Marketing and Sales Information System for Web Application Development Business

by

Ms. Nooch Kaewla-iad

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

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Science
in Computer Information Systems
Assumption University

March 2002

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Project Title	Marketing and Sales Information System for Web Application Development Business
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Academic Year	March 17, 2002

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

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ABSTRACT

In today's global marketplace, efficient exchange of information enables has wildly become E-business marketing to satisfy customers with the new technology. The most important thing to reach the customer satisfaction is to enhance the business and gain more competitive advantage. The role of graphic design and multimedia presentation becomes the vehicle for the successful and timely exchange of information to make their business prospectively creditable and improve management handling.

The system development project focuses on developing a computerized system to enhance the existing business operations using real-time processing. The system provides technical and customer support for both Cross-selling and Up-selling. The analysis tools such as Data Flow Diagram, Data Dictionary, Decomposition Diagram, Structure Chart, Module specification, Process Specification are used for developing the environmental model and behavioral model.

The project provides the sales and marketing Information System for web development business and consulting firm. The new system is beneficial to businesses which require to enhance their brand image, increase market share, or access new channels of distribution. It also allows immediate access to the information, and provides more up-to-date information for the marketing and sales to meet customer satisfaction. Moreover, it provides the convenience and fast service to generate the output reports, record and search data systematically.

ACKNOWLEDGEMENTS

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The writer worked on this project development besides the day-to-day official jobs at Regional Community Forestry Training Center for Asia and the Pacific, where her colleagues always helped and provided good feedback with moral encouragement for her all the time. The writer would like to thank them for their support and assistance in her office life during the project development period.

Finally, the writer would like to express her deepest appreciation to her family for their fervent, continuous encouragement and patience.

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TABLE OF CONTENTS

Chapter	Page
ABSTRACT	i
ACKNOWLEDGEMENTS	ii
LIST OF FIGURES	v
LIST OF TABLES	ix
I. INTRODUCTION	1
1.1 Background of the Project	1
1.2 Objectives of the Project	4
1.3 Scope of the Project	5
1.4 Deliverables	5
1.5 Project Plan	6
II. THE EXISTING SYSTEM	8
2.1 Background of the Organization	8
2.2 Existing Business Function	9
2.3 Background of Existing System and Areas for Improvement	10
III. THE PROPOSED SYSTEM	17
3.1 User Requirements	17
3.2 System Design	19
3.3 Hardware and Software Requirement	36
3.4 Security and Control	46
3.5 Feasibility and Cost-Benefit Analysis	50
IV. PROJECT IMPLEMENTATION	72
4.1 Overview of Project Implementation	72

Chapter		Page
4.2	Test Plan	72
4.3	Conversion	73
V.	CONCLUSIONS AND RECOMMENDATIONS	75
5.1	Conclusions	75
5.2	Recommendations	79
APPENDIX A	STRUCTURE CHART DIAGRAM	81
APPENDIX B	DFD DIAGRAM LEVEL 1,2 AND 3	89
APPENDIX C	PROCESS SPECIFICATION	125
APPENDIX D	E-R DIAGRAM & DATABASE DESIGN	186
APPENDIX E	WEB INTERFACE DESIGN	189
APPENDIX F	REPORT DESIGN	216
APPENDIX G	DATA DICTIONARY	224
APPENDIX H	MODULE SPECIFICATION	229
BIBLIOGRAPHY		246

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LIST OF FIGURES

Figure		Page
1.1	Project Plan of Marketing & Sales Information System for Web Application Development Business	7
2.1	Organization Chart of PresentationPro Co., Ltd. (Existing System)	15
2.2	Organization Chart of CyberProVillage Co., Ltd. (Proposed System)	16
3.1	Context Diagram of Existing System	25
3.2	Functional Decomposition Diagram	28
3.3	Functional Decomposition Diagram (Continued)	29
3.4	Functional Decomposition Diagram (Continued)	30
3.5	Context Diagram of Proposed System	31
3.6	Level 0 Logical Data Flow Diagram of Proposed System	35
3.7	The Hardware & Network Configuration for Proposed System	49
3.8	Cost Comparison between Existing and Proposed System	69
3.9	Payback Period	71
A.1	Structure Chart of Customer Entry Transaction	81
A.2	Structure Chart of Corporate Entry Transaction	82
A.3	Structure Chart of Quotation Transaction	83
A.4	Structure Chart of Sell Appliance Transaction	84
A.5	Structure Chart of Payment Transaction	85
A.6	Structure Chart of Product & Service Enquiries Transaction	86
A.7	Structure Chart of Maintenance Information Transaction	87
A.8	Structure Chart of Report Generating Transaction	88
B.1	Level 1 Logical Data Flow Diagram of Access Selection	89
B.2	Level 1 Logical Data Flow Diagram of Quotation Issuing	90

Figure		Page

B.3	Level 1 Logical Data Flow Diagram of Sell Appliance	91
B.4	Level 1 Logical Data Flow Diagram of Payment	92
B.5	Level 1 Logical Data Flow Diagram of Product & Service Enquiries	93
B.6	Level 1 Logical Data Flow Diagram of Maintenance Information	94
B.7	Level 1 Logical Data Flow Diagram of Online Customer Service and Technical Support	95
B.8	Level 1 Logical Data Flow Diagram of Report Generating	96
B.9	Level 2 Logical Data Flow Diagram of Customer Entry Function	97
B.10	Level 2 Logical Data Flow Diagram of Corporate Entry	98
B.11	Level 2 Logical Data Flow Diagram of Visitor Entry	99
B.12	Level 2 Logical Data Flow Diagram of Quotation Filing	100
B.13	Level 2 Logical Data Flow Diagram of Quotation Printing	101
B.14	Level 2 Logical Data Flow Diagram of Order by Selected Product and Service Package	102
B.15	Level 2 Logical Data Flow Diagram of Order Custom Design and Consulting	103
B.16	Level 2 Logical Data Flow Diagram of Pay Credit Online	104
B.17	Level 2 Logical Data Flow Diagram of Proceed SIPS Payment Gateway	105
B.18	Level 2 Logical Data Flow Diagram of Wire Transfer Payment	106
B.19	Level 2 Logical Data Flow Diagram of Download Product & Service	107
B.20	Level 2 Logical Data Flow Diagram of Open Service Connection	108
B.21	Level 2 Logical Data Flow Diagram of Subscribe Newsletter	109
B.22	Level 2 Logical Data Flow Diagram of Request FAQ & Technical support	110
B.23	Level 2 Logical Data Flow Diagram of Process Viral Community	111
B.24	Level 2 Logical Data Flow Diagram of Provide Online Help	112

St. Gabriel's Library, Au

Figure		Page
B.25	Level 2 Logical Data Flow Diagram of Email for Help	113
B.26	Level 2 Logical Data Flow Diagram of Provide Knowledge & Developer Forum	114
B.27	Level 2 Logical Data Flow Diagram of Internet Report Accession	115
B.28	Level 2 Logical Data Flow Diagram of Query/Filtering Data	116
B.29	Level 2 Logical Data Flow Diagram of Process Report Command	117
B.30	Level 3 Logical Data Flow Diagram of New Customer Entry	118
B.31	Level 3 Logical Data Flow Diagram of Customer Retrieve Password	119
B.32	Level 3 Logical Data Flow Diagram of Customer Log in Process	120
B.33	Level 3 Logical Data Flow Diagram of Customer Change Password	121
B.34	Level 3 Logical Data Flow Diagram of Corporate Log in Process	122
B.35	Level 3 Logical Data Flow Diagram of Corporate Change Password	123
B.36	Level 3 Logical Data Flow Diagram of Visitor Entry	124
D.1	Context Diagram of Data Model	186
D.2	Key Based Diagram of Data Model	187
D.3	Fully Attribute Diagram of Data Model	188
E.1	The Beginning Page of Web Accession Page	189
E.2	Customer Entry Page	190
E.3	Corporate Entry Page	191
E.4	Forgot Password Form Page	192
E.5	Provide Password Keyword Page	193
E.6	Reset Password Page	194
E.7	Main Menu and List of Products and Services	195
E.8	The New Customer Registration Page	196

Figure		Page

E.9	The Quotation Request Page	197
E.10	The Product and Service Order Request Page	198
E.11	The Product and Service Order for Online Shopping Cart	199
E.12	The Product Viewing Page	200
E.13	Order Information Viewing Page	201
E.14	The Order Summary Page	202
E.15	The Order Summary Page – Payment Details	203
E.16	The Shopping Cart System for AV Store	204
E.17	Main Menu for Technical and Marketing Support	205
E.18	The Newsletter Subscription Page	206
E.19	The Viral Community Page	207
E.20	Customer and Technical Live and Contact Support	208
E.21	The Technical and Marketing Support – Contact Us	209
E.22	Customer and Technical Posted Webboard - Questions	210
E.23	Customer and Technical Posted Webboard - Answers	211
E.24	Download and Frequently Asked Questions Area	212
E.25	Customer and Technical Knowledge and Developer Forum	213
E.26	The Intranet Zone	214
E.27	The Intranet Zone – Product Viewing from Database	215
F.1	Quotation Request Report	216
F.2	Order Transaction Report	217
F.3	Customer Information Report	218
F.4	Product Information Report	219
F.5	Monthly Vendor Transaction Report	220

Figure		Page
F.6	Customer Service and Technical Support Solving Report	221
F.7	Payment Report per Billing and Receipt Issurance	222
F.8	Top-Ten Bestseller Listed by Sales and Customer Volumn	223

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มหาวิทยาลัยอัสสัมชัญ

LIST OF TABLES

Table		Page
1.1	The Comparison Product & Service between Existing and Proposed System	3
3.1	Hardware Specification for Internet & Database Server	39
3.2	Software Specification for Server	41
3.3	Hardware & Software Specification for Internet Security Server	42
3.4	Hardware Specification for Each Client Machine	43
3.5	Software Specification for Each Client Machine	44
3.6	Web Hosting Service	44
3.7	The Candidate System Matrix for Web Hosting Solution	50
3.8	The Candidate Feasibility Matrix Ranking for Web Hosting Solution	54
3.9	Possibility Cost Development for Feasibility Candidates	57
3.10	The Option for Web Hosting Candidate 1 and 2	59
3.11	Total Predictable development & Annual Cost for 3 Candidates	60
3.12	Initial Investment Cost on Existing System	65
3.13	Existing System Cost Analysis	66
3.14	Five Years Accumulated Existing System Cost	66
3.15	Initial Investment Cost on Proposed System	67
3.16	Proposed System Cost Analysis	68
3.17	Five Years Accumulated Proposed System Cost	68
3.18	The Comparison of the System Costs between Existing System and Proposed System	69
3.19	Payback Period Matrix Analysis	70
5.1	Degree of Achievement	75
C.1	Process Specification of Process 1.1.1.1	125

Table		Page

C.2	Process Specification of Process 1.1.1.2	125
C.3	Process Specification of Process 1.1.1.3	126
C.4	Process Specification of Process 1.1.1.4	126
C.5	Process Specification of Process 1.1.1.5	127
C.6	Process Specification of Process 1.1.1.6	127
C.7	Process Specification of Process 1.1.1.7	128
C.8	Process Specification of Process 1.1.2.1	128
C.9	Process Specification of Process 1.1.2.2	129
C.10	Process Specification of Process 1.1.2.3	129
C.11	Process Specification of Process 1.1.2.4	130
C.12	Process Specification of Process 1.1.2.5	130
C.13	Process Specification of Process 1.1.3.1	131
C.14	Process Specification of Process 1.1.3.2	131
C.15	Process Specification of Process 1.1.3.3	132
C.16	Process Specification of Process 1.1.4.1	132
C.17	Process Specification of Process 1.1.4.2	133
C.18	Process Specification of Process 1.1.4.3	133
C.19	Process Specification of Process 1.1.4.4	134
C.20	Process Specification of Process 1.1.4.5	134
C.21	Process Specification of Process 1.1.4.6	135
C.22	Process Specification of Process 1.2.1.1	135
C.23	Process Specification of Process 1.2.1.2	136
C.24	Process Specification of Process 1.2.1.3	136
C.25	Process Specification of Process 1.2.2.1	137

Table		Page

C.26	Process Specification of Process 1.2.2.2	137
C.27	Process Specification of Process 1.2.2.3	138
C.28	Process Specification of Process 1.2.2.4	138
C.29	Process Specification of Process 1.2.2.5	139
C.30	Process Specification of Process 1.2.2.6	139
C.31	Process Specification of Process 1.3.1.1	140
C.32	Process Specification of Process 1.3.1.2	140
C.33	Process Specification of Process 1.3.1.3	141
C.34	Process Specification of Process 2.1.1	141
C.35	Process Specification of Process 2.1.2	142
C.36	Process Specification of Process 2.1.3	142
C.37	Process Specification of Process 2.1.4	143
C.38	Process Specification of Process 2.2.1	143
C.39	Process Specification of Process 2.2.2	144
C.40	Process Specification of Process 2.2.3	144
C.41	Process Specification of Process 2.2.4	145
C.42	Process Specification of Process 3.1.1	145
C.43	Process Specification of Process 3.1.2	146
C.44	Process Specification of Process 3.1.3	146
C.45	Process Specification of Process 3.1.4	147
C.46	Process Specification of Process 3.1.5	147
C.47	Process Specification of Process 3.2.1	148
C.48	Process Specification of Process 3.2.2	148
C.49	Process Specification of Process 3.2.3	149

Table		Page

C.50	Process Specification of Process 3.2.4	149
C.51	Process Specification of Process 3.2.5	150
C.52	Process Specification of Process 4.1.1	150
C.53	Process Specification of Process 4.1.2	151
C.54	Process Specification of Process 4.1.3	151
C.55	Process Specification of Process 4.1.4	152
C.56	Process Specification of Process 4.2.1	153
C.57	Process Specification of Process 4.2.2	154
C.58	Process Specification of Process 4.2.3	155
C.59	Process Specification of Process 4.3.1	155
C.60	Process Specification of Process 4.3.2	156
C.61	Process Specification of Process 5.1.1	156
C.62	Process Specification of Process 5.1.2	157
C.63	Process Specification of Process 5.1.3	157
C.64	Process Specification of Process 5.1.4	158
C.65	Process Specification of Process 5.1.5	158
C.66	Process Specification of Process 5.2.1	159
C.67	Process Specification of Process 5.2.2	160
C.68	Process Specification of Process 5.2.3	161
C.69	Process Specification of Process 6.1	161
C.70	Process Specification of Process 6.2	162
C.71	Process Specification of Process 6.3	163
C.72	Process Specification of Process 6.4	164
C.73	Process Specification of Process 7.1.1	165

Table		Page

C.74	Process Specification of Process 7.1.2	165
C.75	Process Specification of Process 7.1.3	166
C.76	Process Specification of Process 7.1.4	166
C.77	Process Specification of Process 7.1.5	167
C.78	Process Specification of Process 7.2.1	167
C.79	Process Specification of Process 7.2.2	168
C.80	Process Specification of Process 7.2.3	169
C.81	Process Specification of Process 7.2.4	170
C.82	Process Specification of Process 7.3.1	170
C.83	Process Specification of Process 7.3.2	171
C.84	Process Specification of Process 7.3.3	171
C.85	Process Specification of Process 7.3.4	172
C.86	Process Specification of Process 7.3.5	172
C.87	Process Specification of Process 7.4.1	173
C.88	Process Specification of Process 7.4.2	173
C.89	Process Specification of Process 7.4.3	174
C.90	Process Specification of Process 7.4.4	175
C.91	Process Specification of Process 7.5.1	175
C.92	Process Specification of Process 7.5.2	176
C.93	Process Specification of Process 7.5.3	176
C.94	Process Specification of Process 7.6.1	177
C.95	Process Specification of Process 7.6.2	177
C.96	Process Specification of Process 8.1.1	178
C.97	Process Specification of Process 8.1.2	178

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SINCE1969
มหาวิทยาลัยอัสสัมชัญ

Table		Page

C.98	Process Specification of Process 8.1.3	179
C.99	Process Specification of Process 8.2.1	179
C.100	Process Specification of Process 8.2.2	180
C.101	Process Specification of Process 8.2.3	181
C.102	Process Specification of Process 8.3.1	182
C.103	Process Specification of Process 8.3.2	183
C.104	Process Specification of Process 8.3.3	184
C.105	Process Specification of Process 8.3.4	185
G.1	Data Dictionary of Database	224

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I. INTRODUCTION

1.1 Background of the Project

PresentationPro Co., Ltd. is one of the fastest growing in multimedia presentation, new media strategies, consulting, creative design, web application tools and programming business area located in Bangkok. Most companies could not imagine doing business without delivering high impact presentations. Organizations all over the world rely on presentations to negotiate partnerships, communicate internally, train their personnel and generate sales & marketing analysis. PresentationPro combines a professional design team and leading edge technology, with the familiarity of PowerPoint® and other multimedia graphic technology to take presentations to a whole new level. PresentationPro replaces canned, stale PowerPoint® templates with thousands of eye-catching backgrounds, stunning 3D clip art, unforgettable animations, expert advice and powerful tools to easily create and build both custom and high professional design powerful presentations. All Technical service and support is in Professional and very expert designs with many awards branding that guarantees effective professional staff.

Most business orders and transactions comes from the Marketing unit who became the main key division of the channel to reach more prospective customers. The corporate website is static design, displays full details in text mode and not getting much in details for E-commerce web application. Therefore, the existing system faces less channels in reaching worldwide customers due to lack of Business consulting service, face difficulties in tracking the business transactions as well as erroneous and late produced report problems

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to summarize for the whole unit. The sales & Marketing information system is unsystematic filing which leads to inefficient internal data management.

The Sales & Marketing department also faces task load and time consumption in dealing with customer service, financial task, and lack of ad hoc technology knowledge to answer and support customers as needed. Sales transactions and ordering mostly provide lately to the Financial and Accounting department, technical graphic & Operation division.

CyberVillage Co., Ltd. is one of the famous E-commerce company headquarters located in Singapore and is expanding the business into Asia and the Pacific. This company has sought for the famous base company in Thailand. The PresentatioPro Co., Ltd. is the first candidate to joint-venture and become a partnership to expand the service into full integration. The new proposed system is to redesign the corporate website from plain text and static graphic corporate information into Dynamic web application & E-Commerce development. The company also fully integrates and develops more services like E-business consulting, Web hosting (Virtual Shared hosting) including the existing product and services of Presentation Pro Co., Ltd. The company is renamed 'CyberProVillage Co., Ltd'.

Table 1.1. The Comparison Product and Service from the Existing System, PresentationPro Co.. Ltd. and Proposed System, CyberProVillage Co., Ltd.

PresentationPro Co., Ltd. (existing system)	CyberProVillage Co., Ltd. (Proposed System)
1. Multimedia presentation template and product design in package with outdoor and/or in-house presentation exhibition arrangement in professional design. 2. Web services, including website design and redesign, domain name registration, web promotion and Internet Marketing (Search Engine Registration and Web Site Marketing) 3. Graphic design, including logos, banners, icons, splash screens, web graphics and Macromedia Flash animation, multimedia design for personal or product & service graphic 4. Desktop Publishing services, including business cards, letterhead and newsletters, brochure, wedding CD-Rom, etc. 5. Multimedia Presentation Arrangement and Exhibition service	Same product and service as PresentationPro Co., Ltd but expand service in more area as follows: 1. Managed Virtual Web Hosting linked with well-known international hosting site in the U.S.A.. 2. E-business consulting and development with professional team from CyberVillage Co., Ltd located in Singapore coordinate together with project team in Bangkok to support the customers.

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1.2 Objectives of the Project

The project introduces a new computerized system for Corporate Web application design and hosting fully professional E-commerce consulting. The project objectives to implement the proposed system are as follows:

(1) To enhance the efficiency of the existing system by redesigning workflow and introducing the Dynamic web application and e-commerce transaction and Hosting service.

(2) To reduce workload and slow pace method in reaching the prospective customers. The corporate website also has various applications & patterns to reach more customers for E-business marketing & Web promotion, etc.

(3) To increase responsiveness from Customers and partners.

(4) To strengthen Business relationship with real time data with fast impact assessment.

(5) To expand market search to collect experience with a new customer segment which generates more opportunities in this business area.

(6) To reduce routine processing time to do more advertisement with cost reduction in area of advertising, marketing, etc.

(7) To support Management Information System (MIS) to plan, control and make decisions accurately and reliably for the management who needs to accomplish a business benchmark.

1.3 Scope of the Project

The proposed system is based on well-organized and centralized data management which focuses on the following areas:

(1) Marketing Department including Sale, Marketing, Customer Relation tasks. Most of the product is in Digital format which can easily download. The company also coordinate with a vendor, Presentation media mechanism Company, Sharp (Thailand)., Ltd. to link their products to display and make E-business Sales. After getting the order, the company sends order item details and related report to our vendor. All distribution, shipment and tracking is managed directly by Sharp Company. After that our Vendor will take care of the customer until the overall process is completed.

(2) Accounting & Financing for doing SIPS (SCB Secure Internet payment System) Online Payment Gateway solution coordinate with Siam Commercial Bank Co., Ltd.

(3) Technical Graphic Design & Operation Division. This is the major division to produce the core product and service, provide technical support and generate other web application and technology development tools.

1.4 Deliverables

(1) Corporate Web Application with full E-commerce business area.

(2) Developing Intranet and Extranet By using internal resource, both employee and operation system, like Hosting, network & Database capacity. (The Area of internet and Extranet is covered for only Marketing Department, The other unit also received just only Customer information)

(3) Online payment gateway solution to be the alternative payment channel of the system.

(4) Corporate database with efficient data retrieval and maintenance in fully integrated corporate web server.

(5) Summary report for the management, relevant departments and also vendors for planning, controlling and decision making.

1.5 Project Plan

The project development plan covers the 5 months period and is divided into eight phases in the Gantt chart as follows:

(1) The Survey Phase

(2) The Study Phase

(3) The Definition Phase

(4) The Configuration Phase

(5) The Procurement Phase

(6) The Design Phase

(7) The Construction Phase

(8) The Delivery Phase

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No.	Task Name
	I. Analysis of the Existing System
1	Define the Objective and Scope
2	Study the Existing System
3	Identify the Existing Problems
4	Study the Existing Computer System
5	Develop Context Diagram
6	Develop Data Flow Diagram
7	Cost and Benefit Analysis
	II. Analysis and Design of the Proposed System
8	Web Interface Design
9	Report Design
10	Database Design
11	Network Design
12	Program Design
	III. Implementation of the Proposed System
13	Coding
14	Testing
15	Hardware Installation
16	Software Installation
17	Conversion

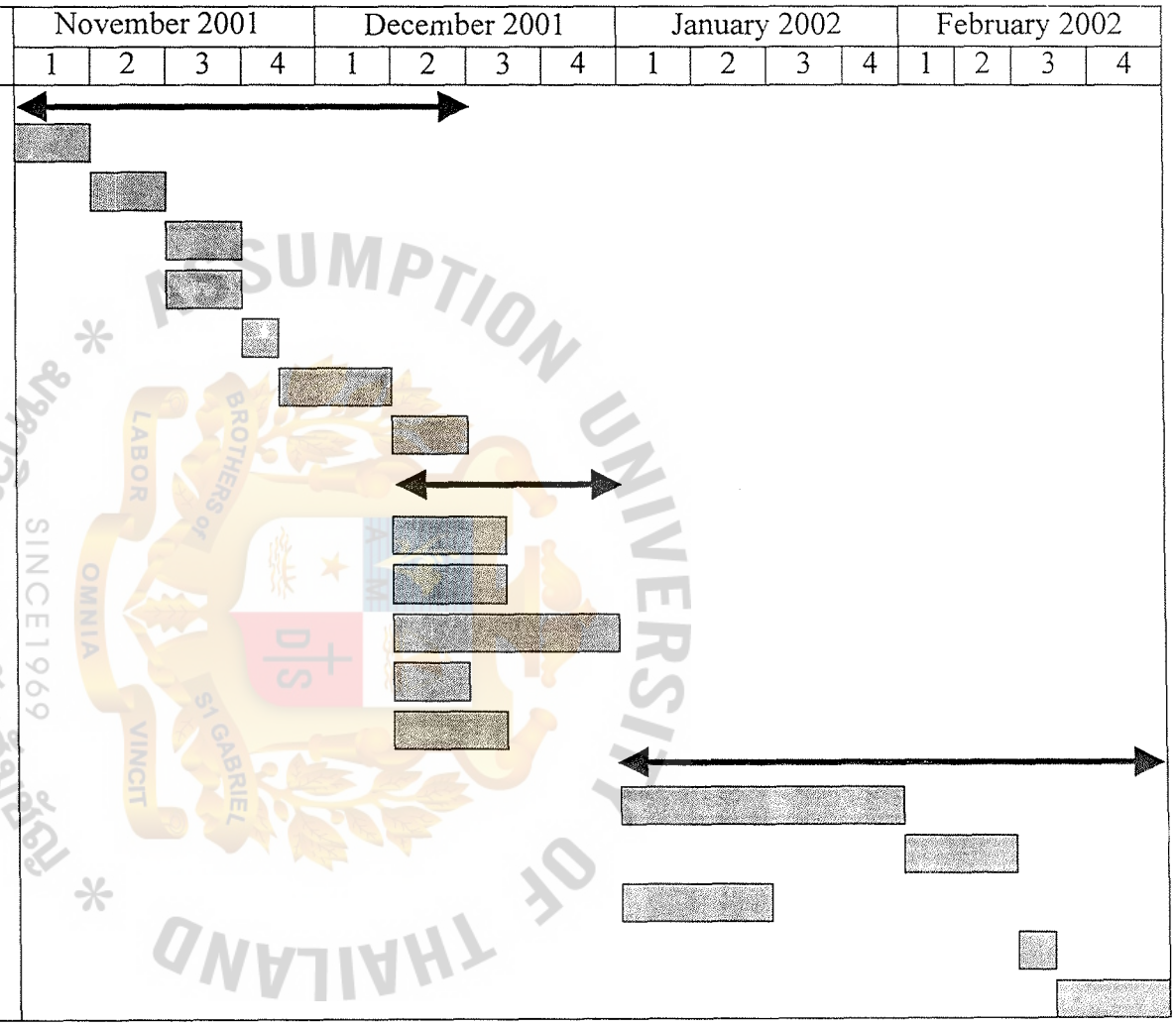

Figure 1.1. Project Plan of Corporate Information System for Hosting, Graphic Design and E-Business Development Consulting Firm.

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II. THE EXISTING SYSTEM

2.1 Background of the Organization

PresentationPro Co., Ltd. is a professional organization that specializes presentation development, multimedia graphic design, Website & Web application development. PresentationPro Co., Ltd. was incorporated in 1997 in response to a growing concern among organizations with controlling "Professional Presentation creative" performance. The original mission of PresentationPro Co., Ltd. was to be unique in Presentation development for professional design. The company also deals with a partner to sell the Presentation mechanism with our customers. The interested and well-known service is to arrange a professional & multimedia presentation for various international seminars, exhibitions, and inside customer's company. The company also provides service in graphic design for custom selection, like Wedding CD, Flash personal photograph, brochure, newsletter, outlet, etc.

In 2001, PresentationPro Co., Ltd. recognized the tremendous potential of the Internet and e-business. By late 2001, PresentationPro Co., Ltd. coordinated with CyberVillage Co., Ltd., an international E-commerce consulting firm located in Singapore to merge and manage full integrated internet service. In the meantime, the market research was studied and it was found that the existing problem in running the business is mostly taken part in Marketing & Sales department, due to having more customers and channels to reach the customer being limited by Sales & Marketing representative only. That created work load and inefficiency in Marketing & Sales information system.

By late 2001, PresentationPro Co., Ltd. coordinated launched an Internet web site and, shortly thereafter, the organization began a concentrated effort to transform the company into an e-business consulting network area. By developing a computerized system and implementing a corporate website to connect directly with the customers, the company expects to save cost of agencies, connect to the business world, increase sales channel, reduce task load & unnecessary cost, expand customer market share and support the future growth. Moreover, the proposed system can provide statistical information for management level in order to support strategy, planning, controlling and decision making.

2.2 Existing Business Function

The company, PresentationPro Co., Ltd. consists of a hierarchy as shown in Figure 2.1 which has the following business functions:

(1) Marketing & Sales Department

The department takes responsibility of generating sales transaction for the company, the marketing officer prepares the marketing plan and proceed further document processes. This department also consists of Customer support and Presentation arrangement team to take care of multimedia Presentation both inside and outside of the company. This department is the key function to link the company with customers and their satisfaction.

(2) Technical Graphic Design Department

This department is responsible for the core activity of the business, to design and develop the website, multimedia graphic presentation, custom design, desktop publishing, audio & animation graphic files, and overall web programming technique & consulting. This department is the main function to satisfy customer need with professional & technical team work.

(3) The Finance and Administration Department

This department is responsible for keeping records of company transactions and updating the company's bookkeeping related to cash inflow and outflow, prepare the financial report to management level and related department.

(4) The Information Technology Department

This department is responsible for developing, monitoring and controlling the overall computerized system of the company.

2.3 Background of the Existing System

PresentationPro Co., Ltd. mostly uses the manual system to reach the customer even though the core activity of the company is in Technical & Graphic operation with professional design and computerizing. All business operations, which involves selling, billing, ordering, quotation requesting, accounting, are all in unsystematic management. The overall operations are time consuming and cause redundancy of record keeping with more extra charge in time working because there is no pre-planning to deal with the day-to-day transactions. It leads to continuously delay in work processing to the related department and finally with the Management level. The company uses centralized management, therefore all information is controlled centrally by the general management. All business functions are described as follows:

(1) Customer Order

First of all, Sales & Marketing tries to reach the customer, and promote product & service to create sales transaction. After receiving the customer order, the Sales officer will send sales orders to the department via fax or telephone. Due to the centralized management system, every sales transaction has to be approved by the management level.

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(2) Bill Issuing

Our Product & Service is mostly in electronic format, the process to deliver the product & service is done in Contract Service (CS), divided and identified in different payment terms. After getting the approval from the management level, the Finance & Accounting department issues the bill upon request and terms of payment to the customer. This process creates more duplicated financial documents sent to related Department & Management level for record keeping.

(3) Payment

Based on the payment, Marketing or Sales officer will collect cheques on the due dates from the customer or the financial & Accounting receives the money transferred into our company's bank account. After the payment occurred, the finance & Accounting department will proceed the monthly bookkeeping record and send the receipt back to the customer.

(4) After Sales service

Based on the product & service of the company, the customer still need to get the in time after sales service and fully technical supports. For the existing system, there are no fixed responsible tasks for anyone but we will manage the ad-hoc process to satisfy the customer as much as everyone could. Most of the middleman who take much responsible are Customer service and Customer support in offline mode.

2.4 Current Problems and Areas of Improvement

The existing system is a manual system with problems faced by participating parties as follows:

(1) Inefficiency of work due to excessive requirements and workloads, unsystematic planning for the overall database management.

There are many redundancy of work as each department needs to create and maintain its own data. Each business day is filled with many overload work and less organized priority of work to handle the day-to-day operation without preparation, well planning and control.

(2) Delay in meeting customer data

Due to our business in technology area, the prospective and current customer mostly comes from many countries, but the way to conduct the order transaction is limited due to our staff capability. This business has to deal with the customer many times to get requirements and may cause consequent activity in using the product & service including the customer & technical support. If this process is delayed, it might cause mistakes in getting the right requirement and let the overall process take much time and become uncontrollable.

(3) Lack of Customer & Sales support

The existing corporate website is static, full of details which could not respond to customer satisfaction. Thus, the company lacks tools to express and maintain customer relationship.

(4) Unexpected cost for delayed response time

Due to many delayed and excessive work everyday, the unexpected cost like overtime, fuel, telephone cost, transportation fee to meet the customer more often to get the exact requirements, Refreshment, etc., are over budget control.

(5) Inconsistency and Repetition

Too many personal database were created to the inconsistent updated information. Therefore, everyone turns back to depend on the hard-copy file which causes excessive paperwork.

(6) Insufficient Reporting system

For the existing system, the report causes some errors and is difficult to check the historical data. The management does not receive report in time and sufficient and requested data are not available to support other staff to run the business efficiently.

Areas of Improvement

(1) Corporate web site implementation

Web site implementation is the most effective way to enhance the capability of Marketing & Sales information system. It can reduce business processing time to better meet customer satisfaction. The new web application technique is being adapted to support more functional areas creating online business transaction with fully supported information to customer. Therefore, the company can increase its competitive advantage, form the customer satisfaction over the competitors and can expand business in the new target group.

(2) Centralized Database

With centralized database, a record of all daily transactions will be kept in the computer system to monitor the status, correctness and consistency of internal and external database system.

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(3) Online report generating system & Formatted report provided in schedule

With the meaningful report, it can help staff to know and use the data in time with efficiency in planning, controlling and making decision for routine business transaction or business analysis purposes.

(4) Accuracy and Security for Client/Server computerized system.

New Internet Server and Internet Security Server is to be implemented with the proposed system to ensure that customer data and related database are in secure system with correctness and full integrity.

(5) To expand the business service to full integrated Web application development business consulting

Due to more competition in this kind of business nowadays, the way to expand the business with less investment is selected to support and get more prospective customers and make our business create and develop the system efficiently, become more scalability.

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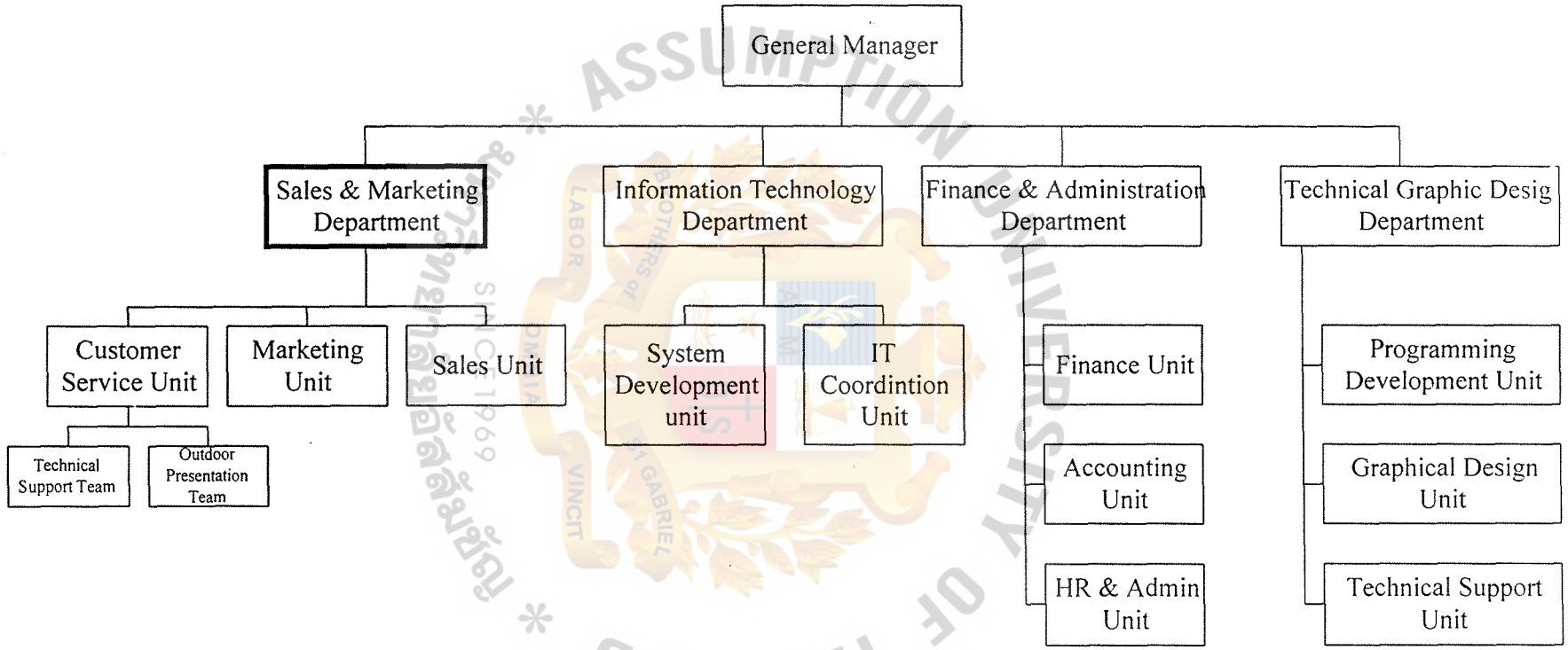

Figure 2.1. Organization Chart of Existing System – PresentationPro Co., Ltd.

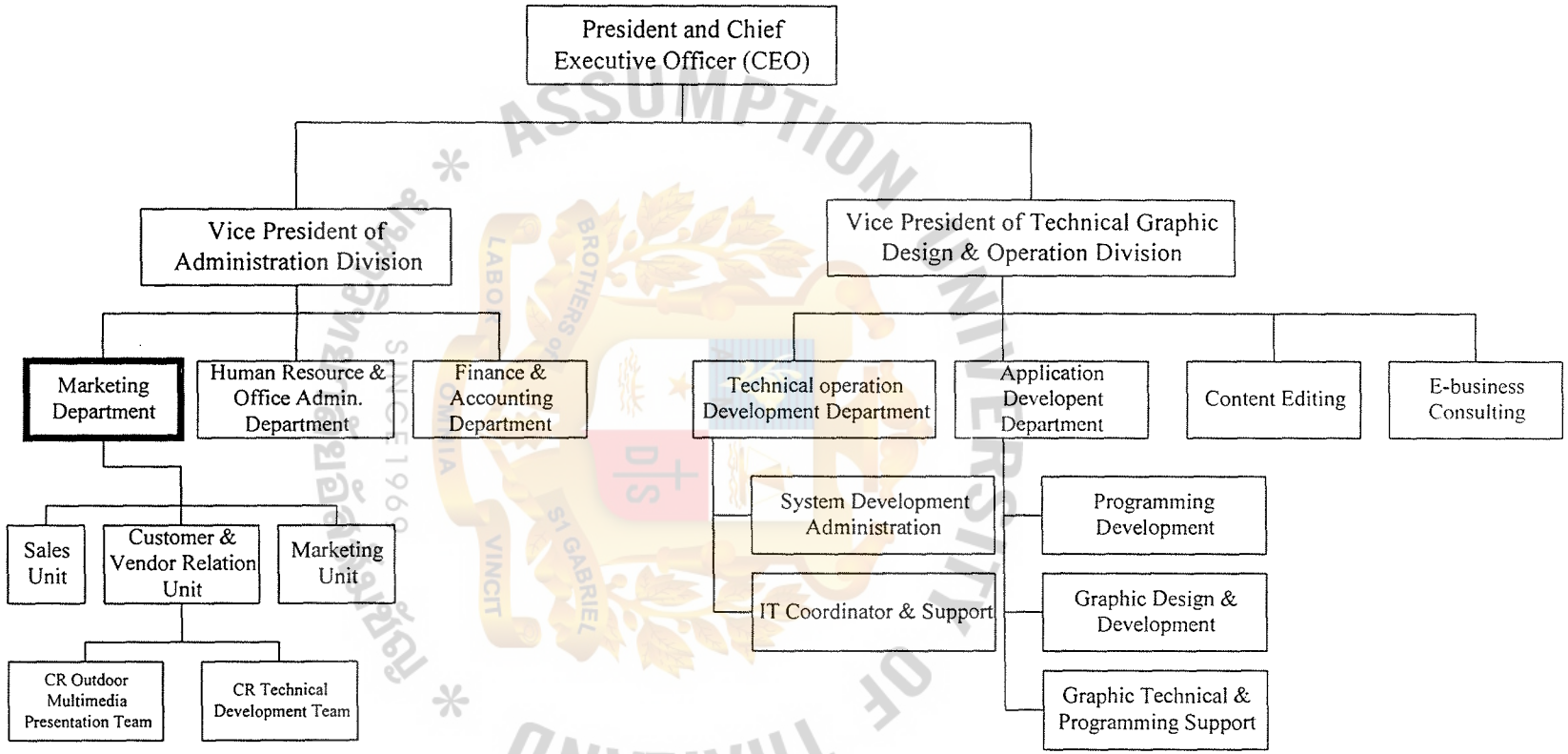

Figure 2.2. Organization Chart of Proposed System – CyberProvillage (Thailand) Co., Ltd.

III. THE PROPOSED SYSTEM

After studying the existing business problems and areas of improvement, the company decided to develop the corporate web site in web based application system. It will support all user's requirement especially our customers, to do more business transactions online. It also supports vendors in selling his products which related to our business technology. The new computerized system creates the new system architecture to achieve their requirements and business functions.

PresentationPro Co., Ltd. co-organized with the CyberVillage Co., Ltd. to be joined into a new company named CyberProVillage Co., Ltd. to integrate more business functions to develop the new proposed system as shown in Figure 2.2. All structure & design are conducted from the current staff team in PresentaionPro Co., Ltd. to develop full integrated online web development system and support the new standardized policies & procedures.

3.1 User Requirements

The new computerized system will be developed under the purpose of supporting all staff including customers, vendors and /or any interested people worldwide which will be our target group in the future. The new system should fulfill all of the following requirements:

(1) The overall database and Servers are applicable and fully support the system. Centralized database processing can reduce duplicated data in the system. All departments will have access to the central database server which gives them more effective data.

(a) The corporate customer & Vendor database are designed, developed and converted to the high performance database server, available for

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every responsible staff such as Sales & Marketing Officer, Technical development, financial staff, etc. to online manage the data and make the query.

(b) The quotation database converted from unstructured spreadsheet application file to effective database format generating to support customer online.

(c) The Order, Billing, Sales Transaction and payment database are related links to each other to facilitate effective data for every requested persons, like customer, staff, vendor, management level in order to pursue the business transactions and is well-organized for data integration system.

(d) The Customer and staff status to enter the system is kept in Program access database to ensure and record the entry level, keep track of the activity that happened in the system for both security checking & controlling.

(e) The product & Service database developed to help all staff especially Marketing and sales and Technical development people in designing a practical possible solution with present IT Products information, including Price & Quality management, knowledge developer forum to further satisfy customer, providing technical support and /or customer service.

(2) Security is implemented into the system to protect all information from unauthorized persons. The system should be online with access control.

(3) The new report generating system should provide details, summary, exception information as requested from web application structure. The

normal daily, monthly, and the specific report will be selected to be printed out from the same place to ensure the data correctness and reduce the paper cost.

(4) Backup and recovery supported by UPS, Backup tape and secondary data store system.

(5) The new computerized system can reduce staff workload and error by mistakes, create systematic back end integration, data management.

(6) The new computerized system is upgraded for new network structure and is also applicable with the system.

3.2 System Design

In system design phase the proposed system uses Data Modeling, Process Modeling and Network Modeling techniques as essential tools to solve the current problems and support the whole system requirements. Data Modeling will be used for preparing the database design to be shared by many processes into the developing system. Data will be organized in a manner which is flexible and adaptable to unanticipated business requirements. The Process modeling organizes the structure and the data flow through system process in which it will be divided into levels.

Data Modeling and Entity Relationship diagram (ERD) are used for developing the data model. ERD presents the logical structure of the database. The design of the database for the proposed system focuses on efficient storage, updates and retrieval of data (See Appendix D).

Normally, Process Modeling technique starts with the analysis of the existing system (See Figure 3.1.) for further development to the project design by using Functional Decomposition Diagram which divides the system into logical subsystems

and /or functions to serve as the outline for drawing the data flow diagram (See Figures 3.2., 3.3., 3.4.)

Data Flow diagram (DFD) is used as a tool to depict the logical flow of data through the proposed system. DFD is the technique for organizing and documenting the structure and flow of the data through a system's process. All logic, policies and procedures is needed to be implemented. DFD starts with the Context diagram for the proposed system (See Figure 3.5.), which indicates initial project scope showing the relationship between the external entities and the system.

Structure design is developed to breaking up the program into a hierarchy of module that made it easier for implementation. The primary tool used in structured design is the structure charts, which show how the program has been partitioned into smaller more manageable modules. (See Appendix A) All the process specification (See Appendix C) and module specification (See Appendix H) are provided to link all structure and decomposition diagrams to be explained for system analysis and design system.

Overview of DFD Level-0, Level-1 and Level-2

The context diagram of proposed system shown in Figure 3.5. can be explained to DFD Level 0 in Figure 3.6., which consists of the following eight processes:

(1) Web Access Selection

The beginning of the first page is shown for user to select the level to access the website. It can be divided into 3 categories: Customer Entry, Corporate Entry and Visitor Entry.

The purpose of the Customer Entry is to keep track of customer list and allow customer to access into the specific and important area to make the web application connected to our business functions.

The purpose of the Corporate Entry is to allow staff to access in the corporate and confidential records which will support the centralized and efficiently information to staff at any time. The new proposed system still have the corporate area to generate the query report from the centralized database to support customer request as needed.

The purpose of Visitor Entry is to keep track of visitor who accesses the web page and motivate them to subscribe to the membership. It also has the statistical program to keep track of the number of visitors who accesses and which page they are mostly interested in.

For each accession level, there are standardized process for customer to make a registration to be our member which the system will keep record by the Login ID, Password and Password keyword in case of Password loss. The system also provides the Password change process to allow users to get the new password and keyword any time as needed. For Staff accession, they will receive the password directly from the Technical administration, thus the process is smaller than the customer into Login and Change password process only. For the visitor, Login process is no longer required, but the statistic program will count the accession record of visitor to get more clear details on how much the non-customers are interested in our company and try to invite them into our customer membership.

(2) Quotation Issuing

This process supports customer or any visitor who is interested in our product & service and needed to get the quotation to submit to their management level. This process allows customer online printing the quotation details as needed.

(3) Sell Appliance

This process allows customer to online order the product & Service. The online shopping cart system will refer to the customer log on data. It will confirm the price calculating and update the ordered product list both for Customer service and selected package. After the process is finished, the system will generate email notification of the order transaction back to customer automatically.

(4) Payment

This process allows you to do the online payment gateway connecting to the Siam Commercial Bank Co., Ltd. using SIPS Program. This program will be linked to validate the customer credit information with a highly confidential and professional worldwide standardized system. This program allows our company to get the transaction online report all 24 hours a day and provide the statement purchasing weekly or monthly to manage the internal banking reconciliation. Another payment which is identified in the system is Wire Transfer method, which the system will give the banking instruction instead. The service will be delivered to the customer as soon as the payment is finished completely.

(5) Product & Service Enquiries

After getting the complete payment, the customer can download the product & Service to use and receive the CD or program later within the promised date referred in the receipt. For the customer who is interested in custom design and or web hosting service, they will receive the product as soon as the payment is completely transferred into the company's bank's account.

(6) Maintenance Information

Every department has to submit the updated data to the Technical operation officer & Webmaster (Content Editing) frequently as soon as getting the information. They will update the web page to provide accuracy and data integrity for future use.

(7) Online customer and Technical support

This process is divided into 6 ways to support and satisfy the customer in both technical and customer service as requested.

(a) Newsletter membership

This process motivates the customer or any visitor to apply for membership to get free newsletter updating the news from us weekly by email.

(b) Request FAQ and Web post question

This process provides FAQ to user in many popular technical questions and also provide the web post questions for any users who need to leave a question for help and posted to the others also.

(c) Process Viral Community

This process inspires the users to let their friends know about the website. The form will request the user to fill in the preliminary Name and contact data to generate the Email marketing to them.

(d) Provide Online Help

This process provides the customer support online to communicate between the customer and technical support immediately. The program will let the customer know the availability of the technician to support the help request. If the technician or

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customer support is not available to do, it will generate the sign and confirmation text to ensure that no staff can be supported and provide another help selection for users.

(e) Email for Help

This process is very simple to contact our staff by sending the email. The system will generate the pop-up customer's default email software checking to reply the question to us.

(f) Provide knowledge and Developer forum

To provide the Technical knowledge area for Developer forum and update the content frequently.

(8) Report Generating

There are 2 types of reports: Online report querying/filtering and formatted hard-copy report provide daily and monthly generated from the centralized system. The technician operation officer will retrieve the report from the database by the specific format. Daily report is mostly used for day-to-day operational level. Monthly report, as a summary report, will be provided for Management level to make further decision, controlling. planning the system.

All figures of DFD Level 1, Level 2 and Level 3 was shown in Appendix B started from Figure B.1. up to Figure B.35.

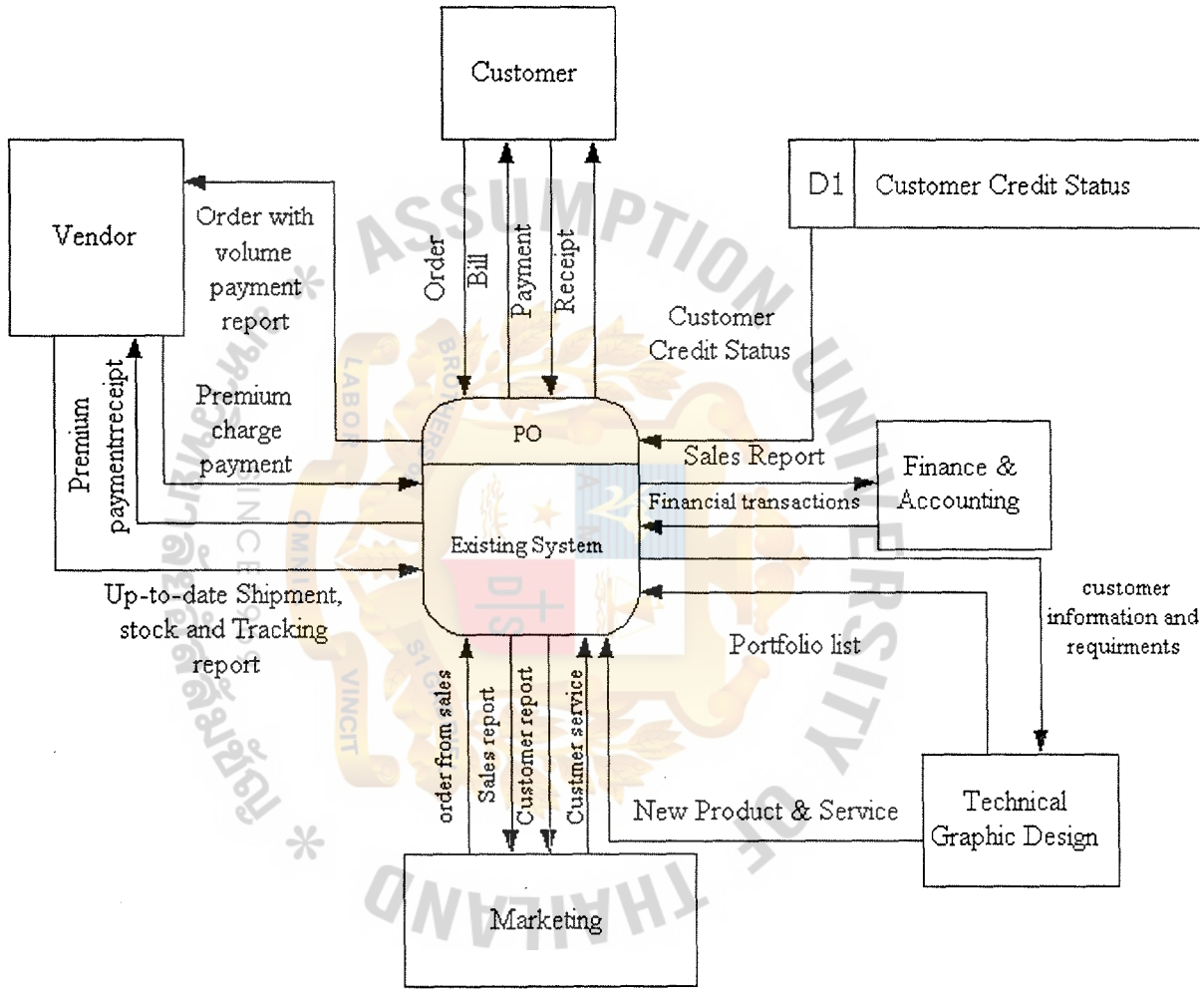

Figure 3.1. Context Diagram for Existing System – PresentationPro Co., Ltd.

Context Diagram for Existing System – PresentationPro Co., Ltd.

This context Diagram for the existing system – PresentationPro Co., Ltd. contains of 5 External Entities and 1 related Database as follows:

(1) Customer

The existing system receives customer information, order transactions, Bill payment and any requested information directly from Customer and hand over to responsible department to deal with the customer separately.

(2) Finance and Accounting

The existing system provides the sales transaction reports to the Finance and Accounting department. After all financial matters is completed, Financial transaction report will be provided to the existing system for further processes.

(3) Marketing

The Marketing Department sends the order transactions from Salesperson and all kinds of customer service to the existing system. After the process is completely finished, All sales transactions and customer reports will be provided to the Marketing Department to keep updating the new information.

(4) Technical and Graphic Design

This department provides the new Product and Service information including the Portfolio list to the existing system. The existing system will provide user's requirements and other related information to this department for further Technical and Graphic Design development.

(5) Vendor

The existing system provide the system to sell vendor products, Presentation equipment such as Projector, Slide viewer, Monitor exhibition, etc. Every sales transaction occurred, the existing system will charge monthly to the vendor, Sharp (Thailand) Co., Ltd. All matters related to updated shipment or inventory control is responsible directly to the vendor and will be sent to the existing system to coordinate with the customer.

(6) Customer Credit Status Database

This is the external Database related to the existing system to verify the customer qualification. This database is not handling directly from the above 5 external entities. This will be updated directly by the existing system and provided to other departments.

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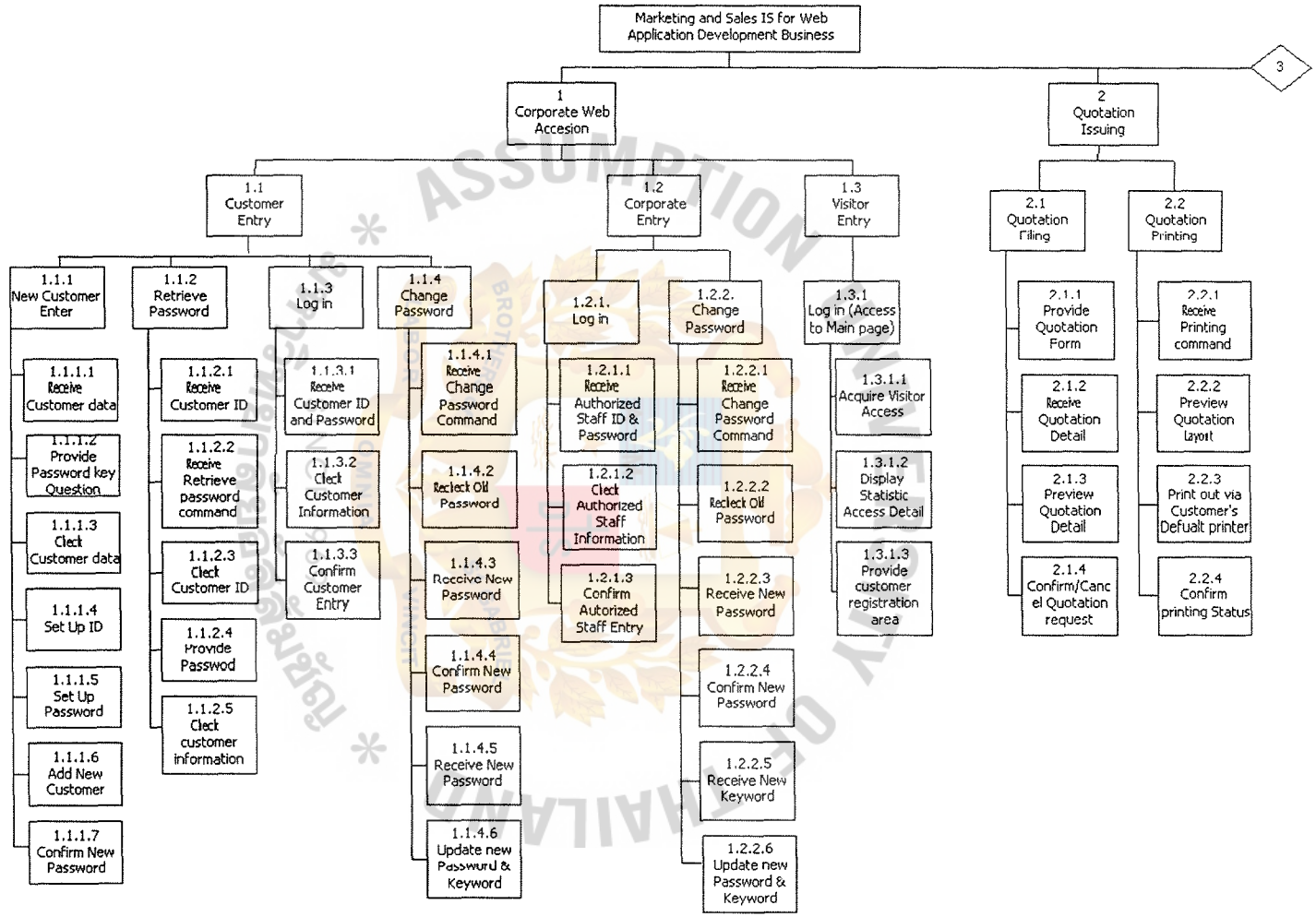

Figure 3.2. The Decomposition Diagram for Corporate Web Dynamic Application System, CyberProVillage Co., Ltd.

