

Online Agricultural and Hand-Made Products Shop

by

Mr. Jaturong Pulsawad

A Final Report of the Three-Credit Course
IC 6997 E-Commerce Practicum

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Science
in Internet and E-commerce Technology
Assumption University

July 2004

141869

St. Gabriel's Library, Au

Online Agricultural and Hand-Made Products Shop

by
Mr. Jaturong Pulsawad

A Final Report of the Three-Credit Course
IC 6997 E-Commerce Practicum

Submitted in Partial Fulfillment
of the Requirement for the Degree of
Master of Science
in Internet and E-Commerce Technology
Assumption University

July 2004

Project Title Online Agricultural and Hand-Made Products Shop
Name Mr. Jaturong Pulsawad
Project Advisor Rear Admiral Prasart Sribhadung
Academic Year July 2004

The Graduate School of Assumption University has approved this final report of the three-credit course, IC 6997 E-Commerce Practicum, submitted in partial fulfillment of the requirements for the degree of Master of Science in Internet and E-Commerce Technology

Approval Committee :



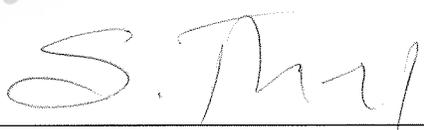
(Rear Admiral Prasart Sribhadung)
Dean and Advisor



(Prof. Dr. Srisakdi Charmonman)
Chairman



(Dr. Ketchayong Skowratananont)
Member



(Assoc. Prof. Somchai Thayarnyong)
CHE Representative

July 2004

ABSTRACT

SiamCraft For You Co., Ltd. was found in the year 2000 and its main business is to export agricultural and hand-made products. Currently there are 4 categories of products which are Artificial Flower, Cotton and Silk, Saa Paper, and Wood. And this project is to create an online E-Commerce Web Site for the company. To achieve this it needs dynamic or server-side scripting languages to build a powerful web application. Therefore this project is developed using a server-side scripting language called ASP from Microsoft Corporation.

In addition to the Web Site, we also consider on the project feasibility. We have a financial analysis section to show the initial and running cost, revenue and break even analysis which is approximately at the middle of 3rd year. Moreover in marketing section we have a market analysis, market target to analyze all possible customers which are inside and outside Thailand, and finally SWOT analysis to study about company strengths and etc.

Finally for a clearer understanding about the Web Site, inside this project we also include the web prototype, web site navigator, layout grids, and database design.

ACKNOWLEDGEMENTS

In doing this project, a lot of person have given contributions, effort, and knowledge. So the writer would like to acknowledge their efforts and thank everyone with their contributions.

He would like to thank Rear Admiral Prasart Sribhadung, his project advisor, for his valuable suggestions and advice during the preparation of this project.

Also he would like to give his sincere thanks to Mr. Thagorn Pongpan, the President of Simcraft For You Co., Ltd., and Mr. Eric Thraiwittiyagul, Sale manager of Siamcraft For You Co., Ltd. for all of their time, advice, and valuable information during the data collection and preparation of this project.

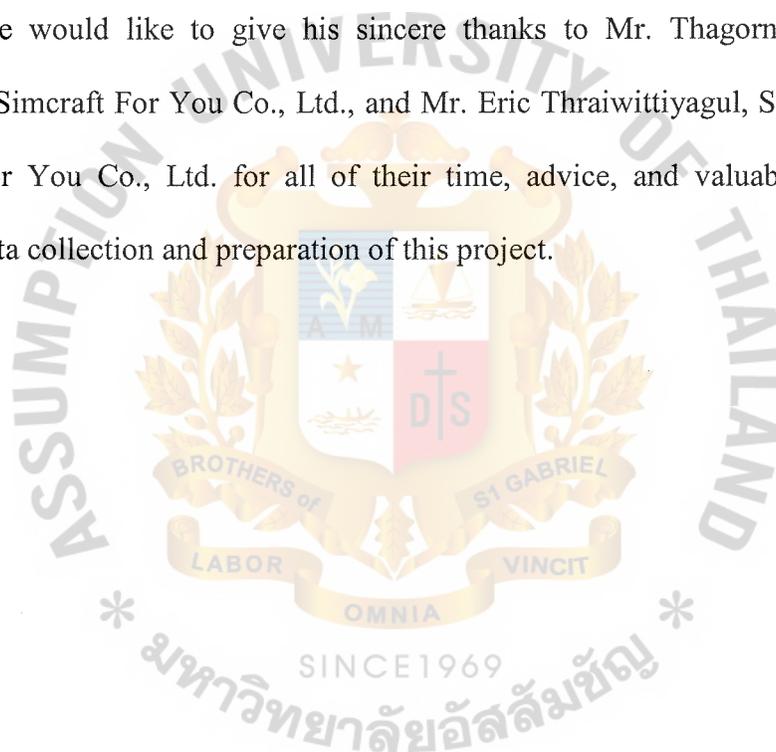


TABLE OF CONTENTS

<u>Chapter</u>	<u>Page</u>
ABSTRACT	i
ACKNOWLEDGEMENTS	ii
LIST OF FIGURES	v
LIST OF TABLES	vi
I. INTRODUCTION	1
1.1 Background of the Project	1
1.2 Objectives of the Project	2
1.3 Scope of the Project	2
1.4 Deliverables	3
II. LITERATURE REVIEW	4
2.1 What is Internet?	4
2.2 Organizational Benefits of Internet and Web Technology	13
2.3 A Brief History of E-Commerce	17
2.4 An E-Commerce Framework	21
2.5 Benefits and Limitations of E-Commerce	23
2.6 Web Advertisement	30
2.7 Why Internet Advertisement?	34
III. THE EXISTING SYSTEM	40
3.1 Background of the Organization	40
3.2 Current Problems and Areas for Improvement	41
IV. MARKET ANALYSIS	42
4.1 Market Analysis	42

<u>Chapter</u>	<u>Page</u>
4.2 Market Target	42
4.3 SWOT Analysis	43
V. FINANCIAL ANALYSIS	46
5.1 Project Cost	46
5.2 Forecast Revenue	47
5.3 Break-Even Analysis	47
VI. WEB PROTOTYPE DESIGN AND DEVELOPMENT	49
6.1 Web Prototype Objective	49
6.2 Web Site Hardware and Software Requirement	49
6.3 Web Site Visual Design	51
6.4 Web Site Navigator	56
6.5 Layout Grids	57
6.6 Database Design	58
VII. CONCLUSIONS AND RECOMMENDATIONS	60
7.1 Conclusions	60
7.2 Recommendations	60
APPENDIX A DATA DICTIONARY	62
BIBLIOGRAPHY	64

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
2.1 Client/Server computing on the Internet	7
2.2 Analysis of an email address	9
2.3 Point-to-Point tunneling protocol (PPTP)	15
5.1 Break-Even Point	48
6.1 Home Page	52
6.2 Frequently Ask Questions	53
6.3 About Us	54
6.4 Contact Us	55
6.5 Layout Grid	57



LIST OF TABLES

<u>Table</u>	<u>Page</u>
2.1 Examples of Internet Client Platforms	6
2.2 Major Internet Services	8
2.3 Internet Benefits to Organizations	13
2.4 From Mass Advertisement to Interactive Advertisement	31
2.5 Advantages and Limitations of Internet Advertisement as Compare to Tradition Media	35
5.1 1st year cost	46
5.2 The following year cost	46
5.3 Forecast Revenue	47
5.4 Break-Even Analysis	48
6.1 Computer Specification	49
6.2 Software Specification	50
6.3 Lists of all tables	58
6.4 Details of each table	59
A.1 Cart	62
A.2 Category	62
A.3 Customer	62
A.4 Product	62
A.5 User	62

I. INTRODUCTION

1.1 Background of the Project

With the speed, flexibility, and efficiency that it offers, the Internet has become the means for conducting growing numbers of transactions between customers, suppliers and large international corporations. In this way, the Internet has opened new markets to organizations all over the world and has changed the operational and managerial strategies. And it creates unprecedented opportunities to organizations because it can remove barriers to their full participation in the new global economy. Also it can help the businesses to be able to run base on 24/7 and 365 days, so this can bring an organization a great opportunity to prosper.

