Family	Parent	Education	Salary

CAPS NUM

Figure A.3. General Data Form.



**Personal Information**

File

Company: 40 Durbell Co., Ltd. Employee No.: 94134

Name (Thai): นาย อติศักดิ์ Surname (Thai): เพชรวิชิต

Name (English): Mr. Adisak Surname (English): Phetvichit

---

**Resident Address**

Address: 92 ม. 13 ต. วัดรภาพ อ. บางใหญ่ จ. สุพรรณบุรี ต. ธาตุ

District: อ. บางใหญ่ Province: จ. สุพรรณบุรี Country:

Postal Code: 41000 Tel No. Copy to Current Address

---

**Current Address**

Address: 13/12 ม. 2 ต. บางคูเวียง

District: อ. บางกรวย Province: จ. นนทบุรี Country:

Postal Code: 11130 Tel No.: 985-1390-9 ต่อ 45 Mobile Phone: Map

---

General Data Address Family Parent Education Salary

---

CAPS NUM

Figure A.4. Address Data Form.

**Personal Information**

File

Company: 40 Drubell Co., Ltd. Employee No.: 94134

Name (Thai): นาย อติศักดิ์ Surname (Thai): เพชรวิชิต

Name (English): Mr. Adisak Surname (English): Phetvichit

**Spouse Data**

Name: Surname: Status: ☐ Alive ☐ Deceased

Living Country: Occupation: ☐ Medical Apply

Work Place: Tel No.:

**Children Data**

No. of Children: 0

No.	Name	Surname	Birth Date	Age	Sex	Alive	Med Apply
[Empty Table Body]							

General Data Address **Family** Parent Education Salary

CAPS NUM

Figure A.5. Family and Children Data Form.

**Personal Information**

File

Company: 40 Durbell Co., Ltd. Employee No.: 94124

Name (Thai): นาย อดิศักดิ์ Surname (Thai): เพชรวิชิต

Name (English): Mr. Adisak Surname (English): Phetvichit

---

**Father Data**

Name: สมหมาย Surname: เพชรวิชิต Status: ☒ Alive ☐ Deceased

Living Country: Udonthani Occupation: Government Officer

Work Place: Udonthani Tel No.:

---

**Mother Data**

Name: วิไลใจ Surname: เพชรวิชิต Status: ☒ Alive ☐ Deceased

Living Country: Udonthani Occupation: Housewife แม่บ้าน

Work Place: Tel No.:

---

General Data Address Family **Parent** Education Salary

---

CAPS NUM

Figure A.6. Parent Data Form.

**Personal Information**

File

Company: 40 Durbell Co., Ltd. Employee No.: 94124

Name (Thai): นาย อดิศักดิ์ Surname (Thai): เพชรวิชิต

Name (English): Mr. Adisak Surname (English): Phetvichit

Education Data							
No.	Level	Institute	Faculty	Major	Year Graduated	GPA	
1	Diploma	Nongkai Technical College	Industrial	Mechanic	1994	2.52	

Work Background Data					
Company Name	Position	From	To	Salary	
[Redacted]					

General Data Address Family Parent Education Salary

CAPS NUM

Figure A.7. Education and Work Background Data Form.

Personal Information					
File					
Company	40 Duibell Co., Ltd.			Employee No.	94134
Name (Thai)	นาย	อดิศักดิ์	Surname (Thai)	เพชรวิจิตร	
Name (English)	Mr.	Adisak	Surname (English)	Phetvichit	
Basic Salary	10,730.00	Position Allowance	0.00	Coupon	0.00
				Regular	10,730.00
B-Trip Domestic	B-Trip Overseas		Special Allowance		
A	0.00	Yen	0.00	0.00	
B	0.00	Dollar	0.00		
C	0.00				
Position	Mechanic				
Line	M	Class	2	Step	0
Social Security No.	3411900585997			Tax ID No.	1038516815
Bank	Bangkok Bank			Bank Account No.	2248923
General Data	Address	Family	Parent	Education	Salary

Figure A.8. Salary Data Form.