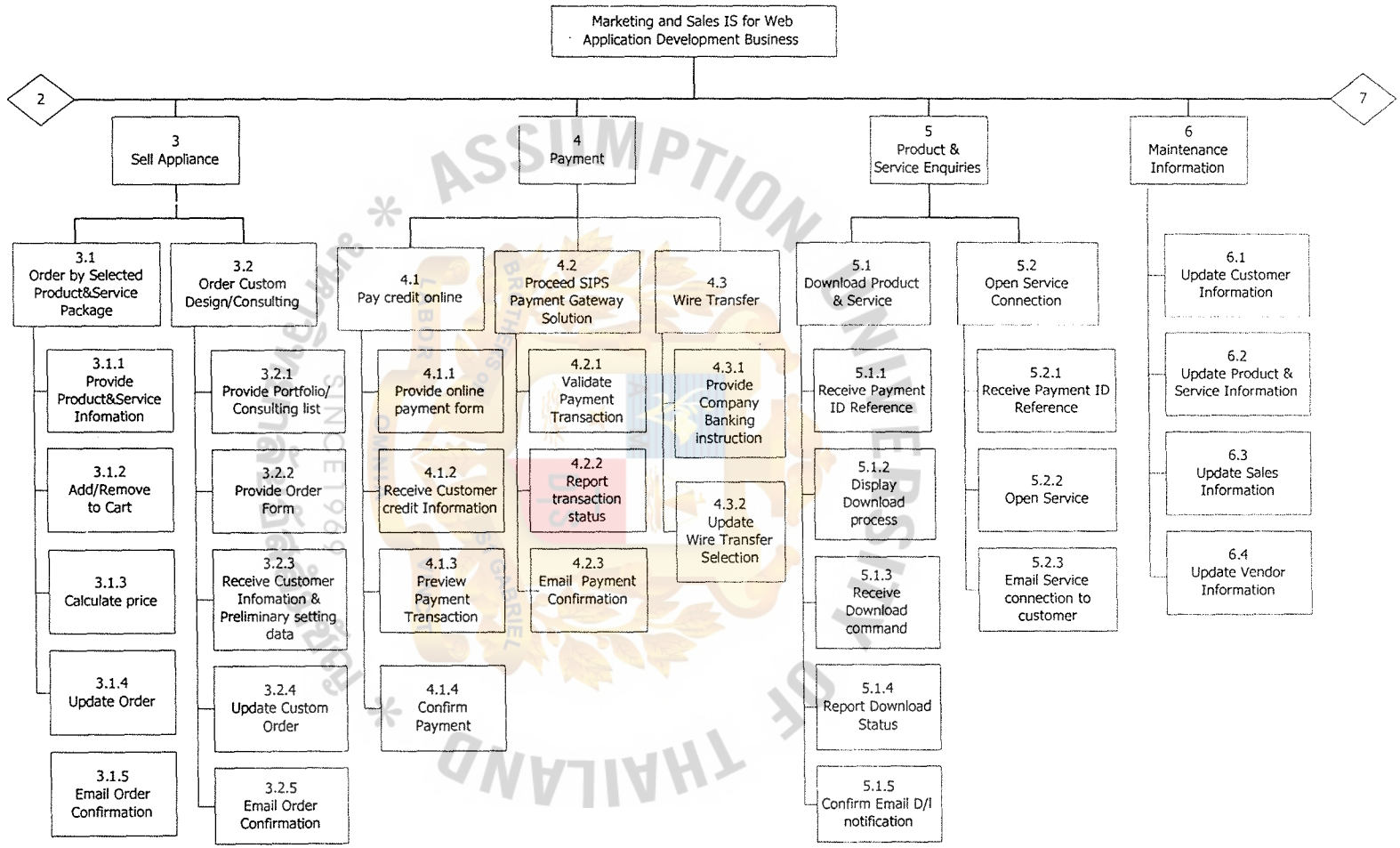

Figure 3.3. The Decomposition Diagram for Corporate Web Dynamic Application System, CyberProVillage Co., Ltd. (Continued).

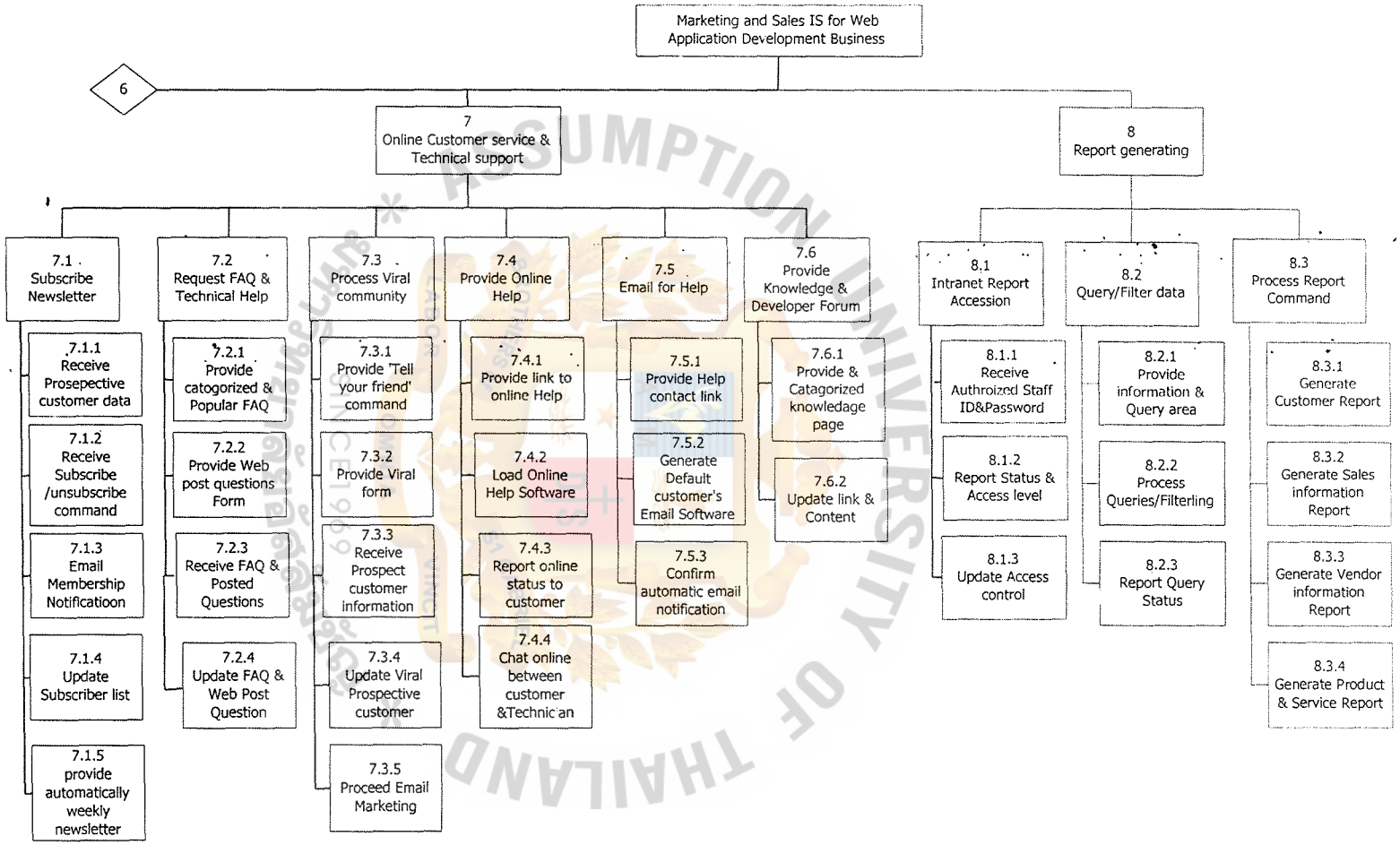

Figure 3.4. The Decomposition Diagram for Corporate Web Dynamic Application System, CyberProVillage Co., Ltd. (Continued).

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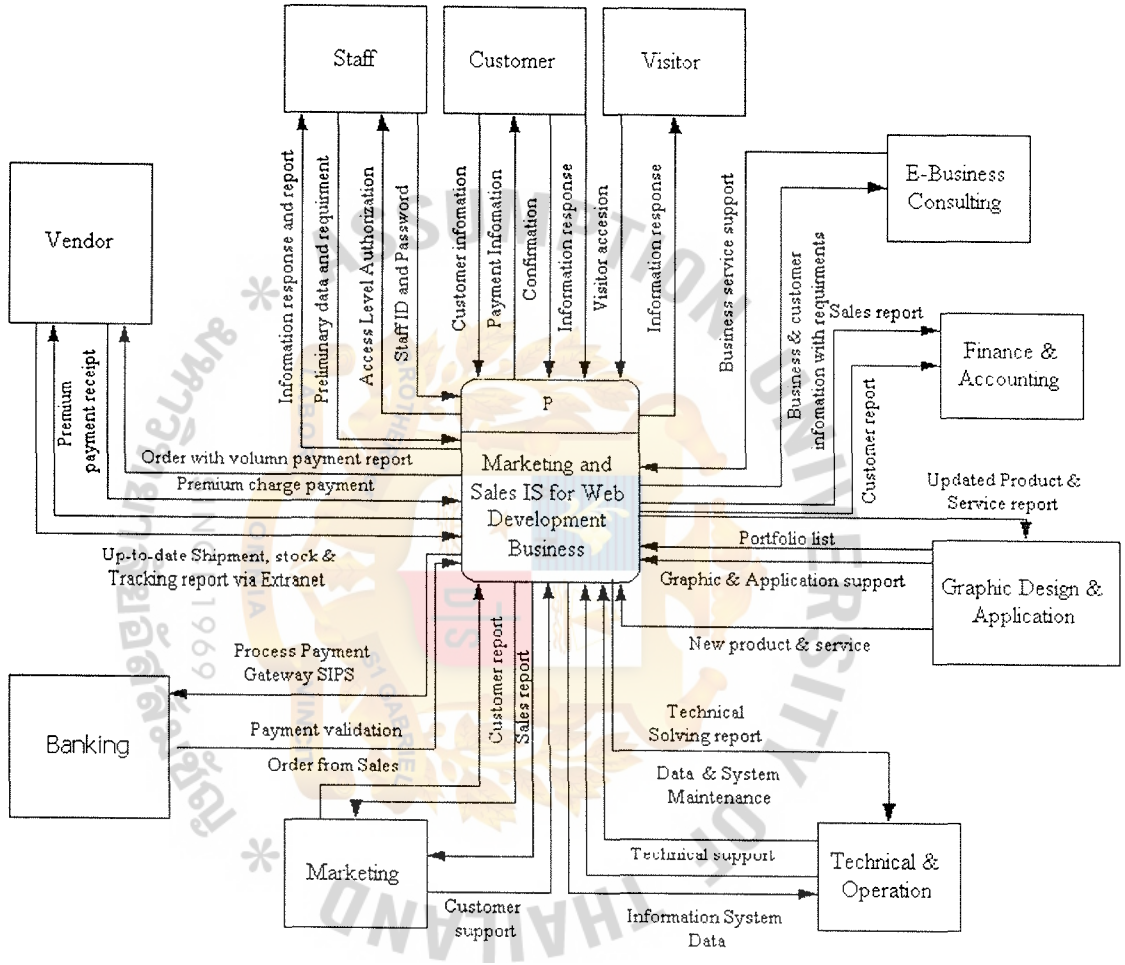

Figure 3.5. Context Diagram for Proposed System- CyberProVillage Co., Ltd.

Context Diagram for Proposed System – CyberProvillage Co., Ltd.

This context Diagram for Marketing and Sales Information System of CyberProvillage Co., Ltd. comprises of 8 External units as follows:

(1) Customer

The Marketing and Sales department receive the customer information and requirements both from web application accession and salesperson contacts (which staff will update on the database displaying upload via intranet system using this web application development)

(2) Staff

This system allows authorized staff who have ID and Password to log on the intranet area. It will help staff to query report, record data for centralized database system, update customer information, sales transaction and all matters related to the business. All selected information and report will be provided online generating by the system.

(3) Visitor

This system will keep up-to-date statistic record of visitors and provide them all kind of products and services including the registration area, newsletter membership and monthly promotion.

(4) E-Business Consulting

This is still displayed on the web as static information. The Marketing and Salesperson have to contact the customer directly and give the requirements to the E-Business consulting team. E-Business consultants will coordinate with sales person to contact the customer both inside and outside company depends on the proposed contract agreement.

(5) Finance and Accounting

The Marketing and Sales application can generate the customer or sales transaction report to the Finance & Accounting department to generate financial report and keep the data inside the department.

(6) Graphic Design and Application

The Graphic Design and Application team will send the support and new product and service to the Marketing & Sales to update the content on the web application. The product information or any customer information can be retrieved from the central web application via intranet system.

(7) Technical & Operation

The Technical and Operation team also provides the support and updated knowledge information on the web via this system both online and offline. They receive the problem and information from customer or any sales and Marketing staff (or others) via the web application.

(8) Marketing and Sales

The Marketing and sales receive customer information, order details and other sales transaction report via the application. This team also provides the customer support to help the customer both online and offline.

(9) Banking

This application also provide Online payment gateway SIPS module from The Siam Commercial Bank (SCB) to process and connect directly with the bank with the setting module from the bank. The company pays the setup and monthly fee to the bank and the payment system was set to connect directly with high secure platform. The report will be generated and sent online to the company to summarize the transaction weekly.

(10) Vendor

The Vendor of the company now is The Sharp (Thailand) Co., Ltd. for just only the presentation equipment and accessories. One of the web page is generated for the vendor products (such as projector, slide, power board, exhibition board, etc.) with shopping cart service. The company charges premium costs to the vendor for every purchasing both from web service and salesperson contact. The database of the inventory, shipment and tracking data will be updated via Extranet. The order and volume of sales transaction can be generated and sent directly to the Vendor.

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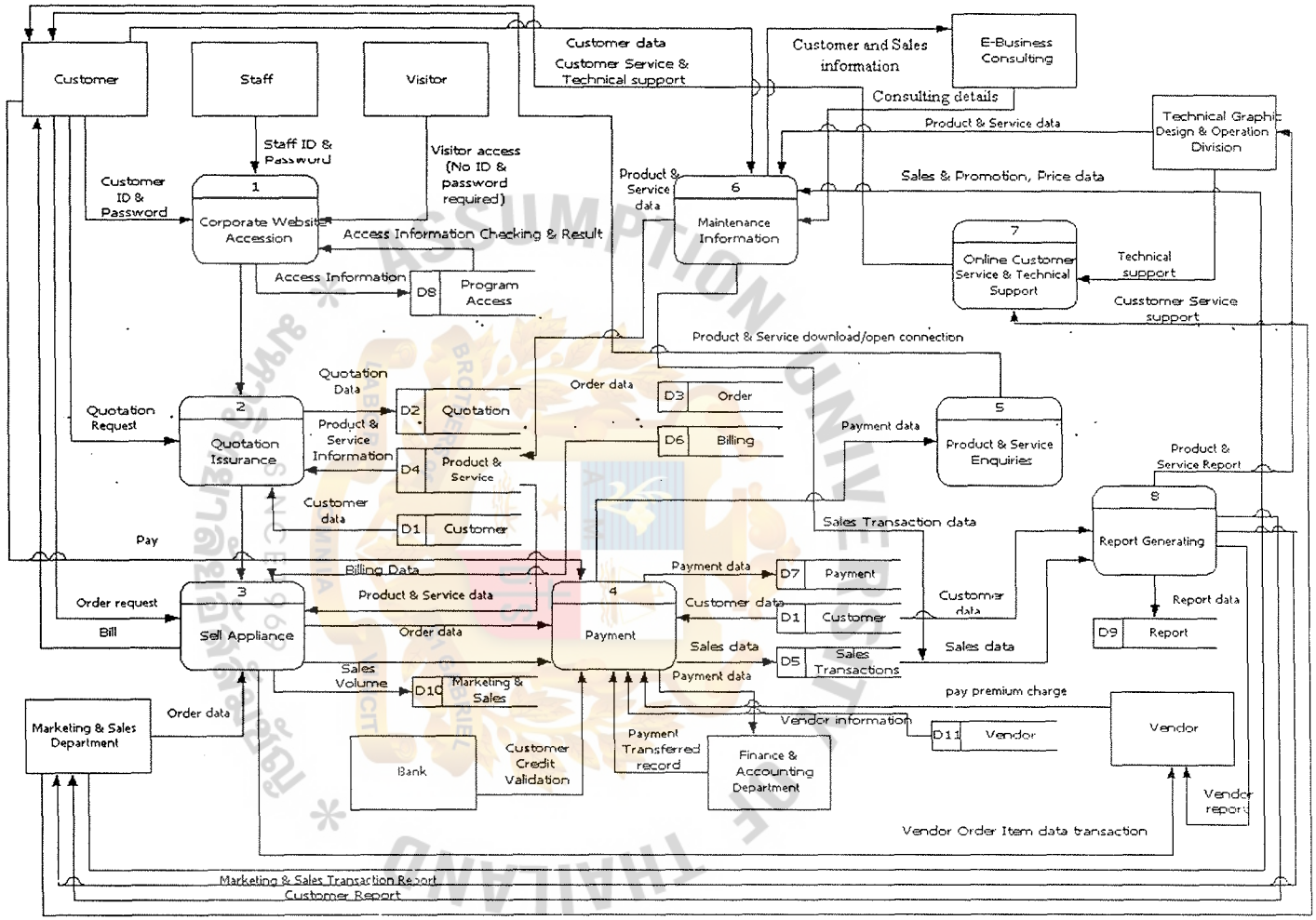

Figure 3.6. Level 0 Logical Data Flow Diagram of Marketing and Sales Information system for Web Application Development Business.

3.3 Hardware and Software Requirement

3.3.1 Architecture Solutions of Existing System

The existing system is designed to use Intel Pentium II 450 MHz specification for main PC platform in organization connected by the small Local Area Network (LAN) using bus topology with many switching hubs. The internet infrastructure is a high Pentium III 450 MHz as Internet server connected via modem with Dial-up Networking linking to the Internet Service Provider (ISP), KSC, by using Internet Service Package. All software programming is mostly used to support client-based programming and upload the product & Service to our web hosting company. The data & Application security has not been developed within the system. Most of the software used in the company is the Freeware and /or Shareware which is not stable and adaptable.

3.3.2 Architecture Solution for Proposed system

As corporate Website becomes more complex, offer increasingly dynamic contents, require extensive Internet bandwidth, and use a wide variety of complex software packages, the new proposed system architecture is designed with more scalability and functionality due to business expansion into Web Hosting and E-commerce Business consulting. The existing hardware computer & peripherals are needed to upgrade on latest technology. For use with an intranet, information management systems must be adapted to incorporate a third tier that divides the second tier into two parts, one of which is a presentation layer designed specifically for use on the Web. Therefore, the concept of distributed Client/Server server computing (Three-Tier Client/Server) is deployed to use with the existing LAN connected via new Gateway switching modem Zyxel Prestige 153 which will increase speed of connection up to 224 Kbps.

This architecture places the information system's stored data on a server, using Compaq ProLiant ML350 Intel Pentium III 1.26 GHz, dual processors Wide-Ultra SCSI3 with Microsoft Advance Server 2000 Platform, and the business logic and users interfaces on a client workstation using new upgrading PC dealing with Compaq Co., Ltd. using Microsoft Window 2000 Professional platform. Since the data is stored at the server side, the other departments of the company can access and use the information across the network.

For each application software, Microsoft Active Server Pages, Microsoft Visual InterDev 6.0, Adobe Photoshop 6.0 and Macromedia Dremweaver and other related graphic design programs can support entire user requirements and business processes. For the output & documentation processing, it is generated by HP LaserJet 2100 server printer located at each department. The personal printers are also provided to Management level and Administrative support for report & document generating. The input of this solution uses a keyboard, mouse, scanner and loading graphic files from digital camera.

Moreover, the database is installed for keeping the corporate & customer including vendor data so that all database command will be executed on database server and returns only the results of the database request. The most suitable data architecture for the new system is relational database, in which all data are stored in a tabular form. Each file is implemented as a two dimensional table. It can relate data stored in one table to data in another as long as the two shared a common data element. The new system is designated to use Microsoft SQL Server as Distributed Relational Database Management System (RDBMS) that can control access to and maintenance of the data stored. It also provides more sophisticated back up, recovery, security control, data integrity and efficiency processing.

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For the user interface, Web browsers and Web applications are so easy to operate that most people never even look at a manual. People who log on for the first time easily figure out how to set up an account or schedule a pick-up because the page is so intuitive. Communication is by means of easily understood tool bars and icons, and built-in links move the user smoothly through the application. For Web Application and internet service company, it is important that the information management system be as user friendly as everything else people find on the Web, or casual users will be lost. Ideally, the system should support the familiar graphical user interface conventions so that users do not have to learn yet another program to access their data.

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Hardware and Software Specification

To outline the design of our new information system to fulfill the requirements identified and modeled during system analysis, we have to prepare hardware and software specification both from client and server architecture.

Table 3.1. Hardware Specification for Internet & Database Server.

Hardware	Specification
CPU	Compaq ProLiant ML 350 Intel Pentium III 1.26GHz, 512KB cache
Multi-Processor	2
Memory	RAM Std Max 256 MB/ 6 GB
Drive Controller	Smart Array 5I
NIC	2 * 10/100 Fast Ethernet
Hard Drive Bay	5*1" Ultra3 Hot-plug and 1*1.6" Ultra3 Hot-plug (for disks or tape)
Slots	3 (2 x Hot-plug, 64-bit/66MHz, 1 x 64-bit/33MHz)
Chassis	2U Rack-optimized

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Table 3.1. Hardware Specification for Internet & Database Server (Continued).

Hardware	Specification
Software & Server Management	SmartStart, SS Scripting Toolkit, CIM, PXE, optional RILOE, ASR
Power	400W hot plug, with optional redundancy
LAN Card	RJ 45 (UTP)
Backup	Backup Tape Device
UPS	500 VA
Modem	56 K V.90 Zyxel Prestige 153 (Gateway supported)

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Table 3.2. Software Specification for Server.

Software	Specification
Operating System	Microsoft Advance Server 2000
Application Server	Microsoft Active Server Pages IIS 5.0
Web Publishing	Microsoft Visual InterDev 6.0 Adobe Photo Shop 6.0 Macromedia Dreamweaver 4 Macromedia Firework Macromedia Flash 5.0 Java Software Developer Kit
Database Server	Microsoft SQL Server 2000

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Table 3.3. Hardware & Software Specification for Internet Security Server.

Hardware	Specification
Processor	Compaq NetServer E200 Pentium III, 1 GHz, FSB 133 MHZ
Cache	256 KB L2 Online
Memory Std./Max	128 MB 133 MHz ECC SDRAM/768 MB
Hard Disk	6 GB
SCSI Controller	Single channel Ultra-Wide SCSI
CDROM Drive	40 X
NIC	Fast Ethernet 10/100 TX
Expandable	4 PCI, 1 ISA
Network Software	Novell Firewall for NT 4.0 plus 25 Connections
Operation System	Window NT Server 4.0

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Table 3.4. Hardware Specification for Each Client Machine.

Hardware	Specification
CPU	Compaq Pressario 5000 P-866 Intel Pentium III 866 MHz
Memory	128 MB
Hard Disk	20 GB
Floppy Disk	1.44 MB
CDROM Drive	8X DVD Rom
Monitor	17 inches, 15 inches
Input Devices	Keyboard and Mouse
Network Adapter	Ethernet 10-Base T or 100-Base T
Display Adapter	SVGA card
FAX/Modem	56 K V.90 Modem
Scanner	HP ScanJet 6300 C
Digital Camera	Sony Digital camera SDC-S50
Printer	HP 5L, 6L and Printer Server HP 2001

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Table 3.5. Software Specification for Each Client Machine.

Software	Specification
Operating System	Microsoft Window 2000 Professional
Software Program	Licensed for every software programs

Table 3.6. Web Hosting Service as Reseller for Virtual Hosting Program.

Service	Specification
Disk space	500 MB
Software Program	Licensed for every software programs
POP 3 Email Account	Unlimited
Traffic/Month	10 GB
Website Statistic	Media House LiveStats
OSBC/DSNs	4 DSNs
MS SQL Server	50 MB
Real Audio, Real Video	5 Streams
Website/Server	150
Operation system	Window 2000
Shopping Cart Software	Miva Merchant

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Table 3.6. Web Hosting Service as Reseller for Virtual Hosting Program (Continued).

Services	Specification
Technology support	Frontpage/InterDev Active Server Pages ASPMail Component SA-FileUp Component Perl/CGI Script, PHP, Python, SSI Email Admin Control Panel Unlimited Alias Auto-responder Feature Mail Forwarding Feature Spam Relay Protection Web-based Control Panel SSL Support Daily Tape Backup 7 Days * 24 Hours Technical support

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3.4 Security and Control

The proposed system security serves all confidentiality, integrity and availability to overall system. The security of any personal computer, corporate intranet or online store should depend on 4 requirements.

(1) Identification

The system has both physical security and operation logging. The physical security is the security for physical level in order to secure the computer facility, equipment and software through physical means. The basic physical securities is made by controlling the access to the system with keying customer login and password, and granting the right privileges on access data in the table to each user such as some users can retrieve data only, some can insert or update but can not delete and so on to protect against unauthorized access.

For the Internet & Intranet security, FireWALL for NT software can protect the network against many different security threats. It also integrates internet security features with network bandwidth management tools to ensure that critical traffic receives priority during peak network usage. The IT Administrator can use FireWALL for NT 4.0 software to filter network traffic by users, groups, IP addressed, time of day, application command, file types, and individual web pages.

(2) Access Control

A company's website is designed to communicate to the world. However, the company certainly does not want the world to access its confidential information. A security system is required to identify individuals according to their access rights. The proposed system will keep

the Access Control List (ACL) as a datastore to maintain and keep track to check the access control level, access date & time from authorized staff.

(3) Protection

(a) To Protect against Loss

The program protection and data protection are involved in protection against loss. The system has to be kept in a copy every time after program changed. The data back up procedures must be set up in such a way that all data in the system are kept securely and can be recovered whenever system failed.

(b) To protect against Physical Destruction

The system is protected from viruses by installation of the anti-virus program in all computers in order to scan for viruses every time before using the computer.

(c) To Control Input

The validation of input is embedded in the application in order to protect the invalid data occurring during daily operations.

(d) To Control Process

The system must provide the control to ensure that all processes will be done right way Backup tape device and UPS can be used to recover and restore the system operation

(e) To control Output

The output must have a bottom-line as a summary information for easier reconciliation. The system only provides the information to authorized persons.

(4) Validity

The system have to provide Online customer & Technical service support to customer /or visitor which our company does not expect its contents to be modified in transit. Security measures should ensure the validity of information by protecting it from unauthorized modification. Our Web browser programs and Email checking software also provide the digital signature, digital certificate for identification process.

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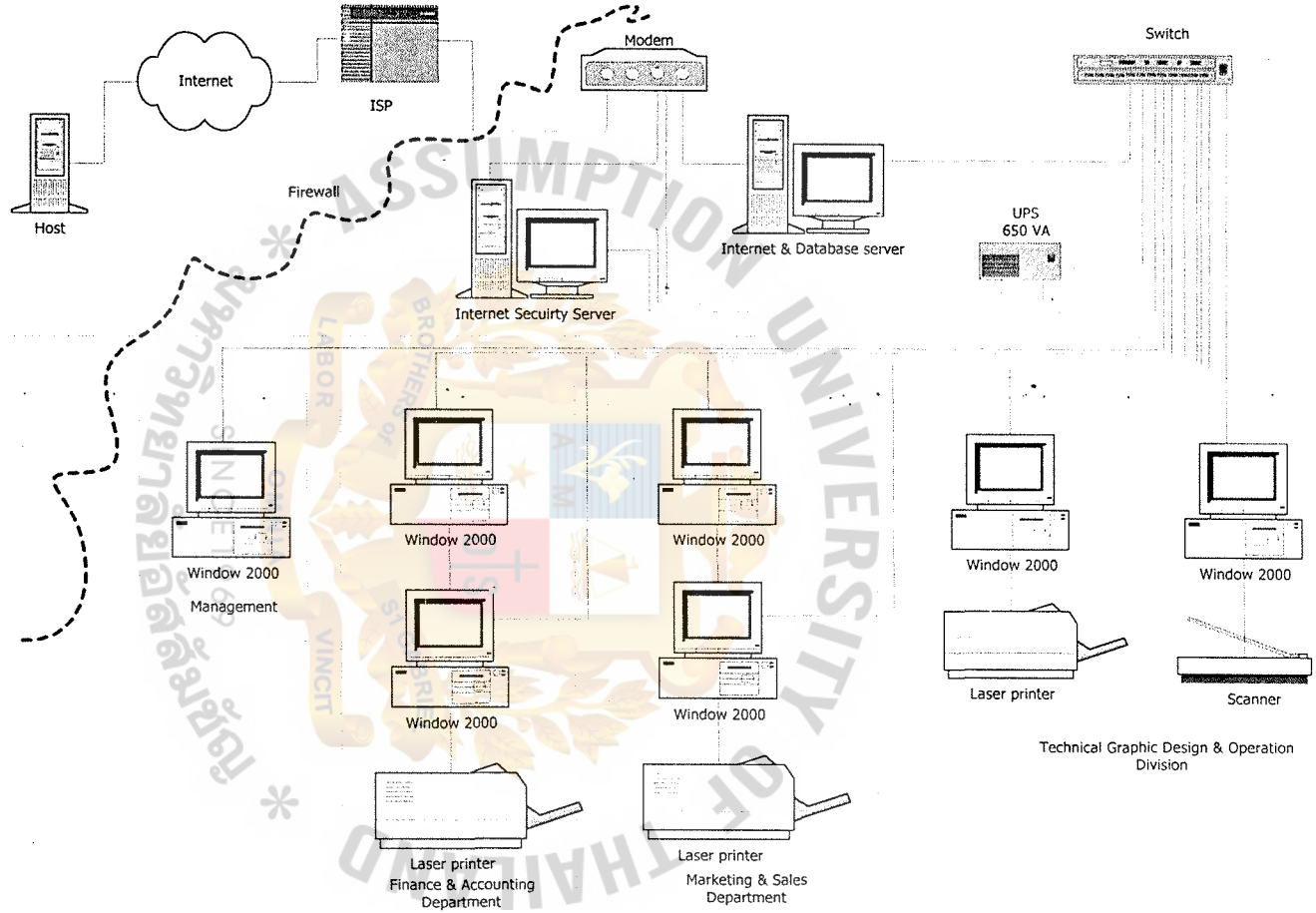

Figure 3.7. The Hardware & Network Configuration of New Proposed System.

3.5 Feasibility and Cost-Benefit Analysis

In the Configuration and Procurement Phase of System Analysis and Design, we have to identify the candidate system solutions and then analyze those solutions for feasibility. For the new proposed system, the additional service of the new system is Web Hosting providing. The Candidate System Matrix allow us to compare candidate system on the basis of several characteristics to study user's requirements in order to find out the best solution for the system implementation.

3.5.1 Feasibility Analysis for Web Hosting Solution.

Table 3.7. The Candidate System Matrix for Web Hosting Solution.

Characteristics	Candidate 1 (Co-Location)	Candidate 2 (Dedicated Server)	Candidate 3 (Shared Hosting)
Portion of System Computerized	Corporate server Co-location at Internet Data Center to facilitate and manage our own Servers and customer's data connected to the ISP via Pay-per-use Corporate Node service.	Corporate Dedicated Server at Internet Data Center to provide server equipment and full maintenance support to our own servers and customer's data connected to the ISP via Pay-per-use Corporate Node service.	Apply reseller web hosting program with International well-known company. This program allocates our company to use full computerized services with potential and effective network connectivity, high speed and global security system.

Table 3.7. The Candidate System Matrix for Web Hosting Solution (Continued).

Characteristics	Candidate 1	Candidate 2	Candidate 3
Benefit	This solution can be implemented quickly because it's a monthly purchased solution with fully maintenance from Internet Data Center.	Same as Candidate 1 with no need for server and hardware procurement and maintenance support.	Fully supports customer data and corporate database with international well-known hosting center. All service and security management are efficiency and equivalent to the head-quarter.
Servers and Workstaions	Technically architecture dictates Pentium III, MS Window Advanced 2000 Server and Pentium, MS Window 2000 Professional workstations (Clients)	Technically architecture dictates Pentium III, MS Window 2000 Server with fully implementation provided from the Internet Data Center. All workstations with MS Window 98/ME/2000 connected via	Technically architecture dictates Pentium IV. MS Window 2000 Advance server as internet server. Also provide Internet security server to protect intruder & customer data against Firewall software.

Table 3.7. The Candidate System Matrix for Web Hosting Solution (Continued).

Characteristics	Candidate 1	Candidate 2	Candidate 3
		Switch linked to ISP supported by our own company.	
Software Tools Needed (for Web hosting architecture only)	Internet Explorer 6.0 Mail Server FTP, Proxy IIS 5.0	Same as Candidate 1	Same as Candidate 1 with Novell Firewall server software plus 25 connection
Application Software	Package Solution	Same as Candidate 1	Custom Solution
Method of Data Processing	Client/Server connected via Internet	Same as Candidate 1	Same as Candidate 1
Output Devices and Implications	(1) Zyxel Prestige 153 Modem (10) Cord Extension (3) HP LaserJet 2001 laser Department	Same as Candidate 1 but (5) Cord Extension	(1) Same as Candidate 1

Table 3.7. The Candidate System Matrix for Web Hosting Solution (Continued).

Characteristics	Candidate 1	Candidate 2	Candidate 3
Input Devices and Implications	Keyboard & Mouse (2) HP ScanJet 6300C (2) Sony Digital camera SDC-S50	Same as Candidate 1	Same as Candidate 1
Storage Device and Implications	MS SQL Server DBMS with 50GB arrayed capacity (Custom Program) located at the Internet Data Center.	Same as Candidate 1 (Package program) located at the Internet Data Center.	MS SQL Server DBMS with 50GB arrayed capacity (Custom Program) located at our company.

The second matrix complements the candidate system matrix for Web Hosting solution with an analysis and ranking of the candidate systems. The possible candidate solution analysis is Operation Feasibility, Technical Feasibility, Economic Feasibility and Schedule Feasibility. The details are described as follows:

Table 3.8. The Candidate Feasibility Matrix Ranking for Web Hosting Solution.

Feasibility Criteria	Wt	Candidate 1	Candidate 2	Candidate 3
Operation Feasibility (Functionality and Political)	30%	Support all user requirement and current business process. The Pay-per-use Corporate node package is closely equivalent to Leased-line connection for fully access 24 Hours * 7 Days internet access. Score: 85	Same as Candidate 1 Score: 85	Fully support the overall user required functionality. Score: 95

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Table 3.8. The Candidate Feasibility Matrix Ranking for Web Hosting Solution (continued).

Feasibility Criteria	Wt	Candidate 1	Candidate 2	Candidate 3
Technology Feasibility (Technology and Expertise)	30%	This solution provide bandwidth-rich environment, secured and scalable resource with technical expertise to monitor & maintain our server(s) 24 hours a day, 7 days a week throughout the year which can minimize ongoing IT infrastructure investments and Help Desk support. Score: 90	This solution dedicates a single server to a single client. All software and customer data is maintained by our company while hardware and network are managed By the Internet Data Center. This solution provide vast server resources and enhanced control over dedicated server(s) with a team of engineer perform maintenance from the Internet Data Center Score: 80	This solution needs full professional expertise in technical operation areas such as Hardware configuration & Maintenance, Network & Security, Database and Hosting application service with full efficiency & integrated network infrastructure. Score: 85

Table 3.8. The Candidate Feasibility Matrix Ranking for Web Hosting Solution (continued).

Feasibility Criteria	Wt	Candidate 1	Candidate 2	Candidate 3
Economic Feasibility (for Web hosting only)	30%	Predictable initial and annually cost to develop is approximately 6,389,366 Baht Score: 75	Predictable initial and annually cost to develop is approximately 6,614,539 Baht Score: 70	Predictable initial and annually cost to develop is approximately 3,769,076 Baht Score: 95
Schedule Feasibility	10%	Within 2 week (Procurement & setting should be completely done within a week after getting the approval.) Score: 95	Within 1 Week Score: 85	Same as Candidate 1 Score: 95
Ranking	100%	84.5	79.0	92.0

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Predictable initial and annually development cost for 3 Feasibility candidates (for Web hosting service only), Baht.

Table 3.9. Predictable Cost Development for Feasibility Candidates, Baht.

Candidate Solution	Candidate 1 (Co-Location hosting service from IDC) (Quarter Rack)	Candidate 2 (Dedicated server service from IDC) (Quarter Rack)	Candidate 3 (Virtual Hosting)
Setup Fee (one time charge)	15,000	17,500	10,500
Monthly Fee	15,000	27,000	6,500
Dedicated* Firewall	No	Yes	Novell Firewall Software 128KB Server plus 25 Connections = 49,000 Baht
Rack space*	1	1	Depends
IP Address*	1	2	Depends
Ethernet 10/100 Mbps port*	1	1	Depends
Data transfer*	50GB	30GB	Depends
Power Distribution*	2 Outlets	2 Outlets	Depends
Rack security Feature	Lockable front/rear door	Lockable front/rear door	Depends
On Site Maintenance (Hour/Month)	15 Hours	20 Hours	Approximately 2,000 Baht/Month

Table 3.10. Predictable Cost Development for Feasibility Candidates, Baht (Continued).

Candidate Solution	Candidate 1 (Co-Location hosting service from IDC) (Quarter Rack)	Candidate 2 (Dedicated server service from IDC) (Quarter Rack)	Candidate 3 (Virtual Hosting)
Server	(1) HP Netserver E800 Pentium III 1 GHz, FSB133 MHz (Dual-processors), 128MB ECC SDRAM, HD 18.2 GB, integrated Dual-Channel Ultra2 SCSI, Fast Ethernet 10/100TX = 69,000 Baht as Internet Server. (2) Database server HP Netserver E200, PIII 1 GHz, FSB 133 MHz, 256KB L2 Online, 128MB, 9.1GB HDD, Single Channel Ultra-wide SCSI, Fast Ethernet 10/100 TCX = 37,000 Baht	Package with Dedicate server HP Netserver LP1000r PIII 1 GHz, 256KB cache, 256 MB SDRAM, 1*9.1 GB 10K Ultra 3 SCSI, Dual 10/100TX LAN Adapters, IIS 5.0 Webserver (MS Window 2000 server)	(1) Compaq ProLiant ML370 PIII 1 GHz, 11 UW, 256 MB SDRAM, VGA 4 MB, Ultra 3 SCSI, Dual 10/100 TX Lan adapter with MS Window 2000 Advance Server and preliminary software = 89,000 Baht as Internet Server. (2) Internet Security Server Compaq NetServer E200 Pentium III, 1 GHz, FSB 133 MHZ, 256 SDRAM, HDD 6 GB =39,000 Baht

Table 3.10. Predictable Cost Development for Feasibility Candidates, Baht (Continued).

Candidate Solution	Candidate 1 (Co-Location hosting service from IDC) (Quarter Rack)	Candidate 2 (Dedicated server service from IDC) (Quarter Rack)	Candidate 3 (Virtual Hosting)
System setting configuration	Distribution cost to IDC = 500 Baht (one time charge)	None	Zyxel Prestige 100 Modem =11,000 Baht (Installation = 2,000 Baht)
Pay-per-use Coporate node service (700 Hrs/Month)	10,500 Baht/Month	Same as Candidate 1	Same as Candidate 1
Dial-up Connection Cost	3,000 Baht/Month	Same as Candidate 1	Same as Candidate 1
Contingency	2,000 Baht/Month	Same as Candidate 1	Same as Candidate 1

Table 3.11. The Option for Web Hosting Candidate 1 and 2.

Option for Candidate 1 & 2	Price
Rack space	2,000 Baht/1U/Month
Ethernet 10/100 Mbps Port	2,000 Baht/Port/Month
IP Address	500 Baht/IP/Month
Power Distribution	2,000 Baht/Outlet/Month
Data Transfer	1,500 Baht/GB/Month
Dedicated Firewal	2,000 Baht/Month

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Table 3.12. Total Predictable Development & Annual Cost for 3 Candidates (Web Hosting).

Total development cost plus annual Fixed cost with predictable option service	Candidate 1	Candidate 2	Candidate 3
Year 0	567,500 Baht	587,500 Baht	488,500 Baht
Year 1	709,375 Baht	734,375 Baht	537,350 Baht
Year 2	886,719 Baht	917,969 Baht	591,085 Baht
Year 3	1,108,399 Baht	1,147,461 Baht	650,194 Baht
Year 4	1,385,499 Baht	1,434,326 Baht	715,213 Baht
Year 5	1,731,874 Baht	1,792,908 Baht	786,734 Baht
Total accumulated cost for 5 Year	6,389,366 Baht	6,614,539 Baht	3,769,076 Baht

**Assumption for calculation:
1. Depreciate rate is 20% started from the 1st year
2. Salary increase 10% annually

From the Feasibility Analysis Matrix and predictable accumulative cost over 5 years, the Shared Hosting solution (Candidate 3) is appropriate to the system due to the cost-benefit analysis and feasibility factors.

Another factor to support the Candidate 3 selection except the cost of investment is the quality of service from well-known international branding from U.S.A. which optimizes the maximum resources server and network performance to enhance and limit the number of user per server. That increases the speed and availability of connection 99.95 flexibility. The service and support is all 24*7 platform to maintain and fix the problem online as requested.

3.5.2 Feasibility Analysis for the New Proposed Overall System.

The new proposed computerized system is to develop the web based application corporate expansion into full integrated internet and E-business consulting firm, CyberProVillage Co., Ltd.

Feasibility analysis for the new proposed computerized system in developing web based application for corporate website are described as follows:

(1) Operational Feasibility

The developed system, corporate web application development fully support both customer's & internal staff's requirement and also fulfill the management need.

(2) Technical Feasibility

The design is developed in GUI platform which is a user-friendly style. All staff & customer or other visitors can easily access the website to gather their information as needed. The authentication and network security for access control is very standardized and professionally secure to protect data. All instructions can be provided and supported via the content within the website and Password for staff will be provided confidentially. Password for customer and other access is also provided step-by-step inside the website. We also have many in-house professional technical staff in various areas to develop our product & service or other system development.

(3) Schedule Feasibility

An assessment of 5 months solution will be required to design and implement the overall system.

Economic Feasibility

(a) Tangible Benefit

(1) Reduction of Staff in some units: Marketing & Sales staff, IT support Staff, but increasing staff are employed due to business expansion.

(2) Reduction of paperwork, overtime, contingency (Telephone calls, Refreshment cost, Fuel, etc.).

(3) Increase Marketing share by business expansion in full integrated web application development & E-business service.

(b) Intangible Benefit

Increase Internal efficiency of workflow as:

(1) Providing the center of Data mining to query/filter for proportional use.

(2) Increasing sales & marketing opportunities.

(3) Improving the processing speed of work.

(4) Being easy to generate ad hoc report.

(5) Providing transaction report for controlling daily operations.

(6) Providing raw data to generate/forecast any type of information to support management planning and decision.

Increase external efficiency for customer service as:

(1) Building more customer relationship.

(2) Supporting and creating more satisfaction to customer in technical, product & service or related developer tools providing.

(3) Creating viral communities to get more prospective customers.

(4) Improving speed and consistency in customer service.

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(5) Creating reliable and professional acknowledgement in company goodwill.

Economic Feasibility works on the following assumptions:

(1) The existing company, PresentationPro Co., Ltd. has been organized and managed the computerized system for 3 years, so the accumulated depreciation of total fixed asset for the 4th and the 5th year will be carried forward to the first year of new system implementation.

(2) The interest rate is expected to be 8% per annum.

(3) The inflation rate is expected to be 3% per annum, so the price of technology product is marked up to increase varying for 10% every year.

(4) The salary for staff is increasing around 10% per annum for Existing System, and 10 % per annum for new proposed system.

(5) The expected useful life of the developed system is 5 years.

(6) Initial investment, is paid in year 0 during procurement, covers Hardware & Software cost, Implementation, Training and Maintenance cost for the first year.

After weighting all criteria by using feasibility method of analysis, the solution can support all staff's requirement in all operation, technical, schedule and economic feasibility. The above economic feasibility summary indicates payback period of the project is less than the systems useful life, return of investment is over the market interest and Net present value is greater than zero. Moreover, the proposed system also provides more options in Intranet & Extranet area, online web application, Network and security system support, flexibility and adaptability for the existing Marketing & Sales information system and also relevant to overall system. Therefore, the feasibility analysis results ensure that the new proposed system is worth and attracting to invest.

3.5. Cost and Benefit Analysis

3.5.1 Breakeven Analysis

The description of system operation and maintenance cost of existing system and the new computerized system are shown as follows:

(1) Cost of the Existing System

The existing system is the computerized system which has initial investment approximately 1,230,935 Baht including Hardware cost, Software cost, Web Hosting Cost and Implementation Training Cost.

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Table 3.12. Initial Investment Cost on Existing System: PresentationPro Co., Ltd. (In Baht).

Cost items		Year 0
Hardware Cost		
Workstation Cost	25 units@28,000	700,000.00
UPS APC BackupUPS		3,510.00
Modem Magic xpress MX56VX-R1		2,450.00
Digital Camera Cannon Powershot		28,650.00
HP Laser Jet 1100	5 units@18,450	92,250.00
Epson Stylus Color	2 units@9,500	19,000.00
Epson Stylus Photo 2000 P		38,500.00
Epson Stylus Scan 2500		23,400.00
Network Configuration and Setting		130,000.00
Network Cost - Hub	2 units@1,650	3,300.00
Total Hareware Cost		1,041,060.00
Software Cost		
Window 98 Thai for workstation		8,325.00
Microsoft Visual InterDev 6.0		23,050.00
Microsoft Photo Shop V5.5		33,000.00
Macromedia Dreamweaver 3		17,500.00
Microsoft SQL Server 7		54,000.00
- Installation Cost		65,000.00
Total Software Cost		200,875.00
Internet Service Provider & Web Hosting Cost		
Setup Fee	One Time Charge	5,000.00
E-mail	One Time Charge	3,000.00
Total Web Hosting Cost		8,000.00
Implementation Training Cost		
Training Cost		50,000.00
Set up Cost		40,000.00
Total Implementation Training Cost		90,000.00
Office Equipment Cost		
Calculator	15 units@1,400	21,000.00
Total Office Equipment Cost		21,000.00
Total Implementation for Existing system Cost		1,360,935.00

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Table 3.13. Existing System Cost Analysis, Baht.

Cost items		Years				
		1	2	3	4	5
Fixed Cost						
Hardware and Software Costs						
Depreciation (20% of Hardware Cost)		208,212.00	208,212.00	208,212.00	208,212.00	208,212.00
Depreciation (20% of Software Cost)		40,175.00	40,175.00	40,175.00	40,175.00	40,175.00
Calculator (20% Depreciation)		4,200.00	4,200.00	4,200.00	4,200.00	4,200.00
Total Hardware and Software Costs		252,587.00	252,587.00	252,587.00	252,587.00	252,587.00
Maintenance Cost						
Maintenance Cost (10% of Hardware Cost)		104,106.00	104,106.00	104,106.00	104,106.00	104,106.00
Depreciation						
Total Maintenance Cost		104,106.00	104,106.00	104,106.00	104,106.00	104,106.00
Web Hosting Cost:						
URL		1,800.00	1,800.00	1,800.00	1,800.00	1,800.00
Monthly Fee		14,500.00	14,500.00	14,500.00	14,500.00	14,500.00
Total Web Hosting Cost		16,300.00	16,300.00	16,300.00	16,300.00	16,300.00
Total Fixed Cost		132,181.00	132,181.00	132,181.00	132,181.00	132,181.00
Operating Cost						
Accounting Officer	2 persons@15,000	30,000.00	33,000.00	36,300.00	39,930.00	43,923.00
Finance Officer	2 persons@15,000	30,000.00	33,000.00	36,300.00	39,930.00	43,923.00
Marketing Officer	7 persons@12,000	84,000.00	92,400.00	101,640.00	111,804.00	122,984.40
Sales Officer	7 persons@11,000	77,000.00	84,700.00	93,170.00	102,487.00	112,735.70
Graphic designer	5 persons@15,000	75,000.00	82,500.00	90,750.00	99,825.00	109,807.50
Programmer	4 persons@18,000	72,000.00	79,200.00	87,120.00	95,832.00	105,415.20
Technical support	2 persons@14,000	28,000.00	30,800.00	33,880.00	37,268.00	40,994.80
Overtime for staff		25,000.00	26,250.00	27,562.50	28,940.63	30,387.66
Total Monthly Salary Cost		421,000.00	461,850.00	506,722.50	556,016.63	610,171.26
Total Annual Salary Cost		5,052,000.00	5,542,200.00	6,080,670.00	6,672,199.50	7,322,055.08
Office Supplies & Miscellaneous Cost						
Stationary	Per Annual	4,500.00	4,950.00	5,445.00	5,989.50	6,588.45
Paper	Per Annual	40,000.00	44,000.00	48,400.00	53,240.00	58,564.00
Utility	Per Annual	10,000.00	11,000.00	12,100.00	13,310.00	14,641.00
Miscellaneous	Per Annual	50,000.00	55,000.00	60,500.00	66,550.00	73,205.00
Total Annual Office Supplies Utility and Miscellaneous Cost		104,500.00	114,950.00	126,445.00	139,089.50	152,998.45
Total Annual Operating Cost		5,156,500.00	5,657,150.00	6,207,115.00	6,811,289.00	7,475,053.53
Total Manual System Cost		5,024,319.00	5,524,969.00	6,074,934.00	6,679,108.00	7,342,872.53

Table 3.14. Five Years Accumulated Existing System Cost, Baht.

Year	Total Extisting system Cost	Accumulated Exising Cost
1	5,024,319.00	5,024,319.00
2	5,524,969.00	10,549,288.00
3	6,074,934.00	16,624,222.00
4	6,679,108.00	23,303,330.00
5	7,342,872.53	30,646,202.53
Total	30,646,202.53	-

(2) Costs of Computerized System

Table 3.15. Initial Investment Cost on Computerized System, Baht.

Cost items		Year 0
Hareware Cost		
Internet Webserver Cost		89,000.00
Database Server Cost		76,000.00
Internet Security Webserver Cost		39,000.00
Workstation Cost (Compaq Upgrading)	14 units@20,000	280,000.00
Network Cost - CISCO Switch Catalyst WS-2902	2 units@8,400	16,800.00
Backup tape device		8,300.00
Modem Zyxel Prestige 100 Modem		11,000.00
CD Writer CD-RW Sony 12*8*32 IDE		12,400.00
Proposed Network Configuration and Setting		65,000.00
Total Hareware Cost		597,500.00
Software Cost		
Server Software (MS Window 2000 Advanced Server)		39,500.00
Window 2000 Professional		15,000.00
Visual Studio Pro 6.0		43,200.00
Visual J++ Pro 6.0		22,100.00
Web Design Studio		28,900.00
Adobe Photoshop V6.0		8,400.00
Microsoft SQL Server 2000		45,000.00
Macromedia Flash		14,500.00
Macromedia Firework		11,000.00
Illustrator V9.0		17,000.00
Corel Draw V.10		16,050.00
Novell Firewall		49,000.00
- Installation Cost		4,000.00
Total Software Cost		313,650.00
Internet Access, Web Hosting Cost (Virtual host)		
Payment Gateway Solution:		
Setup Fee (Virtual Hosting)	One Time Charge	10,500.00
Setup Fee (Pay-per-use CN with ISP)	One Time Charge	3,000.00
Email Set up Fee (Pay-per-use CN)	One Time Charge	4,000.00
Setup Fee (SIPS Payment gateway)	One Time Charge	14,000.00
Total Web Hosting Cost		31,500.00
Implementation Training Cost		
Set up Cost		25,000.00
Implementation Training cost		8,000.00
SIPS Payment Gateway software guarantee		55,000.00
Total Implementation Training Cost		88,000.00
Total Implementation for proposed system Cost		1,030,650.00

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Table 3.16. Proposed System Cost Analysis, Baht.

Cost items		Years				
		1	2	3	4	5
Hardware and Software Costs						
Depreciation (20% of Hardware Cost)		119,500.00	119,500.00	119,500.00	119,500.00	119,500.00
Depreciation (20% of Software Cost)		62,730.00	62,730.00	62,730.00	62,730.00	62,730.00
Total Hardware and Software Costs		182,230.00	182,230.00	182,230.00	182,230.00	182,230.00
Maintenance Cost						
Maintenance Cost						
(10% of Hardware Cost)		59,750.00	45,650.00	45,650.00	45,650.00	45,650.00
Depreciation						
Total Maintenance Cost		59,750.00	45,650.00	45,650.00	45,650.00	45,650.00
Internet Access, Web Hosting Cost (Virtual host), Payment Gateway solution :						
Monthly Fee (Pay-per-Use CN) 700 Hrs/M	Per Annual	126,000.00	126,000.00	126,000.00	126,000.00	126,000.00
Monthly Fee (Hosting Cost)	Per Annual	78,000.00	78,000.00	78,000.00	78,000.00	78,000.00
Monthly Fee (SIPS Payment Gateway)	Per Annual	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00
Total Web Hosting Cost		216,000.00	216,000.00	216,000.00	216,000.00	216,000.00
Total Fixed Cost		93,520.00	79,420.00	79,420.00	79,420.00	79,420.00
Operating Cost						
Accounting Officer	1 person@18,500	18,500.00	20,350.00	22,385.00	24,623.50	27,085.85
Finance Officer	1 person@18,500	18,500.00	20,350.00	22,385.00	24,623.50	27,085.85
Marketing Officer	3 person@16,000	48,000.00	52,800.00	58,080.00	63,888.00	70,276.80
Sales Officer	4 persons@15,00	60,000.00	66,000.00	72,600.00	79,860.00	87,846.00
Graphic designer	5 persons@20,00	100,000.00	110,000.00	121,000.00	133,100.00	146,410.00
Programmer	3 persons@22,00	66,000.00	72,600.00	79,860.00	87,846.00	96,630.60
System Integrator/Multimedia Analyst	1 person@22,000	22,000.00	24,200.00	26,620.00	29,282.00	32,210.20
Technical support	1 person@18,000	18,000.00	19,800.00	21,780.00	23,958.00	26,353.80
Content Editor	1 Person@15,000	15,000.00	16,500.00	18,150.00	19,965.00	21,961.50
Total Monthly Salary Cost		366,000.00	402,600.00	442,860.00	487,146.00	535,860.60
Total Annual Salary Cost		4,392,000.00	4,831,200.00	5,314,320.00	5,845,752.00	6,430,327.20
Office Supplies & Miscellaneous Cost						
Stationary	Per Annual	3,000.00	3,300.00	3,630.00	3,993.00	4,392.30
Paper	Per Annual	10,000.00	11,000.00	12,100.00	13,310.00	14,641.00
Utility	Per Annual	10,000.00	11,000.00	12,100.00	13,310.00	14,641.00
Miscellaneous	Per Annual	3,000.00	3,300.00	3,630.00	3,993.00	4,392.30
Payment Gateway Transacion Charge	Per Annual	5,500.00	6,050.00	6,655.00	7,320.50	8,052.55
Total Annual Office Supplies		31,500.00	34,650.00	38,115.00	41,926.50	46,119.15
Utility and Miscellaneous Cost						
Total Operating Cost		4,423,500.00	4,865,850.00	5,352,435.00	5,887,678.50	6,476,446.35
Total Computerized System Cost		4,517,020.00	4,945,270.00	5,431,855.00	5,967,098.50	6,555,866.35

Table 3.17. Five Years Accumulated Proposed System Cost, Baht.