SiamCraft4you Web Site is the new marketing channel of SiamCraft For You Co., Ltd. is the company which has a lot of experience in agricultural and hand made products. SiamCraft For You Co., Ltd. has been set up since the year 2000 by Mr. Thagorn Pongpan and has located in Ayuthaya province which is the one that has so many resources and skill labors. This is one of our strength. Also another point is we can also make custom made products based on customers' requirement.

The goal and the purpose of this Web Site is to extend the existing marketing channel of SiamCraft For You Co., Ltd. to have world wide market and also give an effective online ordering system to customers for them to have the most satisfaction and a convenient way to shop. Also provide the company the effective and cheaper way to promote or launch new products through the Web Site.

1.2 Objectives of the Projects

The followings are the objectives of creating this project

- (1) Create a Web Site for an existing business
- (2) Extend an existing marketing channel for a company to reach more customers world wide
- (3) Provide a customer an online ordering system for them to shop at their ease of convenience time and places
- (4) Provide a new way to promote and launching a new product

1.3 Scope of the Project

The scope of this project is to making a prototype of a company Web Site providing product information to customers. According to the Web, customers can also make an order online, if they are interesting in the products. The scopes of a prototype are as followings;

- (1) To apply the Internet and E-commerce Knowledge obtained from the course into this project.
- (2) Creation of Marketing plan by covering a complete analysis of Competitive Advantage, SWOT analysis. Then design strategies to meet competition and show how implementation will be done.
- (3) Setting Target market, Market Strategies, Market Position and detailed description of 4Ps.
- (4) The report will conduct the marketing research and evaluation to survey the consumer behavior towards the property.
- (5) Web Site would be used to reach global market while eliminating cost of setting up a branch in another country.

- (6) Financial Analysis will be conducted to determine the expected profit and return on investment.
- (7) Both online and offline payment methods would be accepted. (Bank transfer)
- (8) Manage the Web Site effectively to allow users to find information easily and create the security to increase the reliability.
- (9) Provide target market with information about our service, and also create a community for customers to meet

1.4 Deliverables

Deliverables for this project will be as following:

- (1) The final report covers the scope as mentioned.
- (2) The prototype of e-commerce Web Site consists of the property information, the database management and reliable security.
- (3) Web Site information, price, promotion, customer service, security etc will be updated as often as required.
- (4) PowerPoint Presentation

II. LITERATURE REVIEW

2.1 What is Internet?

The internet is perhaps the most well-known, and the largest, implementation of internetworking, linking hundreds of thousands of individual networks all over the world. The internet has a range of capabilities that organizations are using to exchange information internally or to communicate externally with other organizations. Internet technology is providing the primary infrastructure for electronic commerce, electronic business, and the emerging digital firm. The Internet began as a U.S. Department of Defense network to link scientists and university professors around the world. Even today individuals cannot connect directly to the Net, although anyone with a computer, a modem, and the willingness to pay a small monthly usage fee can access it through an Internet Service Provider. An Internet Service Provider (ISP) is a commercial organization with a permanent connection to the Internet that sells temporary connections to subscribers. Individuals also can access the Internet through such popular on-line services as Prodigy and America Online and through networks established by such giants as Microsoft and AT&T.

One of the most puzzling aspects of the Internet is that no one owns it and it has no formal management organization. As a creation of the Defense Department for sharing research data, this lack of centralization was purposeful, to make it less vulnerable to wartime or terrorist attacks. To join the Internet, an existing network needs only to pay a small registration fee and agree to certain standards based on the TCP/IP reference model. Costs are low because the Internet owns nothing and so has no costs to offset. Each organization, of course, pays for its own networks and its own telephone bills, but those costs usually exist independent of the Internet. Regional internet companies have

been established to which member networks forward all transmissions. These Internet companies route and forward all traffic, and the cost is still only that of a local telephone call. The result is that the costs of e-mail and other Internet connections tend to be far lower than equivalent voice, postal, or overnight delivery, making the Net a very inexpensive communications medium. It is also a very fast method of communications, with messages arriving anywhere in the world in a matter of seconds or a minute or two at most. We now briefly describe the most important Internet capabilities.

2.1.1 Internet Technology and services

The Internet is based on client/server technology. Individuals using the Net control what they do through client applications such as Web browser software. All the data, including e-mail messages and Web pages, are stored on servers. A client uses the Internet to request information from a particular Web server on a distant computer and the server sends the requested information back to the client via the Internet.

Client platforms today include not only PCs and other computers but also a wide array of handheld devices and information appliances, some of which can even provide wireless Internet access. Table 2.1 lists examples of some of these devices. Experts believe that the role of the PC or desktop computer as the Internet client is diminishing as people turn to these easy-to-use specialized information appliances to connect to the Internet.

Servers dedicated to the Internet or even to specific Internet services are the heart of the information on the Net. Each Internet service is implemented by one or more software programs. All of the services may run on a single server computer, as illustrated in Figure 2.1, or different services may be allocated to different machines.

Table 2.1. Examples of Internet Client Platforms.

Device	Description	Example
PC	General Purpose computing platform that can perform many different tasks, but can be complex to use	Dell, Compaq, IBM Pcs
Net PC	Network computer with minimal local storage and processing capability; designed to use software and services delivered over networks and the Internet	Sun Ray
Pager	Provides limited e-mail and Web browsing	BlackBerry (blackberry.net)
Smart Phone	Has a small screen and keyboard for browsing the Web and exchanging e-mail in addition to providing voice communication	Nokia 7110
Game Machine	Game machine with a modem, keyboard, and capabilities to function as a Web access terminal	Sega Dreamcast(sega.com)
PDA	Wireless handheld personal digital assistant with e-mail and Internet service.	Palm VII
E-mail machine	Tablet with keyboard that provides textual e-mail capabilities; requires linking to an e-mail service	Mailstation (www.cidco.com)
Set Top Box	Provides Web surfing and e-mail capabilities using a television set and a wireless keyboard	WebTV (www.webtv.com)

There may be only one disk storing the data for these services, or there may be multiple disks for each type, depending on the amount of information being stored.