## APPENDIX B

### REPORT DESIGN



ข้อมูลพนักงานเพื่อใช้ในการคำนวณภาษีเงินได้ ประจำปี

วันที่

กรมตรวจและแก้ไขข้อมูลส่วนบุคคลของท่านให้ถูกต้องตามความเป็นจริง และส่งคืนฝ่ายธุรการและบุคลากร

ภายในวันที่ กรมเปลี่ยนแปลงภูมิลำเนาหลักฐาน

ฝ่าย รหัสนักงาน ชื่อ

เกิดวันที่ ปัจจุบันอายุ ปี

สถานภาพสมรส : ( ) โสด : ( ) หย่าร้าง : ( ) สมรส (ไม่จดทะเบียน)  
 : ( ) สมรส (จดทะเบียน) ( ) คู่สมรสมีรายได้ ( ) คู่สมรสไม่มีรายได้

ชื่อ คู่สมรส สถานที่ทำงาน โทรศัพท์

จำนวนบุตร คน (ข้อมูลบุตรเรียงจากพี่ถึงน้องตามลำดับ) (ข้อมูลบุตรเรียงจากพี่ถึงน้อง กรุณาระบุชื่อและวันเกิดของบุตรทุกคน)

วันเกิด อายุ ปี : ( ) กำลังศึกษาในระดับ ( ) ประกอบอาชีพ

บัตรประกันสังคม บัตรประจำตัวผู้เสียภาษี

บัตรประจำตัวประชาชนเลขที่ หมดอายุวันที่

ที่อยู่ตามทะเบียนบ้านเลขที่

ที่อยู่ที่สามารถติดต่อได้เลขที่

(กรณีเปลี่ยนแปลงที่อยู่ กรุณาระบุสถานที่เดิมและเลขที่บ้านปัจจุบันด้วย และอยู่ติดต่อกันแล้วกี่วันหลังเวลาสาร)

วุฒิการศึกษา (ที่บริษัทรับรอง) SINCE 1969

การประกันชีวิตกับผู้ประกอบการภายในราชอาณาจักรไทย

ตนเอง ( ) ไม่มี ( ) มี เบี้ยประกันที่จ่ายจริงต่อปี บาท

คู่สมรส ( ) ไม่มี ( ) มี เบี้ยประกันที่จ่ายจริงต่อปี บาท

ขอรับรองว่าข้อมูลของข้าพเจ้าถูกต้องตามความเป็นจริง (ลงชื่อ) .....

วันที่ \_\_\_\_/\_\_\_\_/\_\_\_\_

Figure B.1. Employee Report for Calculate Yearly Tax.

[illegible]