Year	Total Proposed system Cost	Accumulated Proposed system Cost
0	1,030,650.00	1,030,650.00
1	4,517,020.00	5,547,670.00
2	4,945,270.00	10,492,940.00
3	5,431,855.00	15,924,795.00
4	5,967,098.50	21,891,893.50
5	6,555,866.35	28,447,759.85
Total	28,447,759.85	-

Table 3.18. The Comparison of the System Costs between Existing System and Proposed System, Baht.

Year	Accumulated Existing Cost	Accumulated Proposed Cost
0	0.00	1,030,650.00
1	5,024,319.00	5,547,670.00
2	10,549,288.00	10,492,940.00
3	16,624,222.00	15,924,795.00
4	23,303,330.00	21,891,893.50
5	30,646,202.53	28,447,759.85

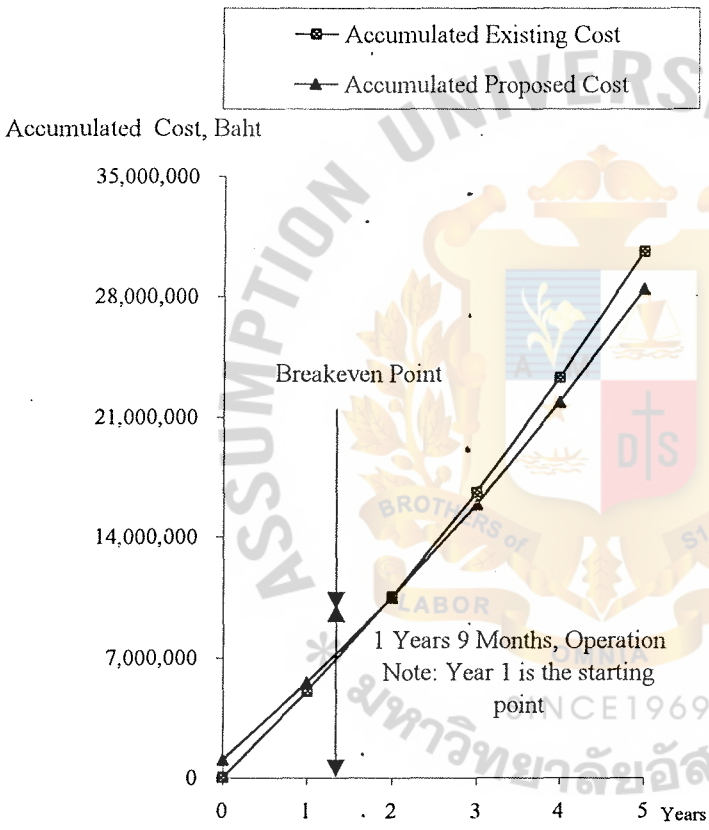

Figure 3.8. Cost Comparison between the Existing System and the Proposed System.

3.5.2 Payback Period Analysis

The exactly amount of time required for a firm to recover its initial investmen in a project as calculated in Table 3.19.

The decision criterion : If payback period is less than the system useful life, the project is accepted. If payback is greater than the system useful life, the project is rejected.

Table 3.19. Payback Period Matrix Analysis, Baht.

Cost Items	Years					
	0	1	2	3	4	5
Initial Investment Cost	1,030,650.00					
Total Proposed system Cost		4,517,020.00	4,945,270.00	5,431,855.00	5,967,098.50	6,555,866.35
Discount factor 8%	1.000	0.926	0.857	0.794	0.735	0.681
Time adjusted cost (adjusted to present value)	1,030,650.00	4,182,760.52	4,238,096.39	4,312,892.87	4,385,817.40	4,464,544.98
Cumulative time-adjusted cost over life time	1,030,650.00	5,213,410.52	9,451,506.91	13,764,399.78	18,150,217.18	22,614,762.16
Cost of Manual System	-	5,024,319.00	5,524,969.00	6,074,934.00	6,679,108.00	7,342,872.53
Discount factor 8%	1.000	0.926	0.857	0.794	0.735	0.681
Time adjusted cost (adjusted to present value)	-	4,652,519.39	4,734,898.43	4,823,497.60	4,909,144.38	5,000,496.19
Cumulative time-adjusted cost over life time	-	4,652,519.39	9,387,417.83	14,210,915.42	19,120,059.80	24,120,555.99
Cumulative lifetime time - adjust cost + benefit	- 1,030,650.00	- 560,891.13	- 64,089.08	446,515.64	969,842.63	1,505,793.83

Payback Period $= \text{Last year of negative} + \dfrac{\text{Cumulative difference last negative year}}{\text{Absolute value of cumulative difference}}$

$$= 2 + \frac{64{,}089.08}{446{,}515.64 + 64{,}089.08}$$

$$= 2.13 \text{ Years}$$

$$= 2 \text{ Years } 1 \text{ Month}$$

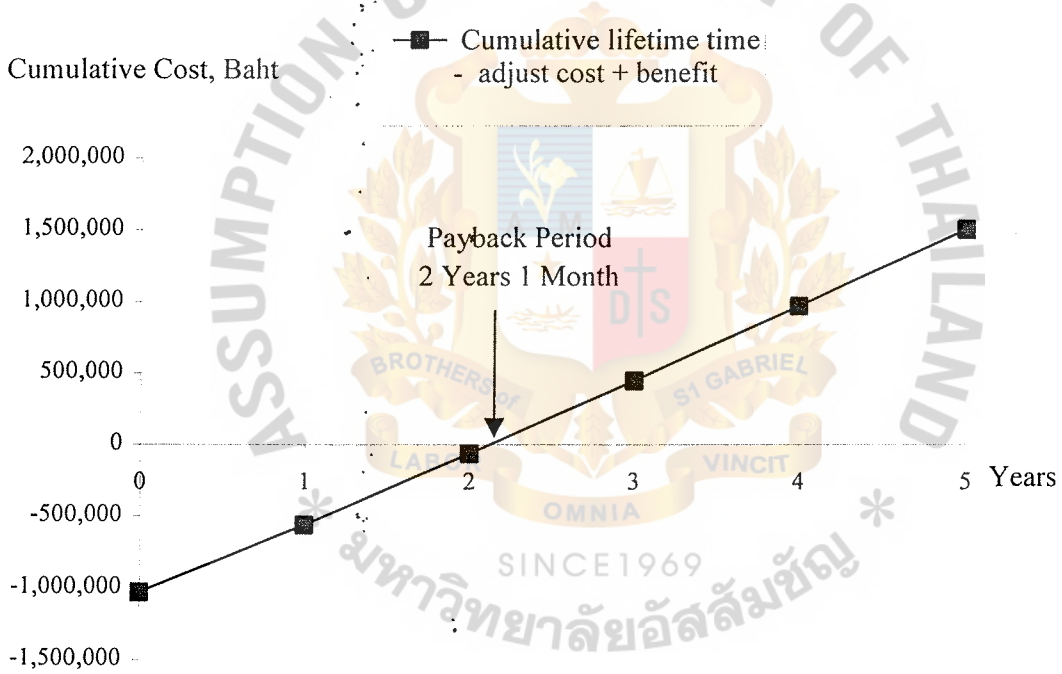

Figure 3.9. Payback Period.

IV. PROJECT IMPLEMENTATION

4.1 Overview of Project Implementation

Implementation is a construction of the new system and the delivery of that system into production (day-to-day operation) to ensure that the information system is operational. The actual implementation will follow the project schedule as a guideline. However, additional factors that arises in the normal course of the project evolution should be considered. The team must establish plans that phase in deliverables in a reasonable manner.

The implementation process starts after management has accepted the proposed system. Implementation consists of the installation of the new system that shows the current system. It mainly involves software development program, training the system user, and also implementation into the existing computer hardware environment.

During the implementation of the system, problems that have not been anticipated during the study and design effort often appear. The solutions for these problems usually require modification to the design.

Before the software application is designed for the new system, software development fundamentals should have good quality with user friendliness and responding user functions.

4.2 Test Plan

Testing is the process of executing all or some parts of the system in order to discover any errors. Testing of specific programs, subsystems and the total system is essential for quality assurance of software. It is done to display any existing problems with programs and their interface before the system is actually used. Typically, testing is carried out by means of bottom-up fashion, which is described as follows:

(1) Program Testing

The programmer follows each step in the program specification to check whether the routine works can be carried out as its written. The valid and invalid tested data are created and then input into the system. Then the program is run in order to test all possible situations that might occur in the future.

(2) Link Testing

This step is done to see if the programs, which are interdependent, can actually work together as planned.

(3) System testing

When link tests are concluded satisfactorily, the system as a complete entity must be tested. The objective of the entire system testing is to ensure that the users are able to input the data properly and the overall system flow can work properly. In other words, the test is carried out to ensure that the entire system function as a whole.

(4) Securities Test

The programmer must test whether or not the system can serve security requirement such as authorized access to the system, system service hours, etc.

4.3 Conversion

Since there are some historical data kept in the legacy system and the hard copies, some of these data will needed to be converted in Microsoft SQL 2000 Platform by using import function and some of these data will be keyed in by manual operation. The next step required is to investigate the correctness of the imported data, edit and complete the missing points.

4.4 System Support & Maintenance

System support is the ongoing maintenance of the system after it has been placed into operation. This includes program maintenance and system improvement. The purpose of the construction phase of system implementation is to build and test a functional system that fulfills business and design requirements and to implement the interfaces between the new web application development system with the existing functions and production systems. System support and maintenance has done by the webmaster and IT and Operation unit which may need updated information to aggregate the centralized databases of the system. System support involves solving different types of problems with the system such as systems maintenance, system recovery, end-user assistance, system enhancement, and reengineering.

The system maintenance may correct the errors, bugs and test applications to improve and /or fix the system. The system recovery has done when a system failure is occurred to prevent the data loss or abort system. Another relatively routine ongoing activity of system support is routine end-user assistance. No matter how well users have been trained or how well documentation has been written, user will require additional assistance. Most adaptive maintenance is in response to new business problems, new information requirements, or new ideas for enhancement. The system enhancement will modify or expand the application system in response to constantly changing requirements. Another type of reactionary maintenance deals with changing technology. Instead, the adaptive maintenance or reengineering is to analyze the system to determine which applications and programs are costing the most to maintain or which ones are the most difficult to maintain.

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Marketing & Sales Information system for Web Application Development business of CyberProVillage Co., Ltd. is designed and implemented to support customer intercommunication, ordering, information providing, payment system, record keeping and report generating. The cost and benefit analysis of the project can serve the objective in all operational work. The cost of computerized for the purposed system implementation starts at 1,030,650.00 Baht The comparison of the system cost between computerized system and manual system performs 1.90 years of breakeven point and 2.13 years of payback period. This analysis result ensures that the proposed system is worth to investment. Table 5.1 is shows the capability of the proposed system compared with the existing system as follows:

Table 5.1. Degree of Achievement.

Tasks	Processing Time	
	Manual System	Proposed System
Customer Entry	5 minutes	1 minute
New Customer Subscription	20 minutes	3 minutes
Sales by Online product & Service	20 minutes	5 minutes
Sales by Products Ordering	20 minutes	5 minutes
Online Product & Service Enquiries	20 minutes	5 minutes
Confirm Payment	20 minutes	5 minutes

Table 5.1. Degree of Achievement (Continued).

Tasks	Processing Time	
	Manual System	Proposed System
Maintenance Customer Information	50 minutes	10 minutes
Maintenance Product & Service Information	30 minutes	5 minutes
Maintenance Sales Transaction Information	50 minutes	10 minutes
Maintenance Vendor Transaction Information	30 minutes	5 minutes
Generate Daily Report	15 minutes	5 minutes
Generate Monthly Report	20 minutes	5 minutes

The developed system provides the efficiency workflow with lower cost of operation, which has the following descriptions.

(1) Corporate Accession Entry

The system can be categorized by each person to access our information for both security control and user's tracking records which will assist in further market positioning and research.

The customers easily connect to the company by web site which is current technology used to enhance capability to gain more volume and compete with competitors. This tool will reduce the cost of intercommunication between the customer and the company.

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All staff can access to the centralized information with different limited accession to make the business function proceed smoothly and in time with accuracy & integrity information.

Any visitors or interested persons can be motivated to become our prospective customer by content and corporate layout style. The Internet marketing or any promotions will be provided to them without investing much compared with the existing system.

(2) Quotation Request

Our customer or any interested person can select and print the quotation online to make decision at that moment without waiting for quotation for a week or more from the existing system. This process will allow users to create, modify and change the quotation by themselves with primary unique reference number generated as soon as they decide to print out.

(3) Sell Appliance

Both Online product & Service sales and custom order sales are provided higher response time online. The product information is automatically updated by the system when there is sales and calculate total ordering price by products and confirm sales transaction to the customer online.

(4) Payment

The payment transaction can be selected to pay in a short period of time with the security online payment gateway solution using Credit card and Wire Transfer payment with the banking instruction provided on the website. This process will deduct the primitive financial procedures which

takes a long time in the existing system. The confirmation is done both on screen and automatic email generating.

(5) Product & Service Enquiries

All products & Services to customer can be done shortly and easily by downloading them referred to the payment reference ID. The existing process is too much longer and needed the Sales person and technical sales to provide the product & service. The new proposed system still provides the custom order which required the salesperson and /or technical sales to get the user's requirement, but the online request order form will allow user to identify as much information as they need and contact our staff with less problem compared with the existing system.

(6) Maintenance Information

All web pages and all databases update the information to provide accuracy and integrity of data while the existing system store staff has to keep track of product & Service, Sales transaction, financial related information, etc. All processes in the existing system could not be done smoothly within a day, but the new centralized and good management of database system will let those functions work systematically and in process.

(7) Customer Support and technical service

This is the main process to get the customer satisfaction and make the company predominant over the competitors. This process will help customer and or any interested person to get more support at any time. The existing system could provide limited and slow response to them without poor feedback both from overload and workflow of information requests.

(8) Generate Reports

Daily and monthly reports are easily generated by the system without any error from the redundancy of work. As the existing system, all departments have their own database to keep record of the transaction related to their department, there is more chances to generate errors information and difficult to reconcile between departments.

5.2 Recommendations

The introduction of the new proposed system can solve the existing problem and unsystematic system with increasing efficiency and experience rapid on investment from short term project and long-term business initiatives. The preliminary process of the proposed corporate web application system can be further developed and support the new up-coming technology at any time with less investment cost and flexible details.

Therefore the company has further plant to develop the other systems, which are full system standard of internet and extranet to provide efficiency and full range support for all staff and prospective vendor(s) in the next year. The next 2 years the development plan is datamining to guide and analyze large pools of data to find a pattern and rules that can be used to predict or make correct decisions for future behavior, and more selected web-based programming applications which can satisfy the user's requirement and become a leader in niche market segmentation.

The introduction of proposed system can solve the existing problems and unsystematic system. The web application program development can increase more efficiency and experience on investment for short term to long term business. Due to technology changes almost everyday, the proposed corporate web application system can be further developed and supported the upcoming technology such as Online presentation, Image converter program e.g. Flash converter, Powerpoint® converter. It

will set the graphic image converted into the Powerpoint® or Flash program sending to customer or any partners via email to reduce the file size and provide the multimedia email presentation to prospective customers or partners.

For business E-commerce consulting, it can be further developed in E-Commerce solution like Database development, Programming, system maintenance, Internet Marketing, etc. which may lead to have more complex and excess data store. Thus, expanding the hosting service into Dedicated hosting and Co-location hosting in the future should be selected for being the full-integration E-Commerce system with full internet & intranet support linked with high and standard security for both internal and external company to support web-based programming development system.

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APPENDIX A

STRUCTURE CHART

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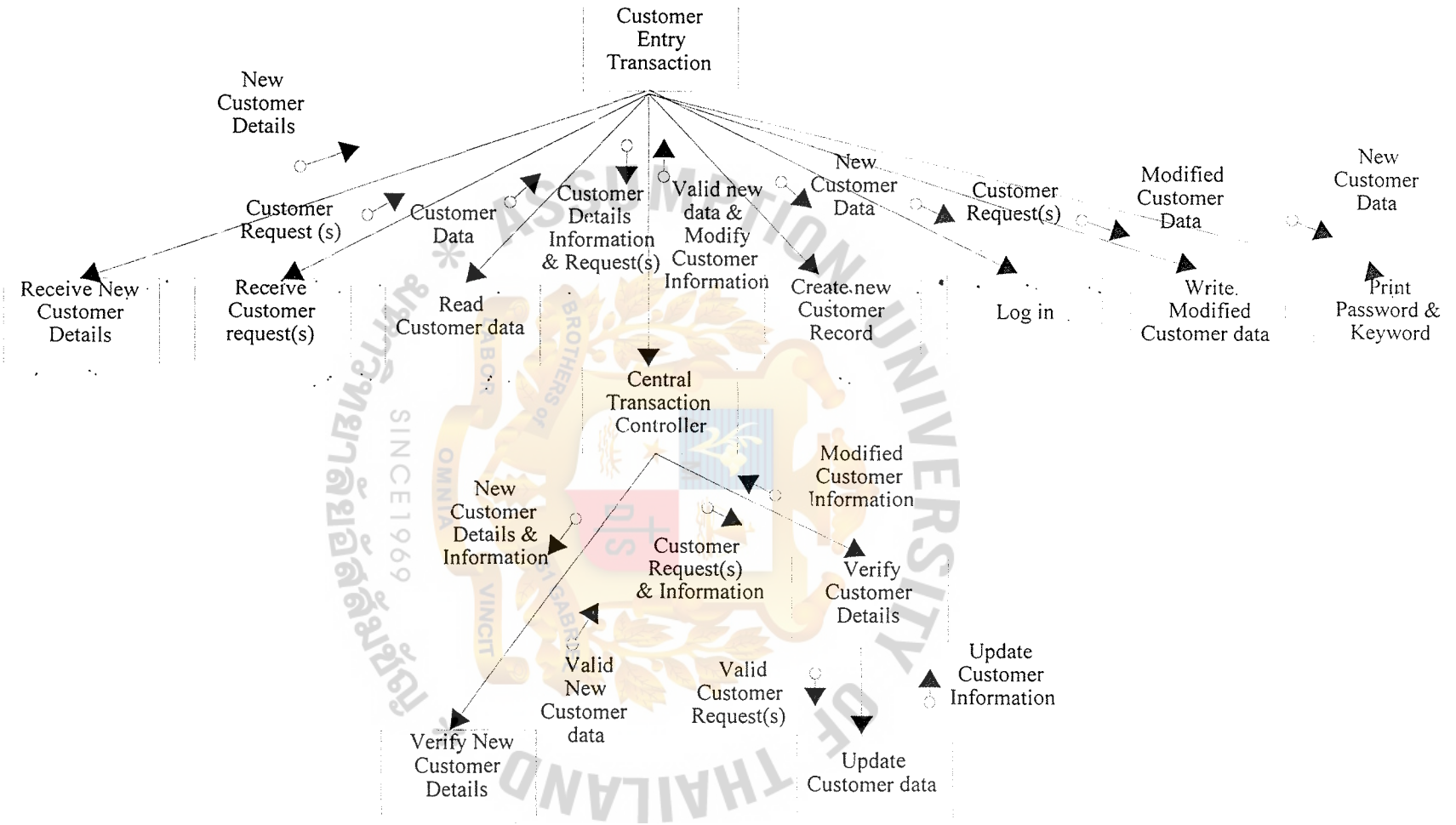

Figure A.1. Structure Chart of Customer Entry Transaction.

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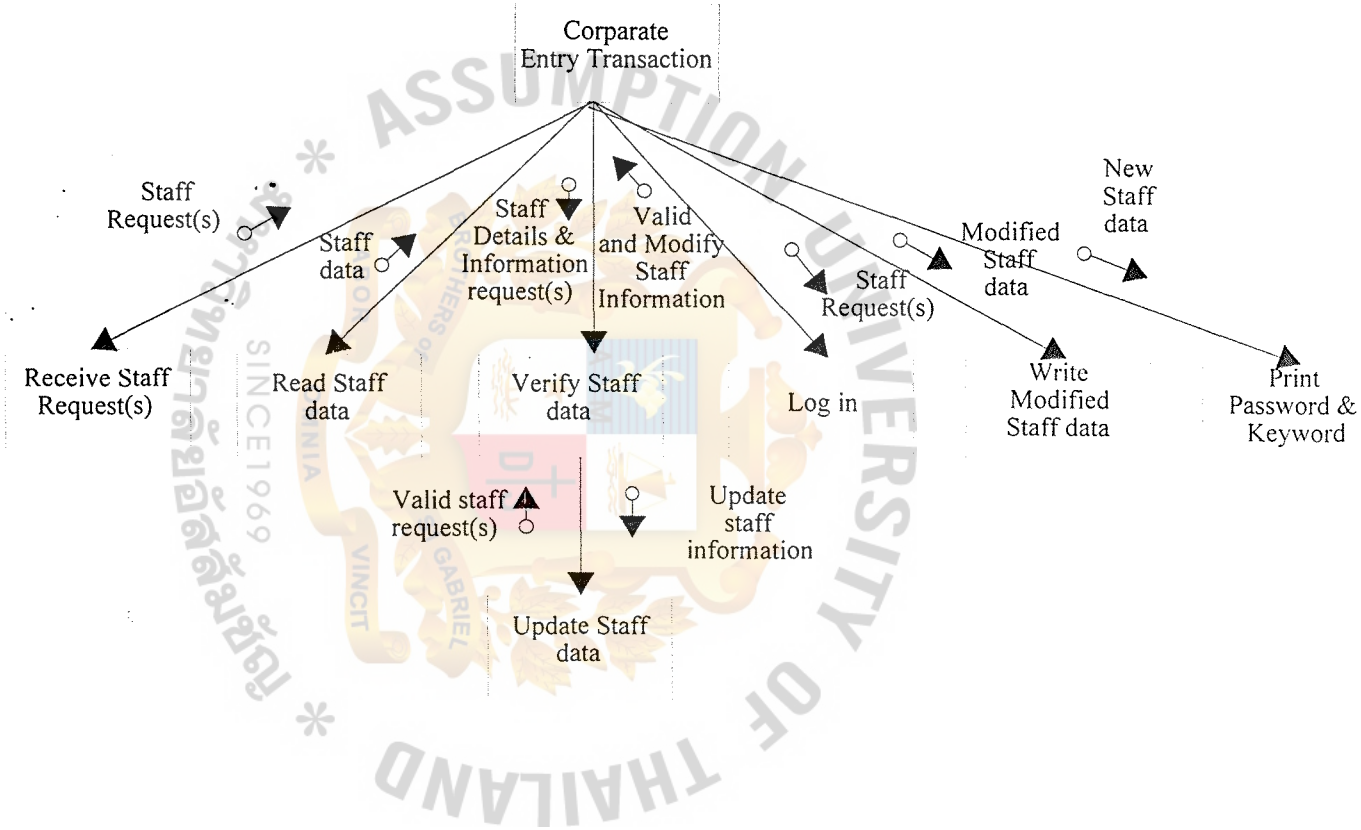

Figure A.2. Structure Chart of Corporate Entry Transaction.

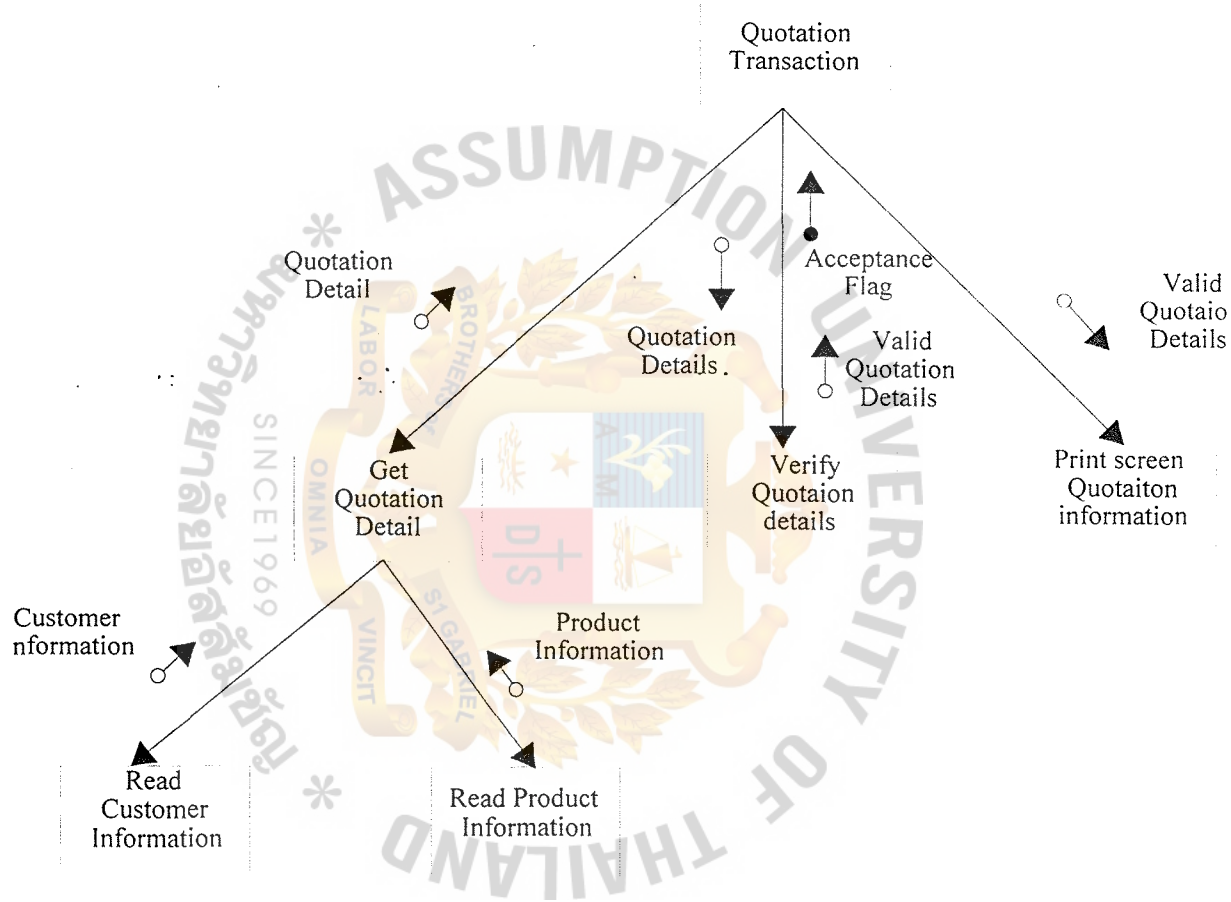

Figure A.3. Structure Chart of Quotation Transaction.

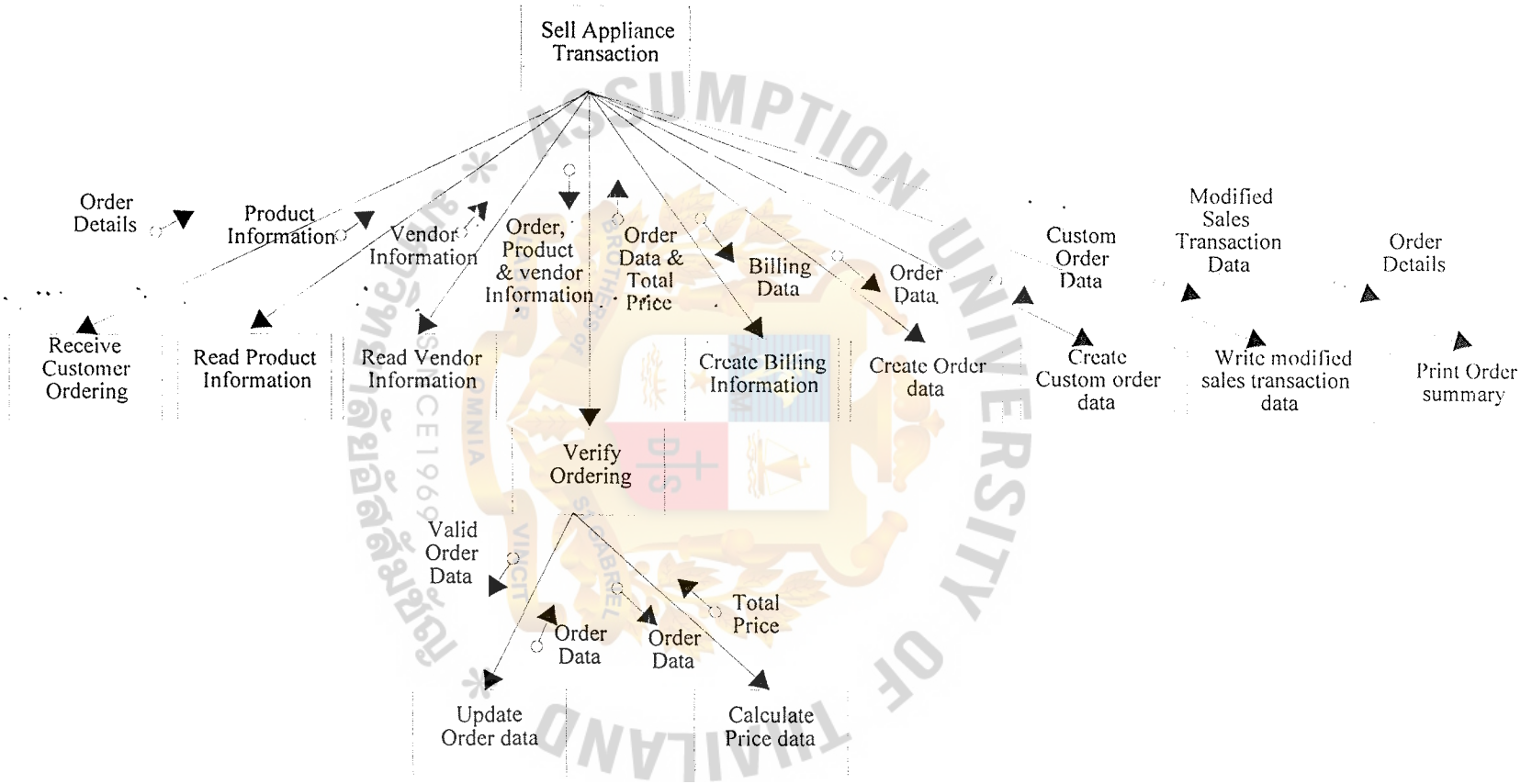

Figure A.4. Structure Chart of Sell Appliance Transaction.

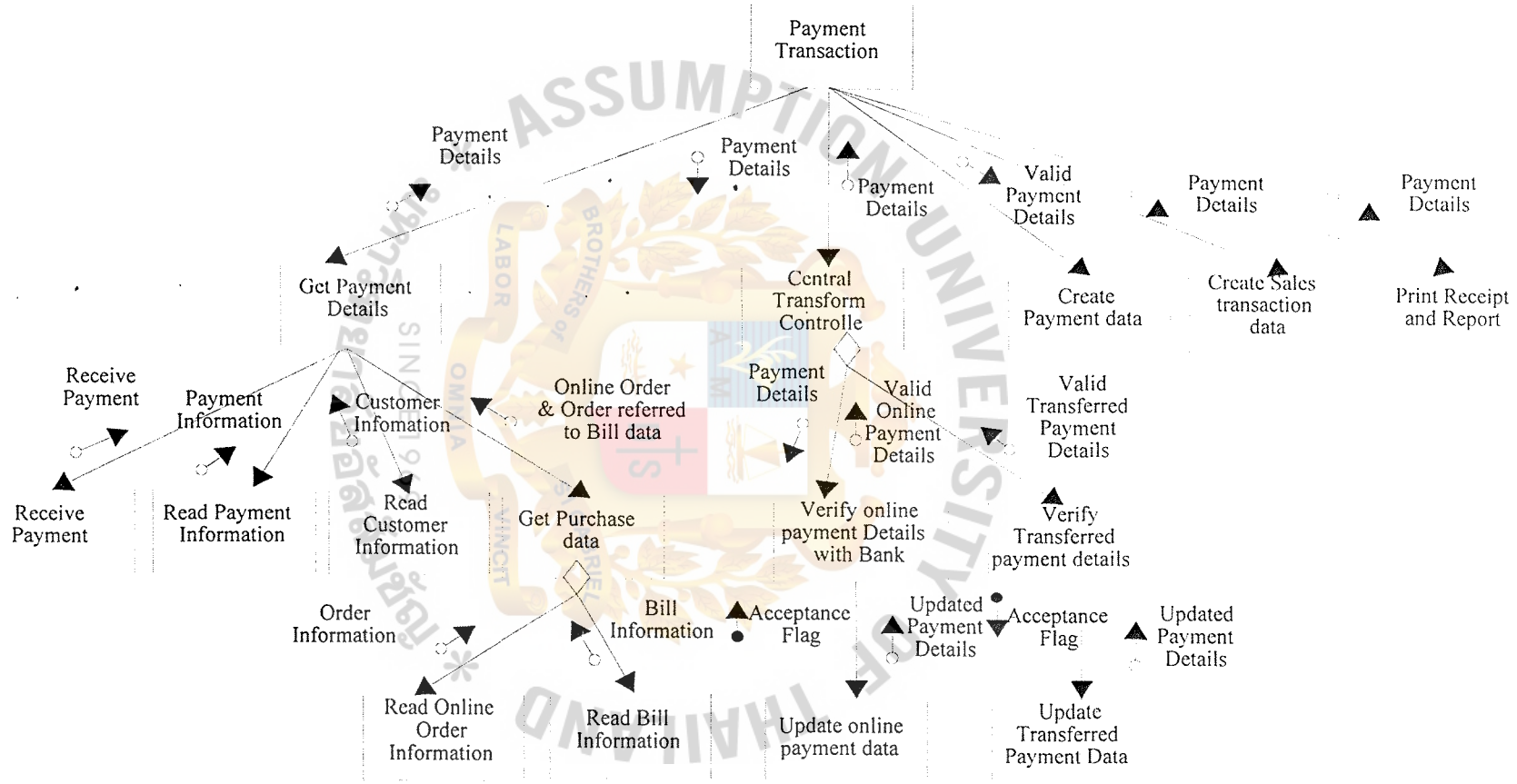

Figure A.5. Structure Chart of Payment Transaction.

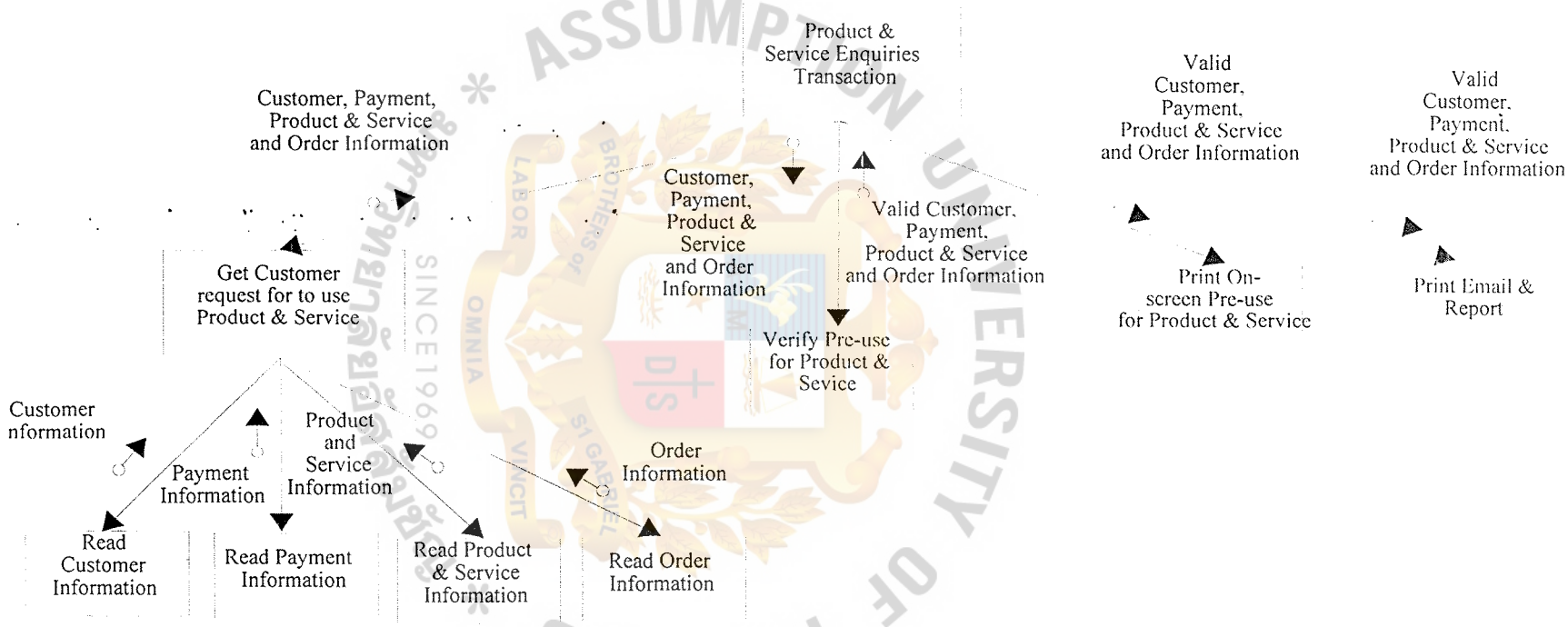

Figure A.6. Structure Chart of Product & Service Enquiries Transaction.

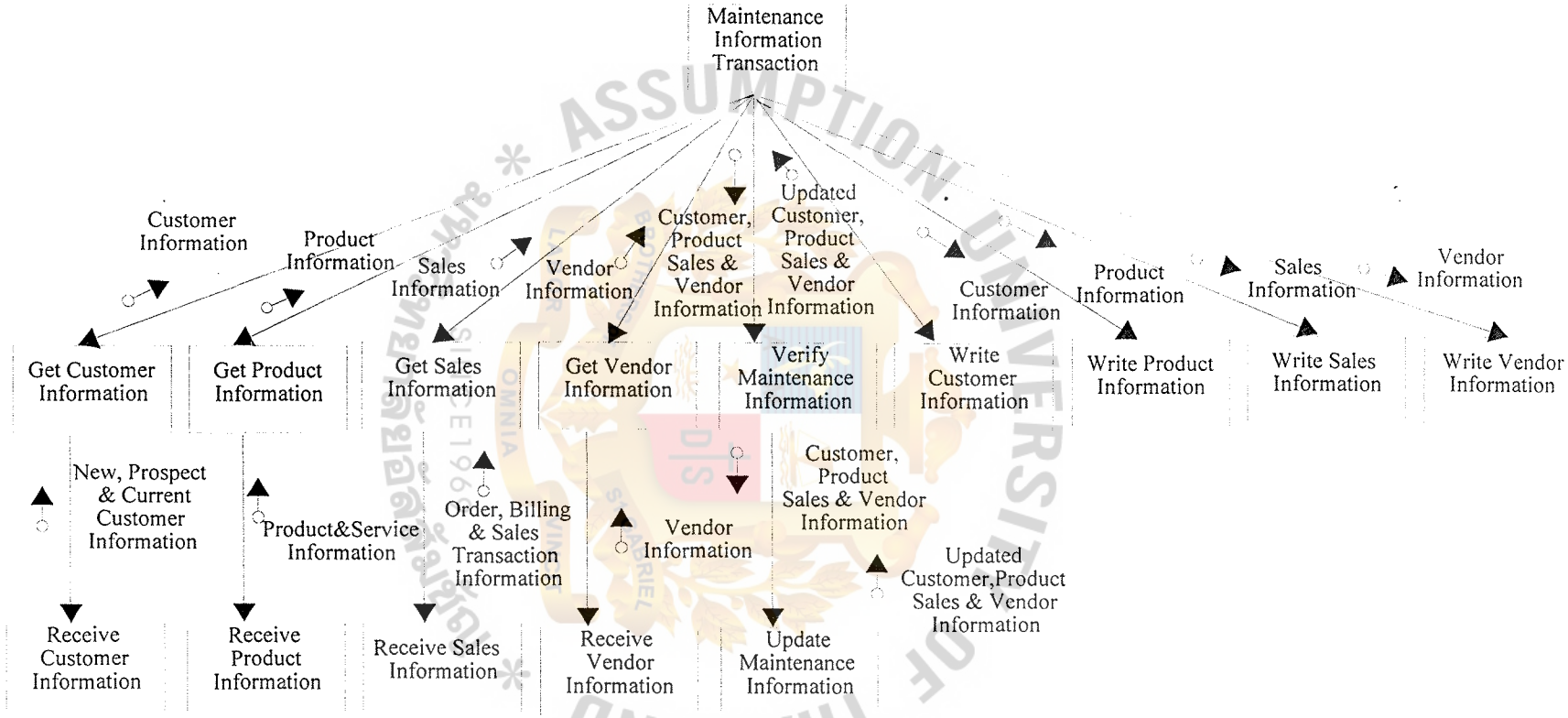

Figure A.7. Structure Chart of Maintenance Information Transaction.

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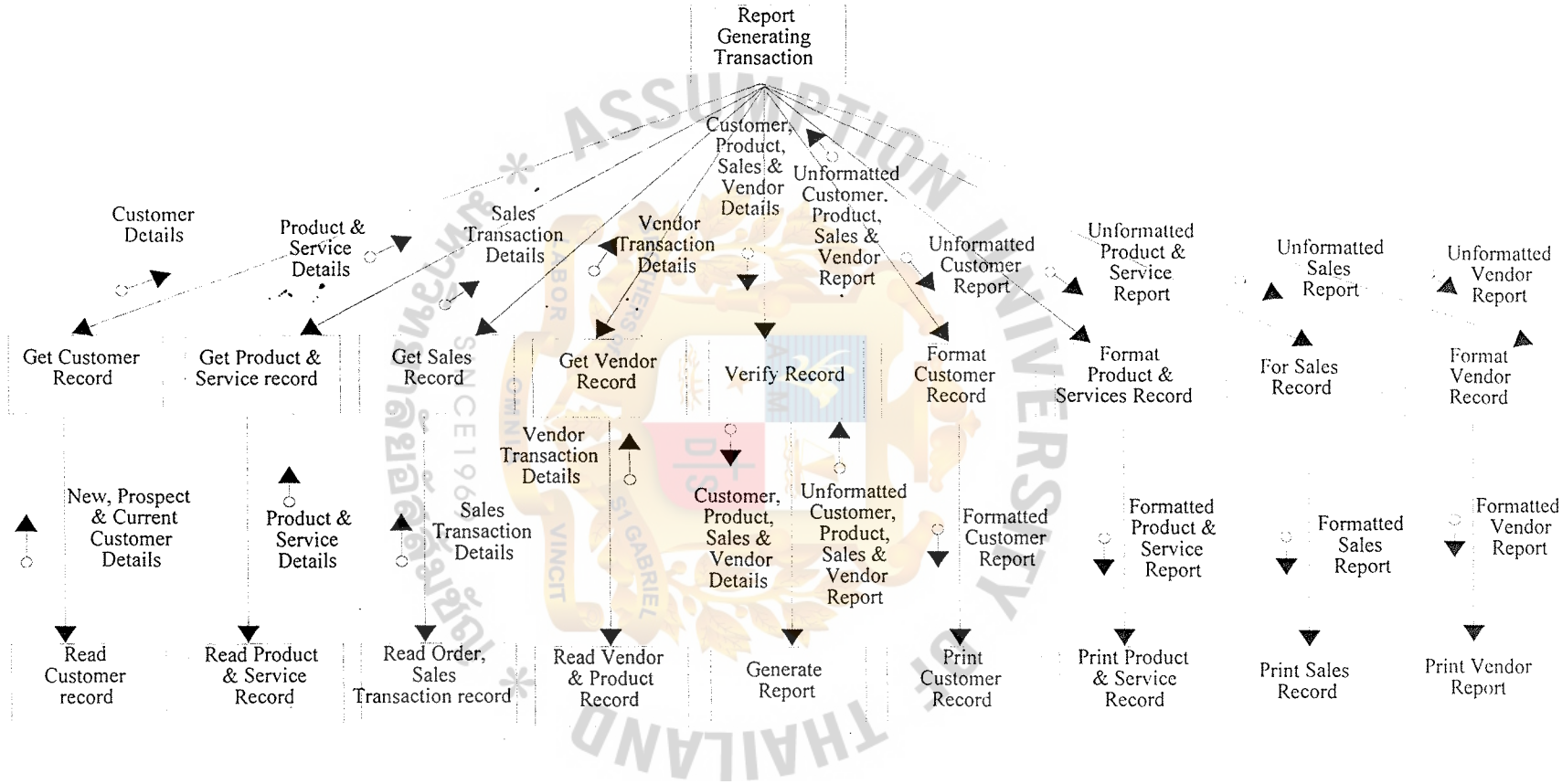

Figure A.8. Structure Chart of Report Generating Transaction.

APPENDIX B

DATA FLOW DIAGRAM LEVEL 1, 2 AND 3

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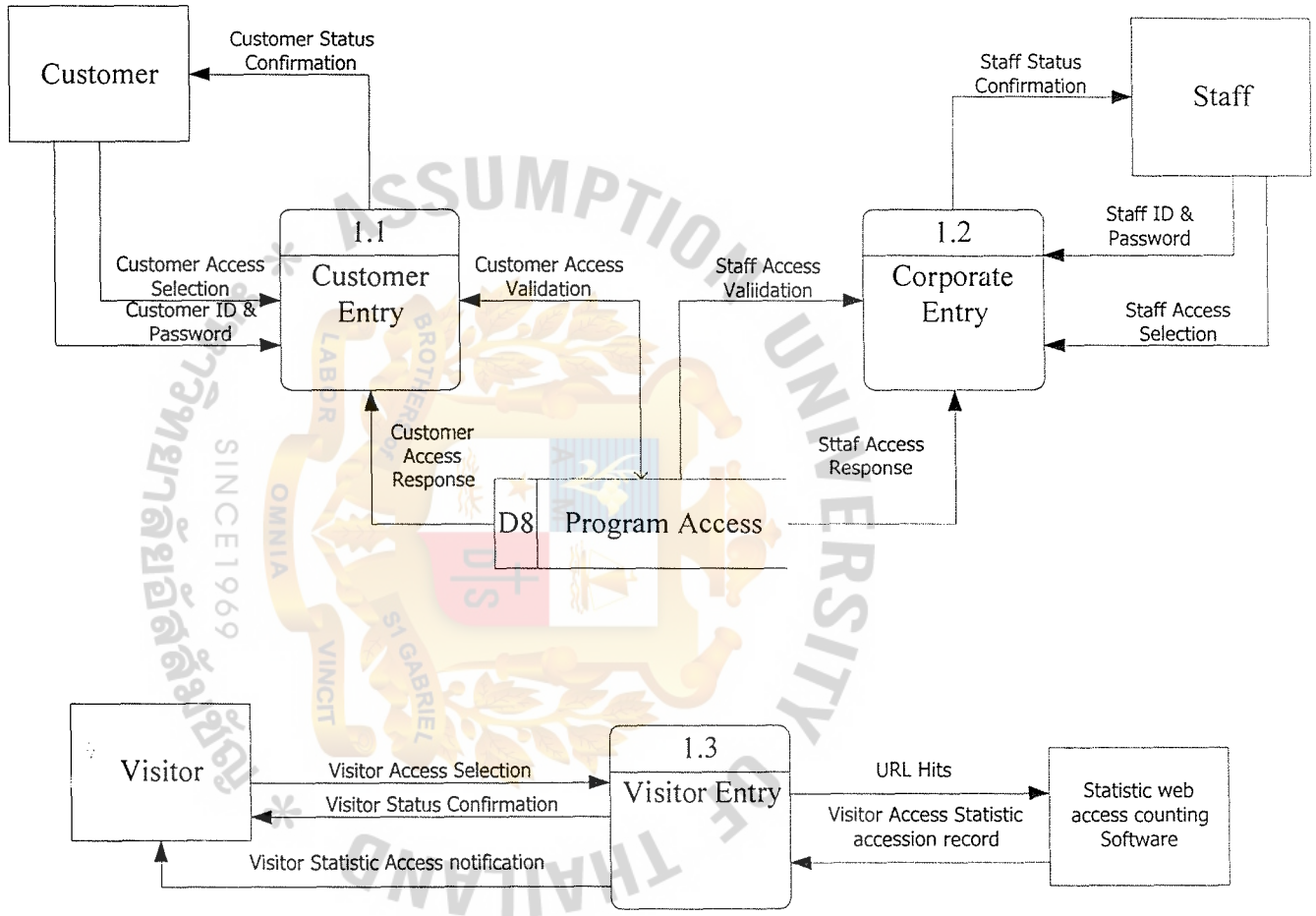

Figure B.1. Level 1 Logical Data Flow Diagram of Access Selection.

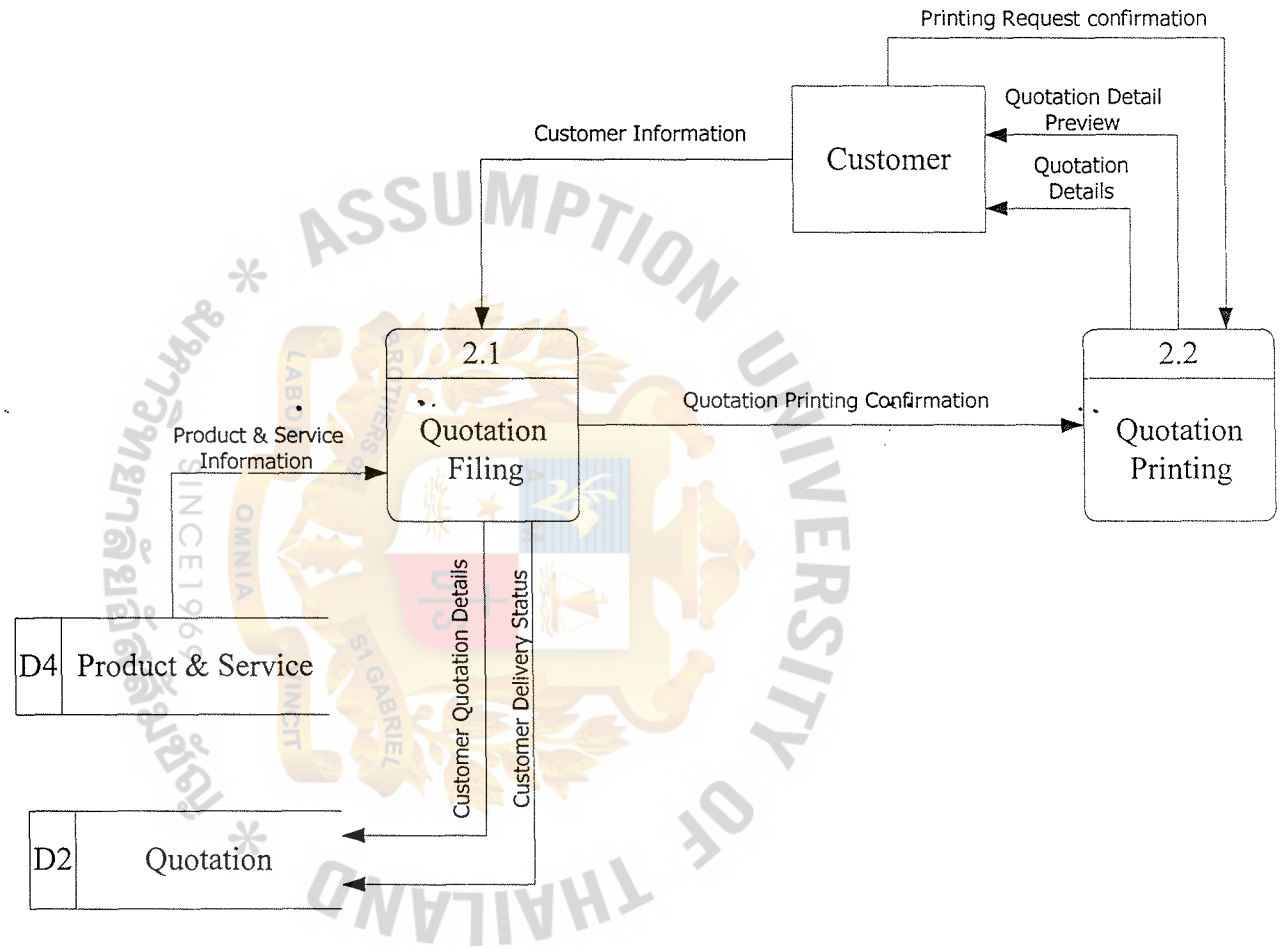

Figure B.2. Level 1 Logical Data Flow Diagram of Quotation Issuing.

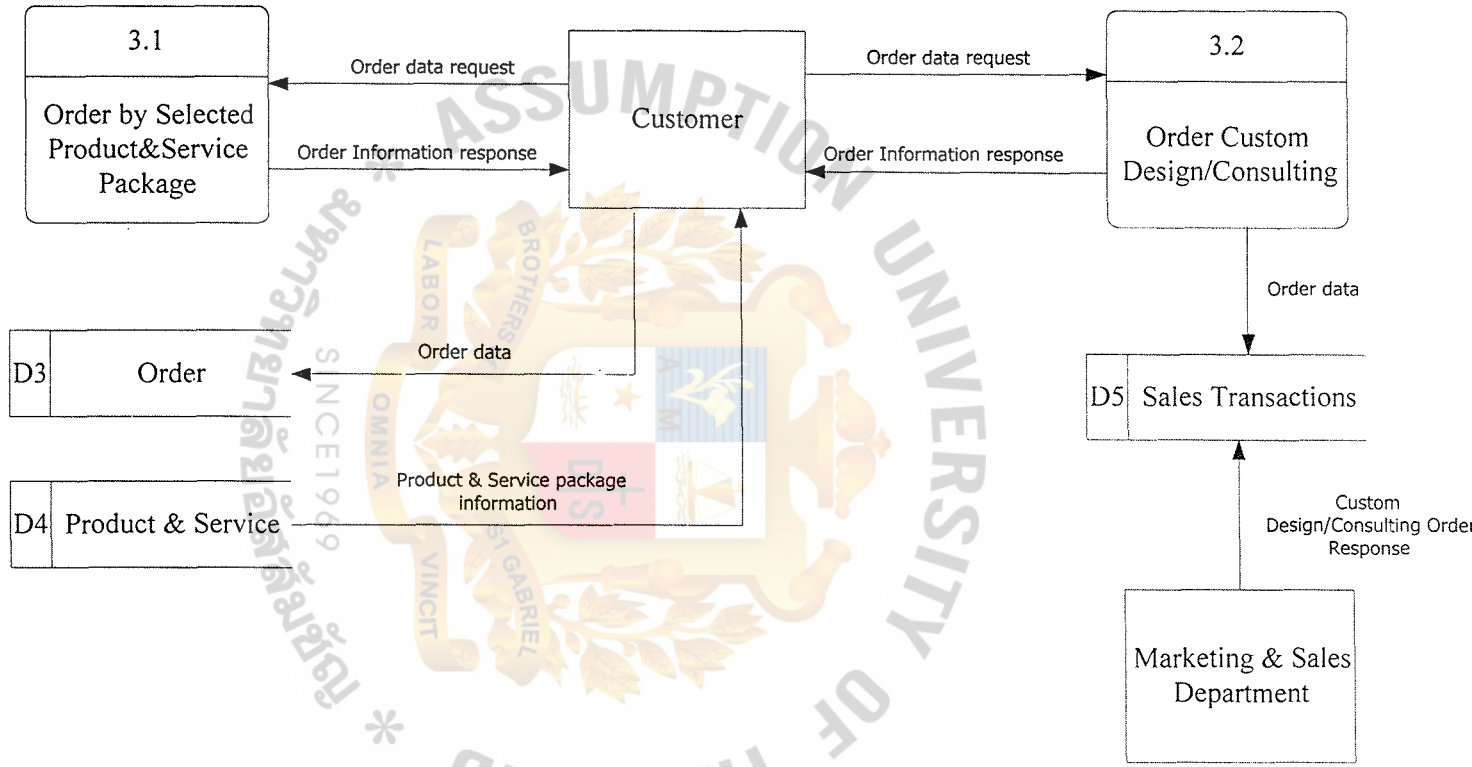

Figure B.3. Level 1 Logical Data Flow Diagram of Sell Appliance.