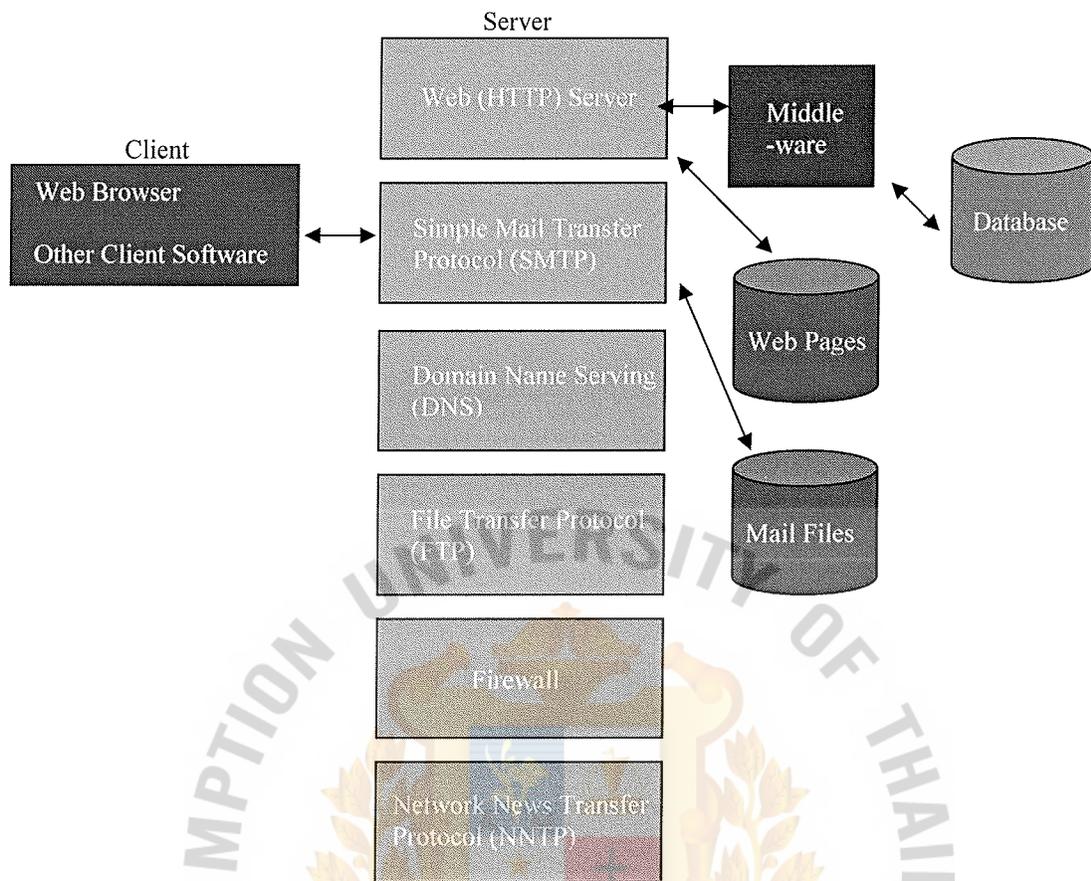


Figure 2.1. Client/server computing on the internet. Client computers running Web browser and other software can access an array of services on servers via the Internet. These services may all run on a single server or on multiple specialized servers.

Web Server software receives requests for Web pages from the client and accesses the Web pages from the disk where they are stored. Web servers can also access other information from an organization's internal information system applications and their associated databases and return that information to the client in the form of Web pages if desired. Specialized middleware, including application servers, is used to manage the interactions between the web server and organization's internal information systems for processing orders, tracking inventory, maintaining product catalogs, and other electronic commerce functions. For example, if a customer filled out an on-line form a Web page

to order a product such as a light fixture, the middleware would translate the request on the Web page into commands that could be used by the company's internal order processing system and customer database.

The most important Internet services for business including e-mail, Usenet newsgroups, LISTSERVs, chatting, Telnet, FTP, gophers, and the World Wide Web. They can be used to retrieve and offer information. Table 2.2 lists these capabilities and describes the functions they support.

Table 2.2. Major Internet Services.

Capability	Functions Supported
E-mail	Person-to-person messaging; document sharing
Usenet newsgroup	Discussion groups on electronic bulletin boards
LISTSERVs	Discussion groups and messaging using e-mail mailing list servers
Chatting	Interactive conversations
Telnet	Log on to one computer system and do work on another
FTP	Transfer files from computer to computer
Gophers	Locate information using a hierarchy of menus
World Wide Web	Retrieve, format, and display information (including text, audio, graphics, and video) using hypertext links

2.1.2 Internet Tools for Communication

Electronic Mail (E-mail). The Net has become the most important e-mail system in the world because it connects so many people worldwide, creating a productivity gain that observers have compared to Guttenberg's development of movable type in the fifteenth century. Organizations use it to facilitate communication between employees and offices, and to communicate with customers and suppliers.

Researchers use this facility to share ideas, information, and even documents. E-mail over the Net also has made possible many collaborative research and writing projects, even though the participants are thousands of miles apart. With proper software, the user finds it easy to attach documents and multimedia files when sending a message to someone or to broadcast a message to a predefined group.

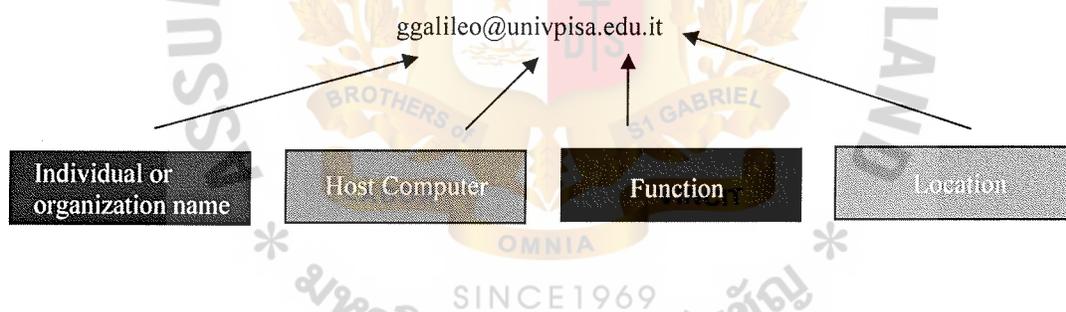


Figure 2.2. Analysis of an email address.

Figure 2.2 illustrates the components of an Internet e-mail address. The portion of the address to the left of the @ symbol in a Net e-mail address is the name or identifier of the specific individual or organization. To the right of the @ symbol is the domain name. The domain name is the name that identifies a unique node on the Internet. The domain name corresponds to a unique four-part numeric. Internet Protocol (IP) address for each computer connected to the Internet. (For example, the domain name

www.prenhall.com has the IP address 198.4.159.10.) A Domain Name System (DNS) maps domain names to their addresses.

Usenet Newsgroups (Forums) are worldwide discussion groups in which people share information and ideas on a defined topic such as radiology or rock bands. Discussion takes place in large electronic bulletin boards where anyone can post messages for others to read. Many thousands of groups exist discussing almost all conceivable topics. Each Usenet Site is financed and administered independently.

LISTSERV. a second type of public forum, *LISTSERV*, allows discussions or messaging to be conducted through predefined groups but uses e-mail mailing list servers instead of bulletin boards for communications. If you find a *LISTSERV* topic you are interested in, you may subscribe. From then on, through your e-mail, you will receive all messages sent by others concerning that topic. You can, in turn, send a message to your *LISTSERV* and it will automatically be broadcast to the other subscribers. Many thousands of *LISTSERV* group exist.

Chatting allows two or more people who are simultaneously connected to the Internet to hold live, interactive conversation. Chat groups are divided into channels, and each is assigned its own topic of conversation. The first generation of chat tools was for written conversations in which participants type their remarks using their keyboard and read responses on their computer screen. Systems featuring voice chat capabilities such as those offered by Yahoo chat are now becoming popular. A new enhancement to chat service called instant messaging even allows participants to create their own private chat channels. The instant messaging system alerts a person whenever someone on his or her private list is on-line so that the person can initiate a chat session with that particular individual. There are several competing instant messaging systems including Yahoo messenger and America Online's Instant Messenger. Some of these systems can provide

voice-based instant messages so that a user can click on a “talk” button and have an on-line conversation with another person. Chatting can be an effective business tool if people who can benefit from interactive conversations set up an appointed time to “meet” and “talk on a particular topic. Many on-line retailers are enhancing their Web Sites with chat services to attract visitors, to encourage repeat purchases, and to improve customer service.