**APPENDIX C**  
**DATABASE DESIGN**

Table C.1. Structure of Employee Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key	Key Type
1	Company_Code	Char(2)	Y	Y			Primary Key
2	Employee_No	Char(5)	Y	Y			Primary Key
3	Century	Tinyint(1)					Attribute
4	Coupon	Decimal(5)					Attribute
5	Overlap_Start_Date	Datetime(8)			Y		Attribute
6	Overlap_ID	Char(1)					Attribute
7	OT_C_Per_Hour	Decimal(5)					Attribute
8	OT_B_Per_Hour	Decimal(5)					Attribute
9	OT_A_Per_Hour	Decimal(5)					Attribute
10	Site_Job	Varchar(30)					Attribute
11	Emp_Step	Tinyint(1)					Attribute
12	Position_Class	Tinyint(1)					Attribute
13	Position_Line	Char(1)					Attribute
14	Position_Code	Char(2)					Attribute
15	Title_Code	Char(2)			Y		Attribute
16	Dept_Code	Char(6)					Attribute
17	Effective_Date	Datetime(8)			Y		Attribute
18	Working_Status	Char(2)					Attribute
19	Start_Employed_Date	Datetime(8)					Attribute
20	Regular	Decimal(5)					Attribute
21	Other_Allowance	Decimal(5)					Attribute
22	Special_Allowance	Decimal(5)					Attribute
23	Position_Allowance	Decimal(5)					Attribute
24	Basic_Salary	Decimal(5)					Attribute
25	No_of_Children	Tinyint(1)					Attribute
26	Marital_Status	Char(1)					Attribute
27	Military_Status	Char(1)					Attribute
28	Work_Permit_No	Varchar(20)					Attribute
29	Visa_No	Varchar(20)					Attribute
30	Passport_No	Varchar(20)					Attribute
31	Bank_Account_No	Varchar(20)					Attribute
32	Bank_Code	Char(3)					Attribute
33	Tax_ID	Char(10)					Attribute
34	Social_Security_No	Char(13)					Attribute
35	ID_Expire_Date	Datetime(8)					Attribute
36	ID_Card_No	Char(13)					Attribute
37	Birth_Order	Varchar(5)					Attribute
38	Home_Town	Varchar(50)					Attribute
39	Religion	Varchar(20)					Attribute
40	Nationality	Varchar(20)					Attribute
41	Race	Varchar(20)					Attribute
42	Blood_Group	Varchar(12)					Attribute
43	Birth_Date	Datetime(8)					Attribute
44	Sex	Char(1)					Attribute
45	Picture	Image(16)			Y		Attribute
46	English_Last_Name	Varchar(30)					Attribute

Table C.1. Structure of Employee Table (Continued).

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key	Key Type
47	English_First_Name	Varchar(30)					Attribute
48	English_Prefix_Name	Varchar(15)					Attribute
49	Thai_Last_Name	Nvarchar(50)					Attribute
50	Thai_First_Name	Nvarchar(50)					Attribute
51	Thai_Prefix_Name	Nvarchar(15)					Attribute
52	Shift_Group_No	Char(1)					Attribute
53	Kind_of_Staff	Char(1)					Attribute
54	Staff_Type	Char(1)					Attribute
55	Process_Date	Datetime(8)					Attribute

Table C.2. Structure of Employee\_Address Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key	Key Type
1	Company_Code	Char(2)	Y	Y			Primary Key
2	Employee_No	Char(5)	Y	Y		Employee	Primary Key
3	Mobile_Phone	Varchar(30)					Attribute
4	Current_Tel_No	Nvarchar(50)					Attribute
5	Current_Postal_Code	Char(5)					Attribute
6	Current_English_Country	Nvarchar(50)					Attribute
7	Current_English_Province	Nvarchar(50)					Attribute
8	Current_English_District	Nvarchar(50)					Attribute
9	Current_English_Address2	Nvarchar(50)					Attribute
10	Current_English_Address1	Nvarchar(50)					Attribute
11	Current_Thai_Country	Nvarchar(20)					Attribute
12	Current_Thai_Province	Nvarchar(20)					Attribute
13	Current_Thai_District	Nvarchar(20)					Attribute
14	Current_Thai_Address2	Nvarchar(50)					Attribute
15	Current_Thai_Address1	Nvarchar(50)					Attribute
16	Tel_No	Nvarchar(50)					Attribute
17	Postal_Code	Char(5)					Attribute
18	English_Country	Nvarchar(50)					Attribute
19	English_Province	Nvarchar(50)					Attribute
20	English_District	Nvarchar(50)					Attribute
21	English_Address2	Nvarchar(50)					Attribute
22	English_Address1	Nvarchar(50)					Attribute
23	Thai_Country	Nvarchar(20)					Attribute
24	Thai_Province	Nvarchar(20)					Attribute
25	Thai_District	Nvarchar(20)					Attribute
26	Thai_Address2	Nvarchar(50)					Attribute
27	Thai_Address1	Nvarchar(50)					Attribute
28	Map	Image(16)					Attribute
29	Process_Date	Datetime(8)					Attribute