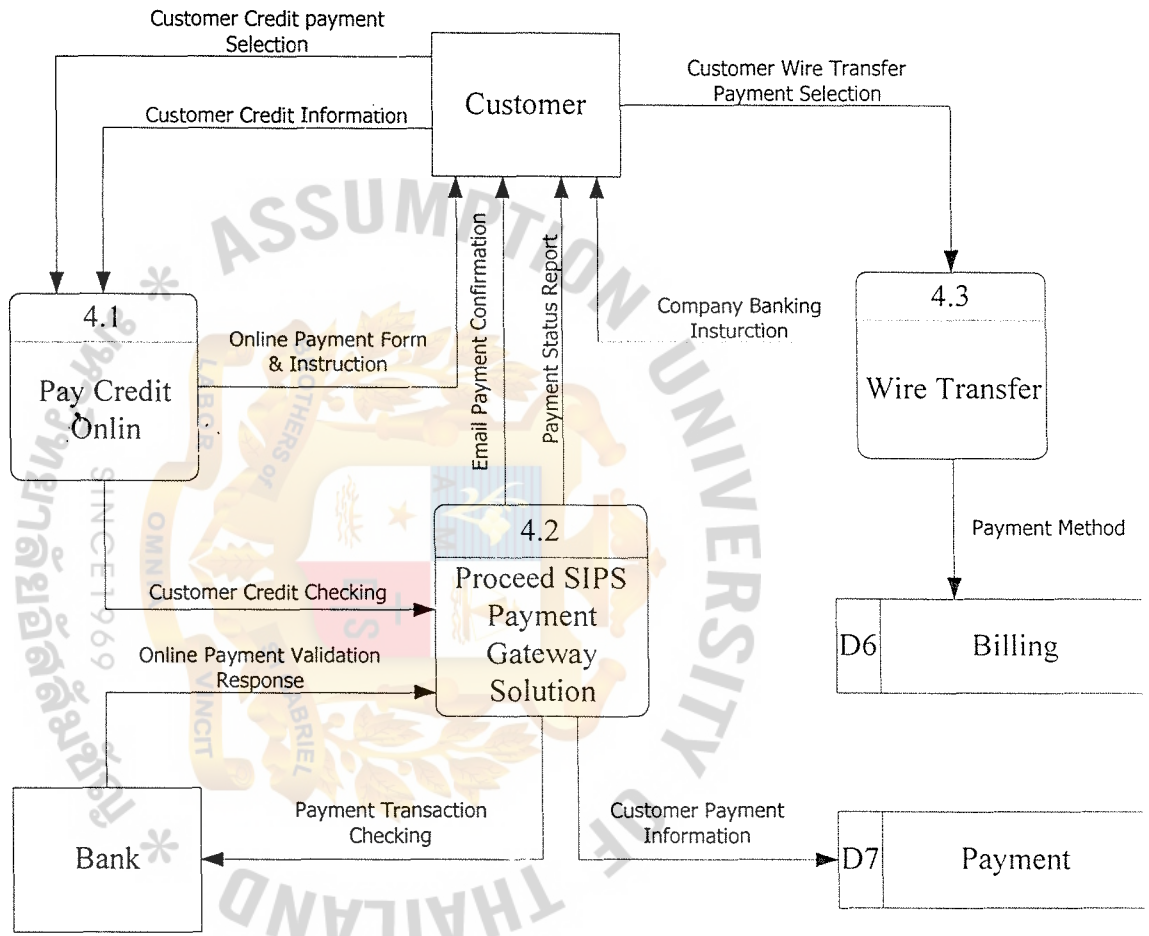

Figure B.4. Level 1 Logical Data Flow Diagram of Payment.

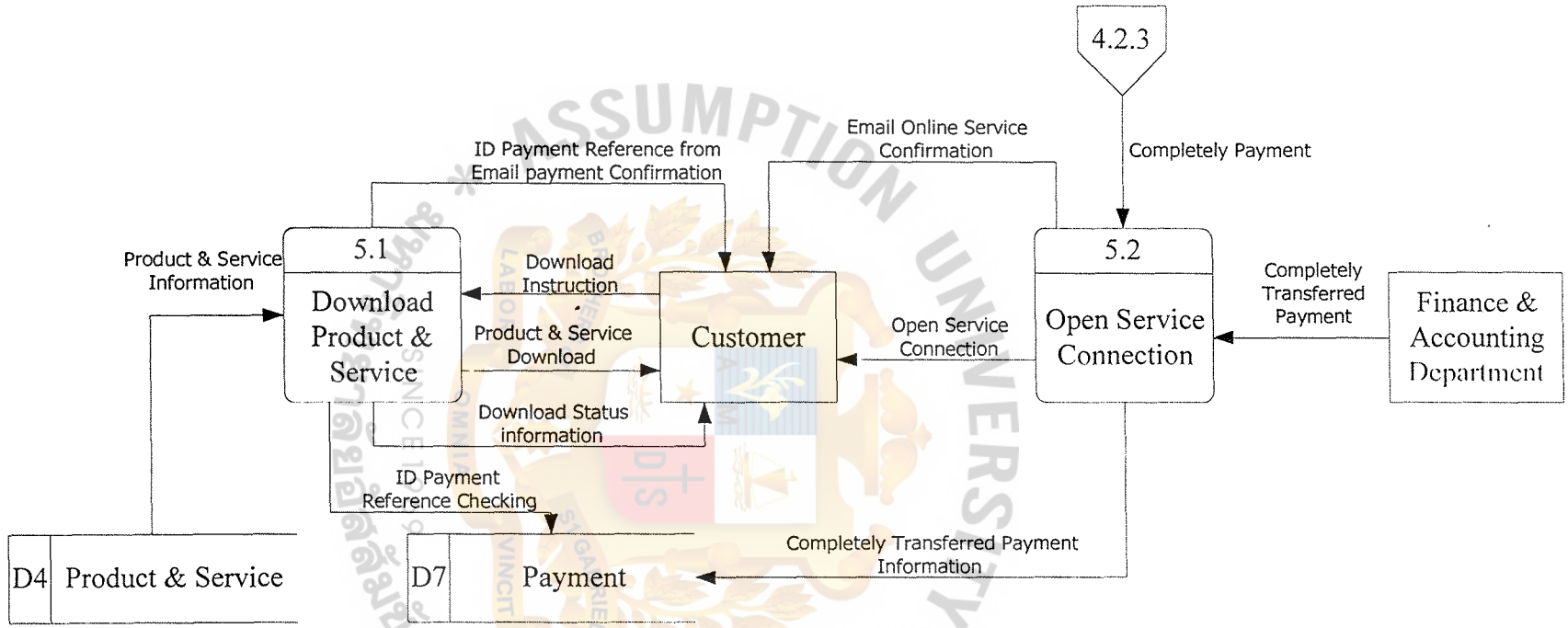

Figure B.5. Level 1 Logical Data Flow Diagram of Product & Service Enquiries.

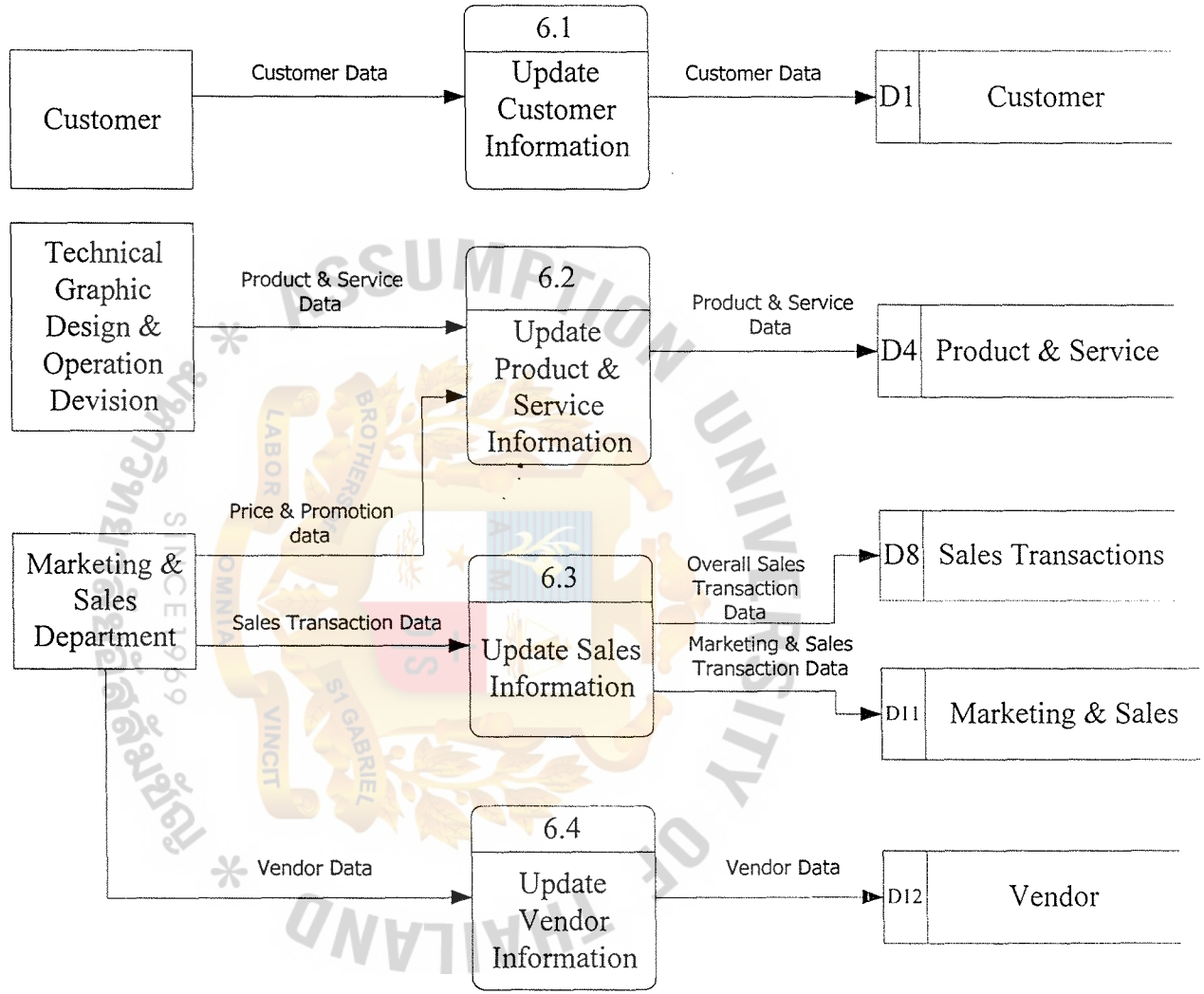

Figure B.6. Level 1 Logical Data Flow Diagram of Maintenance Information.

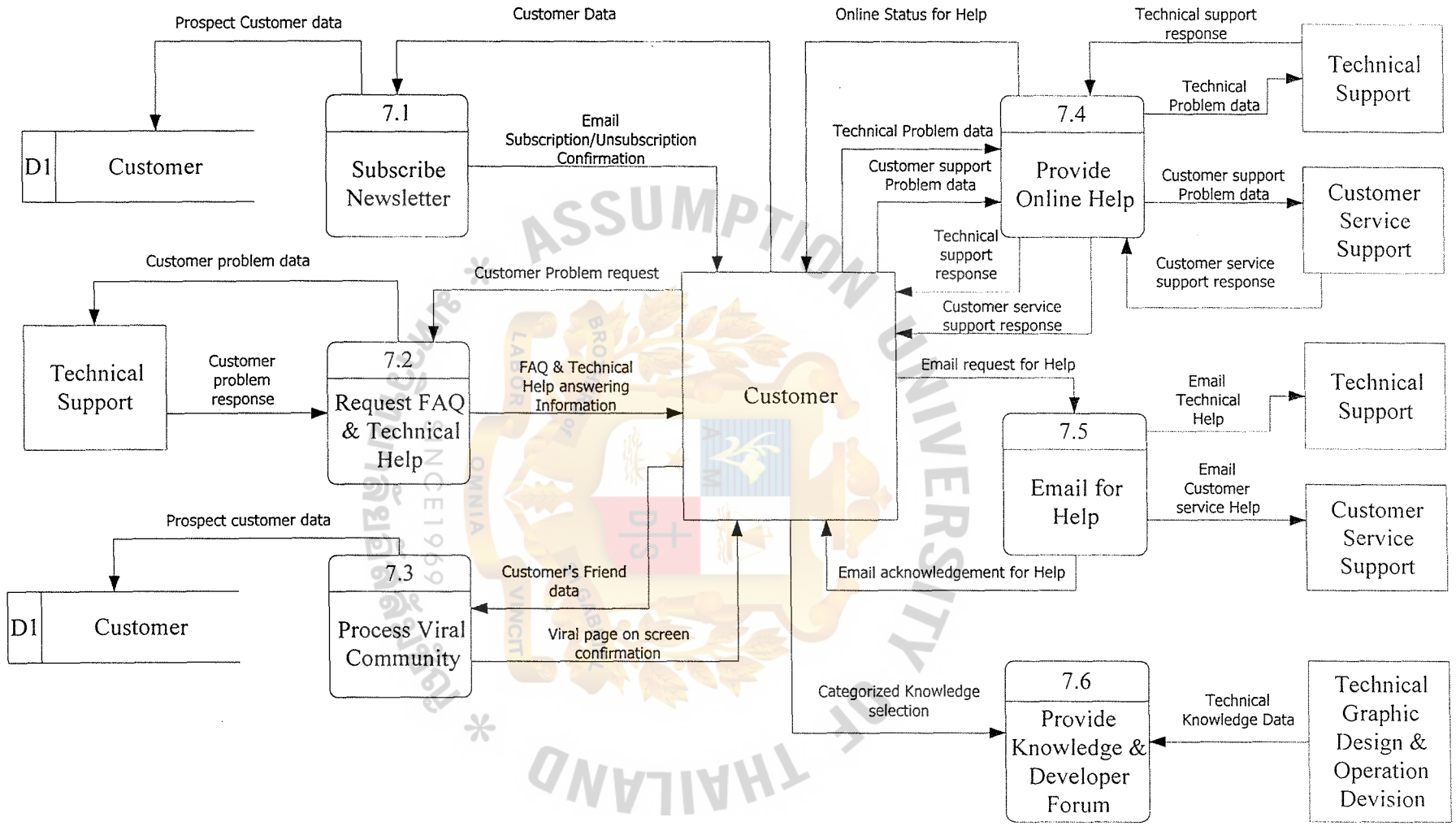

Figure B.7. Level 1 Logical Data Flow Diagram of Online Customer Service & Technical Support.

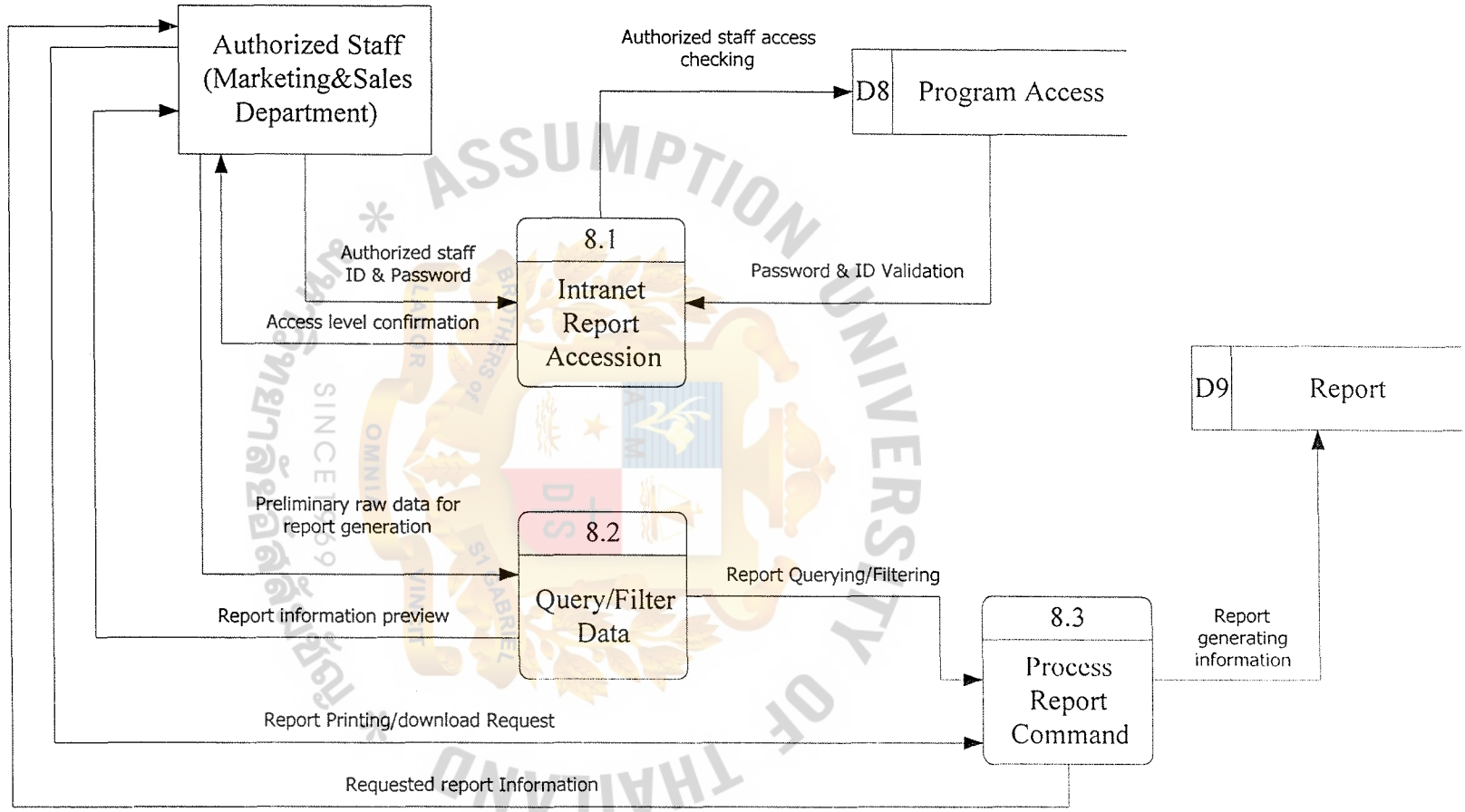

Figure B.8. Level 1 Logical Data Flow Diagram of Report.

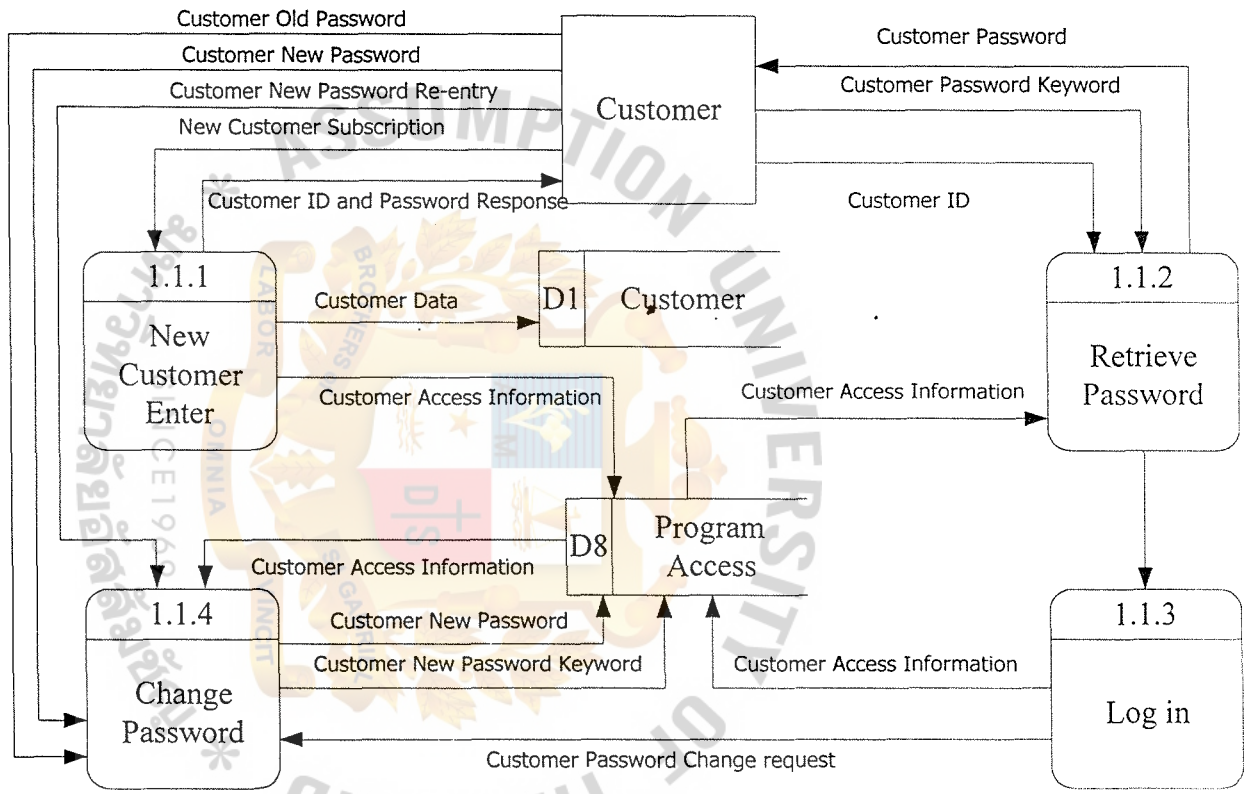

Figure B.9. Level 2 Logical Data Flow iagram of Customer Entry Function.

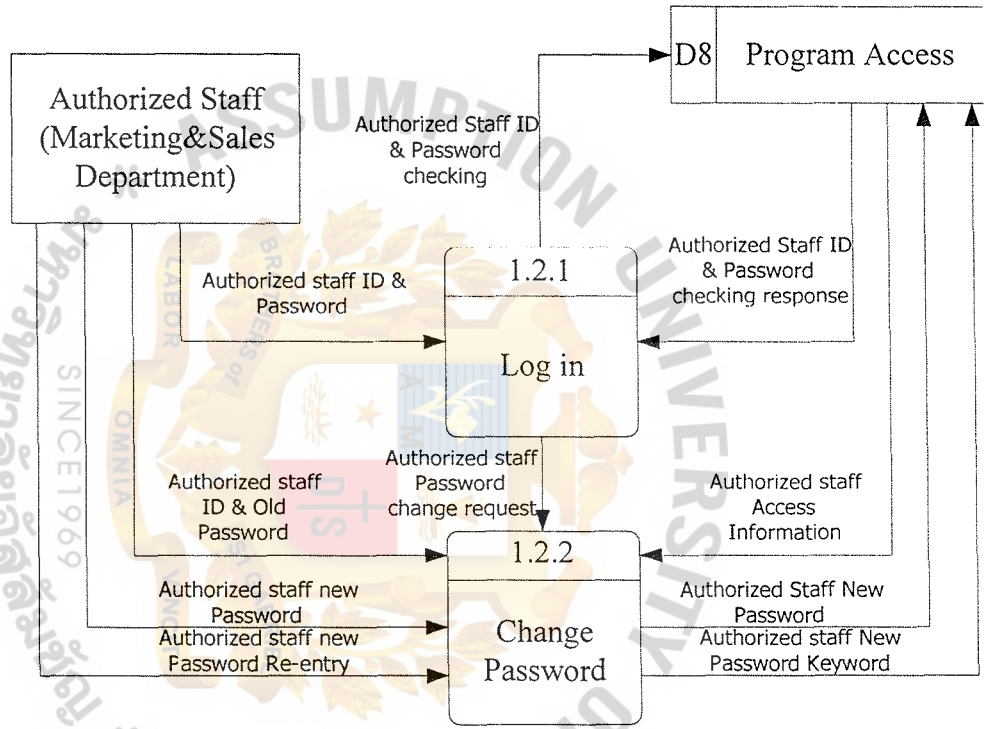

Figure B.10. Level 2 Logical Data Flow Diagram of Corporate Entry.

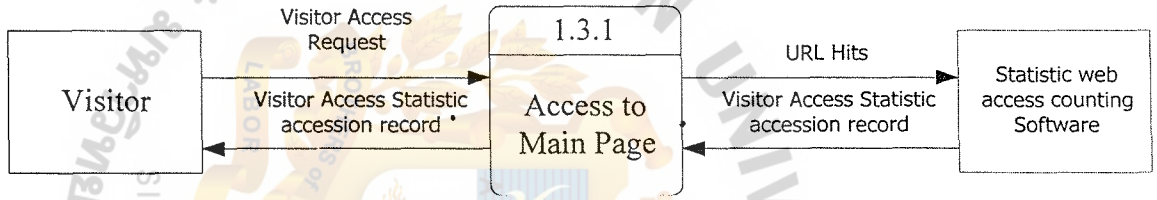

Figure B.11. Level 2 Logical Data Flow Diagram of Visitor Entry.

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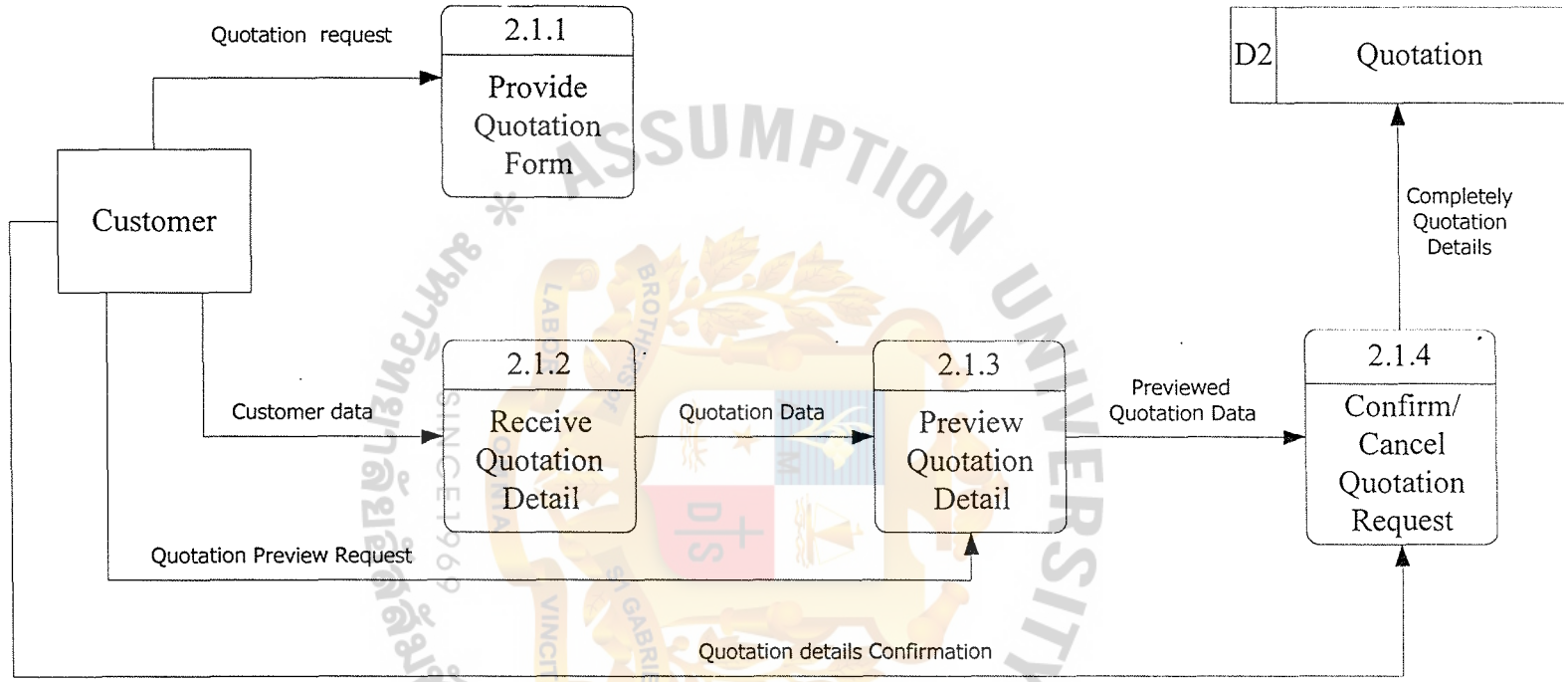

Figure B.12. Level 2 Logical Data Flow Diagram of Quotation Filing.

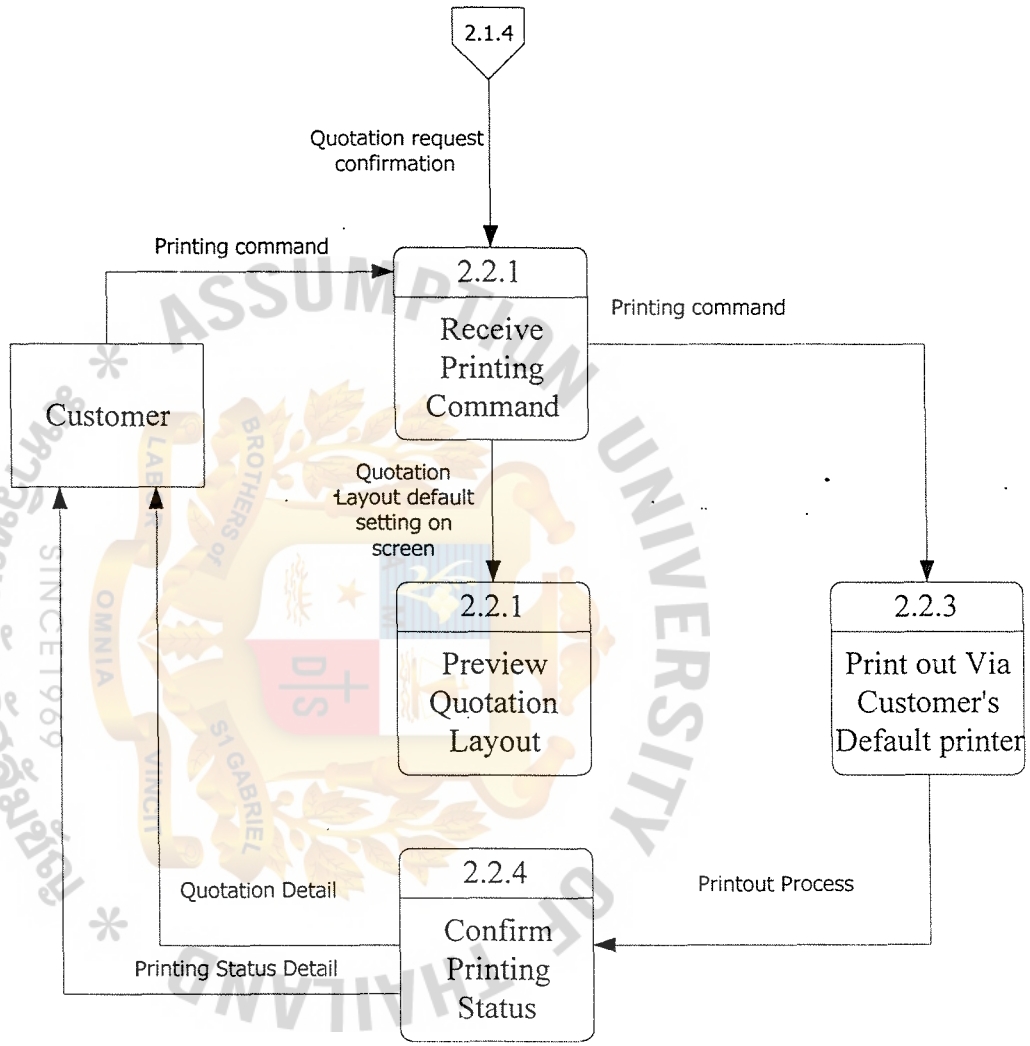

Figure B.13. Level 2 Logical Data Flow Diagram of Quotation Printing.

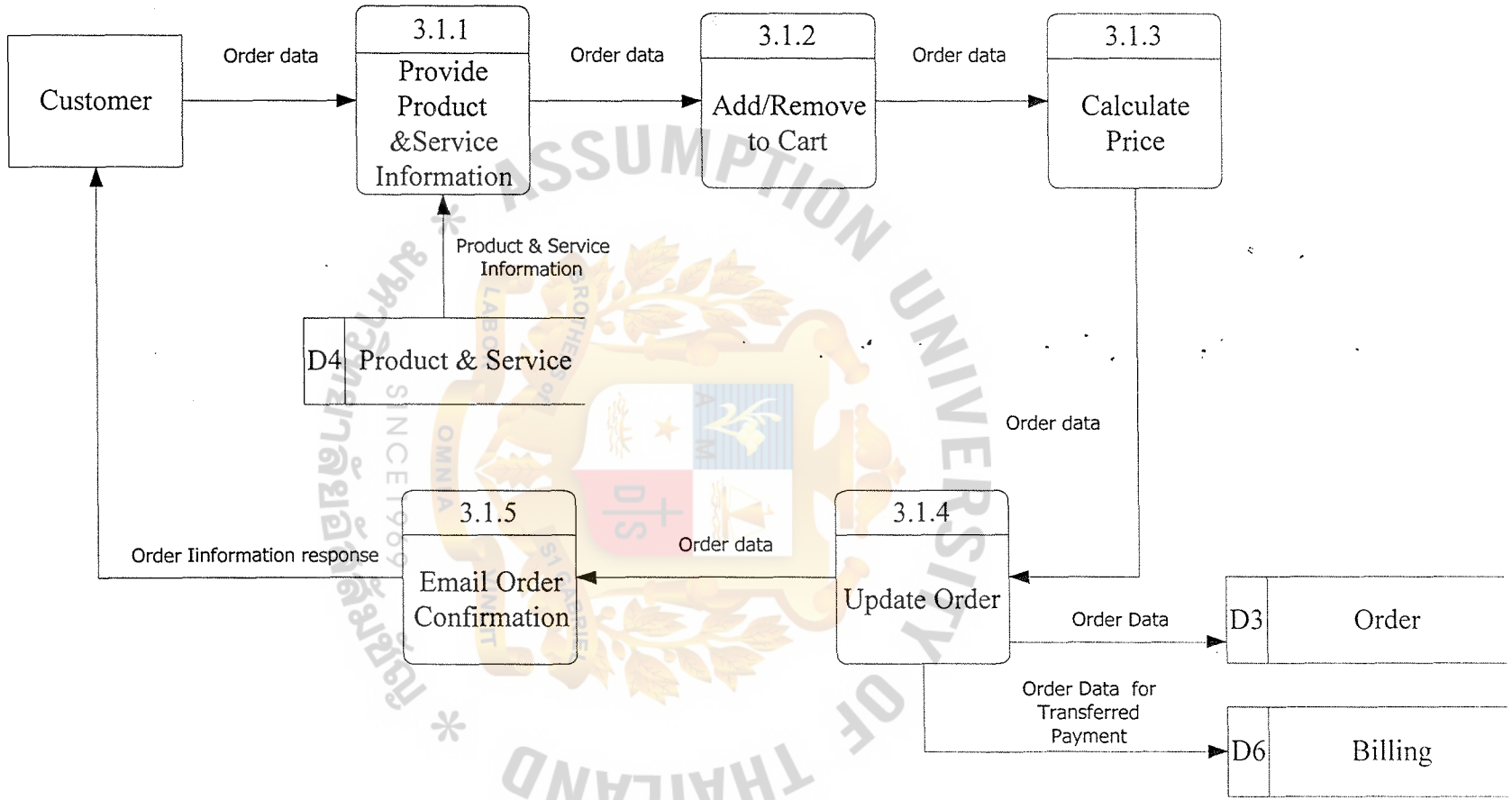

Figure B.14. Level 2 Logical Data Flow Diagram of Order by Selected Product & Service Package.

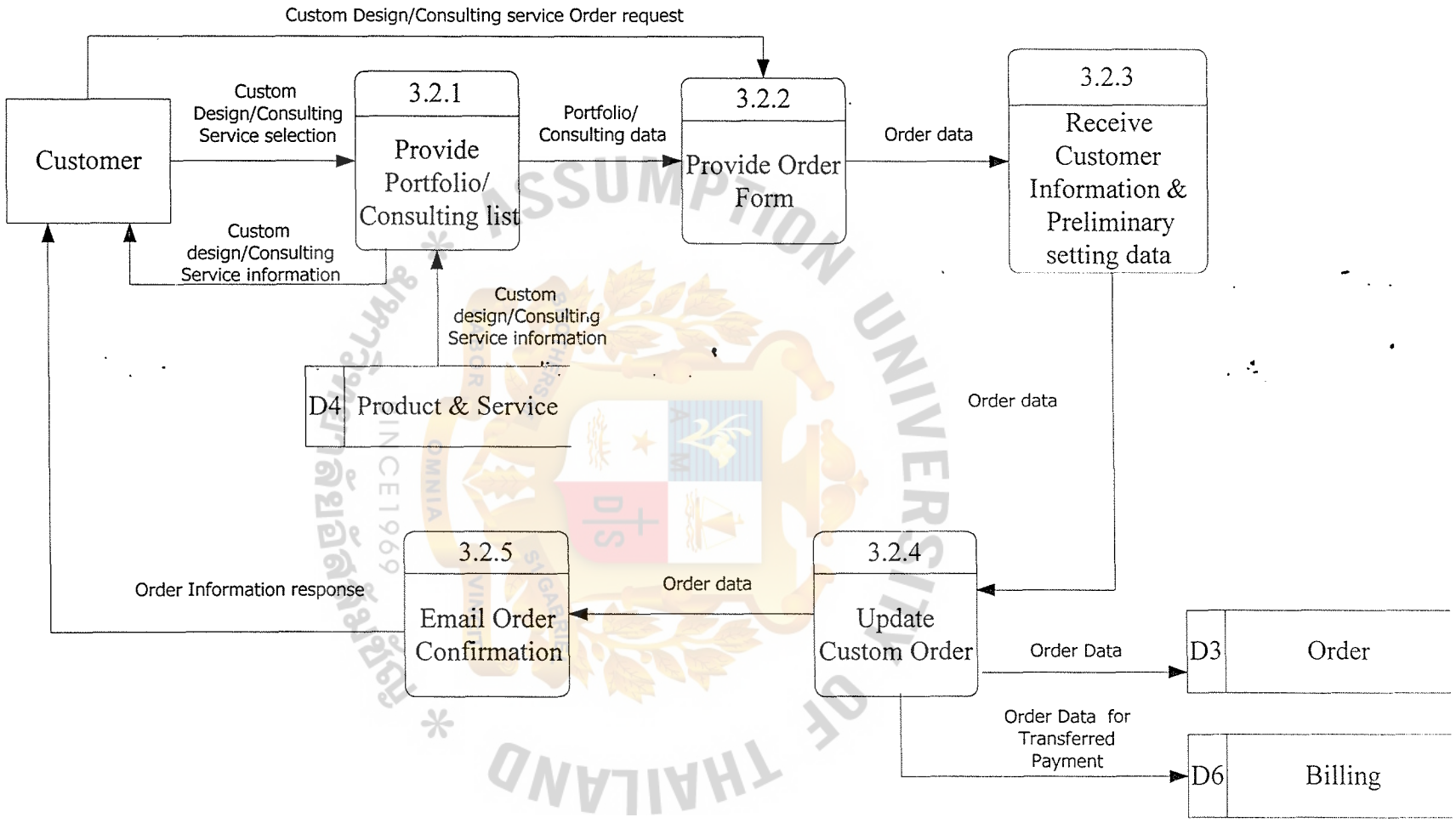

Figure B.15. Level 2 Logical Data Flow Diagram of Order Custom Design and Consulting.

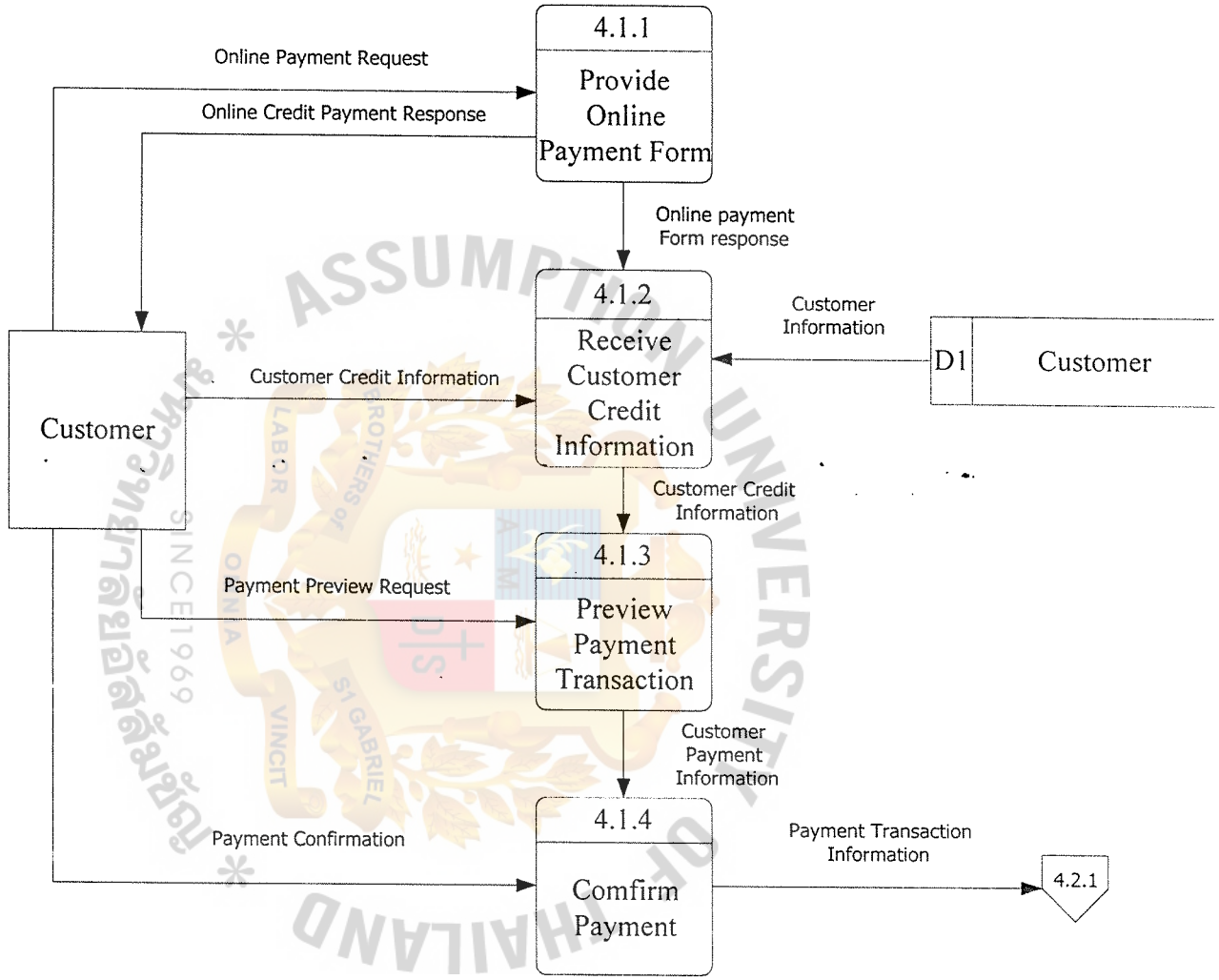

Figure B.16. Level 2 Logical Data Flow Diagram of Pay Credit Online.

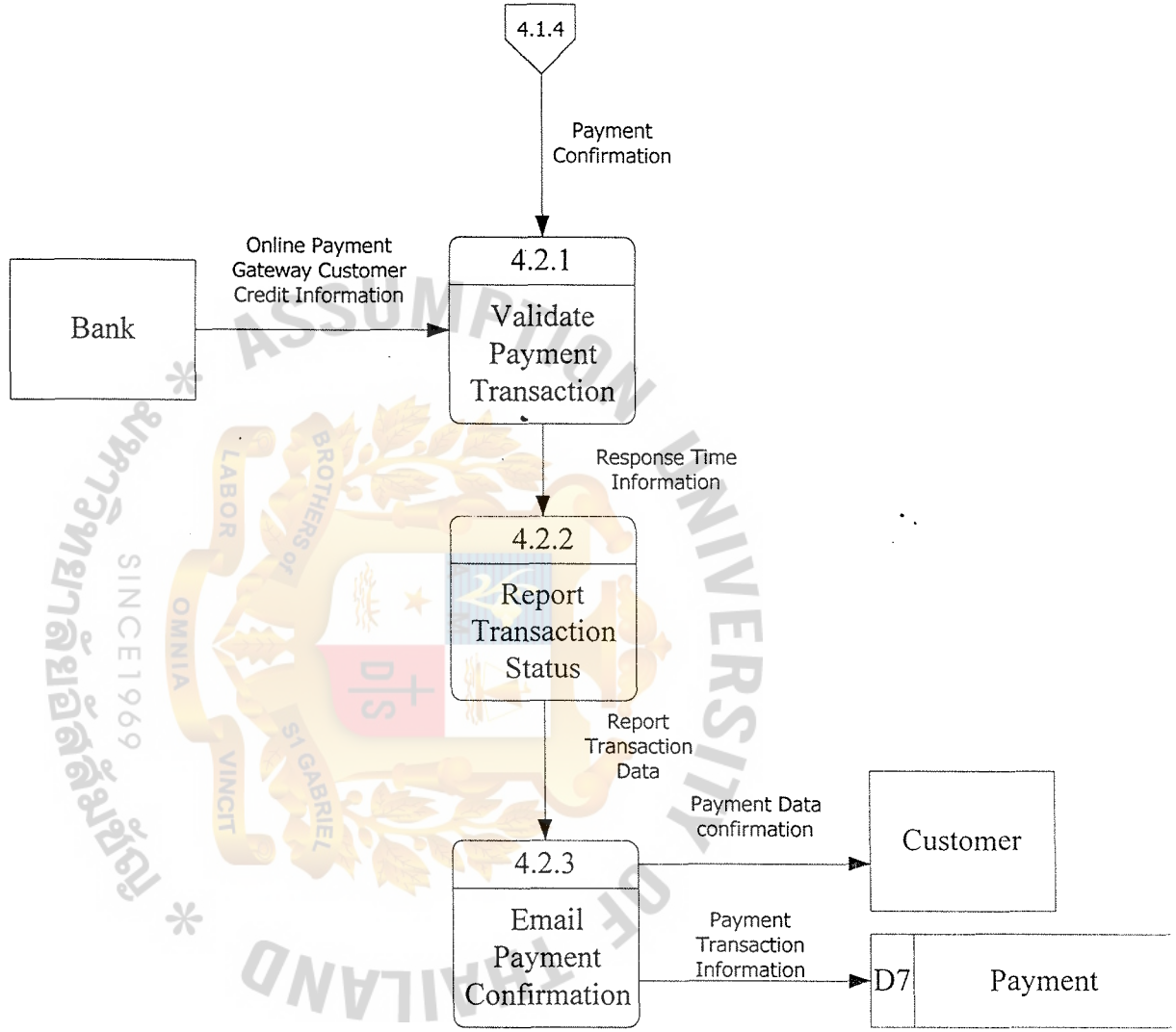

Figure B.17. Level 2 Logical Data Flow Diagram of Proceed SIPS Payment Gateway Solution.

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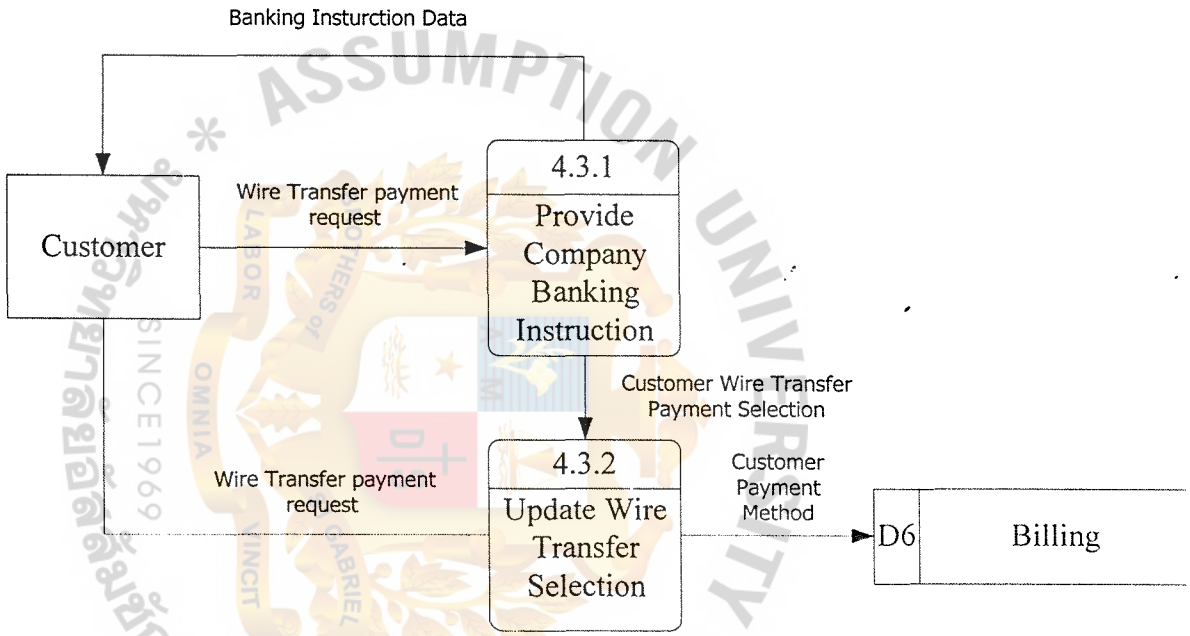

Figure B.18. Level 2 Logical Data Flow Diagram of Wire Transfer.

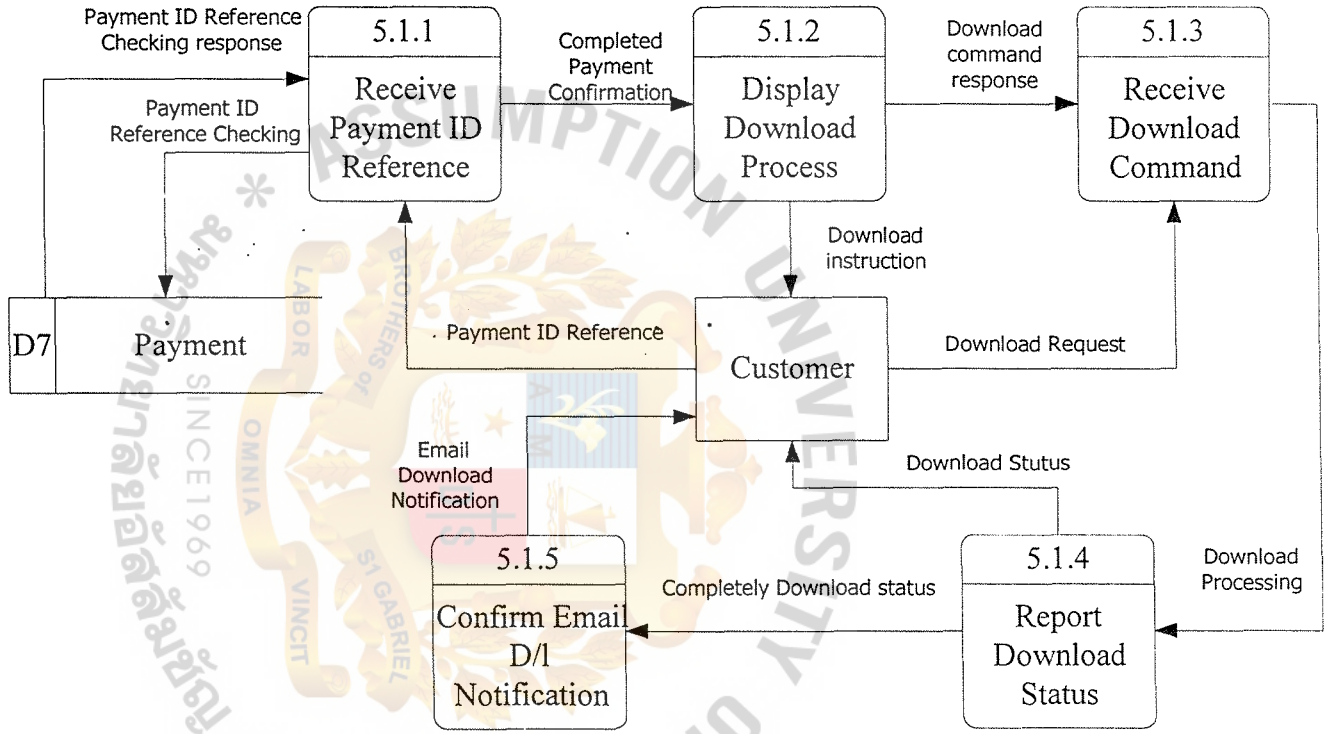

Figure B.19. Level 2 Logical Data Flow Diagram of Download Product & Service.

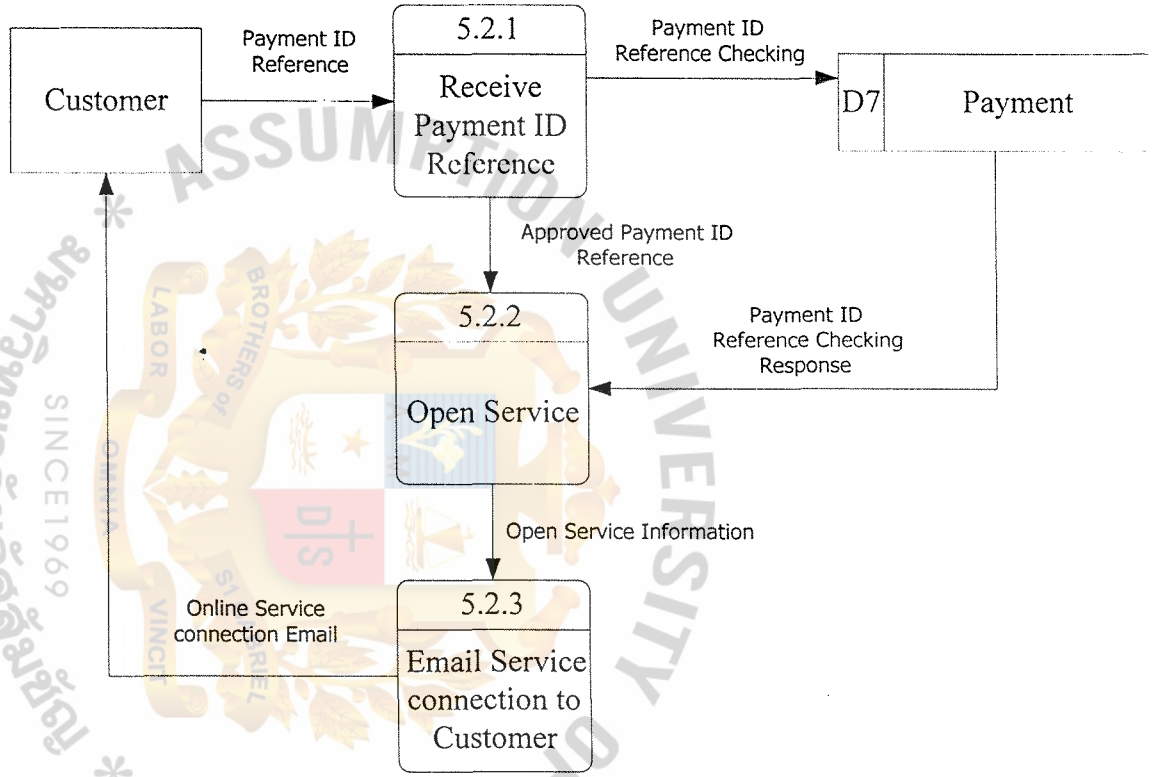

Figure B.20. Level 2 Logical Data Flow Diagram of Open Service Connection.