Telnet allows someone to be on one computer system while doing work on another. Telnet is the protocol that establishes an error-free, rapid link between the two computers, allowing you, for example, to log on to your business computer from a remote computer when you are on the road or working from your home. You can also log in and use third-party computers that are accessible to the public, such as using the catalog of the U.S. Library of Congress. Telnet uses the computer address you supply to locate the computer you want to reach and connect you to it.

2.1.3 Information Retrieval on the Internet

Information retrieval is a second basic Internet function. Many hundreds of library catalogs are on-line through the Internet, including those of such giants as the Library of Congress, the University of California, and Harvard University. In addition, users are able to search many thousands of databases that have been opened to the public by corporations, governments, and nonprofit organizations. Many use the Internet to locate and download some of the free, quality computer software that has been made available by developers on computers all over the world.

The Internet is a voluntary, decentralized effort with no central listing of participants or sites, much less a listing of the data located at those sites, so a major problem is finding what you need from among the storehouses of data found in

databases and libraries. Here we introduce two major methods of accessing computers and locating files.

File transfer protocol (FTP) is used to access a remote computer and retrieve files from it. FTP is a quick and easy method if you know the remote computer site where the file is stored. After you have logged on to the remote computer, you can move around directories that have been made accessible for FTP to search for the file(s) you want to retrieve. Once files are located, FTP makes transfer of the file to your own computer very easy.

Gophers most files and digital information that are accessible through FTP also are available through gophers. A gopher is a computer client tool that enables the user to locate information stored on Internet gopher servers through a series of easy-to-use, hierarchical menus. The Internet has many thousands of gopher server sites throughout the world. Each gopher site contains its own system of menus listing subject-matter topics, local files, and other relevant gopher sites. One gopher site might have as many as several thousand listings within its menus. When you use gopher software to search a specific topic and select a related item from a menu, the server will automatically transfer you to the appropriate file on that server or to the selected server on which it is located. Once on that server, the process continues; you are presented with more menus of files and other gopher site servers that might interest you. You can move from site to site, narrowing your search as you, locating information anywhere in the world. With descriptive menu listings linked to other gopher sites, you do not need to know in advance where relevant files are stored or the exact FTP address of a specific computer.

2.2 Organizational Benefits of Internet and Web Technology

The Internet, intranets, and extranets are becoming the principal platforms for electronic commerce, electronic business, and the digital firm because this technology provides so many benefits. The Internet's global connectivity, ease of use, low cost, and multimedia capabilities can be used to create interactive applications, and provide services and products. By using Internet technology, organizations can reduce communication and transaction costs, enhance coordination and collaboration, and accelerate the distribution of knowledge. Table 2.3 summarizes these benefits.

Table 2.3. Internet Benefits to Organizations.

Connectivity and global reach
Reduced communication costs
Lower transaction costs
Reduced agency costs
Interactivity, flexibility, and customization
Accelerated distribution of knowledge

2.2.1 Connectivity and Global Reach

The value of internet lies in its ability to easily and inexpensively connect so many people from so many places all over the globe. Anyone who has an Internet address can log on to a computer and reach any other computer on the network, regardless of location, computer type, or operating system.

The internet's global connectivity and ease of use can provide companies with access to business or individuals who normally would be outside their reach. Companies can link directly to suppliers, business partners, and individual customers, at the same

low cost, even if they are halfway away around the globe. The Internet provides a low-cost medium for forming global alliances. The Web provides a standard interface and inexpensive global access, which can be used to create interorganizational systems among almost any organizations. The Internet has made it easier and less expensive for companies to coordinate their staff when opening new markets or working in isolated places, because they do not have to build their own networks. Small companies who ordinarily would find the cost of operating or selling abroad too expensive will find the Internet especially valuable.

2.2.2 Reduced Communication Costs

Before the Net, organizations had to build their own wide area networks or subscribe to value-added network (VAN) service. Employing the Internet, although far from cost-free, is certainly more cost-effective for many organizations than building one's own network or paying VAN subscription fees. Thus Internet can help organizations reduce operational costs or minimize operational expenses while extending their activities. Internet technology can also reduce communication costs by allowing companies to create virtual private networks as low-cost alternatives to private WANs. A virtual private network (VPN) is a secure connection between two points across the Internet and is available through ISPs. The VPN provides many features of a private network at a much lower cost than using private leased telephone lines or frame-relay connections. Companies can save on long-distance communication costs, because workers can access remote locations for the cost of making a local call to an ISP. Figure 2.3 illustrates how a virtual private network works using point-to-point tunneling protocol (PPTP), which is one of several competing protocols used to protect data transmitted over the public Internet. Companies are starting to use VPNs to reduce their wide area networking expenses.

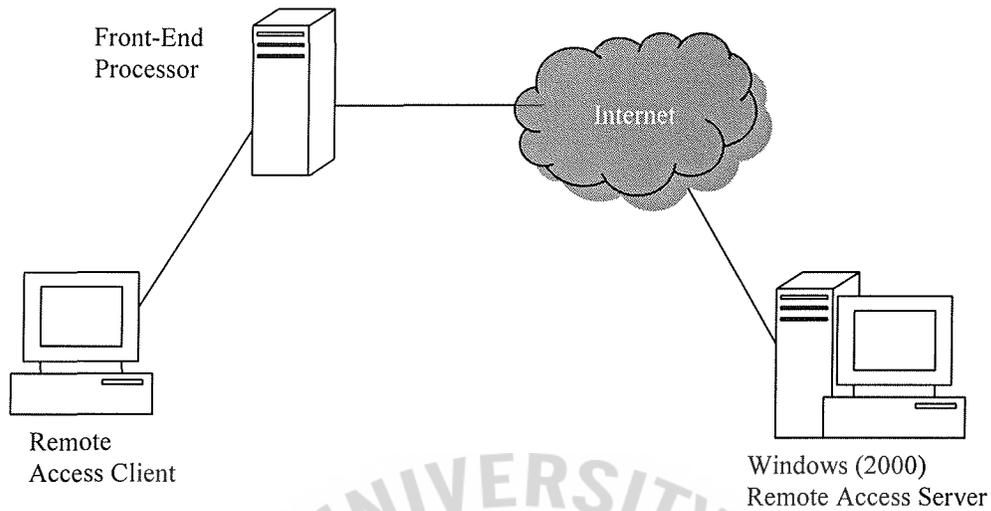


Figure 2.3. Point-to-Point tunneling protocol (PPTP).

2.2.3 Lower Transaction Costs

Businesses have found that conducting transactions electronically can be done at a fraction of the cost of paper-based processes. Using Internet technology reduces these transaction costs even further. For example, BeamScope Canada Inc. of Richmond Hill, Ontario, finds it can process Web orders for about 80 cents versus \$5 for live orders. Each time Federal Express clients use FedEx's Web Site to track the status of their packages instead of inquiring by telephone. FedEx saves \$8, amounting to a \$2 million savings in operating costs each year.

2.2.4 Reduced Agency Costs

As organizations expand and globalization continues, the need to coordinate activities in remote locations is becoming more critical. The Internet reduces agency costs-the cost of managing employees and coordinating their work by providing low-cost networks and inexpensive communication and collaboration tools that can be used on a global scale.