Table C.3. Structure of Employee\_Spouse Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key	Key Type
1	Company_Code	Char(2)	Y	Y			Primary Key
2	Employee_No	Char(5)	Y	Y		Employee	Primary Key
3	Tel_No	Nvarchar(50)					Attribute
4	Tax_ID	Char(10)					Attribute
5	ID_Card_No	Char(13)					Attribute
6	Tax_Submit_Status	Char(1)					Attribute
7	Living_Status	Char(1)					Attribute
8	Medical_Apply_Status	Char(1)					Attribute
9	Birth_Date	Datetime(8)			Y		Attribute
10	English_Work_Place	Nvarchar(50)					Attribute
11	Thai_Work_Place	Nvarchar(50)					Attribute
12	English_Occupation	Nvarchar(50)					Attribute
13	Occupation	Nvarchar(20)					Attribute
14	English_Last_Name	Nvarchar(50)					Attribute
15	English_First_Name	Nvarchar(50)					Attribute
16	Thai_Last_Name	Nvarchar(50)					Attribute
17	Thai_First_Name	Nvarchar(50)					Attribute
18	Living_Country	Nvarchar(50)					Attribute
19	Process_Date	Datetime(8)					Attribute

Table C.4 Structure of Employee\_Parent Table

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key	Key Type
1	Company_Code	Char(2)	Y	Y			Primary Key
2	Employee_No	Char(5)	Y	Y		Employee	Primary Key
3	Mother_Living_Country	Nvarchar(50)					Attribute
4	Mother_Living_Status	Char(1)					Attribute
5	Mother_Work_Tel	Nvarchar(50)					Attribute
6	Mother_Work_Place	Nvarchar(50)					Attribute
7	Mother_Occupation	Nvarchar(50)					Attribute
8	Mother_Birth_Date	Datetime(8)			Y		Attribute
9	Mother_Surname	Nvarchar(50)					Attribute
10	Mother_Name	Nvarchar(50)					Attribute
11	Father_Living_Country	Nvarchar(50)					Attribute
12	Father_Living_Status	Char(1)					Attribute
13	Father_Work_Tel	Nvarchar(50)					Attribute
14	Father_Work_Place	Nvarchar(50)					Attribute
15	Father_Occupation	Nvarchar(50)					Attribute
16	Father_Birth_Date	Datetime(8)			Y		Attribute
17	Father_Surname	Nvarchar(50)					Attribute
18	Father_Name	Nvarchar(50)					Attribute
19	Process_Date	Datetime(8)					Attribute



Table C.5. Structure of Employee\_Children Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key	Key Type
1	Company_Code	Char(2)	Y	Y			Primary Key
2	Employee_No	Char(5)	Y	Y		Employee	Primary Key
3	Child_No	Tinyint(1)	Y	Y			Primary Key
4	Medical_Apply_Status	Char(1)					Attribute
5	Child_Living_Country	Nvarchar(50)					Attribute
6	Living_Status	Char(1)					Attribute
7	Occupation	Nvarchar(50)					Attribute
8	Birth_Date	Datetime(8)			Y		Attribute
9	Sex	Char(1)					Attribute
10	Last_Name	Nvarchar(50)					Attribute
11	First_Name	Nvarchar(50)					Attribute
12	Process_Date	Datetime(8)					Attribute

Table C.6. Structure of Employee\_Education Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key	Key Type
1	Company_Code	Char(2)	Y	Y			Primary Key
2	Employee_No	Char(5)	Y	Y		Employee	Primary Key
3	Education_Level_Code	Char(3)	Y	Y			Attribute
4	Institute_Code	Char(3)	Y	Y			Attribute
5	Faculty_Code	Char(3)	Y	Y			Attribute
6	Major_Code	Char(3)					Attribute
7	GPA	Decimal(5)					Attribute
8	Year_Graduate	Smallint(2)					Attribute
9	Year_In	Smallint(2)					Attribute
10	Status	Char(1)					Attribute
11	Company_Accepted_Date	Datetime(8)					Attribute
12	Process_Date	Datetime(8)					Attribute



Table C.7. Structure of Employee\_Work\_Background Table.