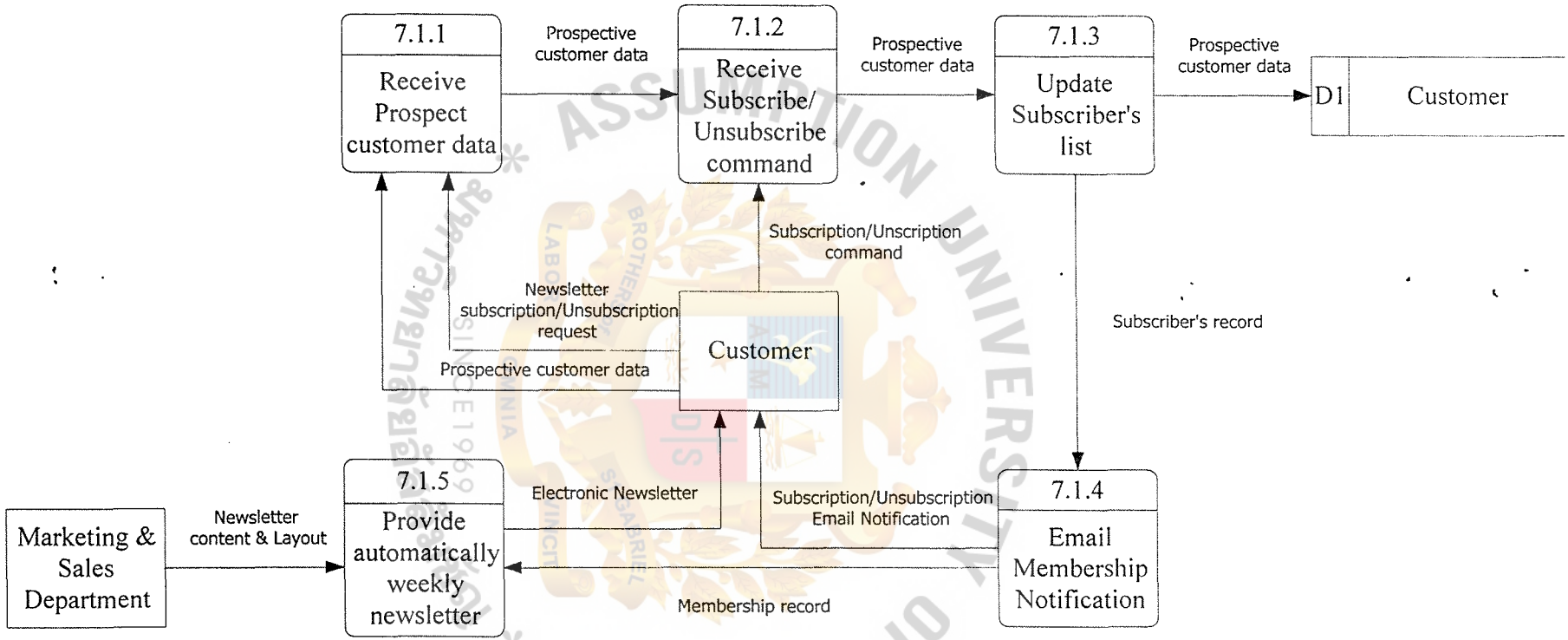

Figure B.21. Level 2 Logical Data Flow Diagram of Subscribe Newsletter.

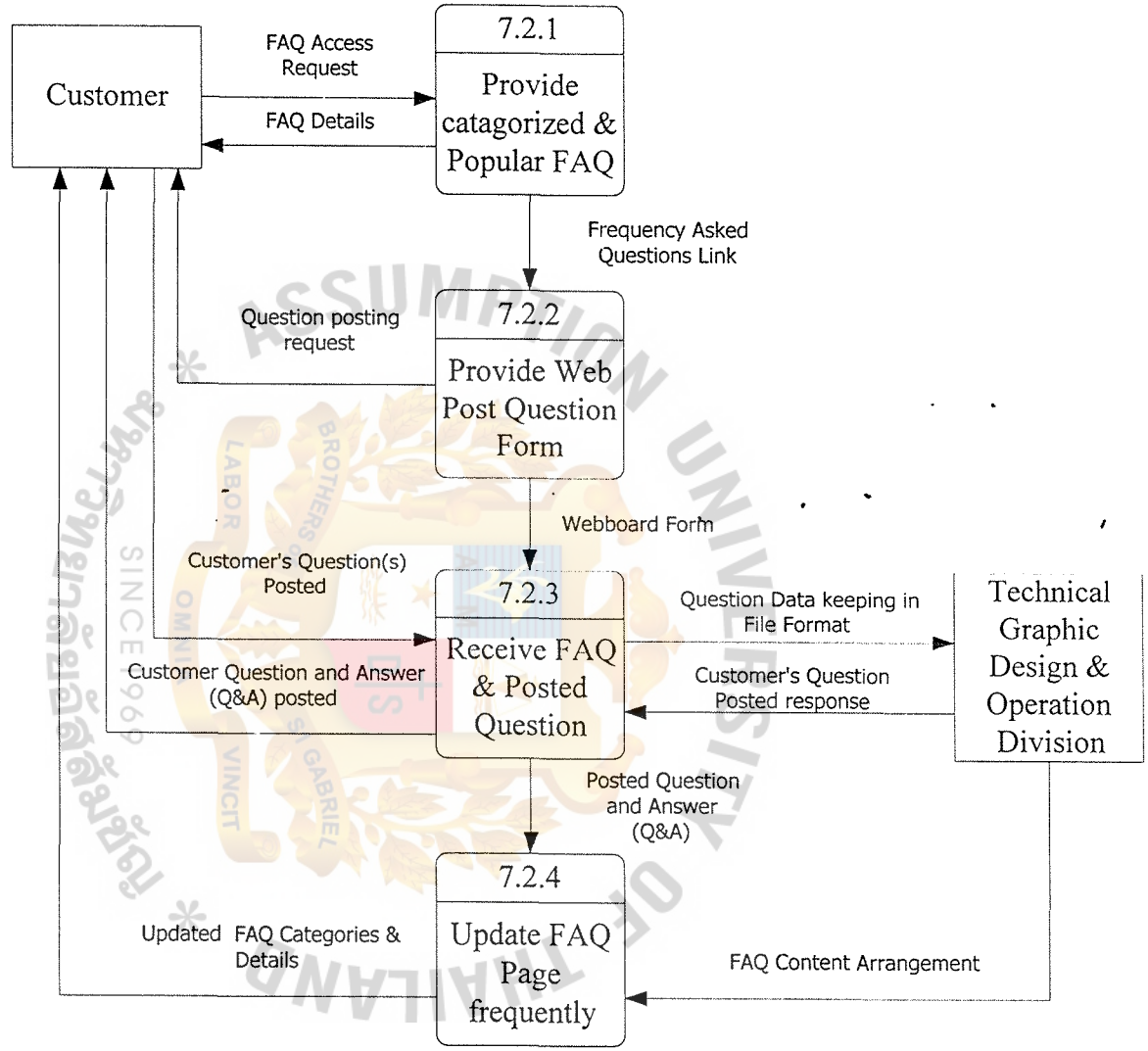

Figure B.22. Level 2 Logical Data Flow Diagram of Request FAQ & Technical Support.

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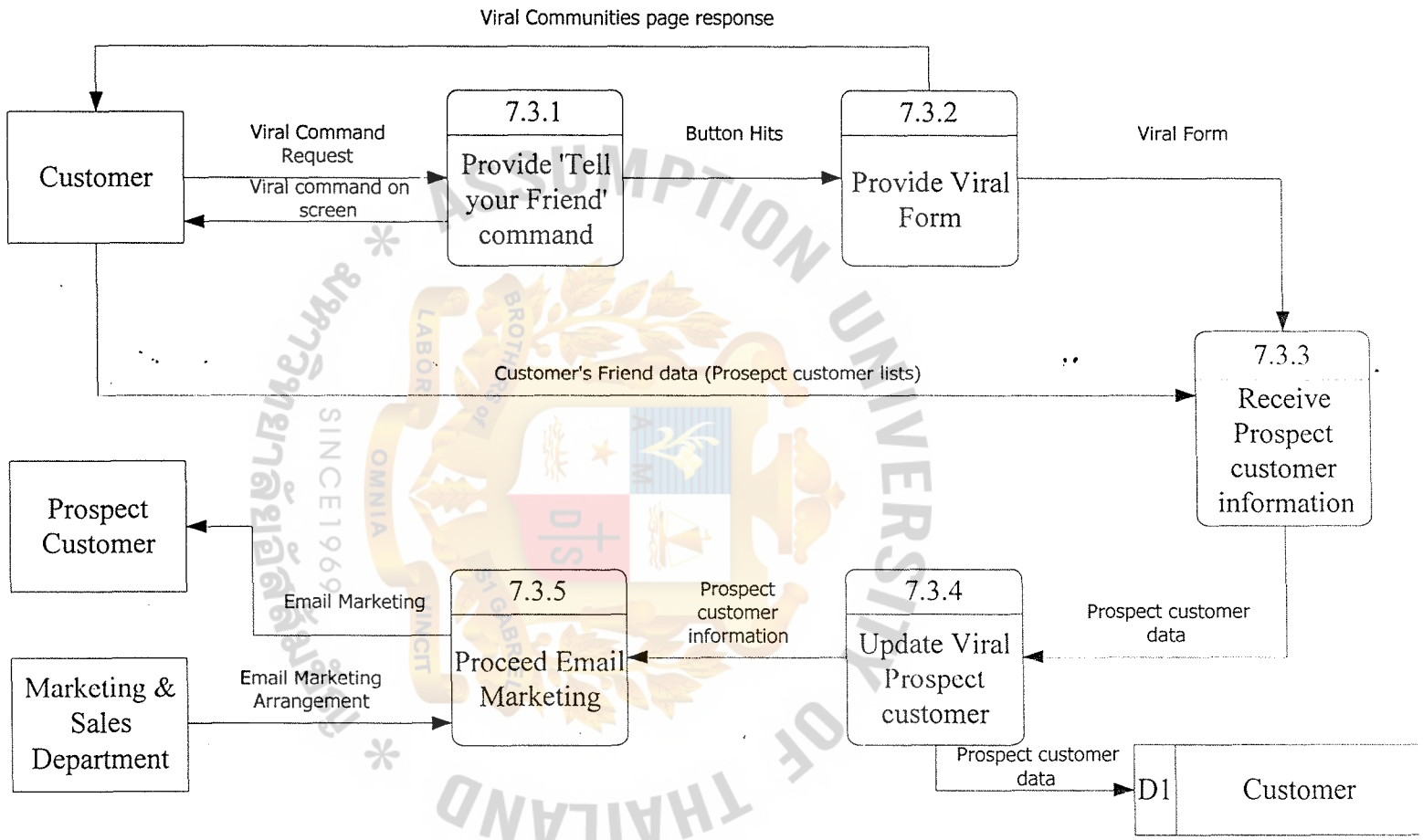

Figure B.23. Level 2 Logical Data Flow Diagram of Process Viral Community.

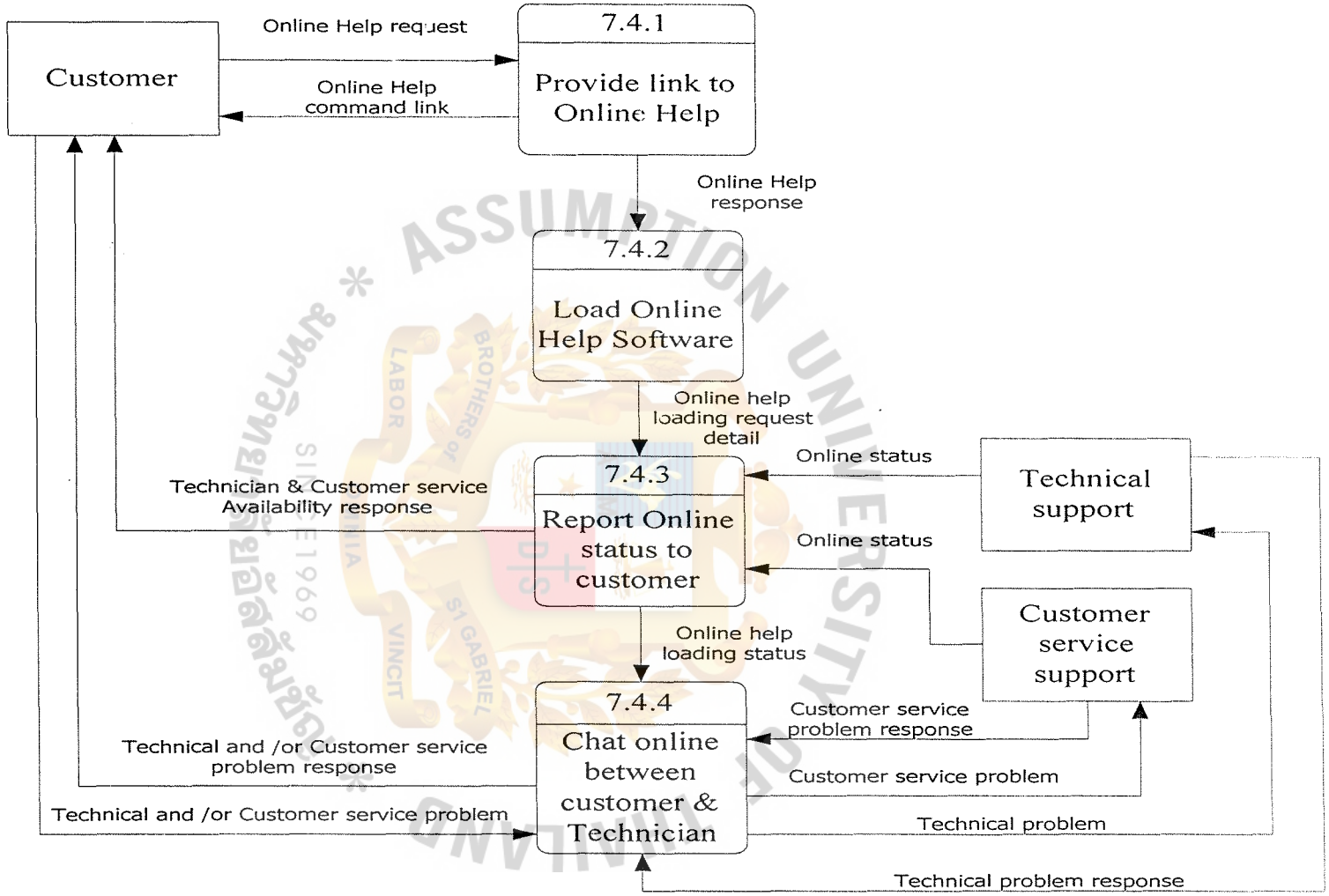

Figure B.24. Level 2 Logical Data Flow Diagram of Provide Online Help.

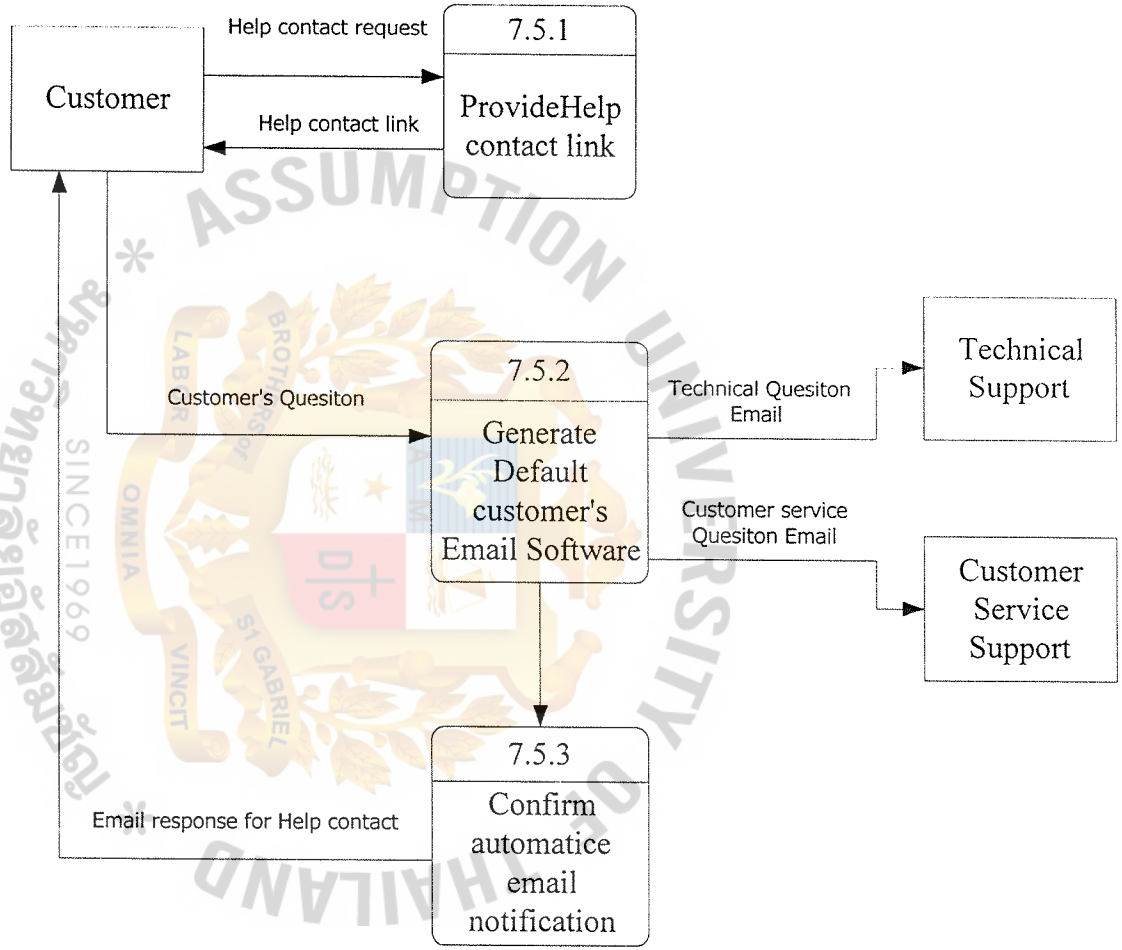

Figure B.25. Level 2 Logical Data Flow Diagram of Email for Help.

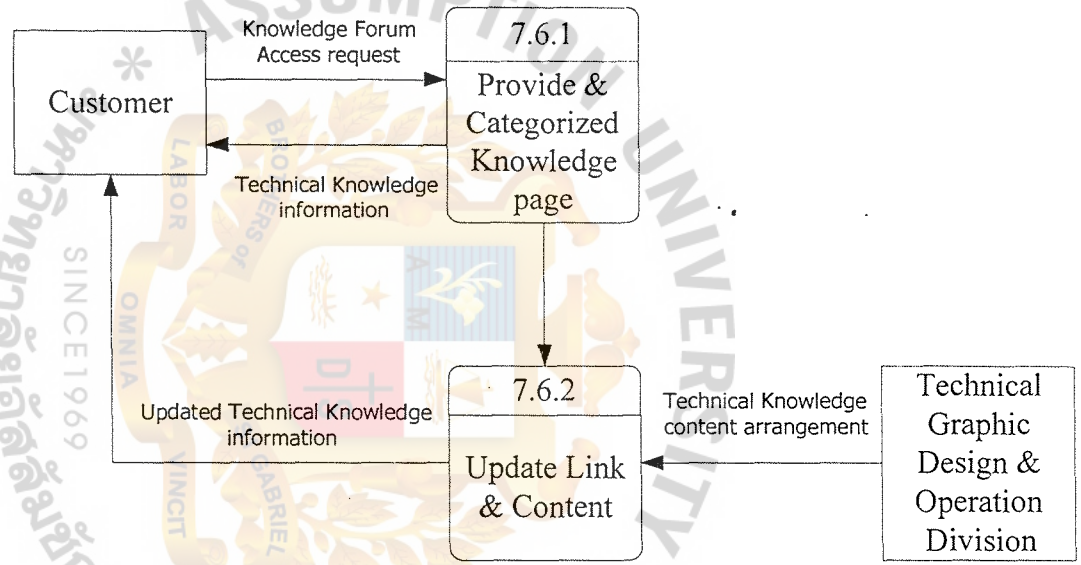

Figure B.26. Level 2 Logical Data Flow Diagram of Provide Knowledge & Developer Forum.

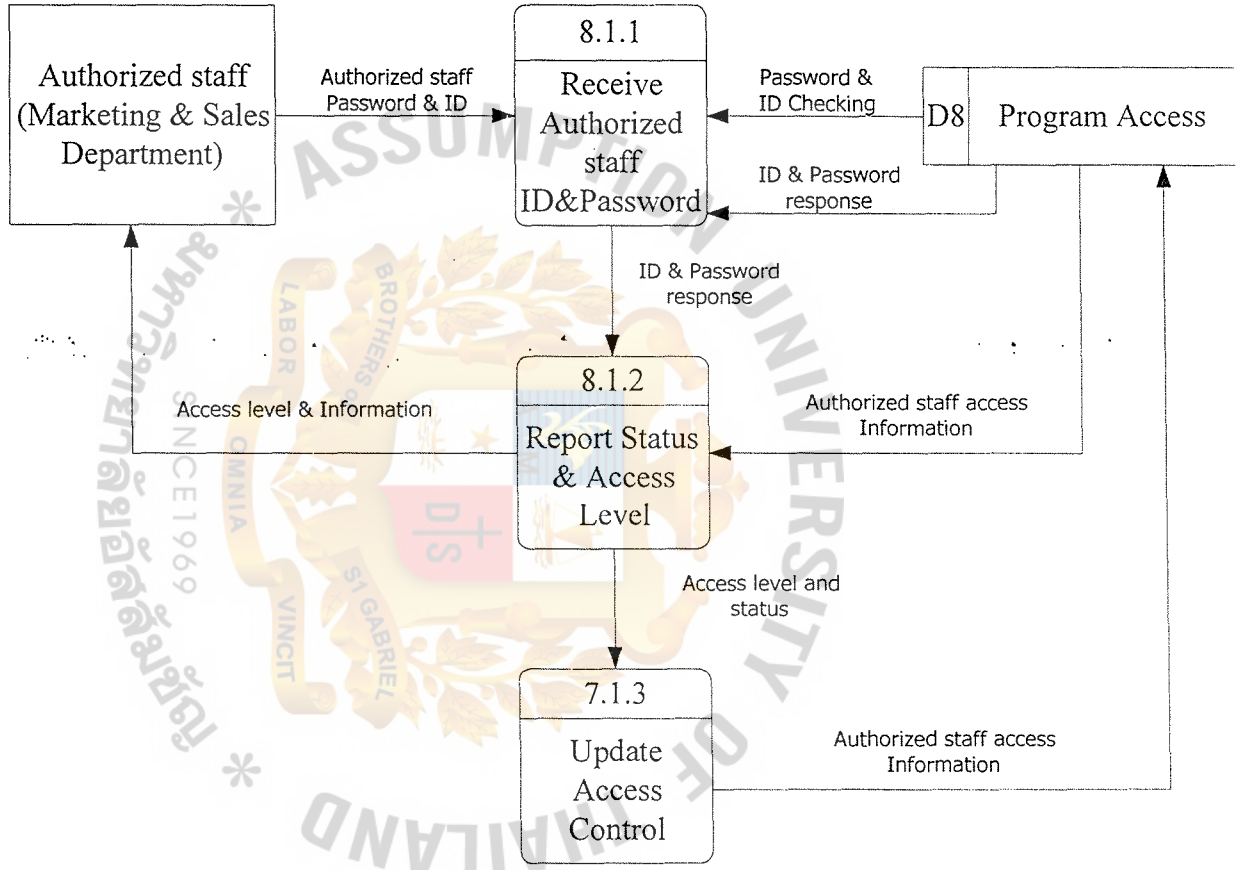

Figure B.27. Level 2 Logical Data Flow Diagram of Intranet Report Accession.

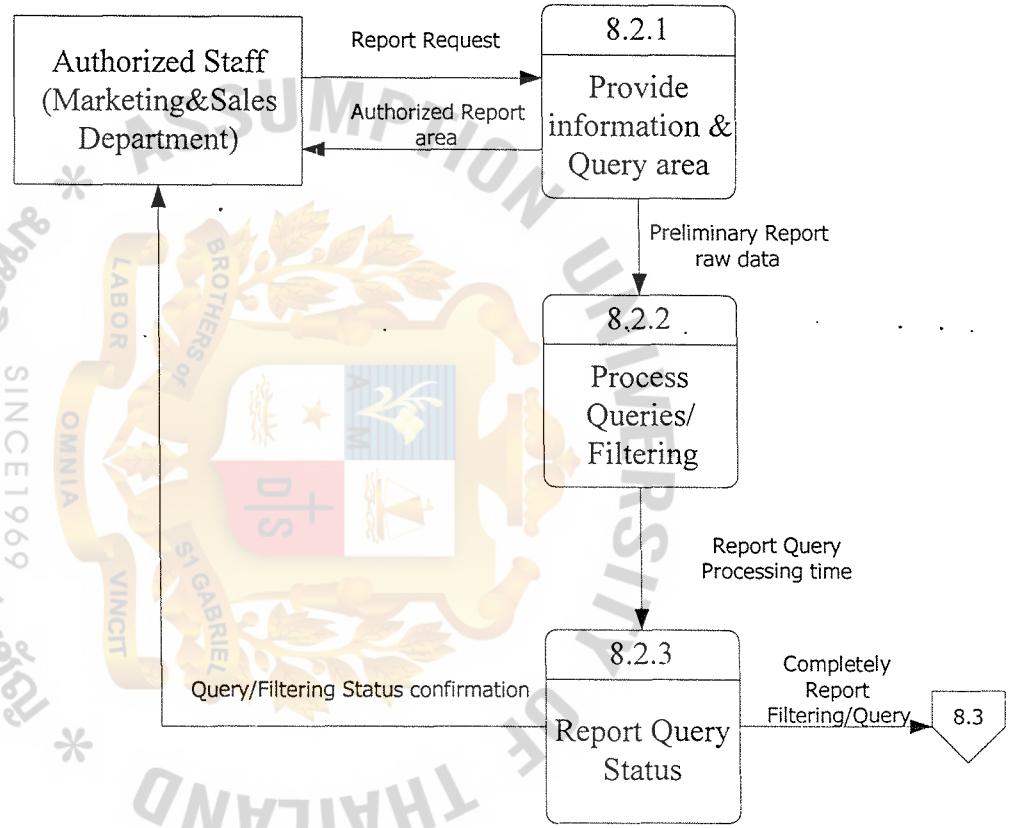

Figure B.28. Level 2 Logical Data Flow Diagram of Query/Filtering Data.

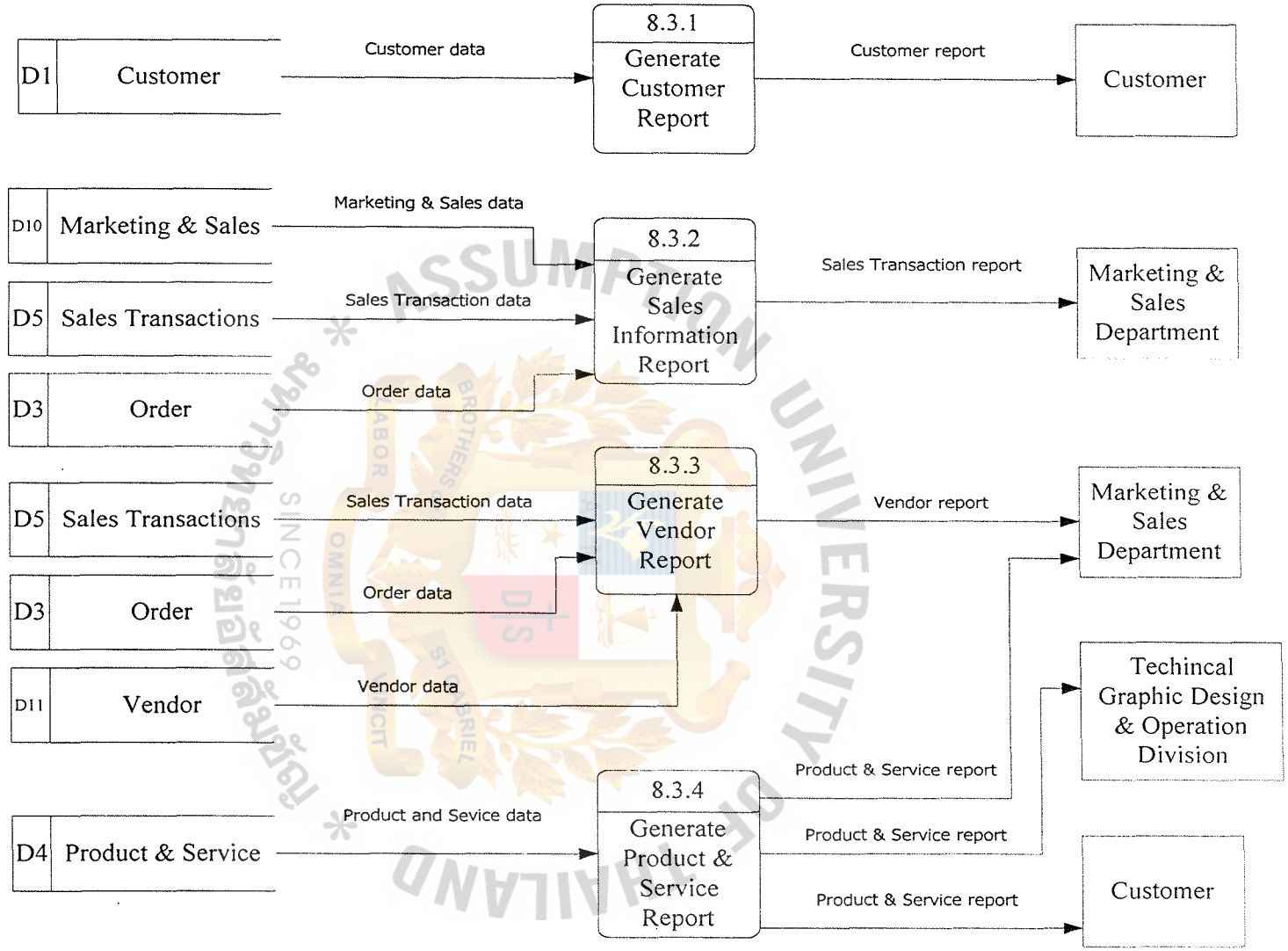

Figure B.29. Level 2 Logical Data Flow Diagram of Process Report Command.

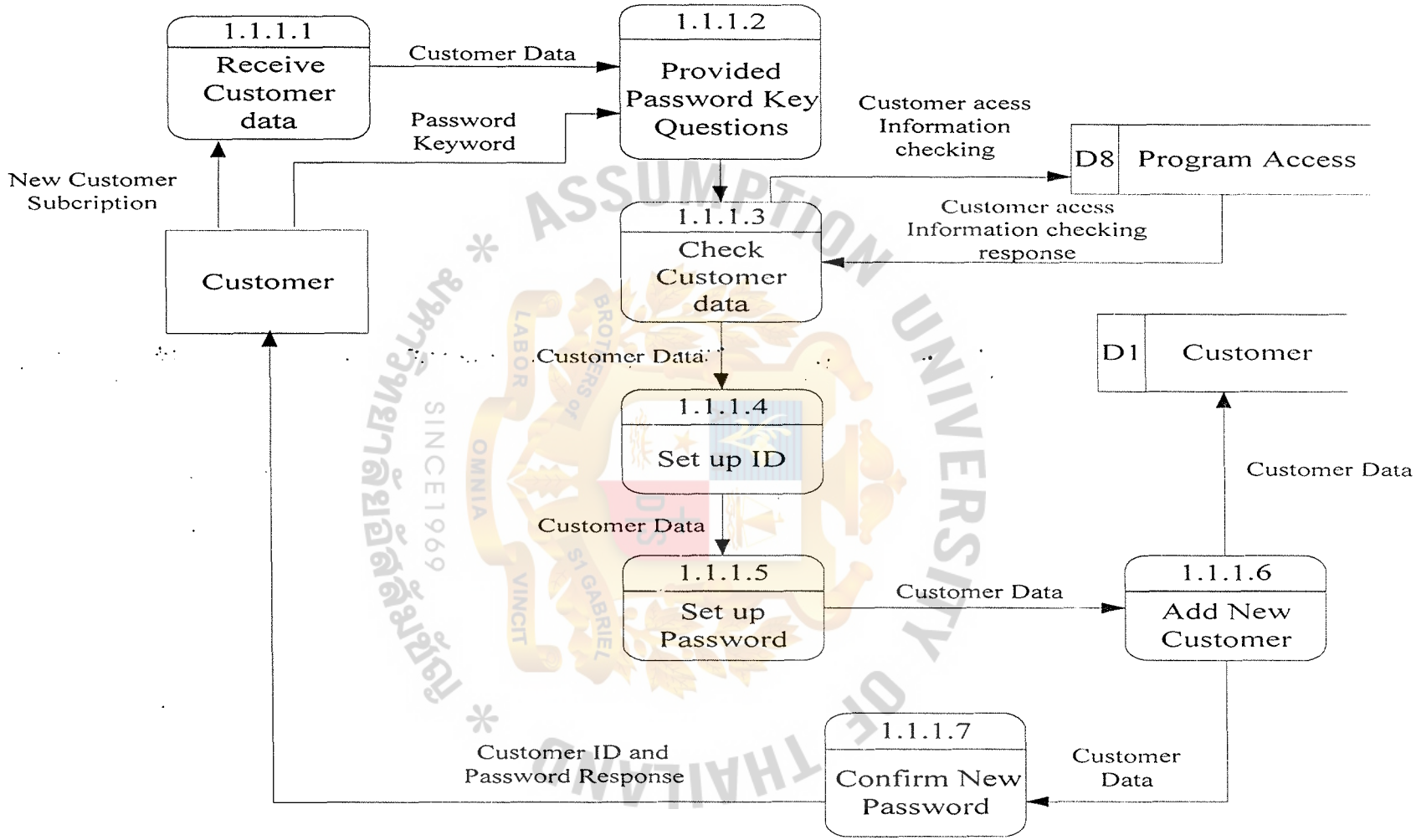

Figure B.30. Level 3 Logical Data Flow Diagram of New Customer Enter Process.

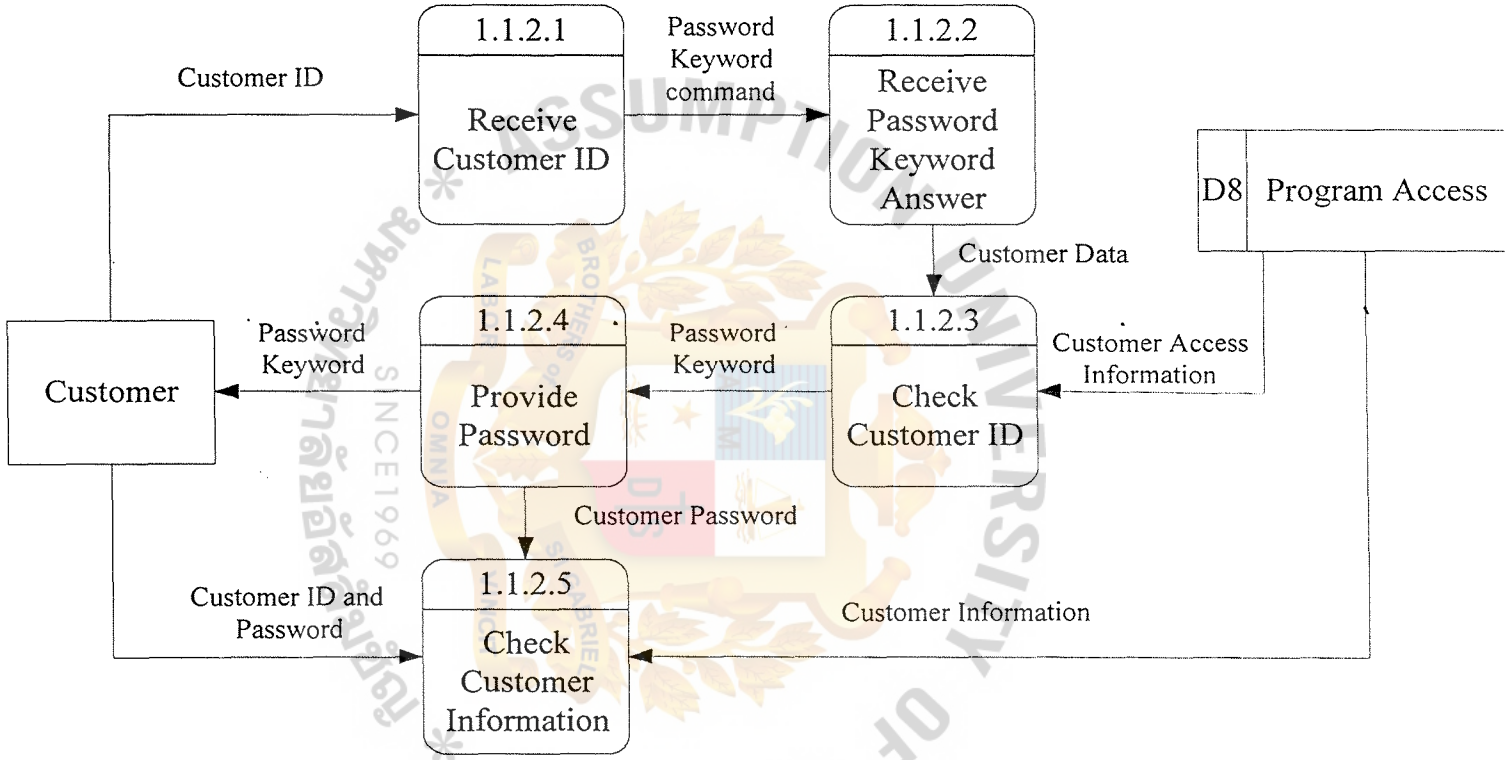

Figure B.31. Level 3 Logical Data Flow Diagram of Retrieve Password of Customer Entry Process.

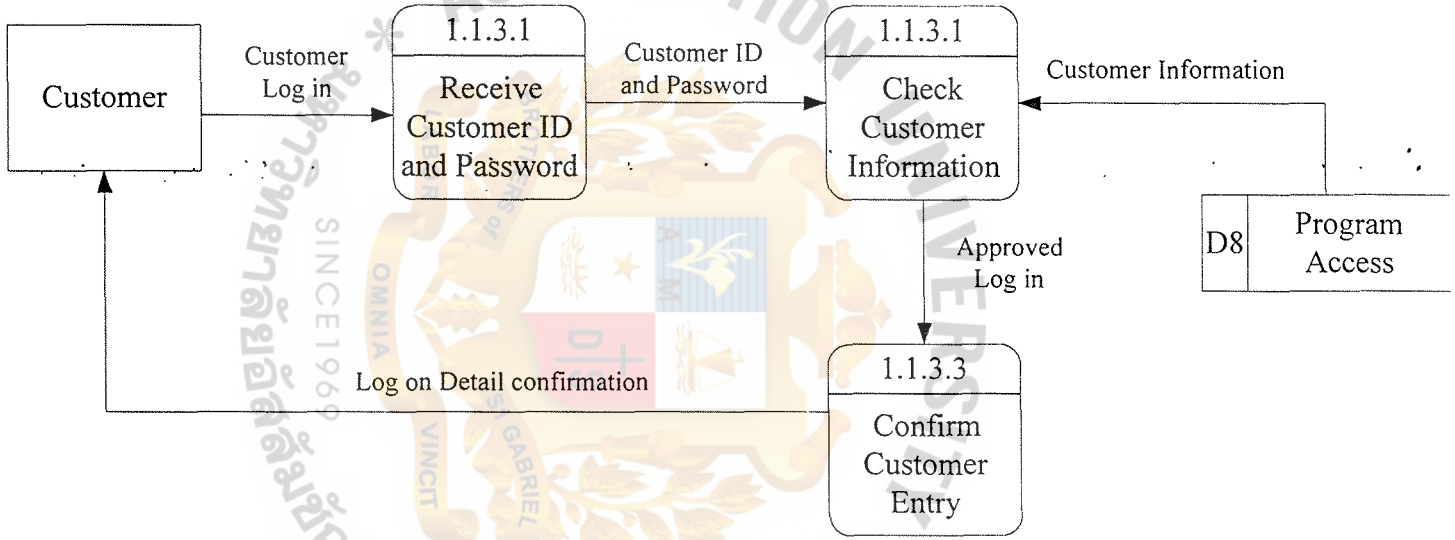

Figure B.32. Level 3 Logical Data Flow Diagram of Log in for Customer Entry Process.

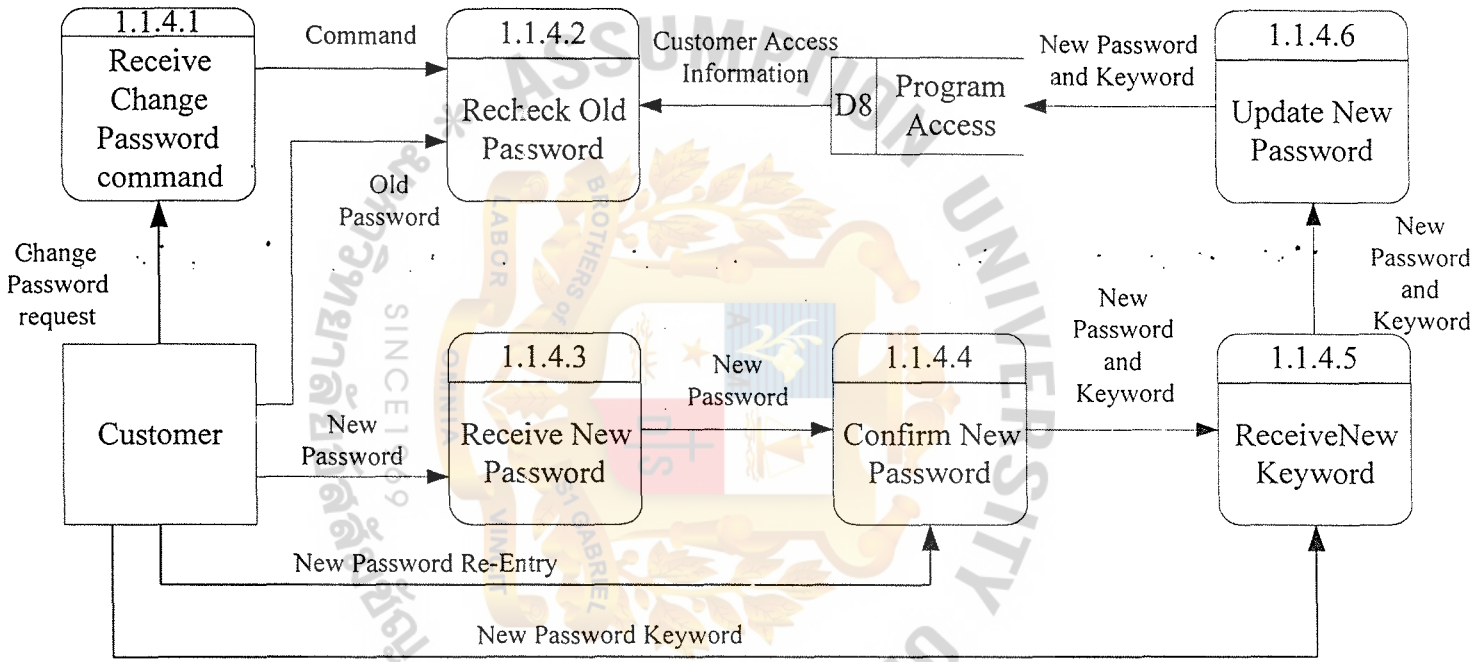

Figure B.33. Level 3 Logical Data Flow Diagram of Change Password for Customer Entry Process.

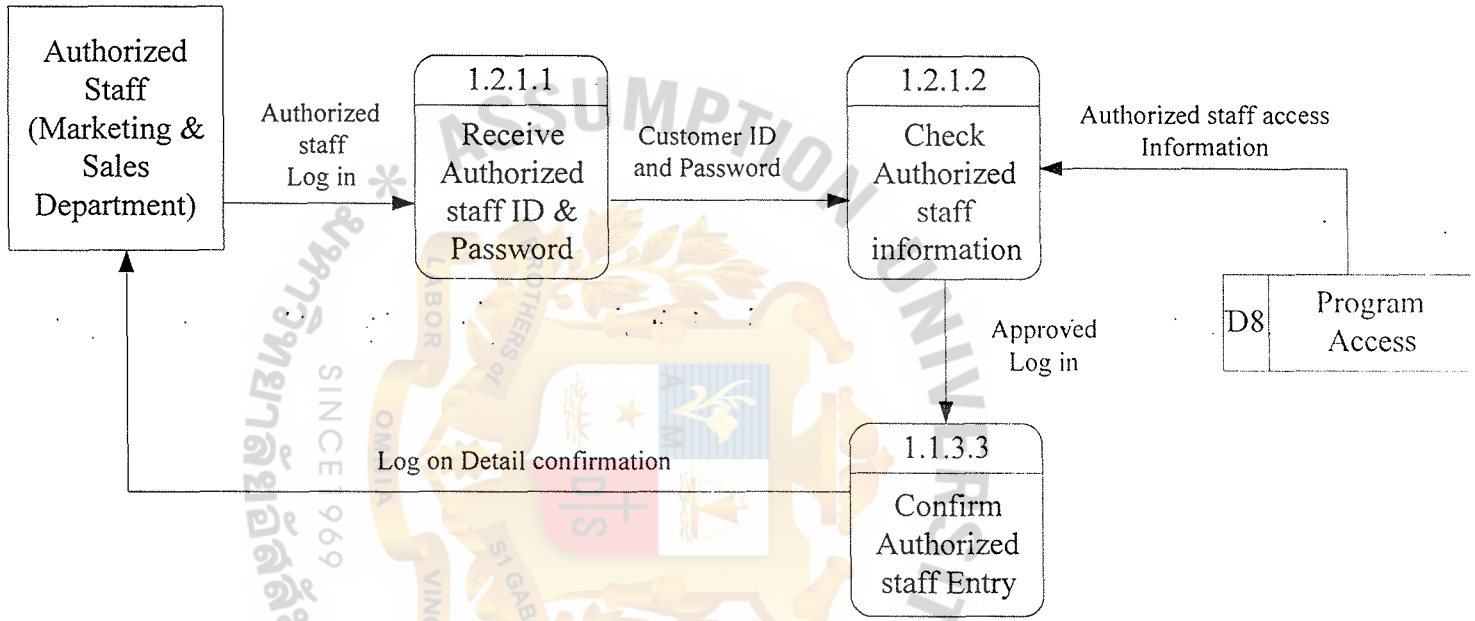

Figure B.34. Level 3 Logical Data Flow Diagram of Log in for Coporate Entry Process.

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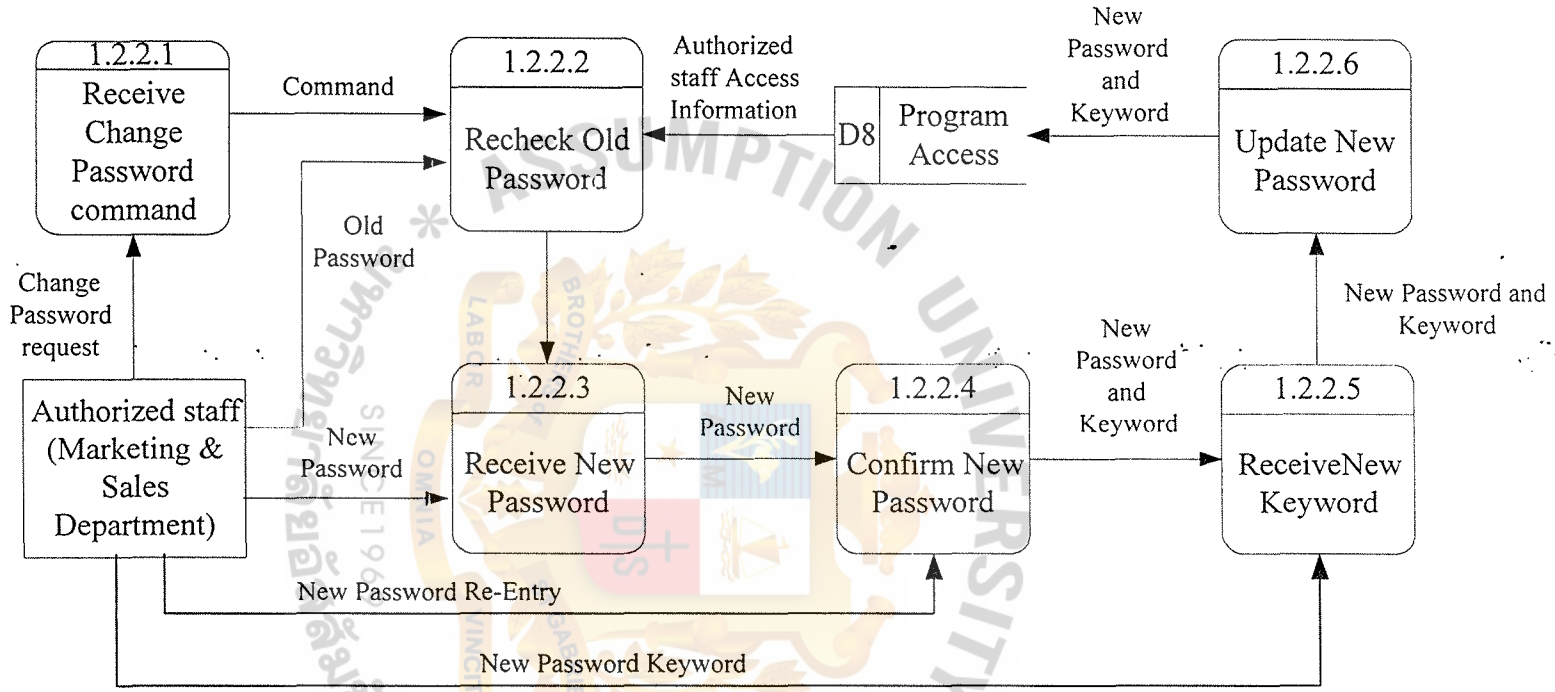

Figure B.35. Level 3 Logical Data Flow Diagram of Change Password for Corporate Entry Process.

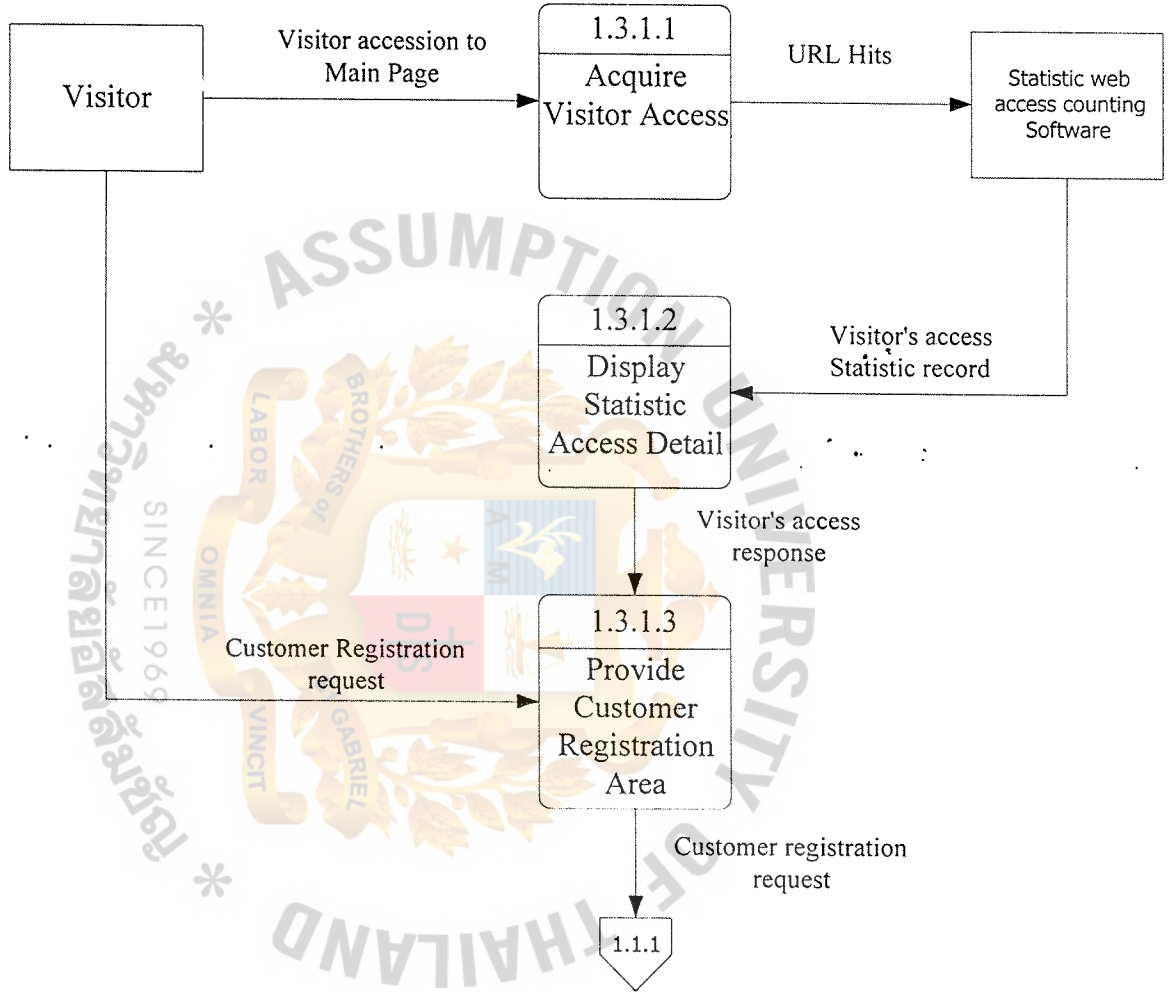

Figure 3.36. Level 3 Logical Data Flow Diagram of Access to the Main Page of Visitor Entry.

APPENDIX C

PROCESS SPECIFICATION

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Table C.1. Process Specification of Process 1.1.1.1.

Items	Description
Process Name	Receive customer information
Data In:	New customer subscription
Data Out:	On screen shows customer information
Process:	1. Receive customer information on screen 2. Print out customer information on screen
Attachment:	1. Customer data store 2. Customer 3. Program Access data store

Table C.2. Process Specification of Process 1.1.1.2.

Items	Description
Process Name	Provide password key Question
Data In:	Customer password keyword
Data Out:	Customer keyword information
Process:	1. Provide Password Keyword Question to identify the customer or in case password loss 2. Read the password keyword 3. Show result of customer keyword recording on screen
Attachment:	1. Program Access data store

Table C.3. Process Specification of Process 1.1.1.3.

Items	Description
Process Name	Check customer information
Data In:	Customer information
Data Out:	Customer checking result
Process:	1. Read customer information which will not match with the existing customer 2. Verify the correctness of the customer information receipt 3. Show result of checking customer on screen
Attachment:	1. Customer data store 2. Program Access data store

Table C.4. Process Specification of Process 1.1.1.4.

Items	Description
Process Name	Set up ID
Data In:	Customer ID
Data Out:	Customer ID result
Process:	1. Read new customer ID Providing 2. Check new customer ID with existing customer ID 3. Show result of checking customer ID on screen
Attachment:	1. Program Access data store

Table C.5. Process Specification of Process 1.1.1.5.

Items	Description
Process Name	Set up password
Data In:	Customer password
Data Out:	Customer password result
Process:	1. Read new customer password providing 2. Check new customer password with password condition 3. Show result of checking customer password on screen
Attachment:	1. Password condition setting up

Table C.6. Process Specification of Process 1.1.1.6.

Items	Description
Process Name	Add new customer
Data In:	Customer information
Data Out:	Customer record
Process:	1. Get all new customer data 2. Record the customer data into customer database
Attachment:	1. Customer data store 2. Marketing Department

Table C.7. Process Specification of Process 1.1.1.7.

Items	Description
Process Name	Confirm new customer
Data In:	Customer information
Data Out:	Customer confirmation response
Process:	1. Send the confirmation of new customer registered on screen
Attachment:	1. Customer data store 2. Program Access data store 3. Customer

Table C.8. Process Specification of Process 1.1.2.1.

Items	Description
Process Name	Receive customer ID
Data In:	Customer ID
Data Out:	On screen shows customer ID3
Process:	1. Receive customer ID on screen 2. Print out customer ID on screen
Attachment:	1. Program Access data store 2. Customer

Table C.9. Process Specification of Process 1.1.2.2.