2.2.5 Interactivity, Flexibility, and Customization

Internet tools can create interactive applications that can be customized for multiple purposes and audience. Web pages have capabilities for interacting with viewers that cannot be found in traditional print media. Visitors attracted by alluring displays of text, graphics, video, and sound also can click on hot buttons to make selections, take action, or look for additional information. Companies can use e-mail, chat rooms and electronic discussion groups to create ongoing dialogues with their customers, using the information they have gathered to tailor communication precisely to fit the needs of each individual. They can create dynamic pages that reflect each customer's interest, based on information the customer has supplied to the Web Site. The content of a dynamic page changes in response to user input at a Web Site.

2.2.6 Accelerated Distribution of Knowledge

In today's information economy, rapid access to knowledge is critical to the success of many companies. The Internet helps with this problem. Organizations are using e-mail and on-line databases to gain immediate access to information resources in key areas such as business, science, law, and government. With blinding speed, the Internet can link a lone researcher sitting at a computer screen to mountains of data (including graphics) all over the world, which would be otherwise too expensive and too difficult to tap. For example, scientists can obtain photographs taken by NASA space probes within an hour of the pictures being taken. It has become easy and inexpensive for corporations to obtain the latest U.S. Department of Commerce statistics, current weather data, and laws of legal entities worldwide.

In addition to accessing public knowledge resources on the Internet and the Web, companies can create internal Web Sites (intranets) as repositories of their own organizational knowledge. Multimedia Web pages can organize this knowledge, giving

employees easy access to information and expertise. Web browser software provides a universal interface for accessing information resources from internal corporate databases as well as external information sources.

2.3 A Brief History of E-Commerce

E-Commerce applications were first developed in the early 1970s with innovations such as electronic fund transfer (EFT). However, the extent of the applications was limited to large corporations, financial institutions, and a few daring small businesses. Then came electronic data interchange, known as EDI, which expanded from financial transactions to other types of transaction processing, thus enlarging the pool of participating companies from financial institutions to manufacturers, retailers, services, and many other types of businesses. More new E-Commerce applications followed, ranging from stock trading to travel reservation systems. Such systems were described as IOS applications, and their strategic value was widely recognized.

As the Internet became more commercialized and users flocked to participate in the World Wide Web in the early 1990s, the term “Electronic” was coined and E-Commerce applications rapidly expanded. One reason for the rapid expansion of e-commerce was the development of new networks, protocols, software, and specifications. The other reason was the increase in competition and other business pressures.

Since 1995, Internet users have witnessed the development of many innovative applications ranging from interactive advertisements to virtual reality experiences. Almost every medium- and large-sized organization in the world now has a Web Site and most large U.S. corporations have comprehensive portals. Many these site contain tens of thousand of pages and links. In 1999, the emphasis of E-Commerce shifted from

B2C to B2B. Also, consolidation is now taking place following a number of industry failures in the late 1990s.

2.3.1 The Interdisciplinary Nature of E-Commerce

Since E-Commerce is a new field, it is just now developing its theoretical and scientific foundations. Just from a brief overview of the different E-Commerce models and infrastructure, it is clear that E-Commerce based on several different disciplines. The major E-Commerce disciplines and some samples of the issues with which they are concerned follows:

- (1) *Marketing*. Many off-line marketing issues are relevant to online E-Commerce, for example, cost benefits of advertisements and advertisement strategies. Other issues are unique to E-Commerce, such as online marketing strategies and interactive kiosks.
- (2) *Computer sciences*. Many of the issues, such as computer languages, multimedia, and networks, fall into the discipline of computer science. Intelligent agents also play a major role in E-Commerce.
- (3) *Consumer behavior and psychology*. Consumer behavior is the key to the success of B2C trades, but so is the behavior of the sellers. The relationship between culture and consumer attitudes in electronic markets is an example of a research issue in this field.
- (4) *Finance*. The financial markets and banks are one of the major participants in E-Commerce as payments are part of most online transactions. Issues such as paying for small transactions, smart cards, and fraud in online stock transactions are a sampling of the many finance-related topics.
- (5) *Economics*. E-Commerce is influenced by economic forces and has a major impact on both global and national economies. Economists are currently

examining the application of microeconomics to E-Commerce planning and the economic impact of E-Commerce on corporations.

- (6) *Management information systems (MIS)*. The information systems department is usually responsible for the deployment of E-Commerce. This discipline covers issues ranging from systems analysis to system integration, as well as E-Commerce planning and implementation, security, and payment systems.
- (7) *Account and auditing*. The back office operations of electronic transactions are similar to off-line transactions in some respects, but different in others. Auditing electronic transactions presents a challenge for the accounting profession; as does the development of methodologies for cost benefit justification.
- (8) *Management*. E-Commerce efforts need to be managed properly, and because of the interdisciplinary nature of E-Commerce, its management may require new approaches and theories.
- (9) *Business law and ethics*. Legal and ethical issues are extremely important in E-Commerce, especially in the global marketplace. A large number of legislative bills are pending. Many of the ethical issues regarding E-Commerce are interrelated with legal ones, such as those involving privacy rights and intellectual property.
- (10) *Others*. Several other disciplines are involved in various aspects of E-Commerce to a lesser extent – for example, linguistics (transactions in international trades), robotics and sensory systems, operations research/management science, statistics, and public policy and

administration. Also, E-Commerce is of interest to the engineering, health care, communications, and entertainment fields.

2.3.2 E-Commerce Failure

Starting in 1999, a large number of E-Commerce companies, especially e-tailing ones, began failing (startupfailures.com) At the same time, many E-Commerce initiatives in click-and-mortar organizations were discontinued. Does this mean that E-Commerce is just a buzzword and its days are numbered? Absolutely not! The E-Commerce field is basically experiencing consolidating as companies test different business models and organizational structures. Most E-Commerce companies, including giants such as Amazon.com, are not making a profit. They are expanding operations and generating increasing sales. By 2006 Pc-Based E-Commerce is expected to grow to \$105 billion which is about \$75 billion this year (www.ecommercetimes.com).

2.3.4 The Future of E-Commerce

In 1996, Forrester Research Institute (forrester.com) predicted that B2C would be \$6.6 billion business in 2000, up from \$518 million in 1996. They then revised the figure to \$20 billion, and the figure kept growing. In 1997, about \$10 billion worth of B2B transactions were conducted over the Internet. Today's predictions on the future size of E-Commerce vary. For 2004, total online shopping and B2B transactions are estimated to be in the range of \$2 to \$7 trillion. Some E-Commerce applications, such as online auctions and online stock trading, are growing at a rate of 15 to 25 percent per month. The number of Internet users worldwide is predicted to reach 750 million by 2008. Experts predict that as many as 50 percent of all Internet users will shop online.

2.4 An E-Commerce Framework.

Many people think E-Commerce is just having a Web Site or a corporate portal, but E-Commerce is much more than that. There are dozens of applications including shopping in online stores and malls, buying stocks, finding a job, conducting an auction, collaborating electronically on research and development projects, and running global exchanges. To execute these applications, companies need the right information, infrastructure, and support systems. Successful E-Commerce implementation is dependent also on five major areas: people, public policy, marketing and advertisement, business partners, and support services.

- (1) *People.* These sellers, buyers, intermediaries, IT employees, and any other participant.
- (2) *Public policy.* These are legal and other policy issues, such as privacy protection, that are determined by the government. Public policy includes: technical standards and protocols.
- (3) *Marketing and advertisement.* The Web is huge, so it is necessary to attract customers to the Web Site using both traditional and new marketing and advertisement strategies.
- (4) *Business partners.* E-Commerce usually occurs throughout the supply chain between or among business partners.
- (5) *Support services.* Large numbers of support services are needed. Most important are market research, content creation and other services, payments, logistics, IT support, and security.