No.	Field Name	Field Type	Index	Unique	Nullable	Foreign Key	Key Type
1	Company_Code	Char(2)	Y	Y			Primary Key
2	Employee_No	Char(5)	Y	Y		Employee	Primary Key
3	From_Year	Smallint(2)	Y	Y			Primary Key
4	To_Year	Smallint(2)	Y	Y			Primary Key
5	Reason	Nvarchar(50)					Attribute
6	Position	Nvarchar(50)					Attribute
7	Salary	Decimal(5)					Attribute
8	Tel_No	Nvarchar(50)					Attribute
9	Company_Name	Nvarchar(50)					Attribute
10	Process_Date	Datetime(8)					Attribute





**APPENDIX D**  
**PROCESS SPECIFICATION**

Table D.1. Process Specification of Process 1.1.

Process Name	Activity 1.1 – Receive employee information
Data In:	Employee information form
Data Out:	Employee information
Process:	<ol style="list-style-type: none"> <li>1. Receive employee information form</li> <li>2. Send application information to activity 1.2</li> </ol>

Table D.2. Process Specification of Process 1.2.

Process Name	Activity 1.2 – Assign employee ID.
Data In:	<ol style="list-style-type: none"> <li>1. Employee information</li> <li>2. Employee list</li> </ol>
Data Out:	<ol style="list-style-type: none"> <li>1. Employee information</li> <li>2. Employee ID.</li> </ol>
Process:	<ol style="list-style-type: none"> <li>1. employee list</li> <li>2. Assign employee ID.</li> <li>3. Send employee ID. and employee information to activity 1.3</li> </ol>

Table D.3. Process Specification of Process 1.3.

Process Name	Activity 1.3 – Employee information record
Data In:	<ol style="list-style-type: none"> <li>1. Employee ID and employee information</li> <li>2. Employee list</li> </ol>
Data Out:	<ol style="list-style-type: none"> <li>1. Employee information</li> </ol>
Process:	<ol style="list-style-type: none"> <li>1. Receive employee ID. and employee information</li> <li>2. Record employee information to database</li> </ol>

Table D.4. Process Specification of Process 1.4.

Process Name	Activity 1.4 – Prepare report
Data In:	Employee list
Data Out:	Employee information
Process:	<ol style="list-style-type: none"> <li>1. Retrieve employee information</li> <li>2. Generate report</li> <li>* 3. Send to employee for checking the current status</li> </ol>



Table E.1. Data Dictionary of Personnel Information Management.

Field Name	Description
Company_Code	Company code of employee
Employee_No	Employee ID.
Century	Employee start working century
Coupon	Food coupon provide to employee
OT_C_Per_Hour	The total hours of over time rate C
OT_B_Per_Hour	The total hours of over time rate B
OT_A_Per_Hour	The total hours of over time rate A
Site_Job	Employee working place
Emp_Step	Employee level
Position_Class	Position class of employee
Position_Line	Position line of employee
Position_Code	Position code of employee
Title_Code	Title code of employee
Dept_Code	Department code of employee
Effective_Date	Effective date of working status
Working_Status	Working status of employee
Start_Employed_Date	Start working date
Regular	Regular kind of staff
Other_Allowance	Other payment for employee
Special_Allowance	Special payment for employee
Position_Allowance	Position payment for employee
Basic_Salary	Basic salary of employee
No_of_Children	No. of children of employee
Marital_Status	Marital status
Military_Status	Military status
Work_Permit_No	Work permit No.
Visa_No	Visa No.
Passport_No	Passport No. of employee
Bank_Account_No	Bank account No. for transfer money
Bank_Code	Bank code for transfer money
Tax_ID	Tax ID of employee
Social_Security_No	Social Security No. of employee
ID_Expire_Date	ID Card expire date
ID_Card_No	ID Card No. of employee
Birth_Order	Order of member in family
Home_Town	Home town of employee
Religion	Religion of employee
Nationality	Nationality of employee
Race	Race of employee
Blood_Group	Blood group of employee
Birth_Date	Birth Date of employee
Sex	Sex
Picture	Picture of employee
English_Last_Name	Last Name in English
English_First_Name	First Name in English
English_Prefix_Name	Prefix Name in English
Thai_Last_Name	Last Name in Thai

Table E.1. Data Dictionary of Personnel Information Management (Continued).