Items	Description
Process Name	Receive retrieve password command.
Data In:	Forgot password command
Data Out:	On screen shows forgot password command processing
Process:	1. Receive forgot password command 2. Execute forgot password command
Attachment:	1. Program Access data store 2. Forgot password command

Table C.10. Process Specification of Process 1.1.2.3.

Items	Description
Process Name	Check customer ID
Data In:	Customer ID and forgot password command
Data Out:	On screen shows checking customer ID processing
Process:	1. Read customer ID which match with the existing customer ID 2. Verify the correctness of the customer ID
Attachment:	1. Program data store

Table C.11. Process Specification of Process 1.1.2.4.

Items	Description
Process Name	Provide password keyword
Data In:	Customer ID and forgot password command
Data Out:	Customer password keyword
Process:	1. Show customer password keyword on screen
Attachment:	1. Customer

Table C.12. Process Specification of Process 1.1.2.5.

Items	Description
Process Name	Check Customer Information
Data In:	Customer ID and password
Data Out:	Customer ID and password
Process:	1. Read customer information which match with the existing customer 2. Send this information to log in process to verify
Attachment:	1. Program Access data store 2. Customer

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SINCE1969

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Table C.13. Process Specification of Process 1.1.3.1.

Items	Description
Process Name	Receive customer ID and password
Data In:	Customer ID and password
Data Out:	On screen shows customer ID and password
Process:	1. Receive customer ID and password on screen 2. Print out customer ID and password on screen
Attachment:	1. Program access data store 2. Customer

Table C.14. Process Specification of Process 1.1.3.2.

Items	Description
Process Name	Check customer information
Data In:	Customer information
Data Out:	Sales & Payment information log in
Process:	1. Read customer information which match with the existing customer 2. Verify the correctness of customer information
Attachment:	1. Program Access data store 2. Customer information 3. Sales information system 4. Marketing department

Table C.15. Process Specification of Process 1.1.3.3.

Items	Description
Process Name	Confirm Customer Entry
Data In:	Customer information
Data Out:	On screen Customer status log in Information
Process:	1. Read customer information 2. Provide both on screen confirmation and Email generating to customer automatically. 3. Log in to main corporate pages & customer area
Attachment:	1 Program Access data store 2 Customer information 3 Marketing & Sales information system

Table C.16. Process Specification of Process 1.1.4.1.

Items	Description
Process Name	Receive change password command
Data In:	Change password command
Data Out:	On screen shows change password command processin
Process:	1. Receive change password command 2. Execute change password command
Attachment:	1. Program Access data store 2. Change password command

Table C.17. Process Specification of Process 1.1.4.2.

Items	Description
Process Name	Recheck old password
Data In:	Old password
Data Out:	On screen shows old password
Process:	1. Receive old password on screen. 2. Print out old password on screen 3. Verify the correctness of old password
Attachment:	1. Program Access data store 2. Customer

Table C.18. Process Specification of Process 1.1.4.3.

Items	Description
Process Name	Receive new password
Data In:	New password
Data Out:	On screen shows new password
Process:	1. Receive new password on screen 2. Print out new password on screen 3. Recheck new password with old password
Attachment:	1. Program Access data store 2. Customer

Table C.19. Process Specification of Process 1.1.4.4.

Items	Description
Process Name	Confirm new password
Data In:	New password reenter
Data Out:	On screen shows new password reenter
Process:	1. Receive confirmation of new password on screen 2. Print out confirm newpassword on screen 3. Check both new password
Attachment:	1. Program Access data store 2. Customer

Table C.20. Process Specification of Process 1.1.4.5.

Items	Description
Process Name	Receive new password keyword
Data In:	New password keyword
Data Out:	On screen shows new password keyword
Process:	1. Receive new password keyword on screen 2. Print out new password keyword on screen 3. Replace old password with new password
Attachment:	1. Program Access data store 2. Customer

Table C.21. Process Specification of Process 1.1.4.6.

Items	Description
Process Name	Update new password and keyword
Data In:	New password and keyword
Data Out:	New password and keyword record
Process:	1. Get new customer password and keyword 2. Update the new customer password and keyword into Program Access database
Attachment:	1. Program Access data store 2. Customer

Table C.22. Process Specification of Process 1.2.1.1.

Items	Description
Process Name	Receive Authorized staff ID and password
Data In:	Authorized ID and password
Data Out:	On screen shows authorized staff ID and password
Process:	1. Receive authorized staff ID and password on screen 2. Print out authorized staff ID and password on screen
Attachment:	1 Program access data store 2 Marketing & Sale Department

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Table C.23. Process Specification of Process 1.2.1.2.

Items	Description
Process Name	Check authorized staff information
Data In:	Authorized staff information
Data Out:	Corporate full service pages & report generating area
Process:	1. Read authorized staff information 2. Verify the correctness of authorized information
Attachment:	1. Program Access data store 2. Marketing & Staff Department

Table C.24. Process Specification of Process 1.2.1.3.

Items	Description
Process Name	Confirm Authorized staff Entry
Data In:	Authorized staff information
Data Out:	On screen Authorized status log in Information
Process:	1. Read Authorized staff information 2. Provide on screen confirmation 3. Log in to full main corporate pages & authorized staff area
Attachment:	1. Program Access data store 2. Marketing & Sales information system

Table C.25. Process Specification of Process 1.2.2.1.

Items	Description
Process Name	Receive change password command
Data In:	Change password command
Data Out:	On screen shows change password command processin
Process:	1. Receive change password command 2. Execute change password command
Attachment:	1 Program Access data store 3. Change password command

Table C.26. Process Specification of Process 1.2.2.2.

Items	Description
Process Name	Recheck old password
Data In:	Old password
Data Out:	On screen shows old password
Process:	1. Receive old password on screen. 2. Print out old password on screen 3. Verify the correctness of old password
Attachment:	1. Program Access data store 2. Marketing & Sales Department

Table C.27. Process Specification of Process 1.2.2.3.

Items	Description
Process Name	Receive new password
Data In:	New password
Data Out:	On screen shows new password
Process:	1. Receive new password on screen 2. Print out new password on screen 3. Recheck new password with old password
Attachment:	1. Program Access data store 2. Marketing & Sales Department

Table C.28. Process Specification of Process 1.2.2.4.

Items	Description
Process Name	Confirm new password
Data In:	New password reenter
Data Out:	On screen shows new password reenter
Process:	1. Receive confirmation of new password on screen 2. Print out confirm new password on screen 3. Check both new password
Attachment:	1 Program Access data store 2 Marketing & Sales department

Table C.29. Process Specification of Process 1.2.2.5.

Items	Description
Process Name	Receive new password keyword
Data In:	New password keyword
Data Out:	On screen shows new password keyword
Process:	1. Receive new password keyword on screen 2. Print out new password keyword on screen 3. Replace old password with new password
Attachment:	1. Program Access data store 2. Marketing & Sales department

Table C.30. Process Specification of Process 1.2.2.6.

Items	Description
Process Name	Update new password and keyword
Data In:	New password and keyword
Data Out:	New password and keyword record
Process:	1. Get new authorized staff password and keyword 2. Update the new authorized staff password and keyword into Program Access database
Attachment:	1 Program Access Data store 2 Marketing & Sales Department

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Table C.31. Process Specification of Process 1.3.1.1.

Items	Description
Process Name	Acquire Visitor Access
Data In:	Visitor's entry selection
Data Out:	On screen shows Main corporate web site
Process:	Receive visitor's entry selection from visitor link
Attachment:	1. Visitor 2. Prospect customer

Table C.32. Process Specification of Process 1.3.1.2.

Items	Description
Process Name	Display statistic access detail
Data In:	Visitor's entry selection
Data Out:	On screen shows statistic visitor number accession
Process:	1. Visitor hits our URL 2. Software statistic web access counting generate the number of visitor on screen
Attachment:	1. Visitor 2. Software statistic counting for web accession

Table C.33. Process Specification of Process 1.3.1.3.

Items	Description
Process Name	Provide customer registration area
Data In:	Customer registration link
Data Out:	On screen shows customer benefit and instruction
Attachment:	1. Visitor 2. Marketing & Sales department

Table C.34. Process Specification of Process 2.1.1.

Items	Description
Process Name	Provide Quotation Form
Data In:	User's selection for Quotation request
Data Out:	On screen shows Quotation link to form and instruction
Process:	1. User click the Quotation command link 2. Display Quotation Form to request the user information and selected product & Service
Attachment:	1. Quotation data store 2. Product & service data store 3. Customer or Visitor

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Table C.35. Process Specification of Process 2.1.2.

Items	Description
Process Name	Receive Quotation details
Data In:	Customer/Visitor information and Selected product & Service
Data Out:	Quotation details
Process:	1. Read customer/visitor information 2. Verify the correctness of Product & Service , Price information 3. Update Quotation details
Attachment:	1. Quotation data store 2. Product & Service data store 3. Customer and /or Visitor

Table C.36. Process Specification of Process 2.1.3.

Items	Description
Process Name	Preview Quotation details
Data In:	Quotation detail & Layout
Data Out:	Onscreen Preview Quotation for printing
Process:	1. get preview printing command from user 2. read Quotation details 3. Onscreen preview Quotation
Attachment:	1. Quotation data store 2. Customer or visitor

Table C.37. Process Specification of Process 2.1.4.

Items	Description
Process Name	Confirm or Cancel Quotation request
Data In:	User's selection for Preview Quotation detail
Data Out:	Onscreen Quotation detail
Process:	1. Onscreen Confirm & Cancel Quotation Preview command 2. If user selects Cancel, close the Quotation screen 3. If user selects Confirm, unhide the printing button
Attachment:	1. Quotation data store 2. Customer and /or visitor

Table C.38. Process Specification of Process 2.2.1.

Items	Description
Process Name	Receive Printing Command
Data In:	Printing command for Quotation request
Data Out:	On screen shows Quotation detail
Process:	Receive Printing command
Attachment:	Customer and /or visitor

Table C.39. Process Specification of Process 2.2.2.

Items	Description
Process Name	Preview Quotation layout
Data In:	Printing command for Quotation request
Data Out:	On screen shows Layout to print
Process:	Receive Printing command request
Attachment	Programming code

Table C.40. Process Specification of Process 2.2.3.

Items	Description
Process Name	Print out via Customer's Default printer
Data In:	Quotation printing command
Data Out:	Programming run to print out via customer's printer
Process:	1. Receive printing command and Layout preview 2. Print out the Quotation detail 3. Update Quatation data
Attachment:	1. Quotation data store 2. Customer and /or visitor 3. Programming code

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Table C.41. Process Specification of Process 2.2.4.

Items	Description
Process Name	Confirm Printing status
Data In:	Printing receive command
Data Out:	Quotation details on printing status
Process:	1. Show Printing status linking to user's printer 2. Show details of completely print out and contact number if any problem occurred.
Attachment:	1. Customer and /or Visitor

Table C.42. Process Specification of Process 3.1.1.

Items	Description
Process Name	Provide Product & Service information
Data In:	Sales ordering information requested
Data Out:	On screen shows product & information On screen shows price information
Process:	1. Show product & Service informaiton on screen 2. Show price information on screen
Attachment:	1. Product & Service data store 2. Customer

Table C.43. Process Specification of Process 3.1.2.

Items	Description
Process Name	Add / remove to cart
Data In:	Order information
Data Out:	On screen shows order information
Process:	1. Add order to cart on screen 2. Remove order from cart on screen
Attachment:	1. Product data store 2. Order data store 3. Customer

Table C.44. Process Specification of Process 3.1.3.

Items	Description
Process Name	Calculate price
Data In:	Order information
Data Out:	On screen shows order information and total price
Process:	1. Receive order information on screen 2. Calculate price of ordering
Attachment:	1. Product & Service data store 2. Customer

Table C.45. Process Specification of Process 3.1.4.

Items	Description
Process Name	Update order
Data In:	Order information
Data Out:	Order record
Process:	1. Read order information 2. Verify the correctness of order information 3. Update order information into order database
Attachment:	1. Order data store 2. Marketing department 3. Customer

Table C.46. Process Specification of Process 3.1.5.

Items	Description
Process Name	Email order confirmation
Data In:	Order information
Data Out:	Email Order information response
Process:	1. Send order confirmation to customer on screen 2. Send order information to customer via email
Attachment:	1. Order data store 2. Customer

Table C.47. Process Specification of Process 3.2.1.

Items	Description
Process Name	Provide Portfolio/Consulting list
Data In:	Sales custom ordering information requested
Data Out:	On screen shows sample product & Service Portfolio On screen shows consulting list information
Process:	1. Show product & Service information on screen 2. Show portfolio list & consulting information
Attachment:	1 Product & Service data store 2 Customer 3. Marketing & Sales Department

Table C.48. Process Specification of Process 3.2.2.

Items	Description
Process Name	Provide Order form
Data In:	Sales custom ordering information requested
Data Out:	Custom Order command button linked to order form
Process:	1. Get order request form command from customer 2. Show Order form
Attachment:	1. Product & Service data store 2. Order Data store 3 Customer 4. Marketing & Sales Department

Table C.49. Process Specification of Process 3.2.3.

Items	Description
Process Name	Receive customer information & Preliminary setting data
Data In:	Custom order request, Customer data
Data Out:	On screen shows order information
Process:	1. Customer fill in the data & some technical setting data 2. Customer confirm custom order by press the accept command
Attachment:	1. Order data store 2. Customer

Table C.50. Process Specification of Process 3.2.4.

Items	Description
Process Name	Update custom order
Data In:	Custom order request & Customer information
Data Out:	Custom order information record
Process:	1. Read custom information 2. Verify the correctness of information 3. Update custom order information into order database
Attachment:	1. Order data store 2. Marketing & Sales department

Table C.51. Process Specification of Process 3.2.5.

Items	Description
Process Name	Email Order Confirm
Data In:	Order information
Data Out:	Email Order information response
Process:	1. Send order confirmation to customer on screen 2. Send order information to customer via email
Attachment:	1. Order data store 2. Customer

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Table C.52. Process Specification of Process 4.1.1.

Items	Description
Process Name	Provide online payment form
Data In:	Online payment request Ordering from Shopping cart system Ordering from Custom design and consulting Premium charge from Vendor
Data Out:	On screen shows Payment online form
Process:	1. Receive payment online request 2. On screen shows Payment online form
Attachment:	1. Payment data store 2. Billing data store 3. Order data store 4. Customer

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Table C.53. Process Specification of Process 4.1.2.

Items	Description
Process Name	Receive customer credit information
Data In:	Customer credit information
Data Out:	Onscreen customer credit & personal information
Process:	1. Receive customer credit information filled in the form 2. Verify the correctness of information
Attachment:	1. Payment data store 2. Customer data store 3. Customer

Table C.54. Process Specification of Process 4.1.3.

Items	Description
Process Name	Preview Payment transaction
Data In:	Preview online payment transaction command
Data Out:	Payment Transaction details
Process:	1. Receive Preview command request 2. Onscreen Preview Payment transaction detail
Attachment:	1. Payment data store 2. Customer

Table C.55. Process Specification of Process 4.1.4.

Items	Description
Process Name	Confirm Payment
Data In:	Preview online payment transaction command
Data Out:	Payment Transaction details
Process:	1. Show preview Payment transaction detail 2. Customer check the correctness 3. Customer confirm the preview payment detail by press the accept command
Attachment:	1. Payment data store 2. Customer

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Table C.56. Process Specification of Process 4.2.1.

Items	Description
Process Name	Validate payment transaction
Data In:	Customer preview payment confirmation details
Data Out:	Customer credit information & Payment detail
Process:	1. Read preview payment confirmation accepted by customer 2. Proceed the SIPS payment gateway solution linked to the Siam Commercial Bank 3. Validate online via payment gateway
Attachment:	1. Payment data store 2. Customer 3. Bank 4. SIPS payment gateway solution

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Table C.57. Process Specification of Process 4.2.2.

Items	Description
Process Name	Report transaction status
Data In:	Credit information checking for payment details via SIPS Payment gateway
Data Out:	Payment Transaction validating status
Process:	1. Online process validating payment transaction 2. Show validating status to confirm the payment transaction 4. Onscreen show detail of complete online payment transaction. The process will be successful until the end of this process.
Attachment:	1 Payment data store 2 Customer 3. Bank

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Table C.58. Process Specification of Process 4.2.3.

Items	Description
Process Name	Email Payment Confirmation
Data In:	Payment information
Data Out:	Payment confirmation
Process:	1. Receive the full successfully validating transaction detail from online payment gateway solution. 2. Onscreen received complete validating status for online payment with Payment Reference ID 3. Send Email automatically confirm this payment to customer with Payment reference ID
Attachment:	1. Bank, Payment data store 2. Customer

Table C.59. Process Specification of Process 4.3.1.

Items	Description
Process Name	Provide Banking instruction
Data In:	Customer's selection for Wire Transfer payment
Data Out:	Banking instruction & payment information
Process:	1. Receive customer's command selection for Wire Transfer payment 2. Provide banking instruction
Attachment:	1. Finance & Accounting Department 2. Customer

Table C.60. Process Specification of Process 4.3.2.

Process Name	Update Wire Transfer information
Data In:	Customer Wire Transfer payment details
Data Out:	Wire Transfer payment record
Process:	1. Read customer information from log on process 2. Update customer Wire transfer payment information into payment database
Attachment:	1. Customer data store 2. Payment data store 3. Customer

Table C.61. Process Specification of Process 5.1.1.

Items	Description
Process Name	Receive payment ID Reference
Data In:	Customer Payment ID Reference for download selected product & Service package
Data Out:	Customer Payment ID Reference checkout with Payment database
Process:	1. Receive customer Payment ID Reference Email & Onscreen confirm payment transaction 2. Check the correctness from Payment database 3. Confirm Customer for download product & Service process
Attachment:	1. Payment data store 2. Customer

Table C.62. Process Specification of Process 5.1.2.

Items	Description
Process Name	Display Download status
Data In:	Product & Service information and download instruction
Data Out:	Onscreen product & service information & Download instruction
Process:	1. Get Confirmation of ID Payment reference 2. Display download method & instruction
Attachment:	1. Product & Service data store 2. Payment data store 3. Customer

Table C.63. Process Specification of Process 5.1.3.

Items	Description
Process Name	Receive Download command
Data In:	Product & service download request
Data Out:	Product & Service response to download
Process:	1. Receive download command for product & service 2. Customer download the Product & Service with installation guide
Attachment:	1. Product & Service data store 2. Customer

Table C.64. Process Specification of Process 5.1.4.

Items	Description
Process Name	Report Download status
Data In:	Product & Service download with instruction
Data Out:	Onscreen product & service download status
Process:	1. Customer download the product & Service 2. Display download status of product & Service
Attachment:	1. Product & Service data store 2. Customer

Table C.65. Process Specification of Process 5.1.5.

Items	Description
Process Name	Confirm Email download notification
Data In:	Download status
Data Out:	Email and onscreen confirmation for downloading
Process:	1. Receive download product status 2. If completely download, send email and on screen confirmation to customer 3. If unsuccessfully download, provide instruction for customer to contact our technical support.
Attachment:	1. Product & Service data store 2. Technical support unit 3. Customer

Table C.66. Process Specification of Process 5.2.1.

Items	Description
Process Name	Receive payment ID reference
Data In:	Customer Payment ID Reference for Open service connection
Data Out:	Customer Payment ID Reference checkout with Payment database
Process:	1. Receive customer Payment ID Reference Email & Onscreen confirm payment transaction 2. Check the correctness from Payment database 3. Confirm Customer for download product & Service process
Attachment:	1. Payment data store 2. Customer

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Table C.67. Process Specification of Process 5.2.2.

Items	Description
Process Name	Open service
Data In:	Customer payment ID Reference and customer order details
Data Out:	Open service connection to customer as soon as we get completely payment
Process:	1. Receive ID Payment reference 2. Check customer Information and ordering 3. Open service connection to customer
Attachment:	1. Customer data store 2. Payment data store 3. Order data store 4. Customer

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Table C.68. Process Specification of Process 5.2.3.

Items	Description
Process Name	Email service connection to customer
Data In:	Completely Open service connection information from technical support unit
Data Out:	Service connection
Process:	1. As soon as the service connection is ready opened, Provide on screen and email confirmation to Customer. 2. Update modified customer & payment information into customer & Payment database
Attachment:	1. Customer data store 2. Payment data store 3. Customer

Table C.69. Process Specification of Process 6.1

Items	Description
Process Name	Update customer information
Data In:	Customer information
Data Out:	Customer record
Process:	1. Receive customer information from customer 2. Update modified customer information into customer database
Attachment:	1. Customer data store 2. Customer

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Table C.70. Process Specification of Process 6.2.

Items	Description
Process Name	Update product & Service information
Data In:	Product information
Data Out:	Product record
Process:	1. Receive product & Service including price information from marketing department 2. Update modified product and price information into product & service database
Attachment:	1. Product & Service data store 2. Marketing & Sales department

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Table C.71. Process Specification of Process 6.3.

Items	Description
Process Name	Update Sales transaction information
Data In:	Sales transaction information
Data Out:	Sales transaction record
Process:	1. Read sales transaction information 2. Read related information from order data store, payment data store, Marketing & Sales data store and Product & Service data store 3. Update modified Sales transaction information into sales transactions and related database
Attachment:	1. Marketing & Sale Department 2. Sales Transactions data store 3. Payment data store 4. Order data store 5. Product & Service data store 6. Marketing & Sales data store 7. Customer

Table C.72. Process Specification of Process 6.4.

Items	Description
Process Name	Update Vendor information
Data In:	Vendor and Vendor Order Item information
Data Out:	Vendor and Vendor Order Item record
Process:	1. Read Vendor & Vendor Order Item information 2. Read related information from Sales transaction data store, Billing data store, order data store, payment data store, Marketing & Sales data store and Product & Service data store 3. Update modified Vendor & Vendor Order Item information into Vendor and related database
Attachment:	1. Vendor & Vendor Order Item data store 2. Marketing & Sales department 3. Vendor

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Table C.73. Process Specification of Process 7.1.1.

Items	Description
Process Name	Receive Prospective customer information
Data In:	Prospect Customer information
Data Out:	Customer Newsletter membership record
Process:	1. Receive prospect customer information from customer to subscribe/unsubscribe for Electronic newsletter.
Attachment:	1. Customer data store 2. Customer

Table C.74. Process Specification of Process 7.1.2.

Items	Description
Process Name	Receive subscriber /unsubscriber command
Data In:	Subscriber /unsubscriber command
Data Out:	Customer Newsletter membership/ unsubscription request
Process:	1. User select unsubscriber /Unsubscriber command for newsletter membership
Attachment:	1. Customer

Table C.75. Process Specification of Process 7.1.3.

Items	Description
Process Name	Update Subscriber / un-subscriber list
Data In:	1. Customer information 2. Subscriber / un-subscriber confirmation for Newsletter membership
Data Out:	Customer Newsletter membership record
Process:	1. Receive prospect customer information from customer to subscribe/unsubscribe for Electronic newsletter. 2. Update modified or new Customer Newsletter membership in customer data store
Attachment:	1. Customer data store 2. Customer

Table C.76. Process Specification of Process 7.1.4.

Items	Description
Process Name	Email membership notification
Data In:	Customer membership / un-subscriber membership information
Data Out:	Customer Newsletter membership record
Process:	1. Updated Newsletter membership record 2. Provide onscreen and automatically email notification confirm the membership status and newsletter information
Attachment:	1. Customer data store 2. Customer

Table C.77. Process Specification of Process 7.1.5.

Items	Description
Process Name	Provide automatically weekly newsletter
Data In:	Customer Newsletter membership
Data Out:	Weekly Electronic Newsletter
Process:	1. Read customer membership for newsletter from customer data store 2. Provide Electronic Newsletter weekly to membership 3. Update detail & Content in Newsletter weekly
Attachment:	1. Marketing & Sales Department 2. Customer data store 3. Customer

Table C.78. Process Specification of Process 7.2.1.

Items	Description
Process Name	Provide categorized & Popular FAQ
Data In:	User's selection for FAQ link area
Data Out:	Onscreen categorized & Popular FAQ
Process:	Provide categorized & Popular FAQ
Attachment:	1. Technical support unit 2. Content editor 3. Customer

Table C.79. Process Specification of Process 7.2.2.

Items	Description
Process Name	Provide Web post question form
Data In:	Question help request or information from user /or customer
Data Out:	1. Onscreen Web post question form 2. Linked topic for customer selection
Process:	1. User select topic to post the question 2. Provide Web post question from
Attachment:	1. Programming code 2. Customer 3. Technical support

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Table C.80. Process Specification of Process 7.2.3.

Items	Description
Process Name	Receive Help request and posted question
Data In:	Help request & posted question
Data Out:	Help request & Posted question in file format Onscreen answering from posted question FAQ updated information
Process:	1. Receive Help request and posted question and keep in file format 2. Technical support will take responsibility for this posted question and send the information to content editor (webmaster) 3. Onscreen answering response to customer
Attachment:	1. Web post question file format record 2. Customer data store 3. Customer 4. Content editor

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Table C.81. Process Specification of Process 7.2.4.

Items	Description
Process Name	Update FAQ & Web post question frequently
Data In:	FAQ & Web post question
Data Out:	Updated FAQ & Web post question
Process:	1. Read posted question request from User 2. Provide web post question response on screen 3. Update FAQ & Topic link area
Attachment:	1. Technical support 2. Customer 3. Content Editor (Webmaster)

Table C.82. Process Specification of Process 7.3.1.

Items	Description
Process Name	Provide 'Tell your Friend' command
Data In:	'Tell your Friend' command linked to Viral Form
Data Out:	Onscreen 'Tell your Friend' Command button
Process:	1. Provide 'Tell your friend command' linked toViral Form
Attachment:	1. Customer 2. Web content editor

Table C.83. Process Specification of Process 7.3.2.

Items	Description
Process Name	Provide Viral Form
Data In:	Prospect Customer information
Data Out:	Onscreen Viral Communities form to promote the Web site
Process:	1. Receive 'Tell your Friend' Command request 2. Provide Viral Form to getting the prospect customer
Attachment:	1. Customer data store 2. Customer 3. Marketing & Sales Department

Table C.84. Process Specification of Process 7.3.3.

Items	Description
Process Name	Receive Prospective customer information
Data In:	Prospect Customer information
Data Out:	Prospect Customer record
Process:	1. Receive viral prospect customer information from current customer.and /or Visitor
Attachment:	1 Customer data store 2. Customer and /or Visitor

Table C.85. Process Specification of Process 7.3.4.

Items	Description
Process Name	Update Viral prospective customer
Data In:	Prospect Customer information
Data Out:	Viral Prospective customer
Process:	1 Receive viral prospect customer information from customer. 2. Update Viral Prospect customer into customer database
Attachment:	1. Customer data store 2. Customer and /or visitor

Table C.86. Process Specification of Process 7.3.5.

Items	Description
Process Name	Proceed Email Marketing
Data In:	Viral Prospect Customer information
Data Out:	Email marketing to promote web site
Process:	1. Read Viral prospect customer from customer data store 2. Proceed Email marketing to promote the web site
Attachment:	1. Customer data store 2. Customer 3. Marketing & Sales Department

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Table C.87. Process Specification of Process 7.4.1.

Items	Description
Process Name	Provide link to Online Help
Data In:	User's request for online help
Data Out:	Onscreen Online help program communicate with Technician or Marketing service support
Process:	1. Provide link to online help 2. Receive User's request for online help.
Attachment:	1. Programming Tool 2. Technical support & Marketing service 3. Customer

Table C.88. Process Specification of Process 7.4.2.

Items	Description
Process Name	Load Online Help software
Data In:	User's command selection linked to Online Help software
Data Out:	Onscreen online help software and instruction
Process:	1. Receive request for Online help 2. Load Online Help software with instruction
Attachment:	1. Online Help software 2. Technical support & Marketing service 3. Customer

Table C.89. Process Specification of Process 7.4.3.

Items	Description
Process Name	Report online status to Customer
Data In:	User request for Online Help by clicking the online help button
Data Out:	Onscreen Loading Online Help software and Online status from both user and technician
Process:	1. Loading Online Help request software 2. Report online availability status to customer
Attachment:	1. Online Help software 2. Technical support & Marketing service 3. Customer

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Table C.90. Process Specification of Process 7.4.4.

Items	Description
Process Name	Chat online between customer & Technician
Data In:	2- way communication between User's Help request and Technical /or marketing support response
Data Out:	2- way communication between User's Help request and Technical /or marketing support response
Process:	1. Receive user's Help request online 2. Technical support & Marketing service who is available online response back the request 3. 2- way communication between User and Technician or Marketing support
Attachment:	1. Online Help software 2. Technical support & Marketing service 3. Customer

Table C.91. Process Specification of Process 7.5.1.

Items	Description
Process Name	Provide help contact link
Data In:	User's selection to Help contact staff link
Data Out:	Onscreen link to technical & Marketing service support
Process:	Receive command link to contact for help
Attachment:	1. Technical support & Marketing service 2. Customer

Table C.92. Process Specification of Process 7.5.2.

Items	Description
Process Name	Generate Default customer's Email software
Data In:	User's selection to contact staff for Help
Data Out:	Onscreen pop-up customer Email software with email Contact of staff
Process:	1. Receive command from user for help via email 2. Generate email contact of staff linked to user's Default email software 3. Receive email requested for help from user
Attachment:	1. Technical support & Marketing service 2. Customer

Table C.93. Process Specification of Process 7.5.3.

Items	Description
Process Name	Confirm automatic Email notification
Data In:	Email request for help form user
Data Out:	Automatic Email confirmation sending to user
Process:	1. Receive email request for help 2. Generate email confirmation for help request back to user automatically
Attachment:	1. Technical support & Marketing service 2. Customer

Table C.94. Process Specification of Process 7.6.1.

Items	Description
Process Name	Provide Categorized knowledge page
Data In:	User's selection on Developer & knowledge area page
Data Out:	Onscreen categorized technical knowledge topic
Process:	1. Receive user's selection to Developer & knowledge area page 2. Provide Categorized knowledge link
Attachment:	1. Technical & Marketing support 2. Customer 3. Web content editor (webmaster)

Table C.95. Process Specification of Process 7.6.2.

Items	Description
Process Name	Update link & Content
Data In:	Developer & Technical knowledge information
Data Out:	Updated developer & Technical knowledge information
Process:	1. Update Developer & Technical knowledge information frequently
Attachment:	1. Technical & Graphic design & Operation division 2. Web content editor (Webmaster) 3. Customer

Table C.96. Process Specification of Process 8.1.1.

Items	Description
Process Name	Receive Authorized staff ID & Password
Data In:	Authorized staff ID & Password
Data Out:	Onscreen Login form for Report generating area
Process:	1. Receive request to log-on to Report generating area 2. Receive Authorized staff Login ID & Password 3. Check access permission & level control with Program access data store
Attachment:	1. Program Access data store 2. Authorized staff (Marketing & Sales staff) 3. Marketing & Sales data store

Table C.97. Process Specification of Process 8.1.2.

Items	Description
Process Name	Report Status and Access level
Data In:	Authorized staff's request to log in to report generating area information
Data Out:	Onscreen checking the access permission & control Level
Process:	1. Read and check the Access permission & control level from Program Access data store 2. Report status to authorized staff
Attachment:	1. Program Access data store 2. Authorized staff (Marketing & Sales staff) 3. Marketing & Sales data store

Table C.98. Process Specification of Process 8.1.3.

Items	Description
Process Name	Update Access control
Data In:	Authorized staff ID & Password confirmed with authorized log in permission status
Data Out:	Updated Authorized staff accession
Process:	1. Read authorized staff accession permission and keep in Program access data store
Attachment:	1. Program Access data store 2. Authorized staff (Marketing & Sales staff)

Table C.99. Process Specification of Process 8.2.1.

Items	Description
Process Name	Provide information & Query area
Data In:	Authorized staff request for specific report generating
Data Out:	Onscreen Report generating page and query area
Process:	1. Receive request to query/filter the report from authorized staff 2. Receive the preliminary data for query/filtering processing
Attachment:	1. Authorized staff ID 2. Related report generating data store 3. Report data store

Table C.100. Process Specification of Process 8.2.2.

Items	Description
Process Name	Process Queries/Filtering
Data In:	Preliminary data for report generating process
Data Out:	Onscreen Query/Filtering form to get the preliminary Data from authorized staff
Process:	1. Receive Preliminary data to generate the specific report 2. Read query/filter information from related data store
Attachment:	1. Authorized staff ID 2. Related report generating data store 3. Report data store

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Table C.101. Process Specification of Process 8.2.3.

Items	Description
Process Name	Report Query Status
Data In:	Authorized staff request to filter/query data to generate the specific report
Data Out:	Onscreen report query status
Process:	1. Receive command to confirm request for query/filter data for report generating 2. Process query/filter with the related data store 3. Report status to authorized staff 4. Preview Report details from querying/filtering process
Attachment:	1. Authorized staff ID 2. Related report generating data store 3. Report data store

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Table C.102. Process Specification of Process 8.3.1.

Items	Description
Process Name	Generate customer report
Data In:	Customer information
Data Out:	Customer report
Process:	1. Read customer information 2. Generate format of customer report from filtering process 3. Receive printing request command 4. Print out customer report for marketing & Sales department
Attachment:	1. Customer data store 2. Marketing & Sales department 3. Report data store 4. Authorized staff

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St. Gabriel's Library, Au

Table C.103. Process Specification of Process 8.3.2.

Items	Description
Process Name	Generate sales transaction report
Data In:	Sales transaction information and related information(Billing information, Order information, Payment information, Quotation information, etc)
Data Out:	Sales report
Process:	1. Read Sales transaction information and related information from data store 2. Generate format of sales report from filtering process 3. Receive printing request command 4. Print out sales report for marketing department 5. Print out sales report for Management level 6. Print out sales report for Finance & accounting department
Attachment:	1. Sales transaction data store 2. Order data store 3. Payment data store 4. Billing data store 5. Product & Service data store 6. Quotation data store 7. Report data store 8. Marketing & Sales department 9. Management & Authorized staff 10. Finance & Accounting department

Table C.104. Process Specification of Process 8.3.3.

Items	Description
Process Name	Generate vendor report
Data In:	Vendor & Vendor order item information
Data Out:	Vendor & Vendor order item transaction report
Process:	1. Read vendor & Vendor order item information and related information from database 2. Generate format of Vendor & Vendor order item report from filtering process 3. Receive Request printing command 4. Print out Vendor & Vendor order item transaction report for Vendor and marketing & Sales department
Attachment:	1. Vendor & Vendor Order Item data store 2. Sales transaction data store and related information for other database 3. Report data store 4. Marketing & Sales department 5. Vendor 6. Authorized staff

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Table C.105. Process Specification of Process 8.3.4.

Items	Description
Process Name	Generate product & Service report
Data In:	Product & Service information
Data Out:	Product & Service report
Process:	1. Read Product & Service information 2. Generate format of Product & Service report from filtering process 3. Receive printing request command 4. Print out product & service report for Technical graphic design & Operation department, Marketing & Sales department
Attachment:	1. Product & Service data store 2. Technical graphic design & Operation department 3. Marketing & Sales department 4. Authorized staff 5. Report data store

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APPENDIX D

E-R DIAGRAM & DATABASE DESIGN

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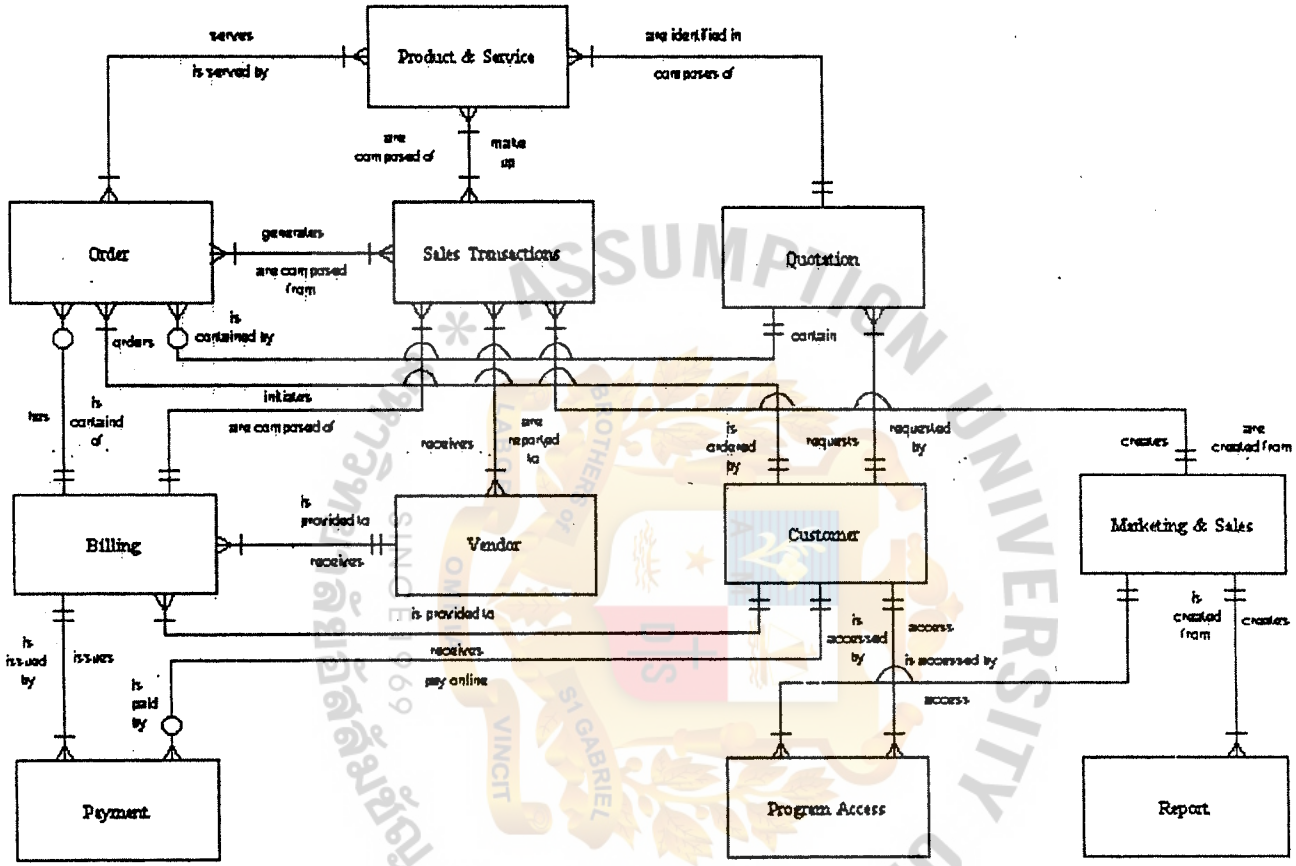

Figure D.1. Context Diagram Data Model.

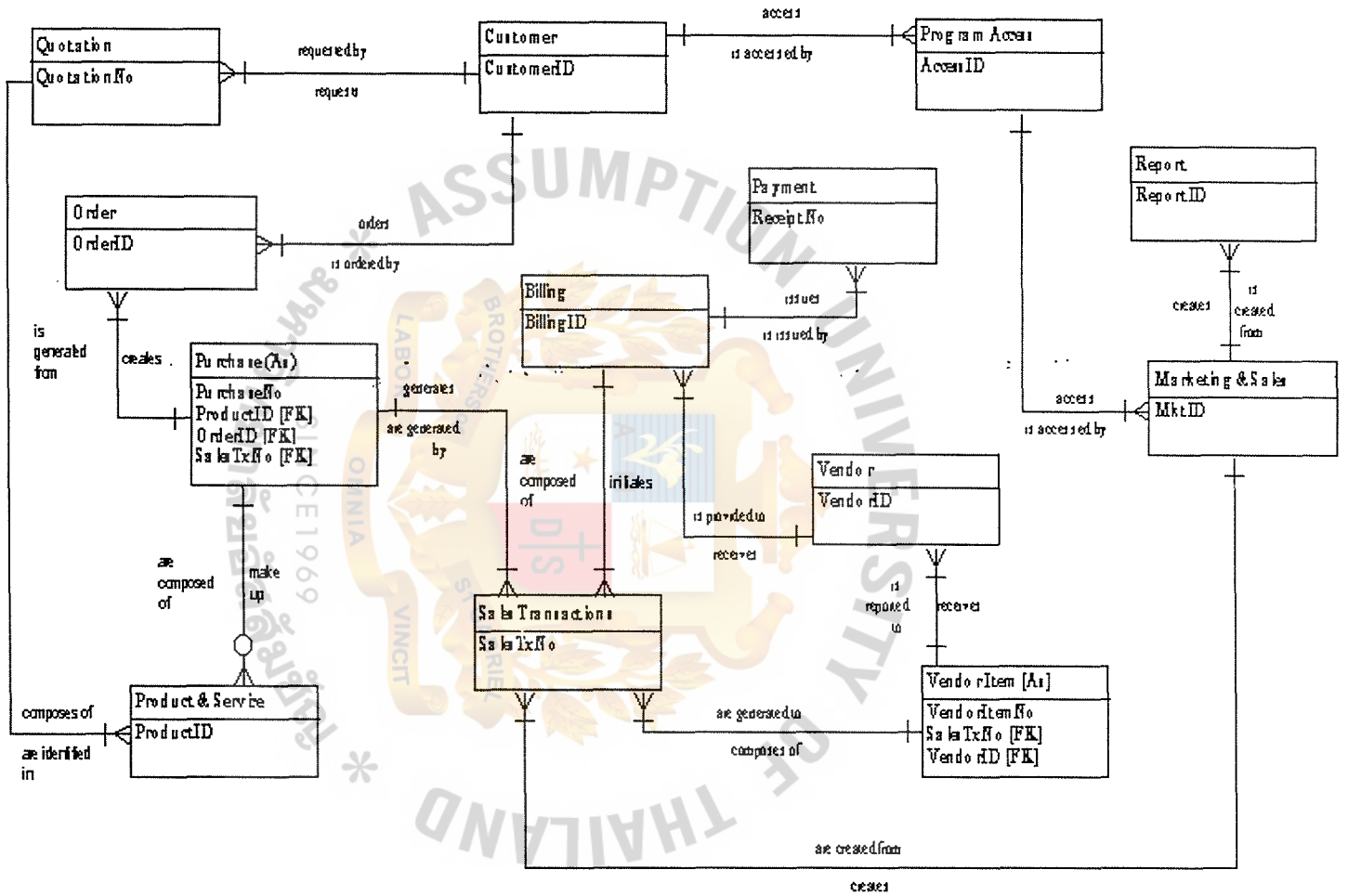

Figure D.2. Key Based Data Model.

St. Gabriel's Library, AU

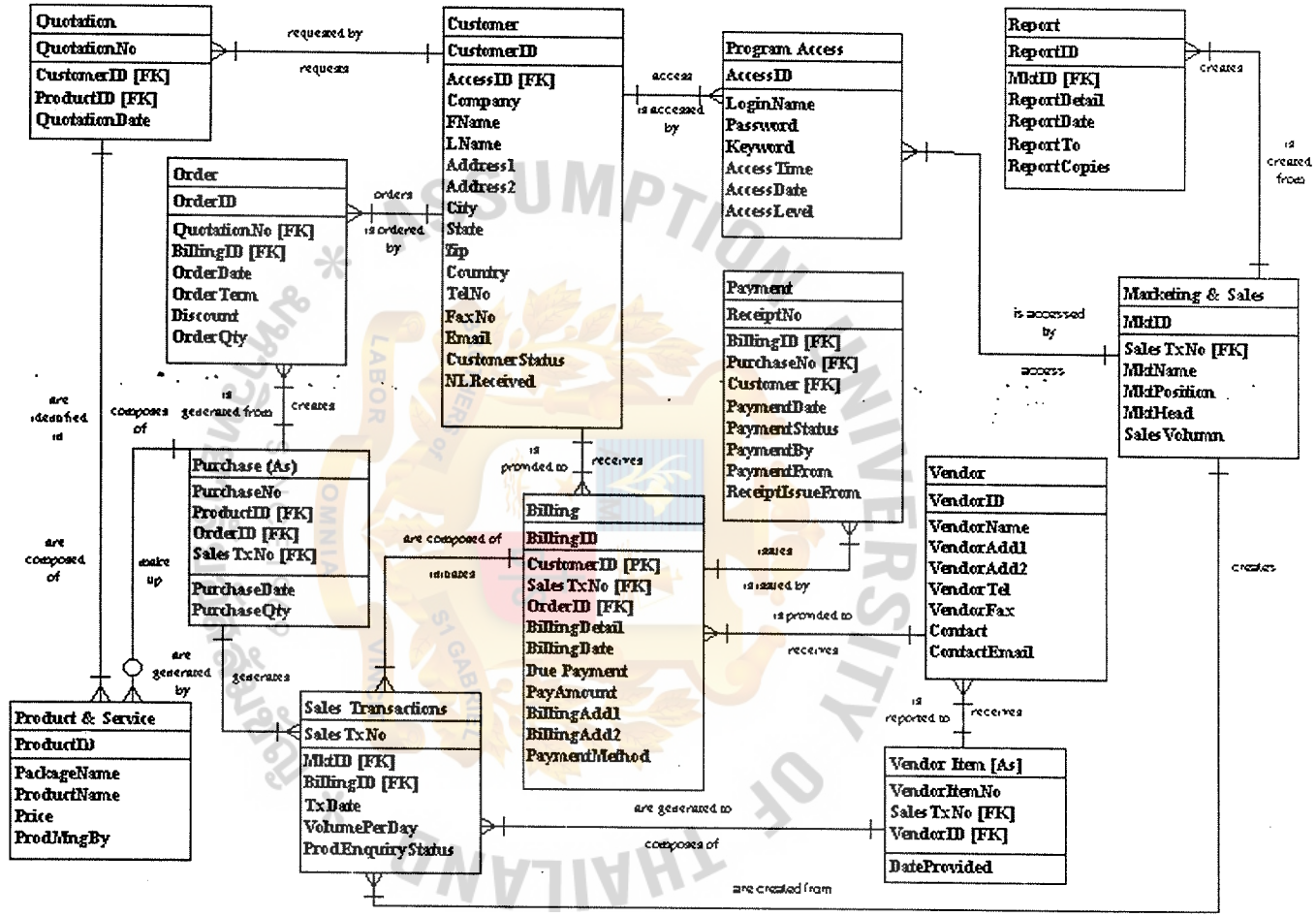

Figure D.3. Fully Attribute Data Model.

APPENDIX E

WEB INTERFACE DESIGN

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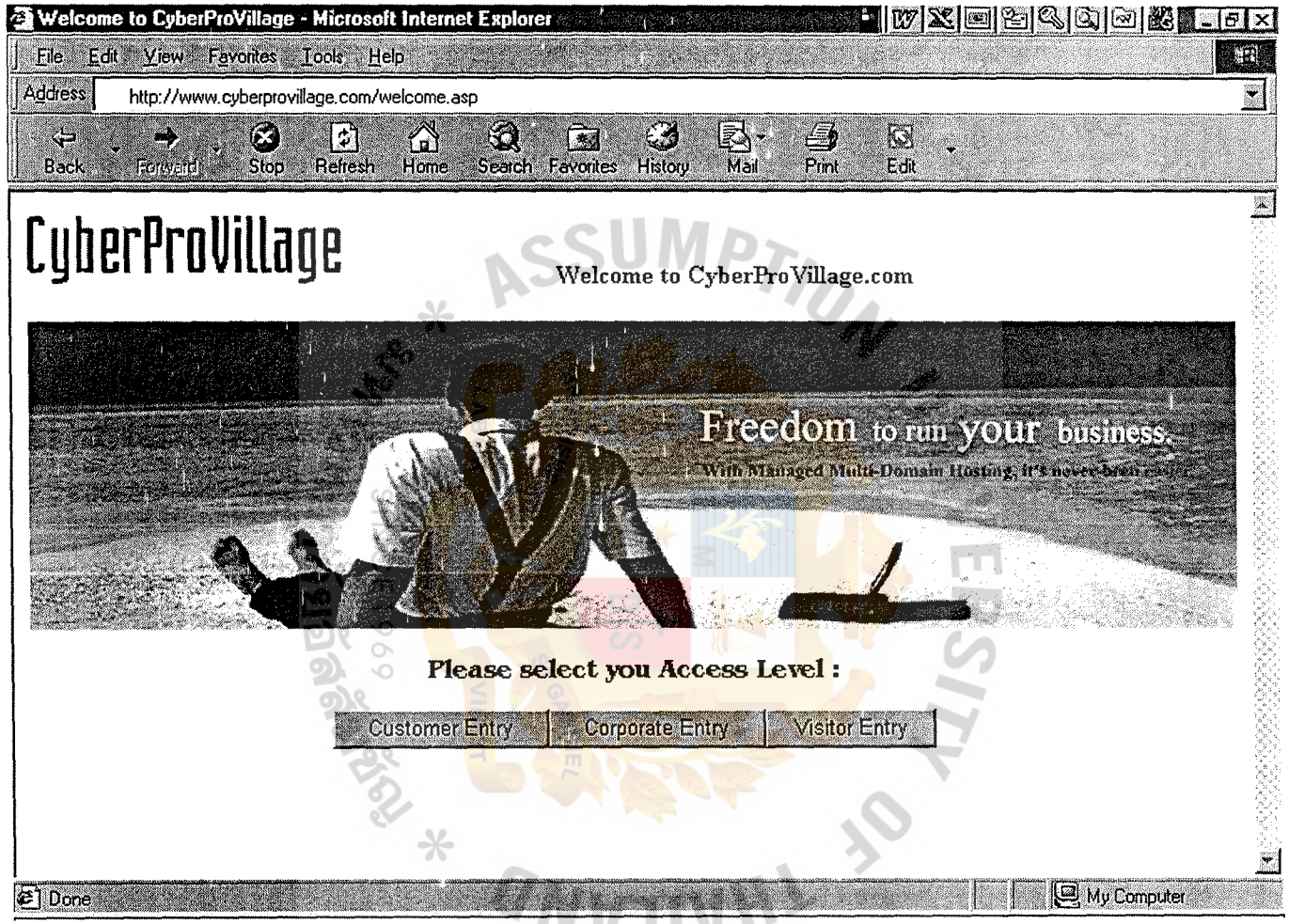

Figure E.1. The Beginning Page of CyberProVillage.com for Web Accession.

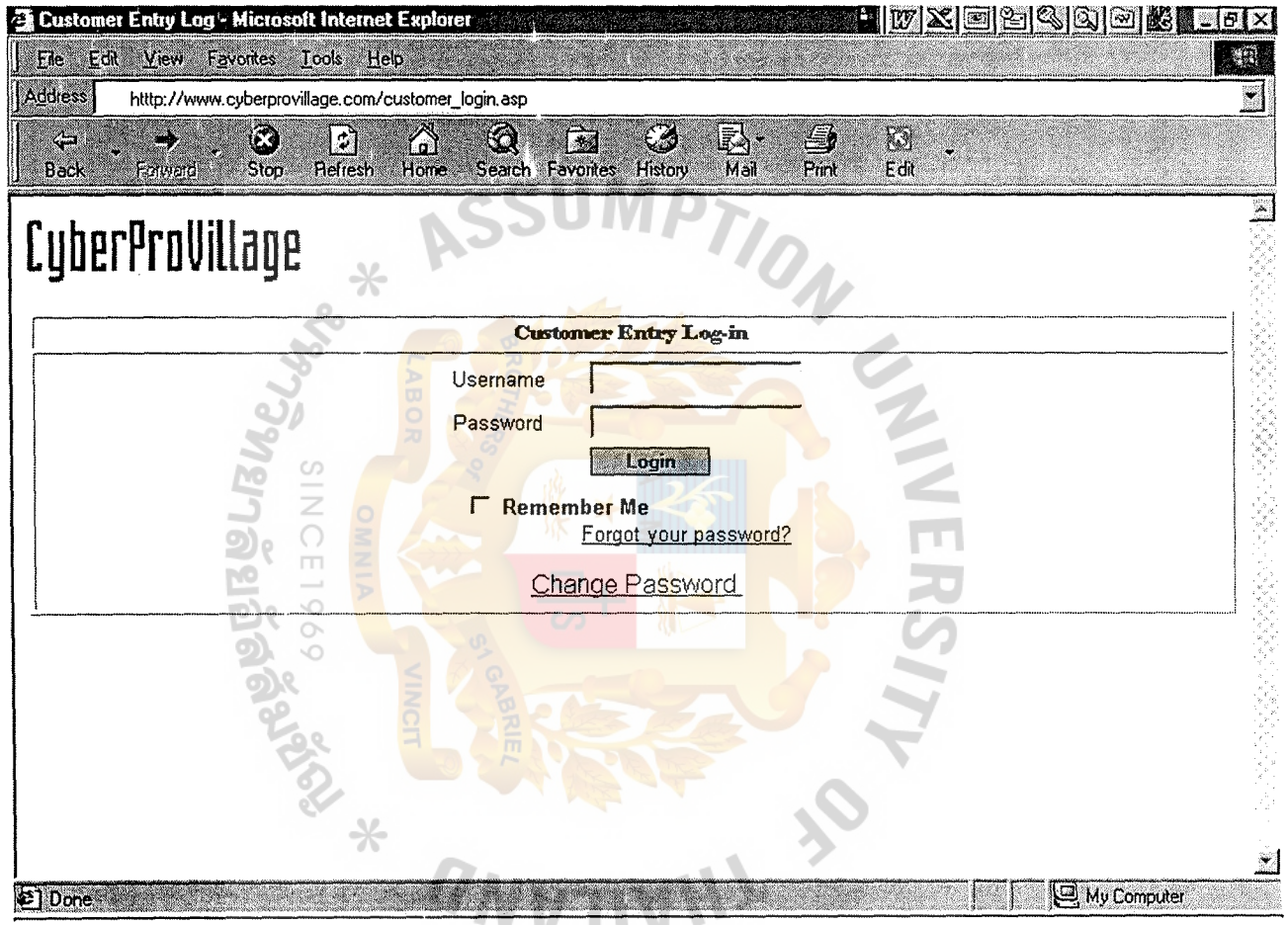

Figure E.2. Customer Entry Page.

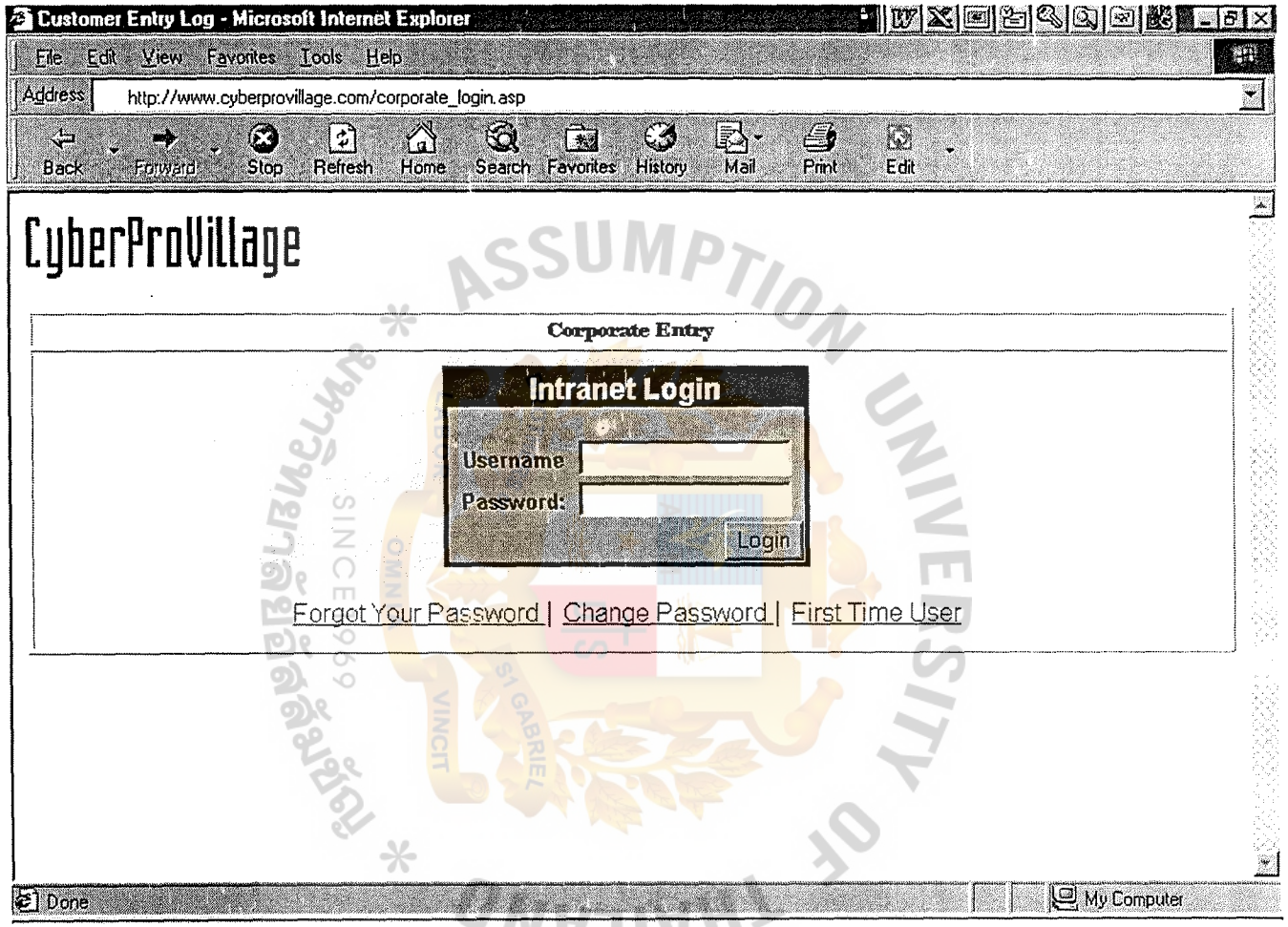

Figure E.3. Corporate Entry Page.