All of these infrastructure and support components require good management practices. This means that companies need to plan, organize, motivate, devise strategy, and reengineer processes as needed.

2.4.1 Classification of the E-Commerce Field by the Nature of the transactions

A common classification of E-Commerce is by the nature of the transaction. The following types of transactions are distinguished:

- (1) *Business-to-business (B2B)*. All of the participants in this type of E-Commerce are businesses or other organizations. Today most E-Commerce is B2B (Cunningham, 2001). B2B transactions include the IOS transactions and E-market transactions between and among organization.
- (2) *Business-to-consumer (B2C)*. These transactions include retail transactions with individual shoppers. The typical shopper at Amazon.com is a consumer, or customer. This business model is also called E-tailing.
- (3) *Consumer-to-consumer (C2C)*. In this category, consumers sell directly to other consumers. Examples include individuals selling residential property, cars, and so on in classified ads (e.g., classifieds2000.com). The advertisement of personal services over the Internet and the selling of knowledge and expertise online are other examples of C2C. In addition, several auction sties allow individuals to place items up for auction. Finally, many individuals use personal Web pages and portals as well as intranets to advertise items or personal services.
- (4) *People-to-people (P2P)*. This type of transaction is a special type of C2C where people exchange CDs, videos, software, and other goods. A well known organizer of P2P is Napster (napster.com)
- (5) *Consumer-to-business (C2B)*. This category includes individuals who use the Internet to sell products or services to organizations, as well as individuals who seek sellers, interact with them, and conclude transactions online. Priceline.com is a well-known C2B organizer.

- (6) *Intrabusiness (Organizational) EC*. This category includes all internal organizational activities, usually performed on intranets or corporate portals, which involve the exchange of goods, services, or information among various units and individuals in that organization. Activities can range from selling corporate products to employees to online training and collaborative design efforts.
- (7) *Business-to-employees (B2E)*. This is a subset of the intrabusiness category where the organization delivers services, information, or products to individual employees.
- (8) *Government-to-citizens (G2C) and to others*. In this type of E-Commerce, a government entity buys or sells goods, services, or information to businesses or individual citizens.
- (9) *Exchange-to-exchange (E2E)*. With the proliferation of exchanges and portals, it is logical for exchanges to connect to one another. E2E is a formal system that connects exchanges.
- (10) *Collaborative commerce*. C-Commerce is an application of IOS for electronic collaboration between business partners and between organizational employees.
- (11) *Mobile commerce*. When E-Commerce takes place in a wireless environment, it is called mobile commerce (m-commerce).

2.5 Benefits and Limitations of E-Commerce

Few innovations in human history encompass as many potential benefits as E-Commerce does. The global nature of the technology, the opportunity to reach hundreds of millions of people, its interactive nature, the variety of possibilities for its use, as well as the resourcefulness and rapid growth of its supporting infrastructures, especially the

St. Gabriel's Library, Au

Web, will result in many potential benefits to organizations, individuals and society. These benefits are just starting to materialize, but they will increase significantly as E-Commerce expands. It is not surprising that some maintain that the E-Commerce revolution is just “as profound as the change that came with the industrial revolution”.

2.5.1 Benefits to Organizations

The benefits to organizations are as follows:

- (1) Electronic commerce expands the marketplace to national and international markets. With minimal capital outlay, a company can easily and quickly locate more customers, the best suppliers, and the most suitable business partners worldwide. For example, Boeing Corporation reported a savings of 20 percent after a request for a proposal to manufacture a subsystem was posted on the Internet. A small vendor in Hungary answered the request and won the electronic bid. Not only was the subsystem cheaper, but it was delivered about twice as quickly.
- (2) Electronic commerce decreases the cost of creating, processing, distributing, storing, and retrieving paper-based information, For example, by introducing an electronic procurement system, companies can cut purchasing administrative costs by as much as 85 percent.
- (3) Supply chain inefficiencies, such as excessive inventories and delivery delays, can be minimized with E-Commerce. For example, by building autos to order instead of for dealer's showrooms, the automotive industry is expected to save ten of billions of dollars annually just from inventory reduction. This approach is based on the concept of pull-type production, which begins when an order is placed.

- (4) Pull-type processing allows for inexpensive customization of products and services and provides a competitive advantage for companies who implement this strategy. A well-known example of pull-type processing is that used by Dell Computer Corp.
- (5) E-Commerce allows for many innovative business models that provide strategic advantages and/or increase profits. Group purchasing combined with reverse auctions is one example of such an innovative business model.
- (6) E-Commerce allows for a high degree of specialization that is not economically feasible in the physical world. For example, a store that sells only dog toys can operate in cyberspace (dogtoys.com), but in the physical world such a store would not have enough customers.
- (7) E-Commerce reduces the time between the outlay of capital and the receipt of products and services.
- (8) E-Commerce supports BPR efforts. By changing processes, the productivity of sales people, knowledge workers, and administrators can increase by 100 percent or more.
- (9) E-Commerce lowers telecommunications costs – the Internet is much cheaper than VANs.
- (10) E-Commerce enables efficient e-procurement that can reduce administrative costs by 80 percent or more, reducing purchasing prices by 5 to 15 percent, and reducing cycle time by more than 50 percent.
- (11) E-Commerce enables companies to interact more closely with customers, even if through intermediaries. This promotes better CRM and increases customer loyalty.

- (12) Other benefits include improved corporate image, improved customer service, new business partners, simplified processes, compressed time-to-market, increased productivity, reduced paper and paperwork, increased access to information, reduced transportation costs, and increase flexibility.

Here are some other examples of savings:

- (1) It costs a bank \$1.08 to perform a simple teller transaction at a branch. On the Web, the same transaction costs only \$.10.
- (2) The cost of issuing an airline ticket on the web is \$1. With a physical system the transaction costs \$8.
- (3) It costs \$70 to make an average appointment over the phone, but only \$10 on the Internet.
- (4) Each transaction costs a bricks-and-mortar retailer \$12 to \$20. Selling over the Internet reduces it to \$2.
- (5) The administrative cost to send a bill is \$1.60. This amount can be cut in half if bills are sent electronically.
- (6) It costs the U.S. government \$.43 to issue a paper check vs. \$.02 to send the same payment electronically.

2.5.2 Benefits to Consumers

The benefits of E-Commerce to consumers are as follows:

- (1) E-Commerce allows consumers to shop or perform other transactions year round, 24 hours a day, from almost any location.
- (2) E-Commerce provides consumers with more choices; they can select from many vendors and from more products.

- (3) E-Commerce frequently provides consumers with less expensive products and services by allowing them to shop in many places and conduct quick comparisons.
- (4) In some cases, especially with digitized products, E-Commerce allows for quick delivery.
- (5) Consumers can locate relevant and detailed product information in seconds, rather than days or weeks.
- (6) E-Commerce makes it possible to participate in virtual auctions. These allow sellers to sell things quickly and buyers to locate collectors' items and bargains.
- (7) E-Commerce allows consumers to interact with other customers in electronic communities and exchange ideas as well as compare experiences.
- (8) E-Commerce facilitates competition, which results in substantially lower prices for consumers.