Field Name	Description
Thai_First_Name	First Name in Thai
Thai_Prefix_Name	Prefix Name in Thai
Shift_Group_No	Shift group of employee
Kind_of_Staff	Period working of staff
Staff_Type	Nationality of staff
Mobile_Phone	Mobile phone No.
Current_Tel_No	Current Home telephone No.
Current_Postal_Code	Current Home postal code
Current_English_Country	Current Country in English
Current_English_Province	Current Province in English
Current_English_District	Current District in English
Current_English_Address2	Current Address in English
Current_English_Address1	Current Address in English
Current_Thai_Country	Current Country in Thai
Current_Thai_Province	Current Province in Thai
Current_Thai_District	Current District in Thai
Current_Thai_Address2	Current Address in Thai
Current_Thai_Address1	Current Address in Thai
Tel_No	Resident Home telephone No.
Postal_Code	Resident Home postal code
English_Country	Resident Country in English
English_Province	Resident Province in English
English_District	Resident District in English
English_Address2	Resident Address in English
English_Address1	Resident Address in English
Thai_Country	Resident Country in Thai
Thai_Province	Resident Province in Thai
Thai_District	Resident District in Thai
Thai_Address2	Resident Address in Thai
Thai_Address1	Resident Address in Thai
Map	Map to employee home
Tax_ID	Spouse tax ID
ID_Card_No	Spouse ID card No.
Tax_Submit_Status	Spouse tax submit status
Living_Status	Spouse living status
Medical_Apply_Status	Spouse medical apply status
Birth_Date	Spouse birth date
English_Work_Place	Spouse work place in English
Thai_Work_Place	Spouse work place in Thai
English_Occupation	Spouse occupation in English
Occupation	Spouse occupation in Thai
English_Last_Name	Spouse last name in English
English_First_Name	Spouse first name in English
Thai_Last_Name	Spouse last name in Thai
Thai_First_Name	Spouse first name in Thai
Living_Country	Spouse living country
Mother_Living_Country	Mother living country



Table E.1. Data Dictionary of Personnel Information Management (Continued).

Field Name	Description
Mother_Living_Status	Mother living status
Mother_Work_Tel	Mother work place telephone No.
Mother_Work_Place	Mother work place
Mother_Occupation	Mother occupation
Mother_Birth_Date	Mother birth date
Mother_Surname	Mother last name
Mother_Name	Mother first name
Father_Living_Country	Father living country
Father_Living_Status	Father living status
Father_Work_Tel	Father work place telephone No.
Father_Work_Place	Father work place
Father_Occupation	Father occupation
Father_Birth_Date	Father birth date
Father_Surname	Father last name
Father_Name	Father first name
Child_No	Total children in family
Medical_Apply_Status	Children medical apply status
Child_Living_Country	Children living country
Living_Status	Children living status
Occupation	Children occupation
Birth_Date	Children birth date
Sex	Children sex
Last_Name	Children last name
First_Name	Children first name
Education_Level_Code	Employee education level
Institute_Code	Institute code
Faculty_Code	Faculty code
Major_Code	Major code
GPA	Grade point average
Year_Graduate	Year of graduate
Year_In	Year entrance to institute
Status	Current status of education
Company_Accepted_Date	Date of company accept the graduate
From_Year	Start working year in the ex-company
To_Year	End working year in the ex-company
Reason	Reason to quit from ex-company
Position	Position in the ex-company
Salary	Salary in the ex-company
Tel_No	Telephone No. of ex-company
Company_Name	Ex-company name
Process_Date	Last date of processing data

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