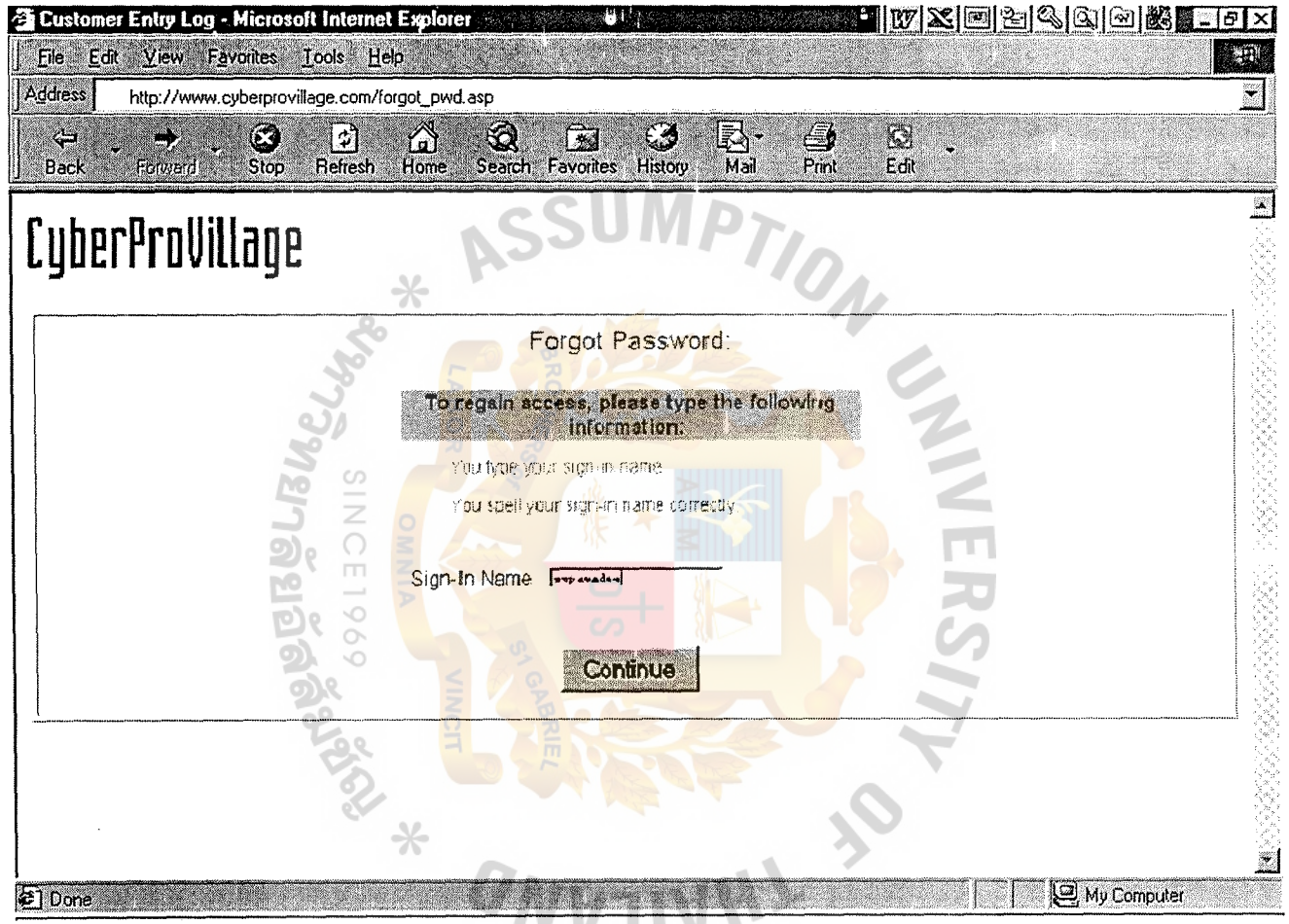

Figure E.4. Forgot Password Form Page.

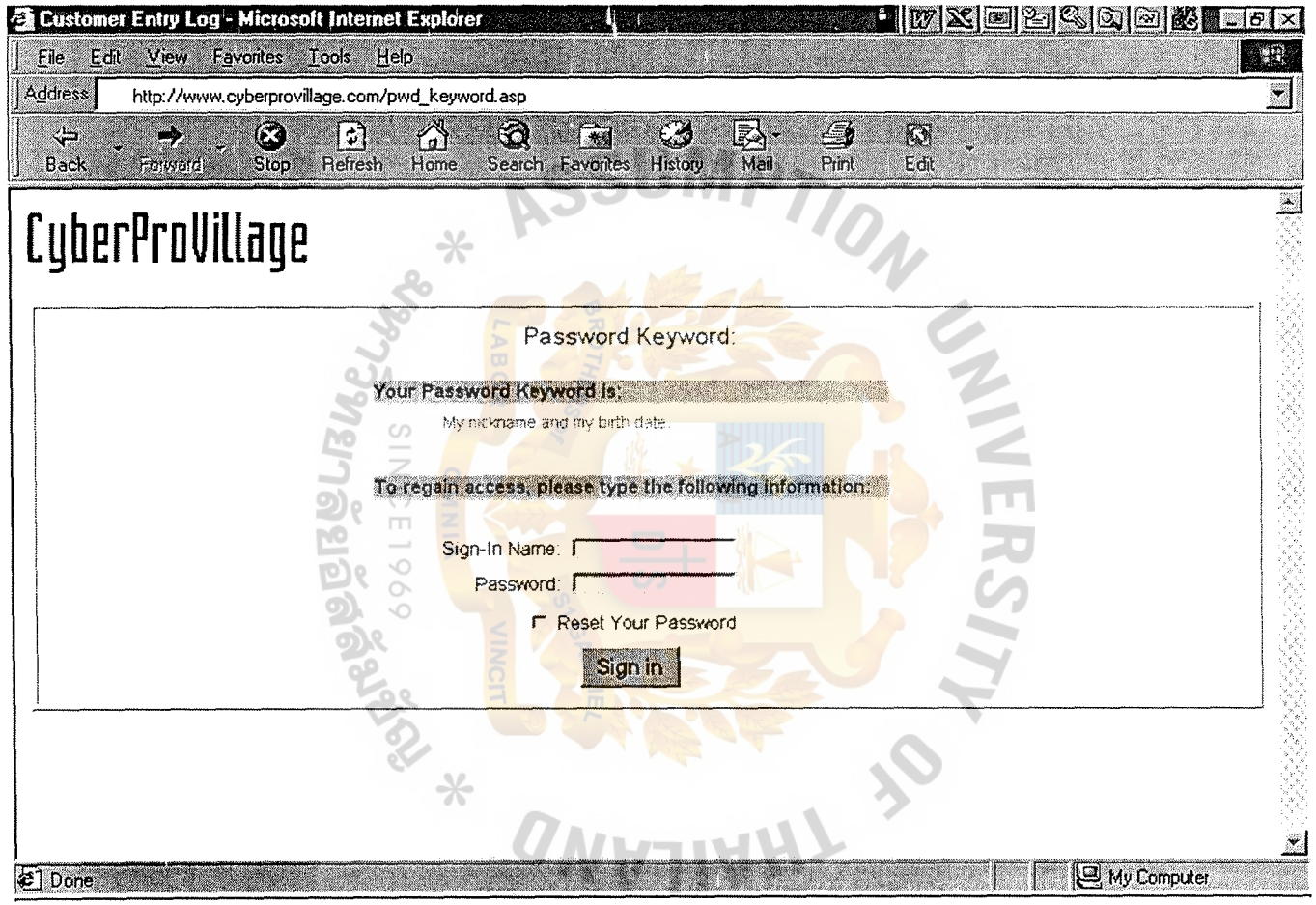

Figure E.5. Provide Password Keyword Page.

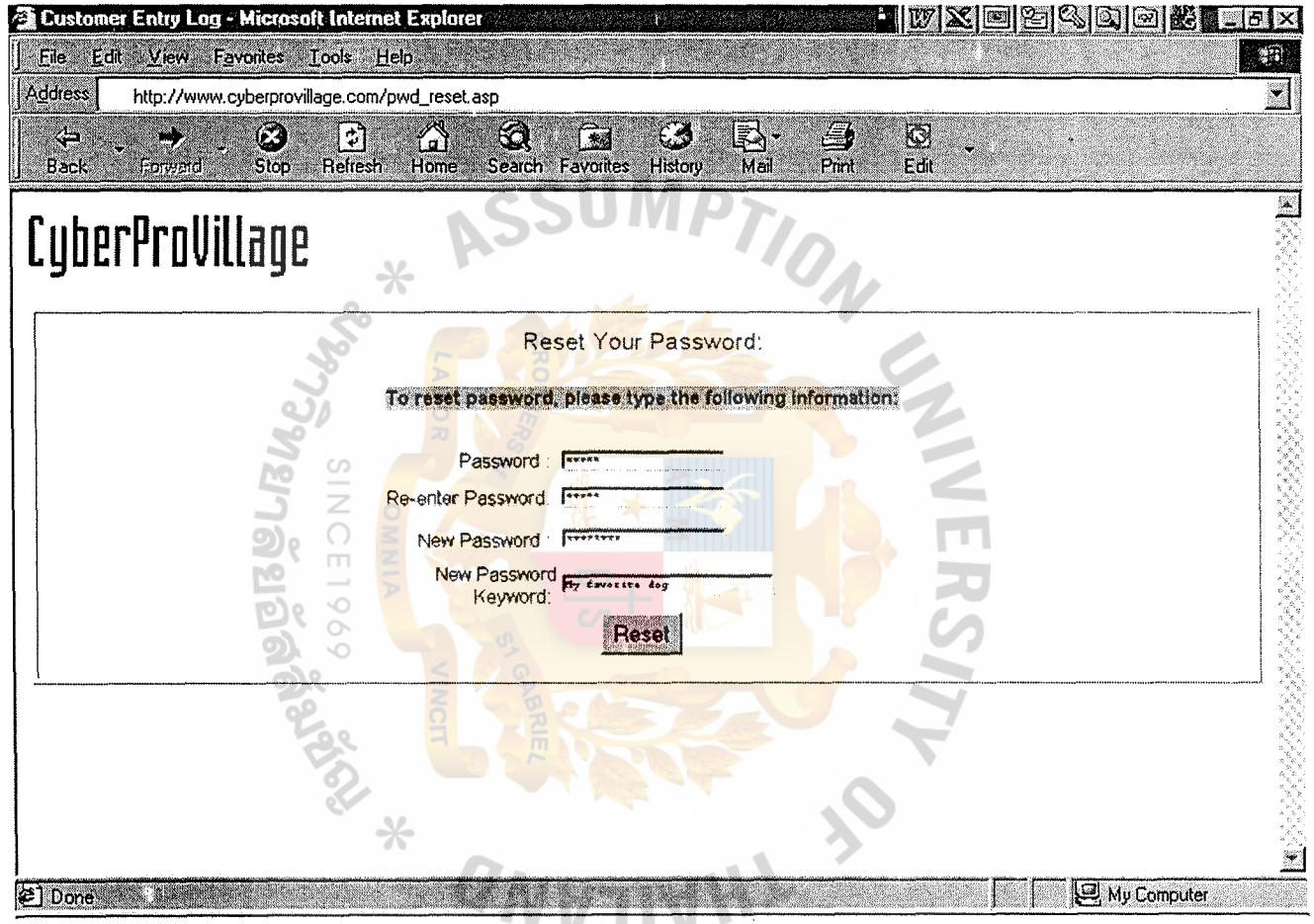

Figure E.6. Reset Password Page.

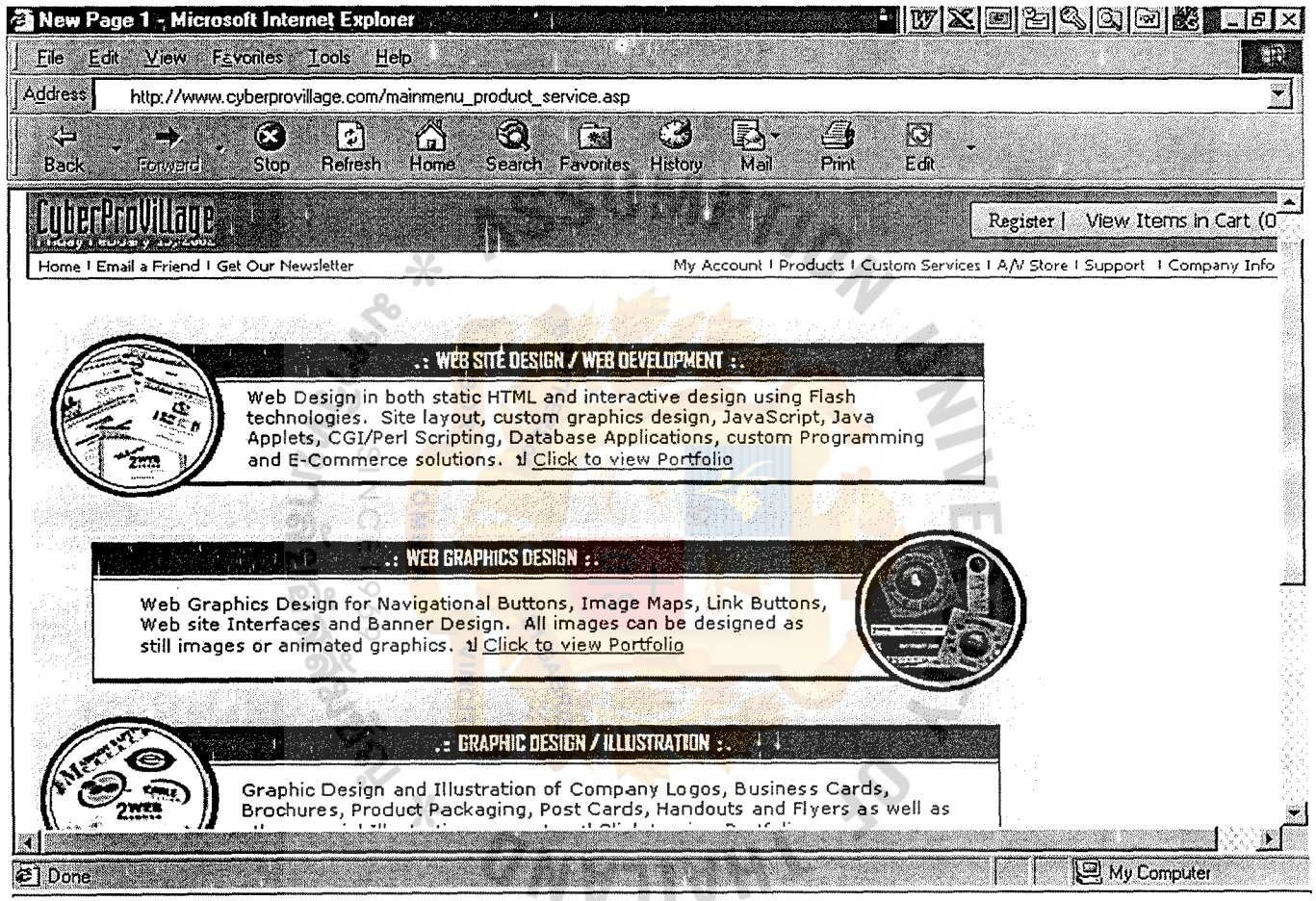

Figure E.7. CyberProvillage Main Menu and List of Product & Service.

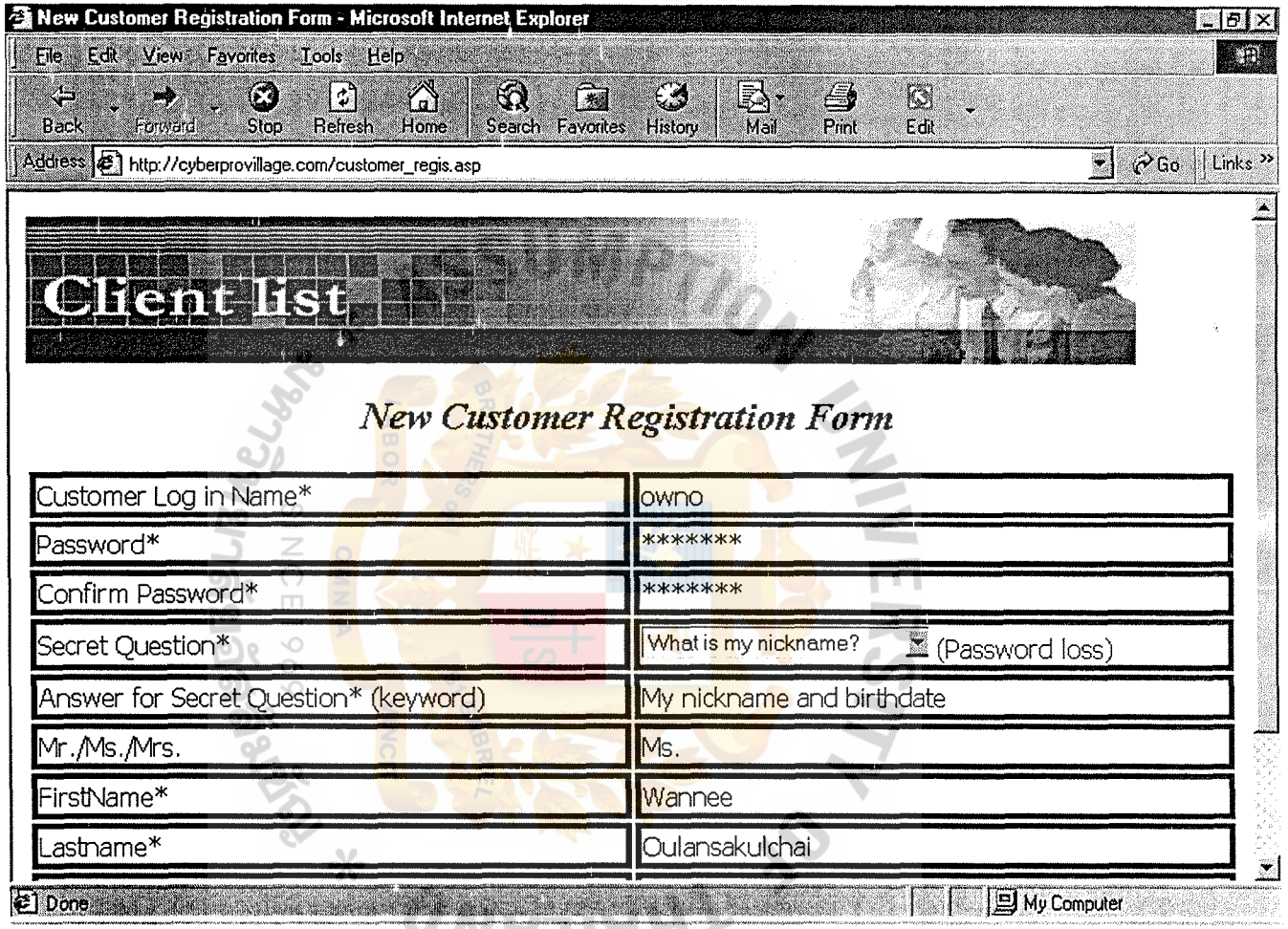

Figure E.8. The New Customer Registration Page.

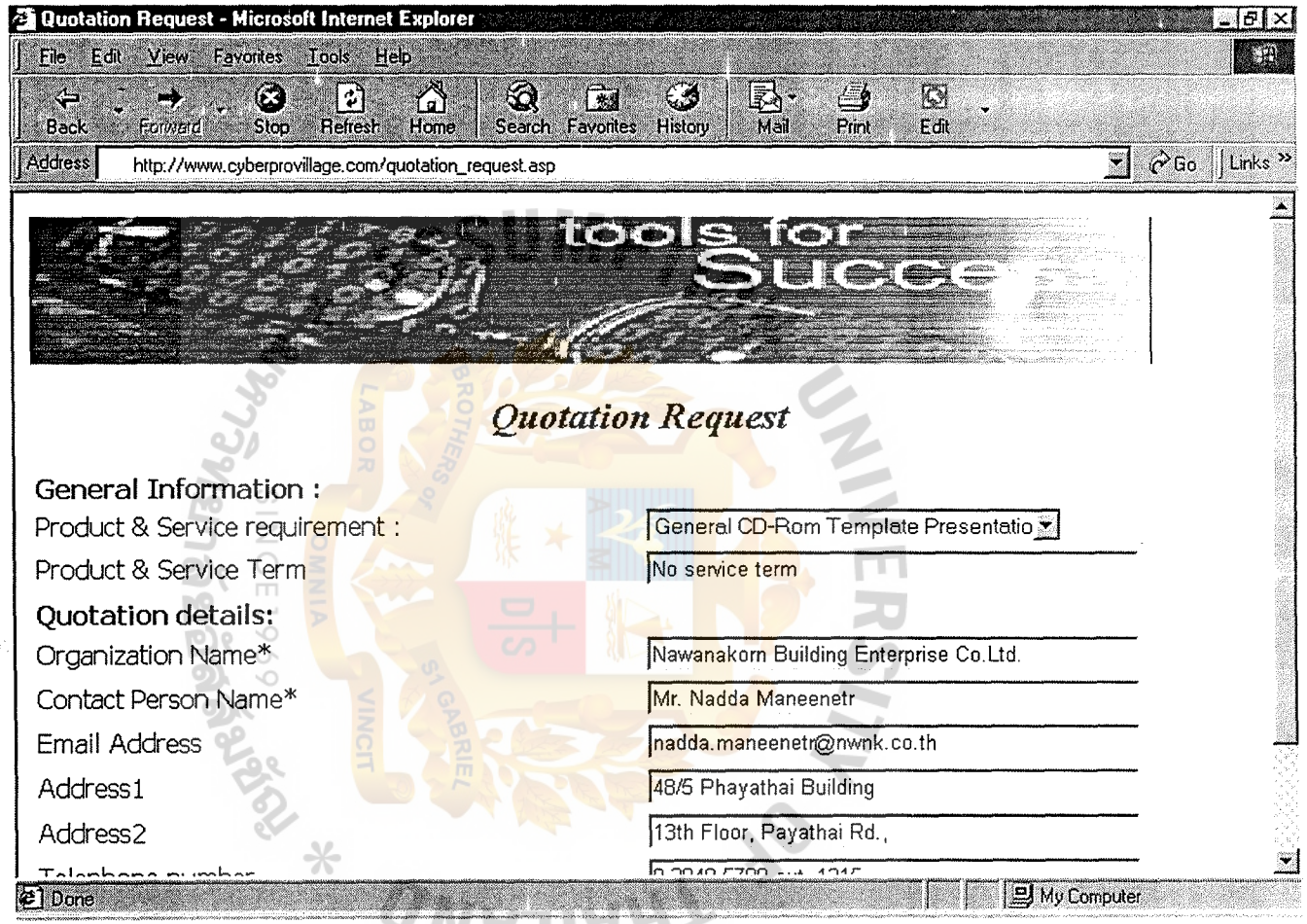

Figure E.9. The Quotation Request Page.

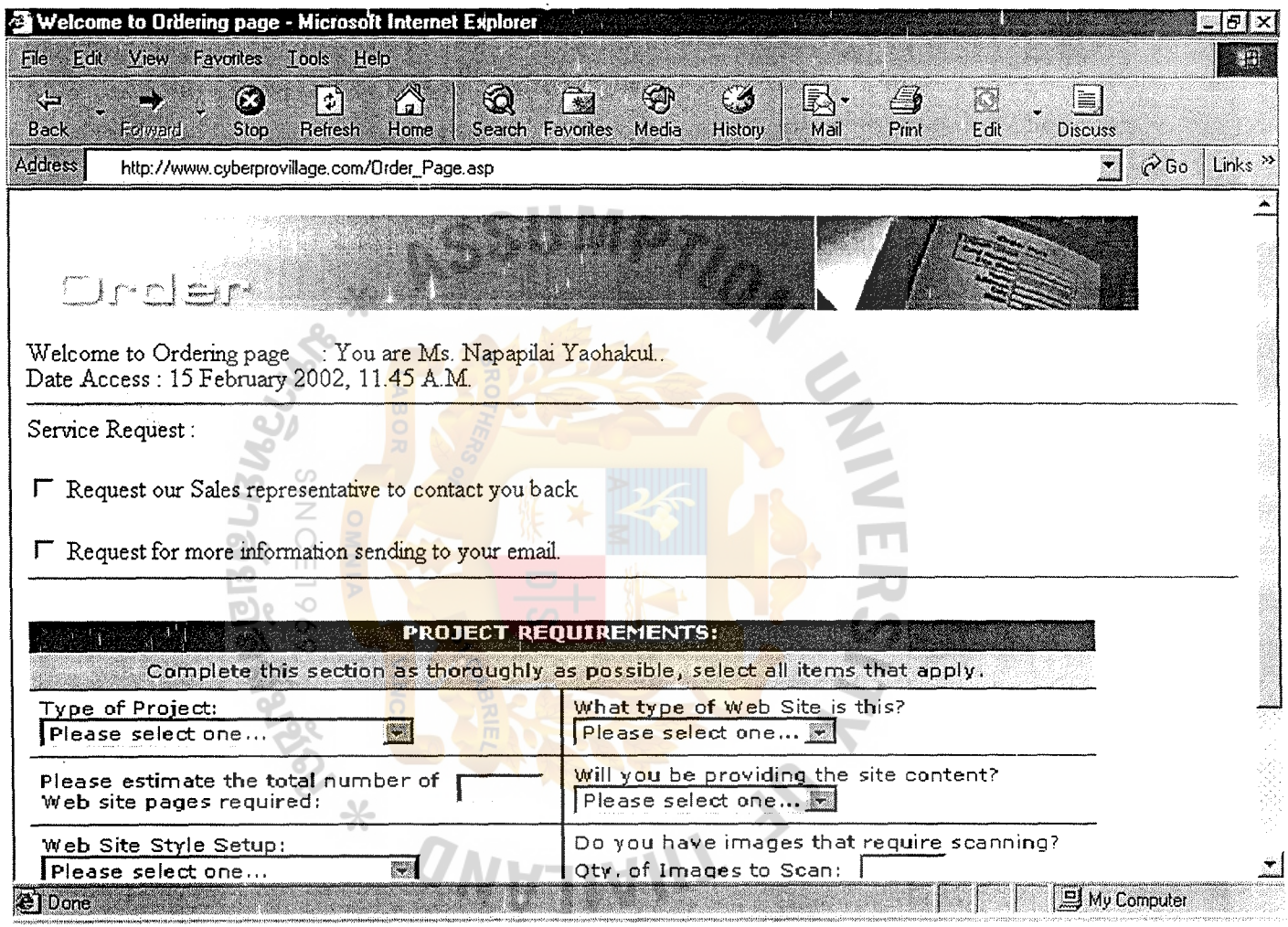

Figure E.10. The Product & Service Order Request Page.

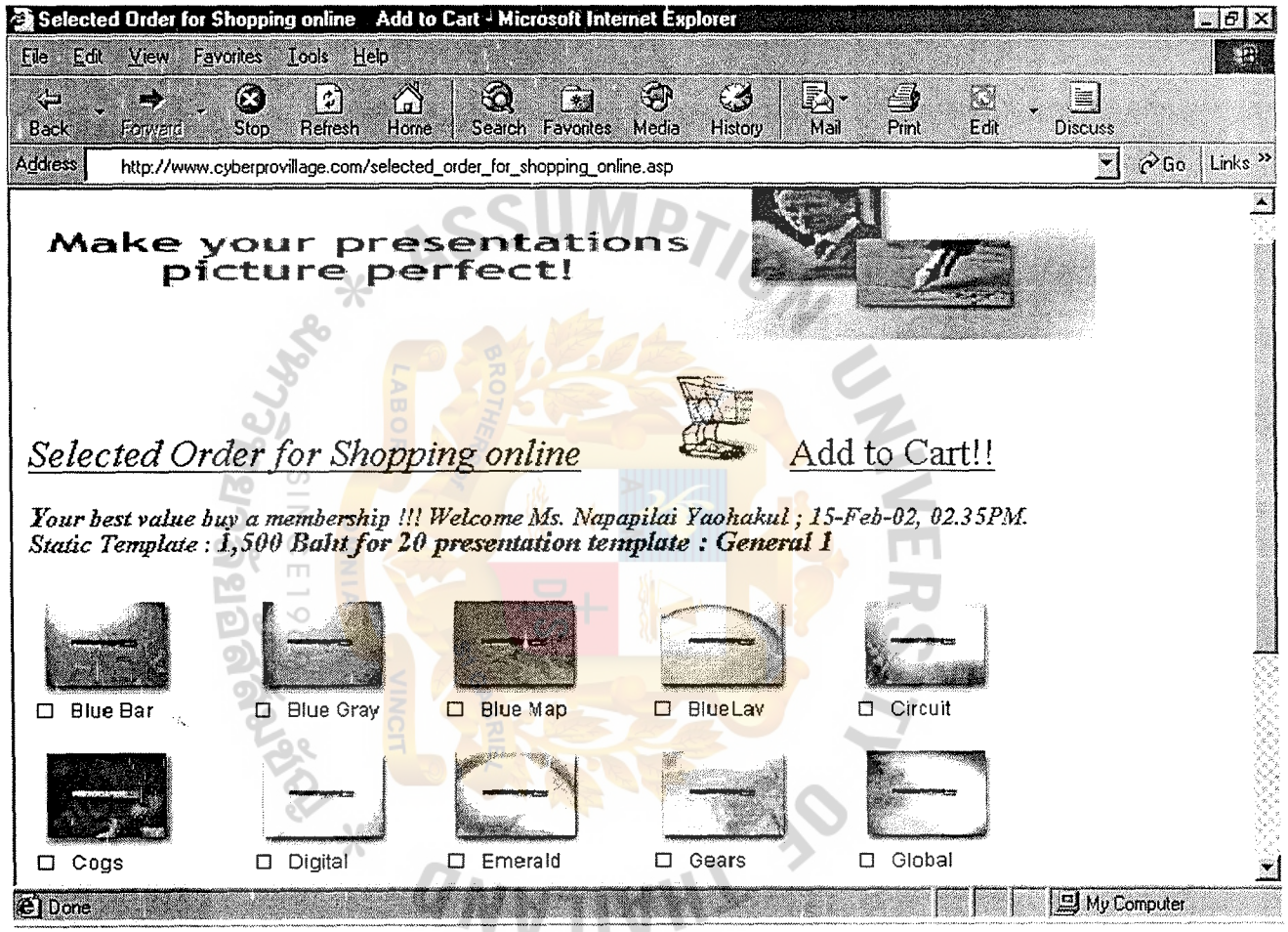

Figure E11. The Product & Service Order for Online Shopping Cart Page.

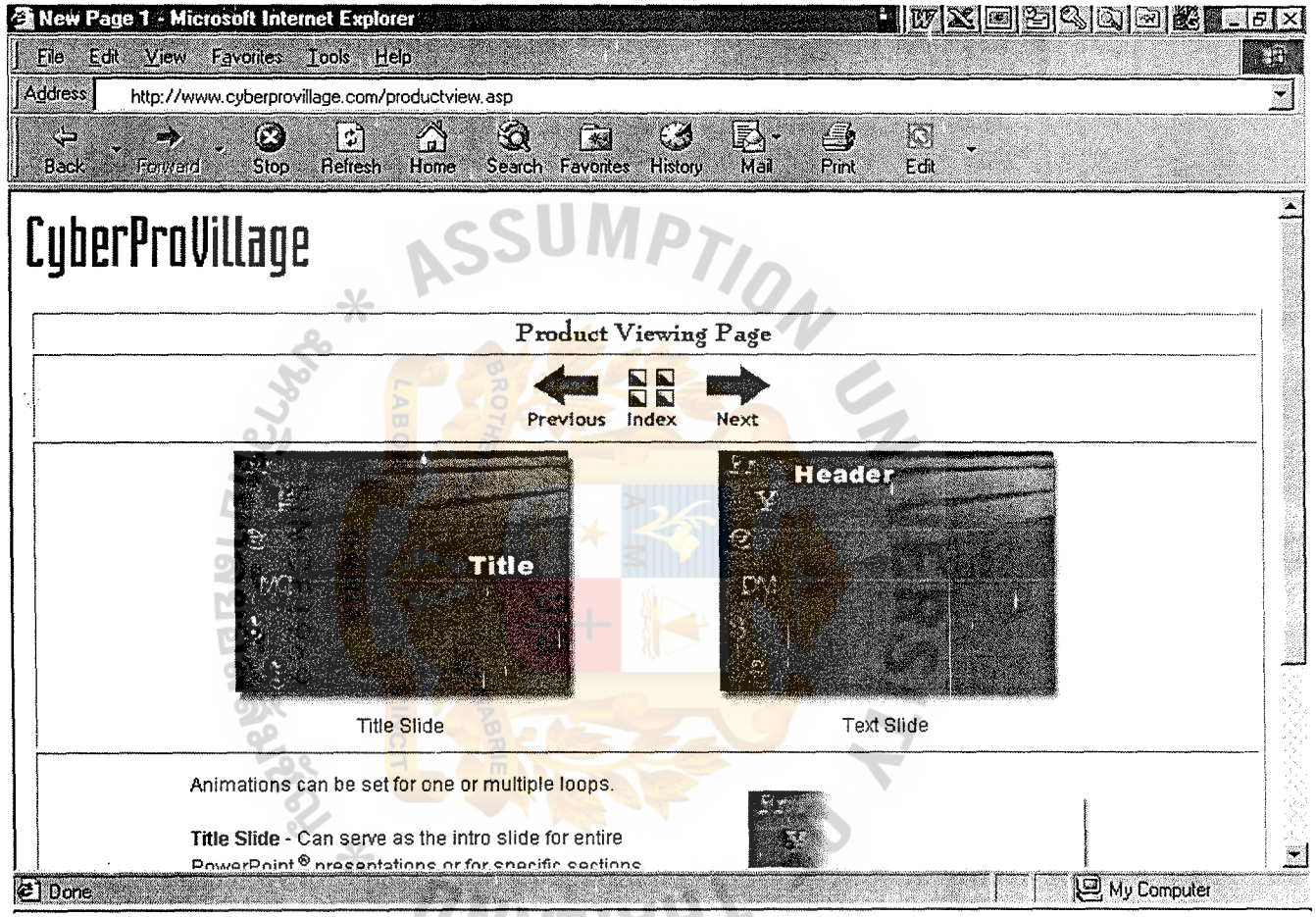

Figure E.12. The Product Viewing Page.

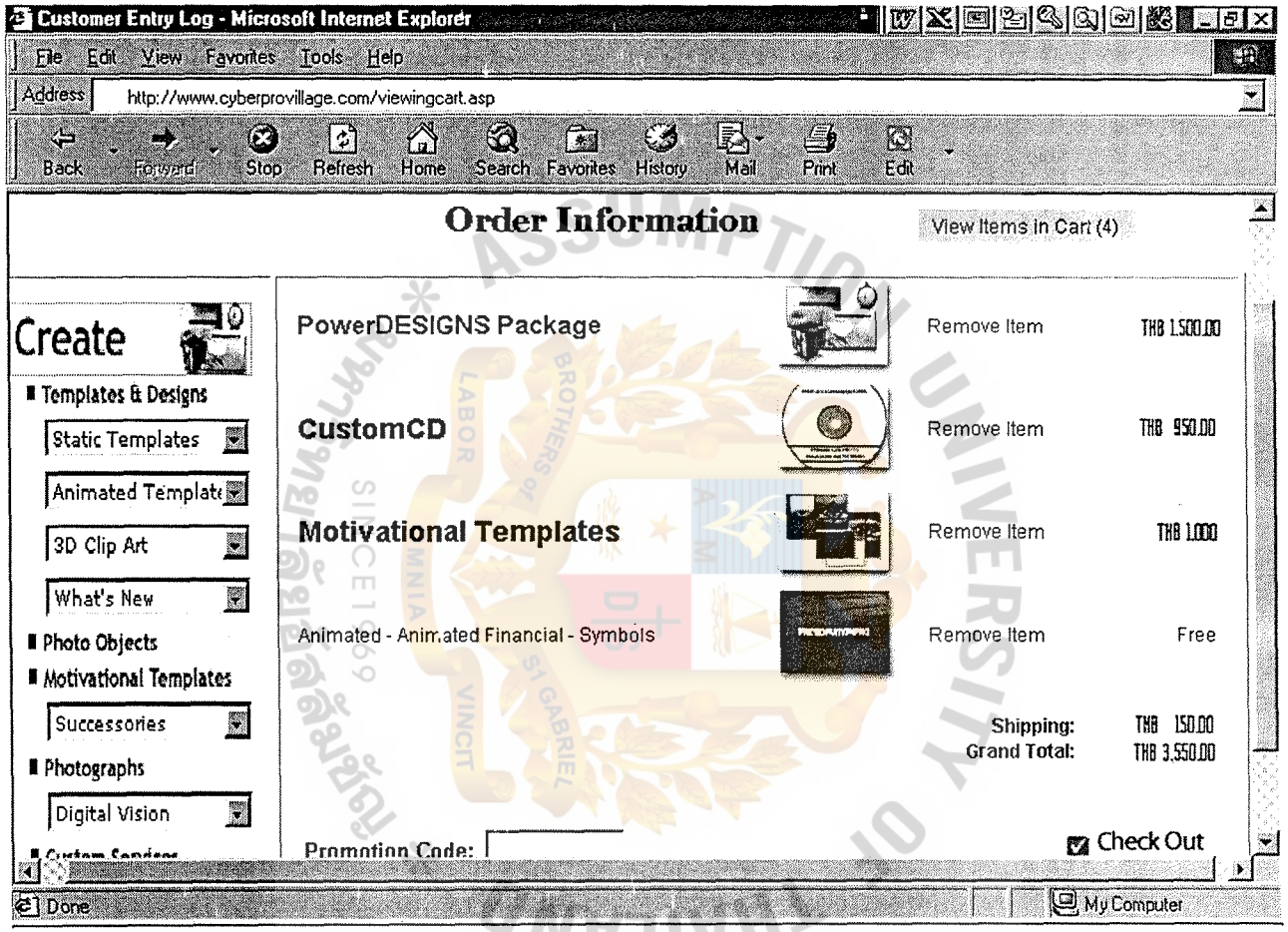

Figure E.13. Order Information Viewing Page.

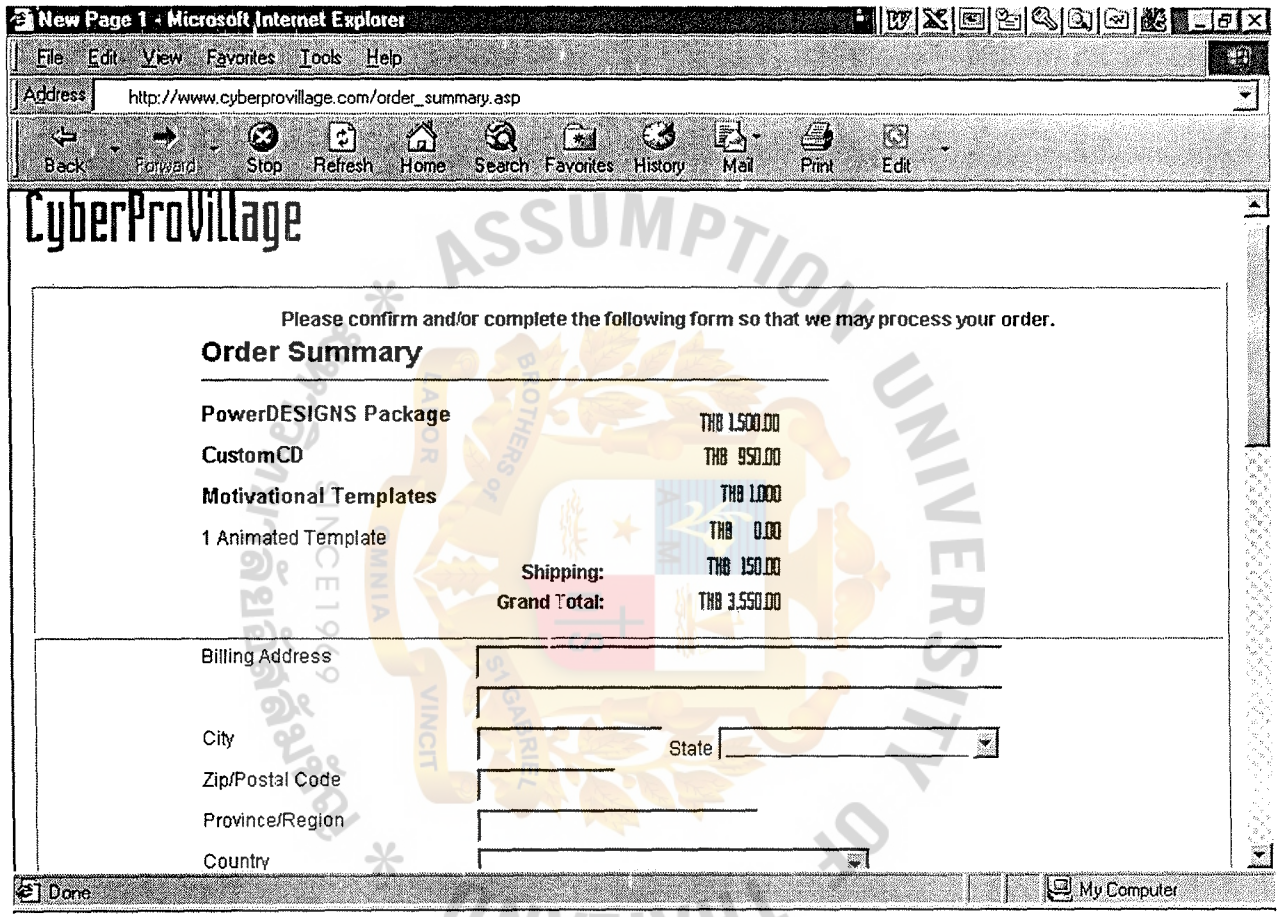

Figure E.14. The Order Summary Page.

New Page 1 - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://www.cyberprovillage.com/order_summary.asp

Back Forward Stop Refresh Home Search Favorites History Mail Print Edit

* City

* State

* Zip/Postal Code

Province/Region

*Country

*Phone

* How did you hear about us?

☑ Billing and Shipping addresses are the same.

Payment Information

Name must be as it appears on your card

* First Name

* Last Name

* Payment Method Visa

* Card Number **(No spaces or hyphens please)**

* Expiration Date **mmyy or mm/yy**

I agree and accept the information identified above for this order transactions.

Submit Transaction Now

Done My Computer

Figure E.15. The Order Summary Page-Payment Details.

Figure E.16. The Shopping Cart System for AV Store – Sharp Co., Ltd.

St. Gabriel's Library, Au

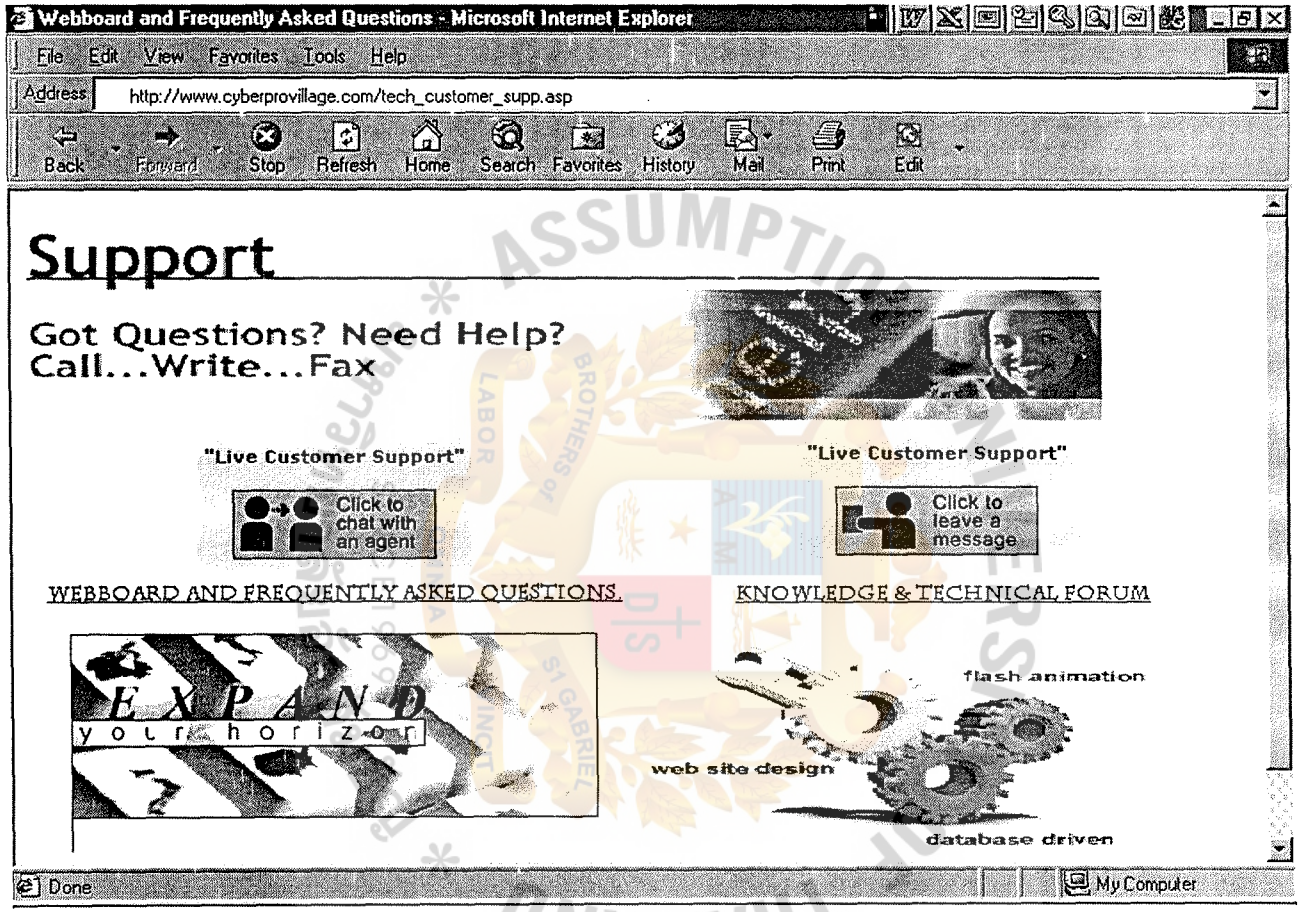

Figure E.17. The Main Menu for the Technical and Marketing Support Overview Page.

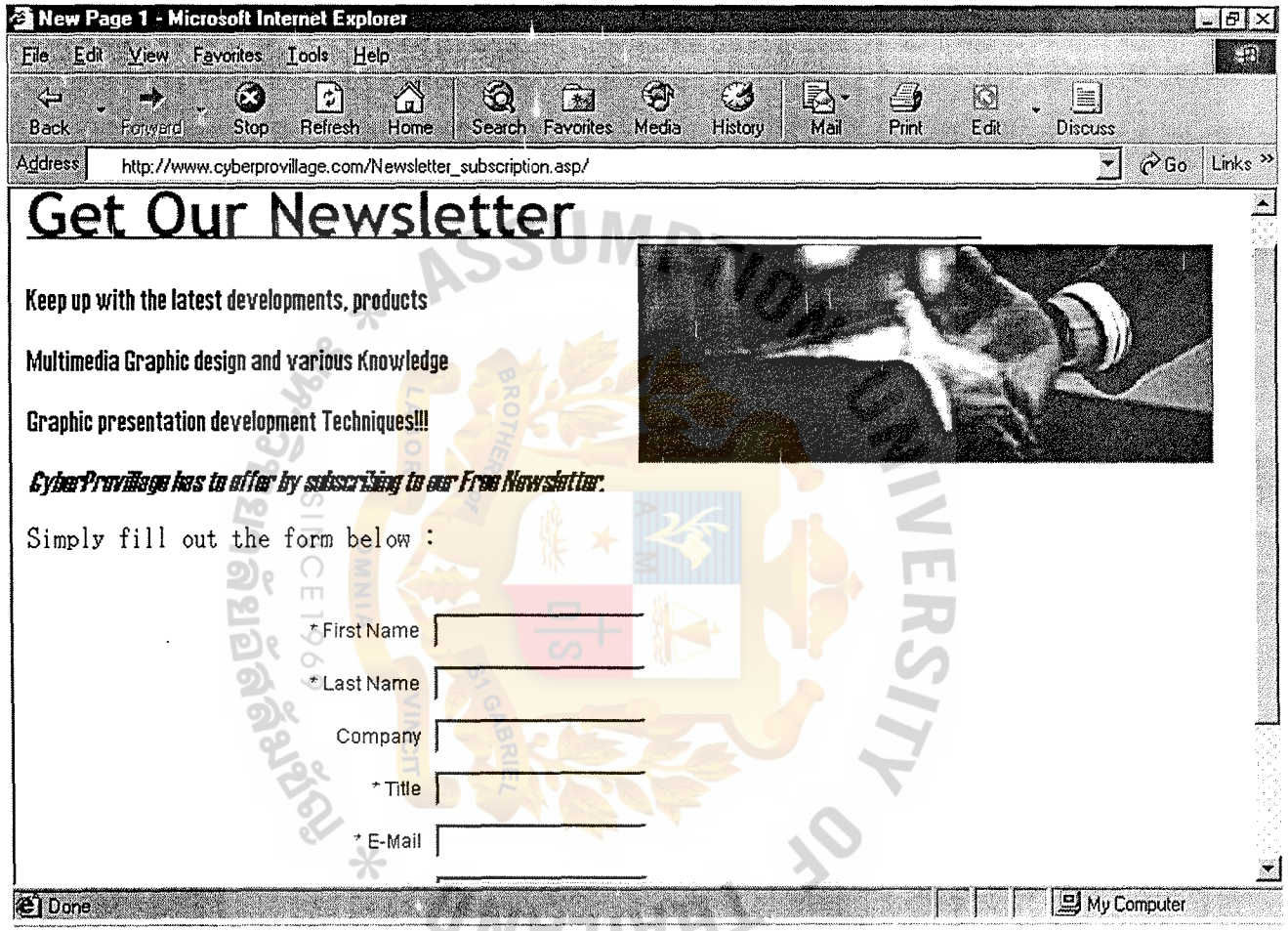

Figure E.18. The Newsletter Subscription Page for Membership.

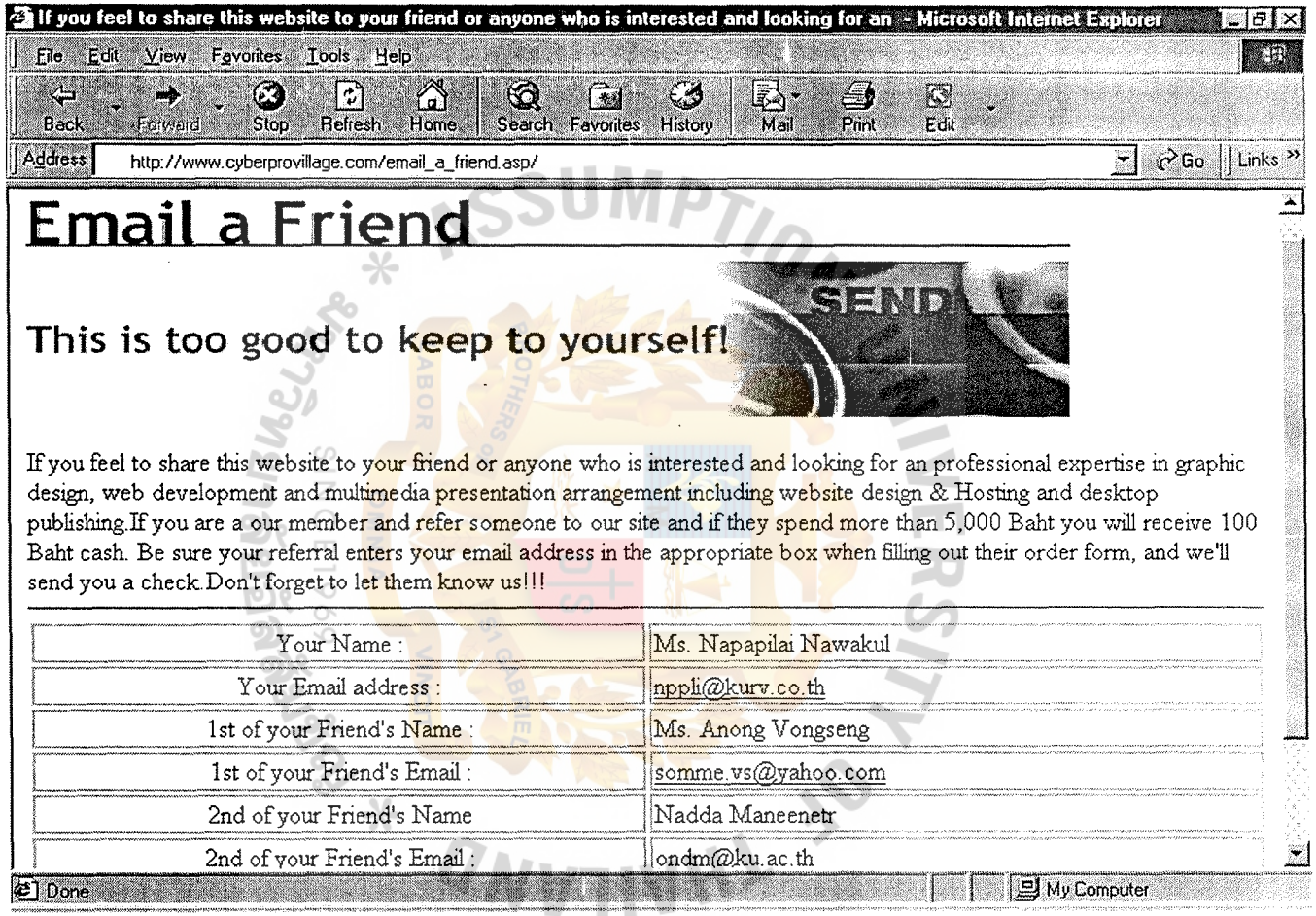

Figure E.19. The Viral Community Page – For Internet Marketing Support.