2.5.3 The Limitations of E-Commerce

There are both technical and non-technical limitations of E-Commerce; most of these limitations are as follows:

(1) Technical Limitations of E-Commerce

The major technical limitations of E-Commerce are as follows:

- (a) System security, reliability, standards, and some communications protocols are still evolving.
- (b) In many areas, telecommunications bandwidths are insufficient.
- (c) Software development tools are still evolving and changing rapidly.
- (d) It is difficult to integrate the Internet and E-Commerce software with some existing applications and databases.

St. Gabriel's Library, Au

- (e) Vendors may need special Web servers,, network servers, and other infrastructure developments.
- (f) Some E-Commerce software might not fit with some hardware, or it may be incompatible with certain operating systems or components.

As time passes, these limitations will lesson or will be overcome. Appropriate planning can minimize their impact.

(2) Non-technical Limitations

The following are the major limitations that slow the spread of E-Commerce.

- (a) The cost of developing E-Commerce in-house can be very high and mistakes made due to lack of experience may result in delays. There are many opportunities for outsourcing, but where and how to do it are not simple issues. Furthermore, to justify the system one must deal with some intangible benefits (such as improved customer service and the value of advertisement), which are difficult to quantify.
- (b) Security and privacy are important in the B2C area, especially security issues, which are perceived to be more serious than they really are (if appropriate controls are used). Privacy protection measures are constantly being improved. Customers think these issues are very important. The E-Commerce industry has a very long and difficult task of convincing customers that online transactions and privacy are, in fact, very secure.
- (c) In many cases, customers do not trust an unknown, faceless seller, paperless transactions, and electronic money. Because of this, switching consumer preferences from physical to virtual stores may be difficult.
- (d) Some customers like to touch items, such as clothes, so they know exactly what they are buying.

- (f) Many legal issues are as yet unresolved, and in many circumstances government regulations and standards are not yet redefined enough to deal with the intricacies of E-Commerce.
- (g) As a discipline, E-Commerce is still evolving and changing rapidly. Many people are looking for E-Commerce to stabilize before they enter into it.
- (h) E-Commerce does not have enough support services. For example, copyright clearance centers for E-Commerce transactions are just starting to appear and qualified E-Commerce tax experts are rare.
- (i) In many areas there is not enough critical mass for E-Commerce to be successful. In most applications, there are not yet enough sellers and buyers for profitable E-Commerce operations.
- (j) Some fear that as E-Commerce reduces face-to-face social transactions, there could be a breakdown in human relationships.
- (k) Internet access is still expensive and/or inconvenient for many potential customers. (With Web TV, kiosks, cell phones and constant media attention, the critical mass will eventually develop.)

Despite these limitations, E-Commerce is rapidly expanding. For example, the number of people in the United States who buy and sell stocks electronically increased from 300,000 at the beginning of 1996 to over 17 million by the fall of 2001. In Korea, about 60 percent of all stock market transactions took place over the Internet in the fall of 2001 (versus 2 percent in 1998), and, according to J.P. Morgan, the number of online brokering customers in Europe will reach 17.1 million in 2003 (versus 1.4 million in 1999). As experience accumulates and technology improves, the cost-benefit ratio of E-Commerce will increase, resulting in greater rates of E-Commerce adoption.

The benefits presented here may not be convincing enough reasons for a business to implement E-Commerce. Much more compelling are the business pressures discussed earlier that will force many companies to engage in E-Commerce and the characteristics of the digital economy.

2.6 Web Advertisement

Using the Internet, advertisers can focus on special interest groups (segmentation) and even on individuals, which is useful in direct marketing. Such activities and many more are part of new approach to advertising in the new economy. Advertisement is an attempt to disseminate information in order to affect a buyer-seller transaction. In the traditional sense, advertisement was impersonal, one-way mass communication, which was paid for by sponsors. Telemarketing and direct mail were attempts to personalize advertisement in order to make it more effective. These direct marketing approaches worked fairly well but were expensive and slow. For example, a direct mail campaign costs about \$1 per person. However, the response rate is only 1 to 3 percent. This makes the cost per responding person \$33 to \$100. Such an expense can be justified only for high-ticket items.

One of the problems with direct mail advertising was that the advertisers knew very little about the recipients. Segmentation helped a bit, but did not solve the problem. The Internet redefined the meaning of advertisement. The Internet has enabled advertisers to learn about customers and to interact directly with them. In interactive marketing, a consumer can click on an ad for more information or send an e-mail to ask a question. The Internet has provided sponsors with two-way communication and e-mail capabilities, as well as allowing them to target specific groups on which they want to spend their advertising dollars. Finally, the Internet enables a truly one-to-one advertisement. A comparison of these concepts are shown in Table 2.4

Brick-and-mortar companies use Internet advertisements as one of their advertisement channels; at the same time virtual (online) companies may use TV, newspapers, or other resources as advertisement channels.

Table 2.4. From Mass Advertisement to Interactive Advertisement.

	Mass Marketing	Direct Marketing	Interactive Marketing
Best Outcome	Volume sales	Customer data	Customer relationships
Consumer Behavior	Passive	Passive	Active
Leading Products	Food, personal care products, beer, autos	Credit cards, travel, autos	Upscale apparel, travel, financial services, autos
Market	High volume	Targeted goods	Targeted individual
Nerve Center	Madison Ave	Postal distribution centers	Cyberspace
Preferred Media	Television, magazines	Mailing lists	Online services
Vehicle			
Preferred	Storyboards	Databases	Servers, on-screen
Technology			navigators, the Web
Worst Outcome	Channel surfing	Recycling bins	Log off

In this section we deal with Internet advertisement in general, regardless of who uses it. Also we will show how the advertisement part of interactive marketing is implemented online. Most of the discussion of this section is relevant for B2C only. However, some methods and strategies can be used in B2B as well. First let's start by providing some essential advertising terminology.

2.6.1 Internet Advertising Terminology

There is some confusion regarding Web advertising terminology. Hence, the following glossary may be of help;

- (1) *Ad views*. Also known as page views or impressions, ad views are the number of times users call up a page with a banner during a specific time (e.g., “ad views per day”). The actual number of times the ad is seen by users may differ because of “caching” (which increases the real number of ad views) and browsers that view documents but ignore the ads (which decrease this number).
- (2) *Banner*. A banner is a graphic display on a Web page that is used for advertising. The size of the banner is usually 5 to 6.250 inches in length, 0.5 to 1 inch wide, and is measured in pixels. A banner ad is linked to an advertiser’s Web page. When a user “clicks” on the banner, he or she will be transferred to the advertiser’s site.
- (3) *Button*. A button is a small banner that is linked to a Web Site. It may contain downloadable software.
- (4) *Click*. A click (or ad click or click-through) is counted each time a visitor clicks on an advertising banner to access the advertiser’s Web Site.
- (5) *Click ratio*. A ratio indicating the success of an advertising banner in attracting visitors to click on the ad. For example, if a page received 1,000 views and there are 100 “clicks” on a banner, the click ratio is 10 percent.
- (6) *Cookie*. A cookie is a program that is stored on the user’s hard drive, frequently without disclosure or the user’s consent. Sent by a Web server over the Internet, the information stored will surface when the user’s browser again crosses the specific Web server.