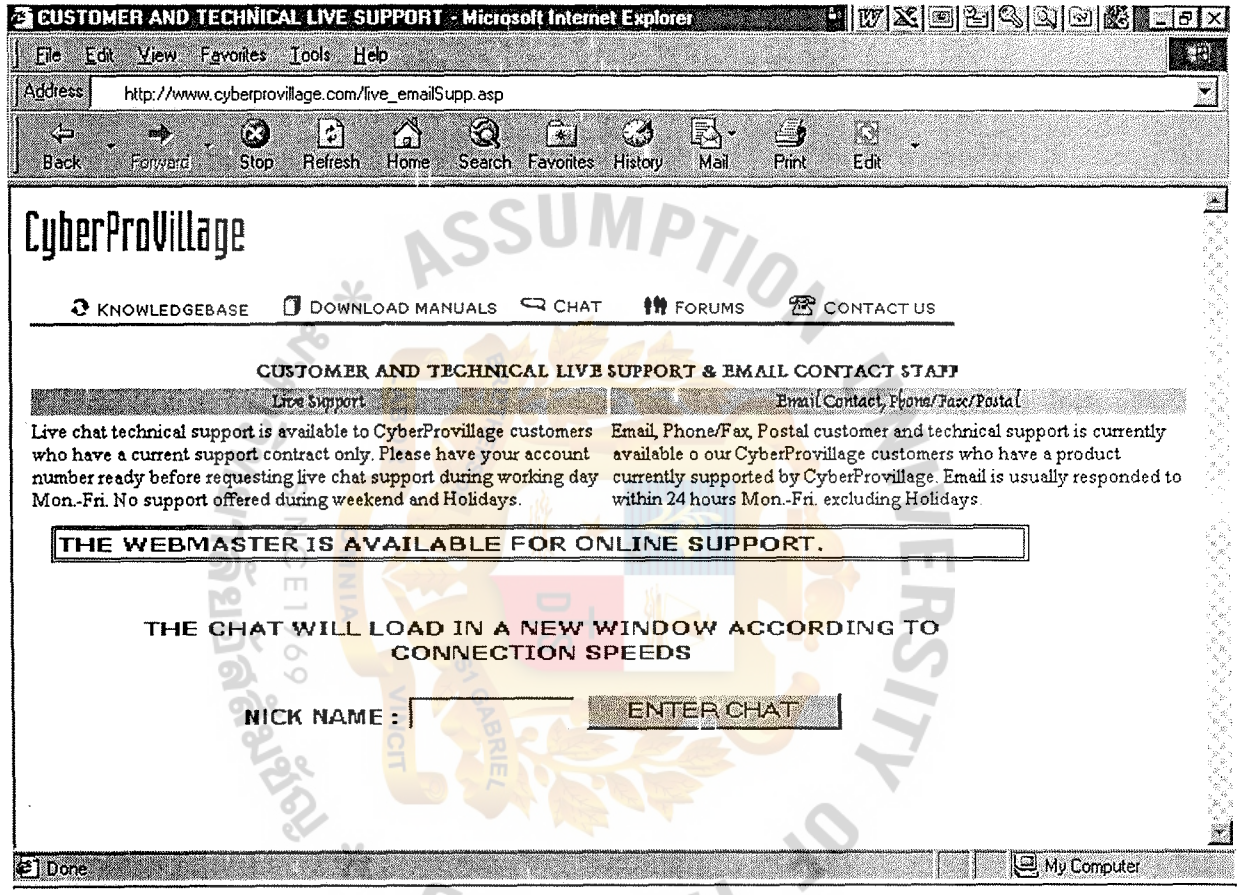

Figure E.20. Customer and Technical Live and Contact Support.

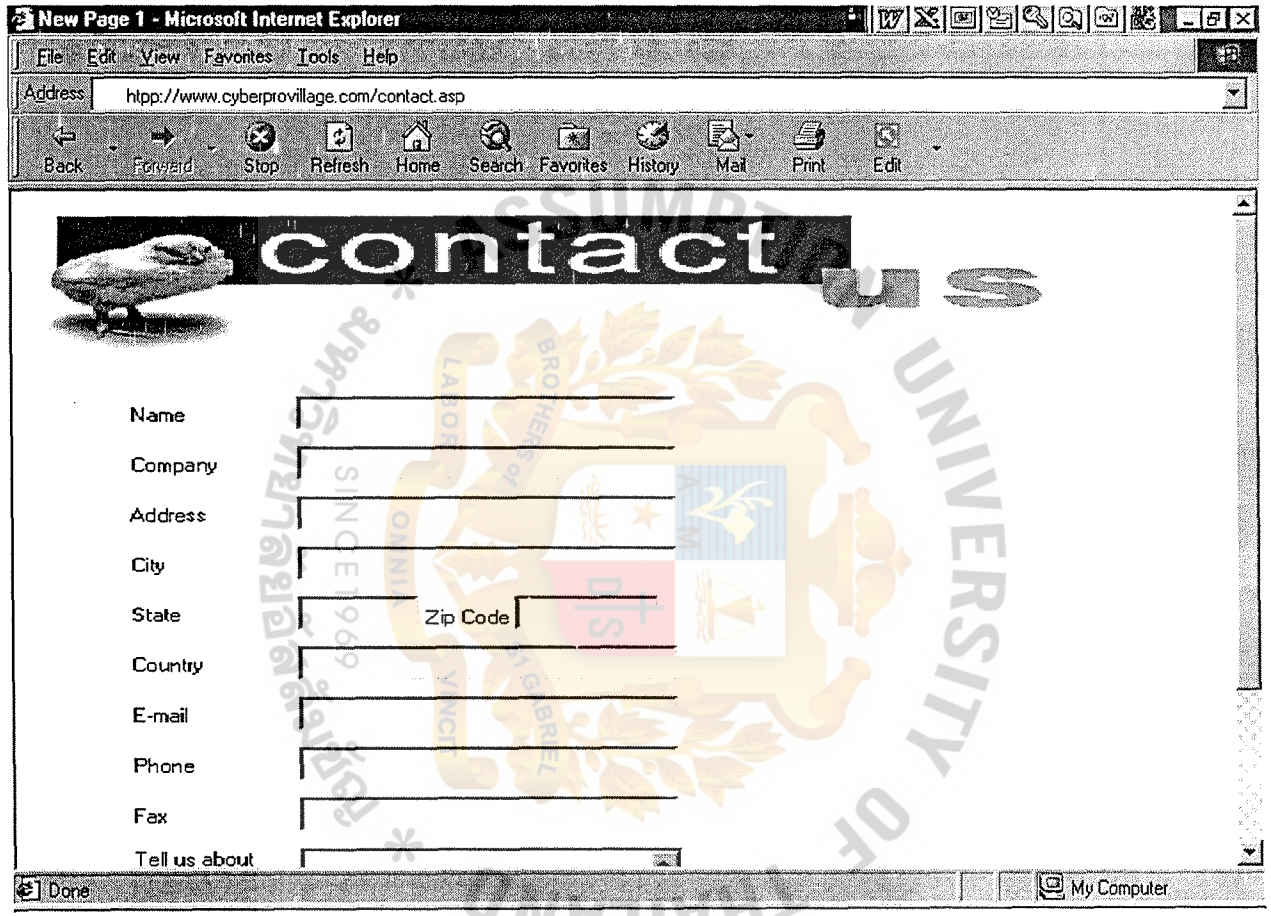

Figure E.21. The Technical and Marketing Support: Contact Us Page.

CUSTOMER AND TECHNICAL LIVE SUPPORT - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://www.cyberprovillage.com/postedwebboard.asp

Back Forward Stop Refresh Home Search Favorites History Mail Print Edit

CyberProVillage

KNOWLEDGEBASE DOWNLOAD MANUALS CHAT FORUMS CONTACT US

Customer and Technical Posted Webboard

more useful information can be found in the manual

(click on a subject for more information)

date	time	subject
2/21/2002	9:59:00 PM	My Wusage stats are not fully working (i.e. referring urls)
10/24/2001	7:24:00 PM	FTP is slow or hangs
9/25/2001	5:22:00 PM	Why is my ftp access on my account limited to 5 users?
8/6/2001	10:59:00 PM	How do I setup AuthorizeNet in Miva Merchant
8/6/2001	10:58:00 PM	How do I add CyberCash to Miva Merchant
8/6/2001	10:54:00 PM	How do I setup LinkPoint API with Miva Merchant
8/6/2001	10:41:00 PM	Install LinkPoint API with Miva Order
8/6/2001	10:27:00 PM	What are the basic things to know about writing my own custom CGI scripts?
[illegible]	[illegible]	What is anonymous FTP and how does it

Done My Computer

Figure E.22. Customer and Technical Posted Webboard-Questions.

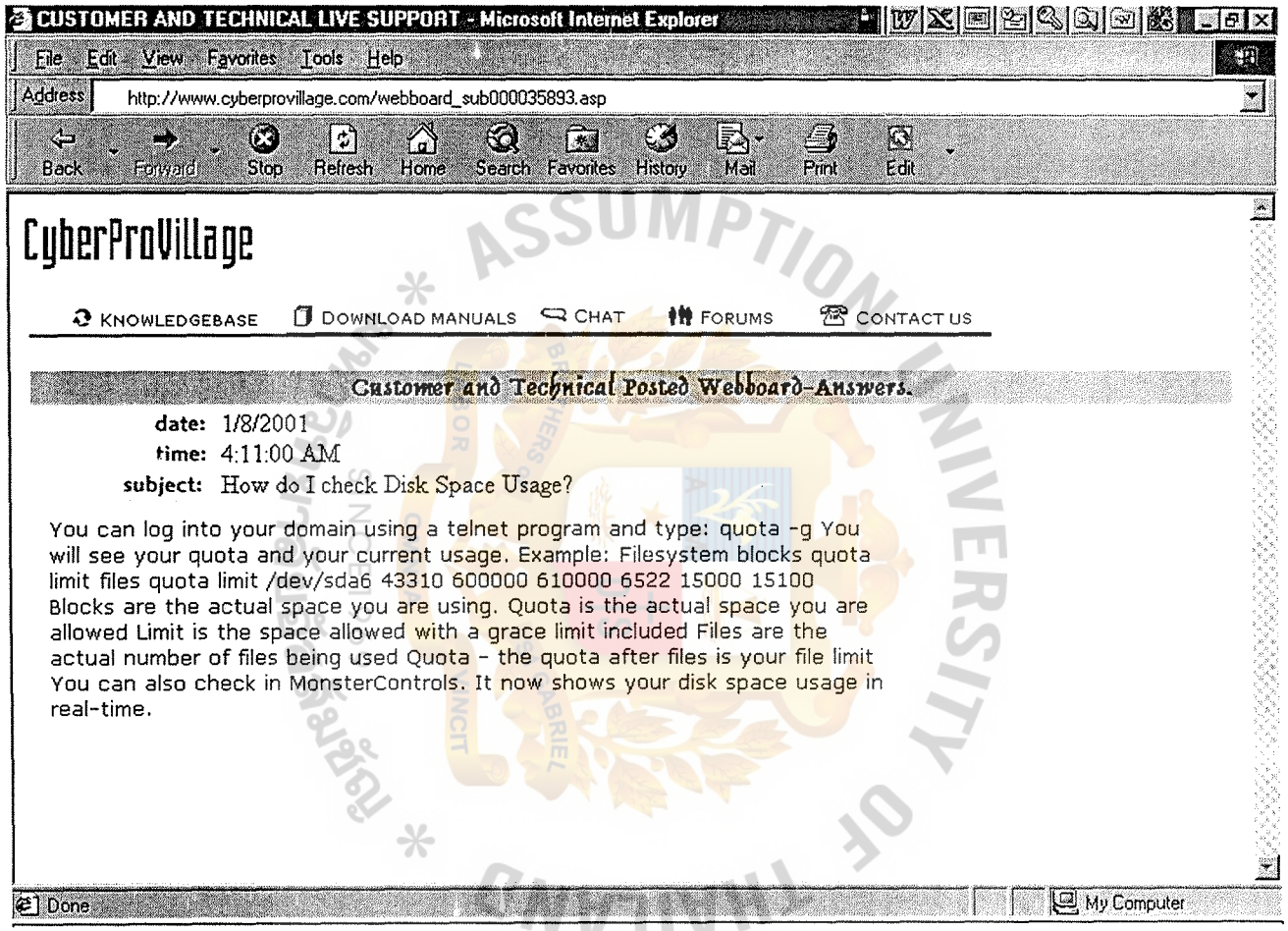

Figure E.23. Customer and Technical Posted Webboard-Answers.

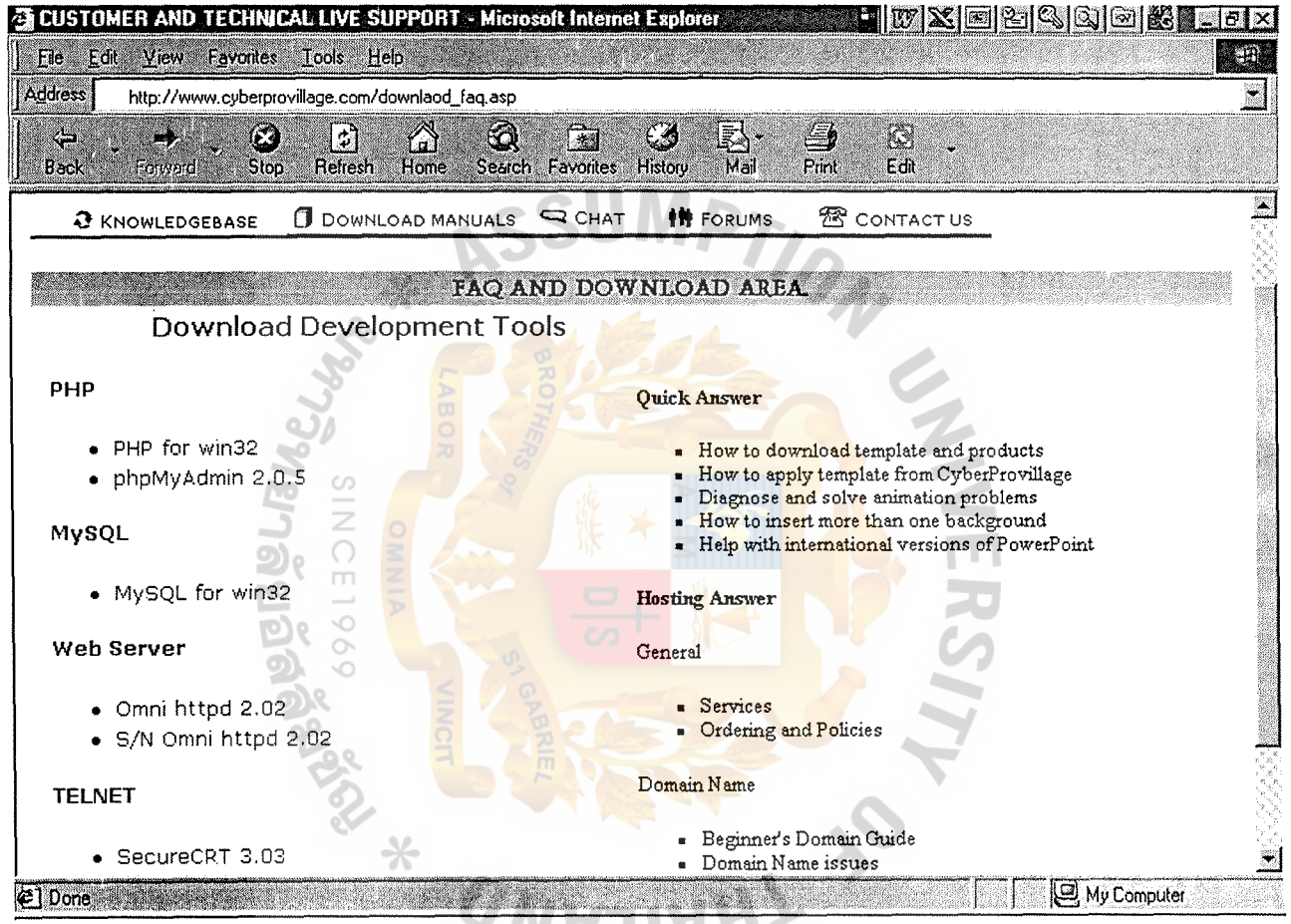

Figure E.24. Customer and Technical Download and Frequently Asked Questions Area.

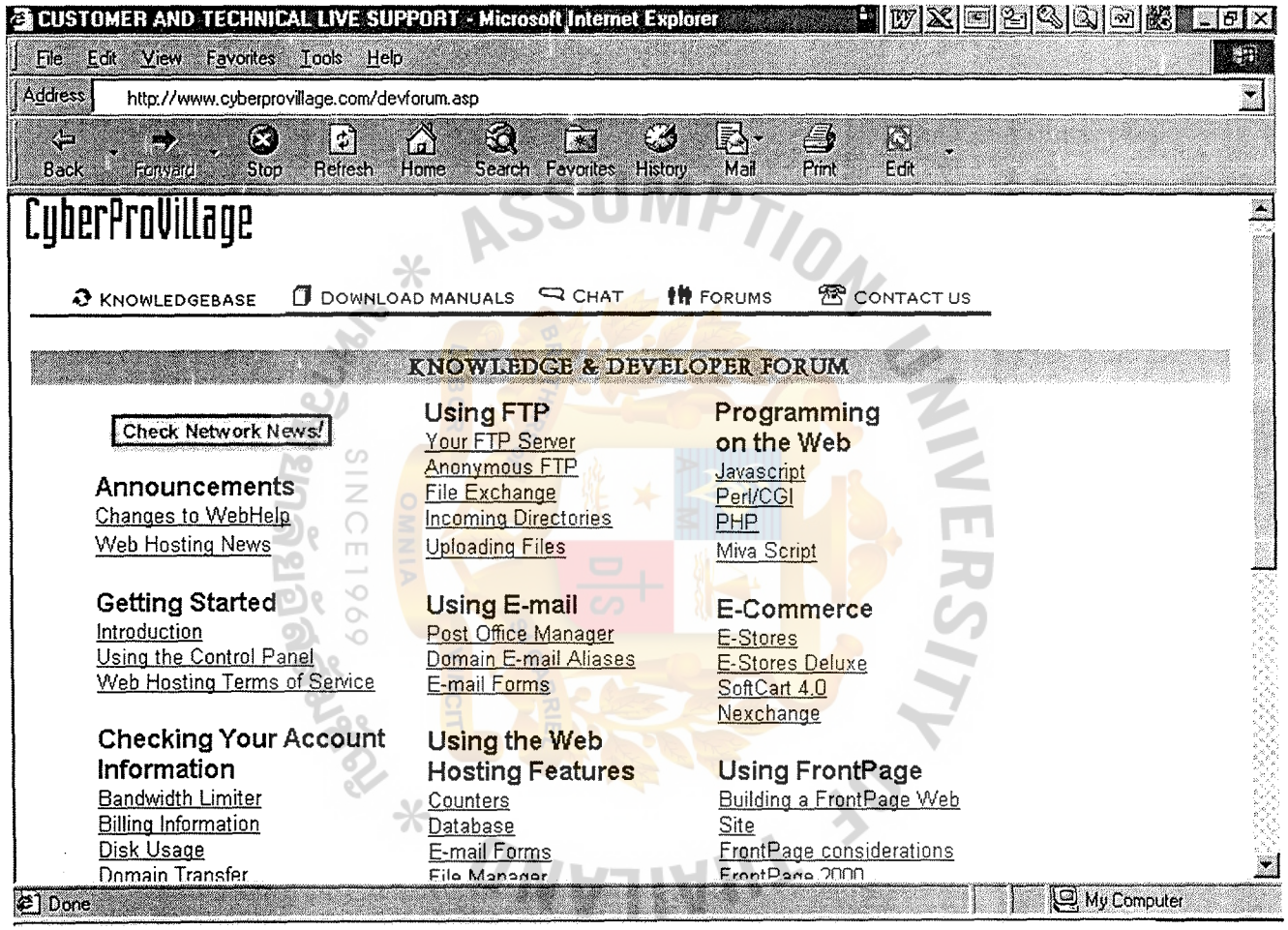

Figure E.25. Customer and Technical Knowledge and Developer Forum.

INTRANET ZONE - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address https://cyberprovillage.com/cyberpro_intranet.asp

Back Forward Stop Refresh Home Search Favorites History Mail Print Edit

CyberProVillage

INTRANET ZONE

Good Afternoon, **Ms. Nooch Kaewla-iad**. Date: 12 February 2002 ; 12.45PM.

Report Types Selection

The following Select boxes, display the available reports that can be generated by the system, in order to monitor the various activities of your Web Store.
To select a report, click on one of the report titles, and then click on the corresponding "Go" button.

Sales Reports
Sales Orders and Products Activities Reports. — Sales Activity — Go!

Affiliates Reports
(Members of your Affiliates Network)
Affiliates, Commissions and Sales Activities Reports. — Affiliates Orders — Go!

Sponsor Reports
(Affiliates Networks to which you belong.)
Comissions Earned Reports. — Comissions Earned — Go!

Download Area:

Financial Transaction Report-Jan02

Meeting Timetable Plan (Mktg Unit)

Hosting Service Plan

Technical Hosting Configuration

Our Network Platform

DNS Configuration & Setting

Presentation Exhibition Arrangment-2002

Done — My Computer

Figure E.26. The Intranet Zone of CyberProVillage.com.

St. Gabriel's Library, Au

INTRANET ZONE - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address https://cyberprovillage.com/queryDB_products.asp/

Back Forward Stop Refresh Home Search Favorites History Mail Print Edit

INTRANET ZONE

Good Afternoon, **Ms. Nooch Kaewla-iad**. Date: 12 February 2002 ; 13.15 PM.

Query Database for Viewing

Product ID	
General Category	– Any Category –
Subcategory	– Any –
Category	– Any –
Product Name	
Description	
Image URL	
Exact Match?	

Done My Computer

Figure E.27. The Intranet Zone of CyberProVillage.com: Product Viewing from Database.

APPENDIX F

REPORT DESIGN

ASSUMPTION UNIVERSITY OF THAILAND
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CyberProVillage

Service order #
Quotation number # CPV-PP20010917/01

Service Order date: 20-Sep-01
Service OrderTerm: 3 Months
Estimate Install Date Oct-01
Billing Date: Oct-01

Contact:	Khun Ekalut Suksriwong	**Contact Staff:**	Ms. Nooch Kaewla-iad
Company:	Zeer service Co.,Ltd.	**Company:**	CyberProvillage Co..Ltd.
Address:	1195 Exim Bldg., 12th Floor Phahonyothin Rd., Samsen Nai Bangkok, 10400	**Address:**	1010 Shinawatra Tower III. 6th Fl. Vibhavadi-Rangsit Rd., Ladyao Chatuchak, Bangkok 10900
Phone:	0-2936-3465-6 Fax: 0-29874751	**Phone:**	0-29426685 Fax: 0-2942-6647
Email:	Eka_s@zeerservice.com	**Email:**	onooche@cyberprovillage.com

We are very appreciated to suggest our service price available for your choice as following:

Description	Qty.	Price/Unit (Baht)	Special Price (Baht)
Business Plan 1.0 Hosting Package	1	1,200.00	1,200.00
Include the option service as followings:			
Miva Merchant	1	10,500.00	10,500.00
Database option	1	6,500.00	6,500.00
DNS Option	1	250.00	250.00
Set up Fee	1	1,500.00	-
		One time Total	18,450.00
		Monthly Recurring Total	1,200.00

Term of Conditions:
1. All these prices above are exclueded VAT 7%
2. Payment : 30 Days after invoice date. (for online product purchasing)
   3 months in advance within 30 days after invoice date (for hosting & Custom Design)
3. 1 year non-revocable contract.

Thank you very much for being our sincerely customer as ever.
Sincerely yours,

Piyawan Kibthong
Marketing & Sales Manager

Figure F.1. Quotation Request Report.

CyberProVillage

Order Transaction Report
by Salesperson

Report printed date: 20-Sep-01
Report queried by Ms.Nooch Kaewla-iad
Report printed time: 02.55 PM

MktgID	OrderNo	CustomerID	Order Date	Due Payment	Order Status	Total Amount	Total Paid	Payment by	ProductID	UnitOder	Amout	UnitPrice	Post
S001	CPV025/01	145	02-Sep-01	20-Sep-01	TT Paid	4,500.00	4,500.00	Wire Transfer					
									25	2	3,000.00	1,500.00	Y
									34	1	1,500.00	1,500.00	Y
	Summary for Order id CPV025/01									***Sub-Total:***	4,500.00		
S004	CPV087/01	103	05-Sep-01	05-Sep-01	OL Paid	28,750.00	28,750.00	VISA TMB					
									175	1	28,750.00	28,750.00	Y
	Summary for Order id CPV087/01									***Sub-Total:***	28,750.00		
	CPV088/01	104	05-Sep-01	25-Sep-01	U/P	7,500.00	7,500.00	Not yet					
									005	3	7,500.00	2,500.00	Y
	Summary for Order id CPV087/01									***Sub-Total:***	7,500.00		
										Grand-Total:	40,750.00		

Figure F.2. Order Transaction Report.

CyberProVillage

Customer Information Report

Report printed date: 20-Sep-01
Report queried by Ms.Nooch Kaewla-iad
Report printed time: 03.45 PM

Cust ID	Company Name	Contact Name	Address	City	Province	Zip code	Phone	Fax	Credit Grade	Credit Term	TxTime	First Contact Date	Last contact Date
1	Royal Garden Plaza	Ms. Yaowapa	888, Piboonsongkram Rd.	Bangsuo	Bangkok	10700	0-5789-2541	0-5789-2544	A	45	5	15-Apr-01	17-Aug-01
2	The Body shop Thailand	Mr. Kanit	19/14 Moo 3 Pahonyothin Rd.	Bangkhen	Bangkok	10140	0-2451-1425	0-2451-1427	A	60	8	18-Apr-01	10-Sep-01
3	Compsaving Company	Mr. Wanakij	84/7 Piboonsongkram Rd.	Ladproa	Bangkok	11500	0-2854-4145	0-2854-4125	B	45	4	14-May-01	19-Aug-01
4	Pruksa Clinic	Ms. Siren	558/9 Srinakarind Rd.	Thonburi	Bangkok	10903	0-2358-7458	0-2358-7417	A	45	4	19-May-01	02-Sep-01
5	Royal Cliff Resort	Ms. Kavaneya	33/7 Amphur Muang	Pattaya	Chonburi	25411	0-38-255-788	0-38-255-775	C	30	2	22-May-01	30-Jul-01
6	Muang Tong Thani	Mr. Prakit	110 Laksi Plaza building	Donmuang	Bangkok	10230	0-2451-4875	0-2451-4844	B	45	4	30-May-01	14-Sep-01
7	Sansuk housing firm	Mr. Punlop	120 Bangnatrad Rd.,	Pranakorn	Bangkok	10280	0-2448-2546	0-2448-2548	A	60	9	30-May-01	13-Sep-01
8	P.J.K. Recruiting (Thailand)	Ms. Watini	44/8 Moo 6, petchakasem	Banchang	Bangkok	10160	0-2795-3564	0-2795-3565	B	45	5	15-Jun-01	20-Aug-01
9	Wattanayakit Co.,Ltd.	Ms. Jenjit	12/8 Ratchadapisek Rd.	Muang	Patumtani	21125	0-325-421-587	0-325-421-588	C	30	5	18-Jun-01	24-Jul-01
10	Intensysco Co.,Ltd.	Mr. Nadda	157/1 Praram 7, Suanluang	Bangkruay	Nontaburi	11100	0-2447-1958	0-2447-1970	A	45	6	25-Jun-01	19-Aug-01
11	Riverrine place Condomeniu	Ms. Wannee	161 Moo 6, Phachauthit Rd.,	BangYai	Nontaburi	11131	0-2489-5587	0-2489-5594	A	60	10	25-Jun-01	14-Aug-01
12	Wattajak printing Co.,Ltd.	Ms. Saifon	12/8 Ratchadapisek Rd.	Pathumwa	Bangkok	10730	0-2325-2414	0-2325-2432	B	45	7	25-Jun-01	03-Aug-01
13	Wanaree pattana	Ms. Pawilai	120 Bangnatrad Rd.,	Bangkruay	Bangkok	11500	0-2854-4145	0-2854-4125	C	30	8	28-Jun-01	15-Sep-01
14	Ban Muang group	Ms. Janya	161 Moo 6, Phachauthit Rd.,	BangYai	Bangkok	10903	0-2358-7458	0-2358-7417	B	45	4	30-Jun-01	14-Aug-01
15	Sintorn Building land & Hou	Ms. Piyavadee	12/8 Ratchadapisek Rd.	Muang	Songkhla	10160	0-2795-3564	0-2795-3565	A	60	4	30-Jun-01	15-Aug-01
16	Farruangkit Co.,Ltd.	Ms. Nanta	12/8 Ratchadapisek Rd.	Muang	Lampoon	21125	0-325-421-587	0-325-421-588	B	45	2	01-Jul-01	12-Jul-01
17	Thanachat Printing Co.,Ltd.	Mr. Viriya	157/1 Praram 7, Suanluang	Donmuang	Bangkok	11100	0-2447-1958	0-2447-1970	C	30	4	03-Jul-01	28-Jul-01
18	Waree media group	Mr. Panu	161 Moo 6, Phachauthit Rd.,	Pranakorn	Bangkok	10230	0-2451-4875	0-2451-4844	A	45	9	05-Jul-01	14-Sep-01
19	Suan bua Resort	Ms. Nussara	12/8 Ratchadapisek Rd.	Muang	Cheangmai	10280	0-2448-2546	0-2448-2548	A	60	4	12-Jul-01	10-Aug-01
20	Khao Yai Resort	Ms. Jeravadee	120 Bangnatrad Rd.,	Muang	Leuy	10160	0-2795-3564	0-2795-3565	B	45	9	15-Jul-01	09-Sep-01
21	Ban Change Group	Ms. Oranuch	888, Piboonsongkram Rd.	Bangsuo	Bangkok	21125	0-325-421-587	0-325-421-588	C	30	5	17-Jul-01	06-Sep-01
22	Sri Nakarinthorn village	Mr. Padisak	19/14 Moo 3 Pahonyothin Rd.	Bangkhen	Bangkok	11100	0-2447-1958	0-2447-1970	A	45	2	17-Jul-01	17-Sep-01
23	Tonruk Wedding Studio	Mr. Rakkriat	84/7 Piboonsongkram Rd.	Ladproa	Bangkok	11131	0-2489-5587	0-2489-5594	A	60	7	19-Jul-01	14-Sep-01
24	Fahsuakiji Trading Co.,Ltd.	Mr. Fujikawa	157/1 Praram 7, Suanluang	Muang	Saraburi	10730	0-2325-2414	0-2325-2432	B	45	6	25-Jul-01	18-Sep-01
25	Ban Hansa Entertainment	Ms. Nareerat	161 Moo 6, Phachauthit Rd.,	Bangkhen	Bangkok	11131	0-2489-5587	0-2489-5594	A	45	1	26-Jul-01	26-Jul-01
26	Jung Rung Ruang Kit Group	Ms. Karen	12/8 Ratchadapisek Rd.	Ladproa	Bangkok	10730	0-2325-2414	0-2325-2432	A	60	3	28-Jul-01	15-Aug-01

Figure F.3. Customer Information Report.

CyberProVillage

Report printed date 20-Sep-01
Report queried by: Ms.Nooch Kaewla-iad
Report printed time 07.25 PM

roduct Informtion Repor

Product ID	Product Name	Product Type	Unit Cost	Product Term	Ordered Number	Product Magangem by	Product Handled by Sales
HS001	Personal Plan 1.0	Hosting	600.00	M	85	Kornkanok	Naree
HS002	Personal Plan 2.0	Hosting	900.00	M	64	Kornkanok	Naree
HS003	Business Plan 1.0	Hosting	1,200.00	M	65	Kornkanok	Naree
HS004	Business Plan 2.0	Hosting	1,800.00	M	69	Kornkanok	Naree
HS005	Business Plan 3.0	Hosting	2,400.00	M	54	Ratchana	Wichean
HS006	Business Plan 4.0	Hosting	5,000.00	M	29	Ratchana	Wichean
HS007	Developer Plan 1.0	Hosting	1,600.00	M	75	Ratchana	Wichean
HS008	Developer Plan 2.0	Hosting	2,500.00	M	64	Ratchana	Wichean
HO001	SQL monthly Option	Hosting	1,500.00	M	114	Warinee	Naree, Wichean
HO002	Database Option	Hosting	6,500.00	S	85	Warinee	Naree, Wichean
HO003	Traffice Bandwidth Option	Hosting	6.00	1M	62	Warinee	Naree, Wichean
HO004	Miva Merchant Option	Hosting	10,500.00	S	114	Warinee	Naree, Wichean
HO005	Data Transfer Option	Hosting	1,200.00	M	89	Warinee	Naree, Wichean
HO006	Disk Space Option	Hosting	1,200.00	M	165	Warinee	Naree, Wichean
HO007	Email Account Option	Hosting	250.00	M	101	Warinee	Naree, Wichean
HO008	DSN Option	Hosting	250.00	M	104	Warinee	Naree, Wichean
HO009	Domian Pointer Option	Hosting	900.00	S	98	Warinee	Naree, Wichean
HO010	Domain Name Registration Option (.com. .net, .org)	Hosting	600.00	1Y	208	Warinee	Naree, Wichean
HO011	Domain Name Registration Option (.th)	Hosting	1,700.00	2Y	84	Warinee	Naree, Wichean
HO012	Hosting transfer Option	Hosting	0.00	P	75	Warinee	Naree, Wichean
HO013	SSL Certificatie Setting Option	Hosting	0.00	P	95	Warinee	Naree, Wichean
PS001	General-1 CD Package	Product	1,500.00	P	185	Tossapon	Duangnet, Farida
PS002	General-2 CD Package	Product	1,500.00	P	175	Tossapon	Duangnet, Farida
PS003	General-3 CD Package	Product	1,500.00	P	145	Tossapon	Duangnet, Farida
PS004	Financial CD Package	Product	2,000.00	P	98	Pakorn	Duangnet, Farida
PS005	Marketing CD Package	Product	2,000.00	P	75	Jaras	Duangnet, Farida
PS006	Educational CD Package	Product	2,000.00	P	98	Jaras	Duangnet, Farida
PS007	Consulting CD Package	Product	2,000.00	P	115	Pakorn	Duangnet, Farida
PS008	Global CD Package	Product	2,000.00	P	85	Jaras	Duangnet, Farida
PS009	Business-1 CD Package	Product	1,700.00	P	95	Pakorn	Duangnet, Farida
PS010	Business-2 CD Package	Product	1,700.00	P	85	Pakorn	Duangnet, Farida
PS011	Natural CD Package	Product	2,000.00	P	96	Jaras	Duangnet, Farida
PS012	Occasional CD Package	Product	2,000.00	P	86	Jaras	Duangnet, Farida
PS013	Lifestyle-1 CD Package	Product	1,700.00	P	98	Youwanet	Duangnet, Farida
PS014	Lifestyle-2 CD Package	Product	1,700.00	P	87	Youwanet	Duangnet, Farida
VO001	Projector CF-1045 G	endor Produc	254,120.00	P	35	Pawinee	Noppawan
VO002	Slide Projecter GZ-203	endor Produc	198,750.00	P	48	Pawinee	Noppawan

Figure F.4. Product Information Report.

CyberProVillage

Report printed date: 02-Jan-02
Report queried by: Ms.Nooch Kaewla-iad
Report printed time: 07.53 PM

Monthly Vendor Transactoin product to Sharp (Thailand) Co.,Ltd.
Period : December 2001

Supplier ID	Prod ID	Product Name	Customer Name	Ordered Date	Inventory available	Item Ordered	Price	Discount
001	VO015	Presentation Wallboar	Royal Garden Plaza	03-Dec-01	Yes	1	75,000.00	5%
001	VO010	Slide Film package F2	Royal Garden Plaza	03-Dec-01	Yes	1	4,500.00	5%
001	VO015	Presentation Wallboar	Royal Garden Plaza	03-Dec-01	Yes	1	75,000.00	5%
001	VO015	Presentation Wallboar	Intensysco Co.,Ltd.	04-Dec-01	Yes	1	75,000.00	5%
001	VO001	Projector CF-1045 G	Intensysco Co.,Ltd.	04-Dec-01	Yes	1	241,414.00	5%
001	VO001	Projector CF-1045 G	Royal Cliff Resort	07-Dec-01	Yes	1	241,414.00	5%
001	VO005	Projector GD-253 PS	Royal Cliff Resort	07-Dec-01	Yes	1	354,000.00	5%
001	VO014	Display light RF214	Royal Cliff Resort	07-Dec-01	Yes	1	8,900.00	5%
001	VO007	Projector Power suppl	Royal Cliff Resort	07-Dec-01	Yes	1	7,500.00	5%
001	VO014	Display light RF214	Wanaree pattana	08-Dec-01	Yes	1	8,900.00	5%
001	VO001	Projector CF-1045 G	Ban Muang group	08-Dec-01	No	1	241,414.00	5%
001	VO003	Projector SQR-1145	Farruangkit Co.,Ltd.	12-Dec-01	Yes	1	350,000.00	5%
001	VO004	Projector GQ-2541 F	Farruangkit Co.,Ltd.	12-Dec-01	Yes	1	395,000.00	5%
001	VO013	Handfree Presenter	Farruangkit Co.,Ltd.	12-Dec-01	Yes	1	2,800.00	5%
001	VO013	Handfree Presenter	Suan bua Resort	18-Dec-01	Yes	1	2,800.00	5%
001	VO006	Projector FR-25468	Suan bua Resort	18-Dec-01	Yes	1	298,000.00	5%
001	VO009	Double slide shot G2	Suan bua Resort	18-Dec-01	Yes	1	4,700.00	5%
001	VO003	Projector SQR-1145	Suan bua Resort	18-Dec-01	Yes	1	350,000.00	5%
001	VO014	Display light RF214	Suan bua Resort	19-Dec-01	Yes	1	8,900.00	5%
001	VO014	Display light RF214	Wattajak printing Co.	20-Dec-01	Yes	1	8,900.00	5%
001	VO010	Slide Film package F2	Wattajak printing Co.	20-Dec-01	Yes	1	3,200.00	5%
001	VO010	Slide Film package F2	Ban Muang group	21-Dec-01	Yes	1	3,200.00	5%
001	VO013	Handfree Presenter	Wattajak printing Co.	21-Dec-01	No	1	2,800.00	5%
001	VO014	Display light RF214	Ban Muang group	21-Dec-01	Yes	1	8,900.00	5%
001	VO014	Display light RF214	Waree media group	23-Dec-01	Yes	1	8,900.00	5%
001	VO014	Display light RF214	Wattanayakit Co.,Ltd.	25-Dec-01	Yes	1	8,900.00	5%
001	VO009	Double slide shot G2	Wattanayakit Co.,Ltd.	25-Dec-01	Yes	1	4,700.00	5%
001	VO004	Projector GQ-2541 F	Wattanayakit Co.,Ltd.	25-Dec-01	Yes	1	395,000.00	5%
				Grand Total			3,189,742.00	

Figure F.5. Monthly Vendor Transaction Report.

CyberProVillage

Report printed date: 15-Jan-02
Report queried by: Ms.Nooch Kaewla-iad
Report printed time: 09.34 PM

Customer Service and Technical support request

Round	Date Request	Time Request	Problem [Subject]	Problem Type	Channel reply	Reply status	Person in charge
1	01-Dec-01	06.45PM	Opening service for web hosting	Hosting	WA	Y	Naree
2	01-Dec-01	06.55PM	Download insturction problem	Product	WA	Y	Pakorn
3	01-Dec-01	07.15PM	Payment method checking status	Product	WA	Y	Pakorn
4	01-Dec-01	07.20PM	Product cancelation problem? Still be charged already or not	Product	SP	Y	Pakorn
5	02-Dec-01	09.35AM	Type of credit card & Payment acception for payment?	Product	WA	Y	Jarus
6	02-Dec-01	10.20AM	Online question chatting with expertise about hosting proble	Hosting	WA	Y	Warinee
7	02-Dec-01	11.00AM	Posting message reply was not clear enough?	Technical	WA	Y	Sompop
8	04-Dec-01	02.15AM	Viral communities apply and discount	Product	WA	Y	Jarus
9	04-Dec-01	09.45AM	Website loggin problem	Technical	WA	Y	Sompop
10	04-Dec-01	11.30AM	Changing password and forget password	Technical	WA	Y	Sompop
11	05-Dec-01	00.35PM	Quotation in Thai language is available or not?	Hosting	SP	Y	Naree
12	07-Dec-01	02.40PM	Custom design presentation as per order	Product	WA	Y	Yaowanet
13	07-Dec-01	03.44PM	Payment checking status	Product	WA	Y	Yaowanet
14	10-Dec-01	09.35AM	Projector fixing and warranty status	Product	SP	Y	Tossapon
15	10-Dec-01	11.37AM	Knowledge and technical forum for Visual Basic and ASP	Technical	WA	Y	Punlop
16	10-Dec-01	04.55PM	Double Newsletter subscription? Wanna delete one.	Technical	WA	Y	Sompop

Figure F.6. Customer Service and Technical Support Problem.

CyberProVillage

Report printed date: 20-Jan-02
Report queried by: Ms.Nooch Kaewla-iad
Report printed time: 10.34 AM

Payment report by Product

Bill No	Bill Status	Product ID	Customer ID	Total Amount	Total Paid	Total Credit Amount	Receipt No	Pay amount	Paid date
14	P/P	PS009	15	1,700.00	1,700.00	-			
							23	1,700.00	22-Jan-02
Summary for "BillStatus" = P/P (1 Detail record)									
							Sum	1,700.00	
22	F/P	VO001	25	241,414.00	150,000.00	91,414.00			
							24	2,000.00	23-Jan-02
							25	150,000.00	24-Jan-02
Summary for "BillStatus" = F/P (2 Detail records									
							Sum	152,000.00	
28	F/P	HO002	14	6,500.00	5,000.00	1,500.00			
							28	1,000.00	25-Jan-02
							29	4,000.00	28-Jan-02
Summary for "BillStatus" = F/P (2 Detail records									
							Sum	5,000.00	
							Grand Total	158,700.00	

Figure F.7. Payment Report per Billing and Receipt Issurance.

CyberProVillage

Report printed date: 20-Jan-02
Report queried by: Ms.Nooch Kaewla-iad
Report printed time: 10.34 AM

Top-Ten Bestseller product by Volumn

For period: December 2001

Ranking	Product ID	Product Type	Product Name	Volumn per Month	Volumn per Customer
1	HS003	Hosting	Business Plan 1.0	72,000.00	60
2	PS004	Product	Financial CD Package	60,000.00	30
3	PS009	Product	Business-1 CD Package	56,100.00	33
4	PS005	Product	Marketing CD Package	50,000.00	25
5	HS007	Hosting	Developer Plan 1.0	40,000.00	25
8	HO004	Hosting	Miva Merchant Option	42,000.00	4
6	PS001	Product	General-1 CD Package	33,000.00	22
9	HS008	Hosting	Developer Plan 2.0	35,000.00	14
10	HO010	Hosting	Domain Name Registration Option (.com. .net, .org)	34,800.00	58
7	PS002	Product	General-2 CD Package	30,000.00	20
Grand Total Volumn Transaction on December 2001				452,900.00	291

Figure F.8. Top-Ten Bestseller Listed by Sales and Customer Volumn.

APPENDIX G

DATA DICTIONARY

ASSUMPTION UNIVERSITY OF THAILAND
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DATA DICTIONARY

Table G.1. Data Dictionary of Database.

Field Name	Field Type	Length	Meaning
AccessID	Integer		Website Access Identification
AccessTime	Date/Time		Time to Access the website
Address1	Text	255	Customer Address1
Address2	Text	255	Customer Address2
BillingAdd1	Text	255	Customer Billing Address1
BillingAdd2	Text	255	Customer Billing Address2
BillingDate	Date/Time		Date Billing to Customer
BillingDetail	Text		Detail of Customer Billing
BillingID	Integer		Billing Identification
City			The City of Customer Address
Company	Text	255	The Customer's Company Name
Contact	Text	50	Contact Person of our Vendor
ContactEmail	Text	30	Contact Email of our Vendor's Contact
Country	Text	30	The Country of customer
CustomerID	Integer		Customer Identification
CustomerStatus	Text	20	Customer status in Two types : Current Customer and Prospect customer membership
DateProvided	Date/Time		Date provided the Vendor Item list to our Vendor

Table G.1. Data Dictionary of Database (Continued).

Field Name	Field Type	Length	Meaning
Discount	Percentage		The discount rate of additional charge, in Percentage
DuePayment	Date/Time		Due Date to receive payment from Customer
Email	Text	30	The Email Address of Customer
FaxNo	Text	20	The Fax number of Customer
Fname	Text	50	The Customer Firstname
Keyword	Text	50	Password Keyword (For Identification & Password loss)
Lname	Text	50	The Customer Lastname
LoginName	Text	20	The Login Name to access the Website
MktHead	Text	50	The name of the head of Marketing & Sales Units/Teams
MktID	Integer		The Marketing & Sales Staff Identification
MktName	Text	50	The name of Marketing & Sales Staff
MktPosition	Text	100	The Position of Marketing & Sales Staff
OrderDate	Date/Time		Date to order by Product & Service
OrderID	Integer		Order Identification
OrderQty	Integer		The Quantity of Order Transaction
OrderTerm	Text		Term of order in month

Table G.1. Data Dictionary of Database (Continued).

Field Name	Field Type	Length	Meaning
PackageName	Text		Package list of Product & Service
Password	Text	30	The Password to access the Website
PayAmount	Integer		The total payment identified in the Billing
PaymentBy	Text		The Payee's Name of the Payment
PaymentDate	Date/Time		The Payment Date
PaymentFrom	Text	100	The Bank's name or Customer Address
PaymentStatus	Text		The payment status and Payment method identification
Price	Integer		The price of the Product & Service
ProdMngBy	Text		The staff name who responsible for the Product & Service
ProductID	Integer		The Product & Service Identification
ProductName	Text		The Product & Service Name
PurchaseDate	Date/Time		The date of customer decided/identified to make the purchase
PurchaseNo	Integer		The Purchase Identification
PurchaseQty	Integer		The Quantity of Product & Service to purchase
QuotationDate	Date/Time		The Date when submitted the Quotation Document to the Customer

Table G.1. Data Dictionary of Database (Continued).

Field Name	Field Type	Length	Meaning
VendorID	Integer		The Vendor Identification
VendorItemNo	Integer		The Vendor Item list ordered needed to submit to Vendor
VendorName	Text	255	The Vendor's company name
VendorTel	Text	50	The Vendor Telephone number
VolumnPerDay	Integer		The Volumn of Sales Transaction per Day

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Module Number	:	1
Module Name	:	Corporate Web site Accession
Propose/Objectives	:	1. To categorize users who is accessed to Web site. 2. To provide specific information to each user group.
Input	:	User's selection.
Output	:	Access Level control for each user. Specific information is provided for authorized users and Corporate information is provided to interesting people.
Invoker	:	The module 1 is invoke module 1.1, 1.2, 1.3 and 1.4. This module is main module, so it is not invoked by other modules.
Constraint	:	This module depends on the information from more than one module.

Begin

1. To allow user log in from the beginning page area.
2. If user is our new customer, invoke module 1.1.
3. If user is our current customer, invoke module 1.2.
4. If user is our staff, invoke module 1.3.
5. If user is visitor, invoke module 1.4.
6. To provide dynamic corporate introduction Flash screen of Product & Service.

End

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Module Name	:	1.2
Module Name	:	Customer Log in
Propose/Objectives	:	1. To access Sale order processing 2. To obtain online Quotation of Product & Service 3. To proceed the Online payment transaction 4. To obtain Product & Service download packaging 5. To get more benefit & promotion provided to customer 6. To access main corporate areas
Input	:	Customer ID & Password
Output	:	Update Customer & Program Access database
Invoker	:	This module invokes module 1.5, 1.6, 2, 3, 4, 5.
Callee	:	This module 1.2 is called by module1 and 1.1.
Constraint	:	This module depends on the information from more than one Module.

Begin

1. To get Customer ID & Password
2. To read customer information from Database
3. To access in corporate main sites including customer specific areas.
4. To update customer database.

End

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Module Name	:	1.3
Module Name	:	Corporate Log in
Propose/Objectives	:	1. To access full service pages of the web site. 2. To access specifically in Report generating especially for Sales & Marking Information system.
Input	:	Staff ID & Password
Output	:	Update Staff (Marketing & Sales) & Program Access Database. This program concerns just only the staff for Marketing & sales department. The overall staff database is external part responsible from the Technical Operation unit.)
Invoker	:	This module invokes module 1.5, 1.6, 2 – 8..
Callee	:	This module 1.3 is called by module1.
Constraint	:	This module depends on the information from more than one Module.

Begin

1. To get Staff ID and Password.
2. To read Staff information from Database.
3. To access in corporate main sites including customer specific areas.
4. To update customer database.

End

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Module Name	:	1.4
Module Name	:	Visitor Log in
Propose/Objectives	:	1. To access main corporate web site for looking at our Product & Service including Technical developer areas. 2. To be counted in statistic record of user who interested in our company & service.
Input	:	User's selection (ID and Password is no required)
Output	:	Statistic visitor's record and prospect customer counting.
Invoker	:	This module invokes module 2, 7.
Callee	:	This module 1.4 is called by module1.
Constraint	:	This module depends on the information from more than one Module.

Begin

1. To count visitor's access by Statistic web accession software.
2. To provide corporate main pages for visitor.
3. To provide customer registration area.

End

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Module Name	:	1.5
Module Name	:	Retrieve password
Propose/Objectives	:	To provide Password Keyword
Input	:	Login ID
Output	:	Password Keyword
Invoker	:	This module 1.5 is invoked by module 1.2 and 1.3
Callee	:	This module does not have callee.
Constraint	:	This module depends on the information from more than one Module.

Begin

1. To get Login ID online
2. To read Login ID data from Program Aceess Database.
3. To provide password keyword on screen.

End

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Module Name	:	1.6
Module Name	:	Change password
Propose/Objectives	:	To provide Password changing process
Input	:	Login ID & Password
Output	:	New Password & Keyword
Invoker	:	This module 1.6 is invoked by module 1.2 and 1.3
Callee	:	This module does not have callee.
Constraint	:	This module depends on the information from more than one Module.

Begin

1. To get Login ID & Password online
2. To get existing ID & Password
3. To read Login ID & Password from Program Access Database
4. To get new password entry
5. To get new password confirmation re-entry
6. To provide new password confirmation on screen.

End

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Module Name	:	2
Module Name	:	Quotation Issuing
Propose/Objectives	:	To provide Online quotation for our Product & Service
Input	:	User's selection.
Output	:	Online quotation details for printing
Invoker	:	This module 2 does not invoke other modules
Callee	:	This module can be called by module 1.2, 1.3, 1.4
Constraint	:	This module depends on User's Selection

Begin

1. To get quotation request for our product & Service.
2. To provide Quotation Issuing Form
3. To Provide Product & Service selection for user
4. To obtain Quotation details for user
5. To provide Preview Quotation for user's confirmation
6. To provide printing & Cancel command
7. If user select printing command, print the selected Quotation transaction via user's Default printer.

End

Module Name	:	3
Module Name	:	Sell Appliance
Propose/Objectives	:	1. To provide Sales information 2. To get order details 3. To summarize and calculate total sales transaction
Input	:	Order details
Output	:	Order records
Invoker	:	This module 4 invokes module 5-6 depend on User's decision making on purchase the product & service
Callee	:	This module 3 is called by module 1.2.
Constraint	:	This module depends on Information from more than one module.

Begin

1. To get Customer information from database
2. To get order data
3. To provide shopping cart & calculate total sales price for selected Product & Service package
4. To provide order form to contact us for Order Custom design and Consulting service
5. To write new order records.
6. To update new order records

End

Module Name	:	4
Module Name	:	Payment
Propose/Objectives	:	1. To provide Online credit card payment method. 2. To confirm payment transaction 3. To confirm Sales transaction volume
Input	:	Payment details from customer
Output	:	Payment record
Invoker	:	This module 4 invokes module 5-6 depend on User's decision making on purchase the product & service
Callee	:	This module 4 is called by module 1.2.
Constraint	:	This module depends on Information from more than one module.

Begin

1. To get payment detail from customer
2. If user select to pay credit card online, provide SIPS Online payment Gateway solution software co-service with Siam Commercial Bank Co., Ltd.
3. If user select to transfer the payment, provide banking instruction and supported getting product & Service
4. The payment reference ID is provided to customer after completely payment transaction either from 2 or 3.
5. To update user's payment record

End

Module Name	:	5
Module Name	:	Product & Service Enquiries
Propose/Objectives	:	To provide Product & Service for Download or open service connection after completely getting payment from Customer (The other methods of Product Enquiries are not mentioned in this system.)
Input	:	Payment Reference ID
Output	:	Product & Service for download & open service
Invoker	:	This module 5 may invokes module 7
Callee	:	This module 5 is called by module 1.2 and 3, 4.
Constraint	:	This module depends on Information from more than one module.

Begin

1. To get Payment Reference ID from customer
2. To check with Payment Database
3. If completely payment transaction occurred, provide Product & Service
4. To update payment data

End

Module Name	:	6
Module Name	:	Maintenance Information
Propose/Objectives	:	1. To update customer database 2. To update Product & Service database 3. To update Sales Transaction database 4. To update Vendor Information database
Input	:	Modified customer information Modified product & Service information Modified Sales Transaction information Modified Vendor & Vendor Order item information database
Output	:	Updated customer information Updated product & Service information Updated Sales Transaction information Updated Vendor & Vendor Order item information database
Invoker	:	This module is main module, so it does not invoke by other modules.
Callee	:	This module 6 does not have callee.
Constraint	:	This module depends on Information from more than one module.

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Begin

1. To get customer data from customer requested
2. To get product & Service data from Marketing & Sales department and Technical Graphic design & Operation division
3. To get sales transaction data from Marketing & Sales Department
4. To get Vendor and Vendor order Item from Marketing & Sales Department
5. To update modified customer data into customer database
6. To update modified product & Service data into Product & Service database
7. To update modified Sales transaction data into Sales Transaction database
8. To update vendor & Vendor order Item into Vendor & Vendor order Item database

End

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Module Name	:	7
Module Name	:	Online Customer service & Technical Support
Propose/Objectives	:	1. To assist Customer & visitor from our technician and customer service support 2. To create Full integrated area for online technical & customer support service.
Input	:	User's Selection
Output	:	Newsletter membership, FAQ & Help request(s), Technical knowledge & Developer forum area
Invoker	:	This module is main module, so it does not invoke by other modules.
Callee	:	This module 6 does not have callee.
Constraint	:	This module depends on Information from more than one module.

Begin

1. To receive user's information for Newsletter subscription/Un-subscription.
2. To receive FAQ and Question(s) posted for technical support
3. To process viral communities to obtain prospect customer data for Internet marketing
4. To receive Online Help request communicating between Technician and user
5. To receive Email Help request
6. To provide Technical Knowledge & Developer forum page for user
7. To update customer and or Prospect customer into database
8. To response Help & Question request(s) for customer & visitor

9. To process Email Marketing to our prospect customer

10. To response online chatting for Help with Customer and /or visitor

11. To update Technical knowledge page & FAQ frequently

12. To response Email request for Help back to user

End

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Module Name	:	8
Module Name	:	Report Generating
Propose/Objectives	:	To provide online Report generating to Authorized staff logged in the Report Area page (For this Marketing & Sales Information system, Authorized staff will be mentioned only Authorized Marketing & Sales staff)
Input	:	Customer Database Product & Service Database Sales Transaction Database Vendor & Vendor Order item Database (Related database :Order Database, Payment Database, Billing Database, Report database, Program Access Database, Marketing & Sales Database, Quotation Database are included)
Output	:	Customer report Product & Service Report Sales Transaction report Vendor & Vendor Order item information report
Invoker	:	This module 8 is invoked by module 1.3
Callee	:	This module 8 does not have callee.
Constraint	:	This module depends on Information from more than one module.

Begin

1. To read customer data from customer database

2. To read product & service data from product & service database

3. To read sales transactions data from sales transaction database

4. To read vendor & vendor order item data from vendor & vendor item database

5. To read order data from order database

6. To read billing data from billing database

7. To read payment data from payment database

8. To read Quotation data from Quotation database

9. To read Purchase data from Purchase database

10. To read Program Access data from Program Access database

11. To read Report data from Report database

12. To read Marketing & Sales data from Marketing & Sales database

13. To print Customer report

14. To print Product & Service report

15. To print Sales transactions report

16. To print Vendor & Vendor Order Item transaction report

End

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APPENDIX H

MODULE SPECIFICATION

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