- (7) *CPM*. The CPM is the cost-per-thousand impressions. This is the fee that the advertiser pays when 1,000 people view the page a banner ad is on.
- (8) *Hit*. Web term for any request for data from a Web page or file, often used to compare popularity/traffic of a site in the context of getting so many “hits” during a given period. One hit represents one file retrieved from the server. Every access to a Web server counts as a hit. A qualified hit is one that successfully retrieves content from the server. A single page view may be recorded as several hits, and depending on the browser, the page size, and other factors, the number of hits per page can vary widely.
- (9) *Impressions*. See ad views. This is also referred to as the exposure to an ad.
- (10) *Interactive advertisement*. An interactive advertisement is any ad that requires or allows the viewer/consumer to take some action. In the broadcast sense, even clicking on a banner is an interaction. However, usually action is defined as sending a query or looking for detailed information.
- (11) *Page*. A page is an HTML document that may contain text, images, and other online elements, such as Java applets and multimedia files. It may be statically or dynamically generated.
- (12) *Reach*. This is the number of people or households exposed to an ad at least once over a specified period of time.
- (13) *Visit*. A visitor may make a sequence of requests during one visit to a site. Once a visitor stops making requests from a site for a given period of time called a timeout (usually 15 or 30 minutes), the next hit by this visitor is considered a new visit. In a unique visit, one can identify the visitor by asking the user to register or by placing a cookie on the user’s computer.

2.7 Why Internet Advertisement?

There are several reasons why companies advertise on the Internet. To begin with, television viewers are migrating to the Internet. The media follows; acknowledging that the goal of any advertiser is to reach its target audience effectively and efficiently. Advertisers recognize that they have to adapt their marketing plans to account from the ever-growing number of people spending increasing amounts of time online.

Numerous studies have found that over three-quarters of PC users are giving up some television time to spend more time on their computers. Add to this the fact that many Internet users are well educated and have high incomes, it is only logical to conclude that Internet surfers are a desired target for advertisers.

Other reasons why Web advertising is growing rapidly include:

- (1) Ads can be updated at any time with minimal cost; therefore, they are always timely.
- (2) Ads can reach very large numbers of potential buyers, both locally and globally.
- (3) Online ads are sometimes cheaper than television, newspaper, or radio ads. The latter are expensive since they are determined by space occupied, how many days (times) they are shown, and on how many national and local television stations and newspapers they are posted.
- (4) Web ads can effectively use the convergence of text, audio, graphics, and animation.
- (5) Web TV and Internet radio bring more people to the Internet.
- (6) The use of the Internet itself is growing very rapidly.
- (7) Web ads can be interactive and targeted to specific interest groups and/or individuals.

As of 1998, these factors began to convince large, consumer-products companies to shift an increasing amount of advertising dollars away from traditional media to Web advertisements. Toyota is a prime example of the power of Internet advertising. Saatchi and Saatchi, a major ad agency, developed Toyota's Web Site (toyota.com) and placed Toyota's traffic-luring banner ads on other popular Web Site such as espn.com. Within a year, the site overtook Toyota's 800 numbers as its best source of sale leads.

The major traditional advertisement media are television (about 36 percent), newspaper (about 35 percent), magazines (about 14 percent), and radio (about 10 percent). Although Internet advertisement is a small percentage of the \$120 billion-a-year industry (in 2001), it is growing rapidly. For example in 1995 Internet advertising expenditure as about \$43 million, this amount grew to over \$1 billion in 1998 (iab.net) and close to \$3 billion in 1999. The estimate for 2005 is \$ 15 billion.

The internet can be viewed as just another advertisement media with its own advantages and limitations. Table 2.5 compares the Internet advertising media against the traditional media.

Table 2.5. Advantages and Limitations of Internet Advertisement as Compared to Traditional Media.

Medium	Pros for Generating Advertising Revenue	Cons for Generating Advertising Revenue
TV	<ul style="list-style-type: none"> • Intrusive impact – high awareness getter. • Ability to demonstrate product and feature “slice of life” situations. • Very “merchandisable” with media buyers. 	<ul style="list-style-type: none"> • Ratings fragmenting, rising costs, “clutter.” • Heavy “downscale” audience skew. • Time is sold in multiprogram packages. Networks often require

Table 2.5. Advantages and Limitations of Internet Advertisement as Compared to Traditional Media (Continued).

Medium	Pros for Generating Advertising Revenue	Cons for Generating Advertising Revenue
		major up-front commitments. Both limit the advertiser's flexibility.
Radio	<ul style="list-style-type: none"> • Highly selective by station format. • Allows advertisers to employ time-of-day or time-of-week to exploit timing factors. • Copy can rely on the listener's mood or imagination. 	<ul style="list-style-type: none"> • Audience surveys are limited in scope, do not provide socioeconomic demographics. • Difficult to buy with so many stations to consider. • Copy testing is difficult, few statistical guidelines.
Magazines	<ul style="list-style-type: none"> • Offer unique opportunities to segment markets, demographically and psychographically. • Ads can be studied, reviewed at leisure. High impact can be attained with good graphics and literate, informative 	<ul style="list-style-type: none"> • Reader controls ad exposure, can ignore campaign, especially for new products. • Difficult to exploit "timing" aspects.
Newspaper	<ul style="list-style-type: none"> • High single-day reaches opportunity to exploit immediacy, especially on key shopping days. • Reader often shops for specific information when ready to buy. • Portable format. 	<ul style="list-style-type: none"> • Lacks of demographic selectivity, despite increased zoning – many markets have only one paper. • High cost for large-size units. • Presumes lack of creative opportunities for "emotional" selling campaigns.

Table 2.5. Advantages and Limitations of Internet Advertisement as Compared to Traditional Media (Continued).

Medium	Pros for Generating Advertising Revenue	Cons for Generating Advertising Revenue
		<ul style="list-style-type: none"> • Low-quality reproduction, lack of color. • No clear standard or language of measurement.
Internet	<ul style="list-style-type: none"> • Internet advertisements are accessed on demand 24 hours a day, 365 days a year, and costs are the same regardless of audience location. • Accessed primarily because of interest in the content, so market segmentation opportunity is large. • Opportunity to create one-to-one direct marketing relationship with consumer. • Multimedia will increasingly create more attractive and compelling ads. • Distribution costs are very low (just technology costs), so the millions of consumers reached cost the same as one. • Advertising and content can be updated, supplemented, or changed at any time, and are therefore always up- 	<ul style="list-style-type: none"> • No clear standard or language of measurement. • Immature measurement tools and metrics. • Although the variety of ad content format and style that the Internet allows can be considered a positive in some respects, it also makes apples-to-apples comparisons difficult for media buyers. • Difficult to measure size of market, therefore difficult to estimate rating, share, or reach and frequency. • Audience is still small.

Table 2.5. Advantages and Limitations of Internet Advertisement as Compared to Traditional Media (Continued).

Medium	Pros for Generating Advertising Revenue	Cons for Generating Advertising Revenue
	<p>to-date. Response (click-through rate) and results (page views) of advertising are immediately measurable.</p> <ul style="list-style-type: none"> • Ease of logical navigation – you click when and where you want, and spend as much time as desired there. 	

There is a trend to combine Internet advertisements with other media. For example, you view an advertisement on TV, but get additional products details and make an order on the Internet. In 1997, a study entitled “The Internet Advertising Report” (Meeker 1997) examined the rate of Internet adoption against three traditional media: radio, network television, and cable television. Meeker examined the length of time it took for each to reach 50 million U.S. users. Meeker found that the length of time it took for the Internet to reach 50 million users was about 5 years, which is remarkable considering that it took radio 38 years, television 13 years, and cable television 10 years. According to these figures, the Internet is by far the fastest growing communication medium.

The objectives of advertising on the Internet are the same as those of any other type of advertising, namely; to persuade customers to buy a certain product or service. Thus, it is seen as an alternative (or complementary) medium to traditional advertising media. Customer’s awareness of this alternative is growing rapidly.

The largest U.S. advertiser, Proctor & Gamble, announced in 1998 that the company would shift a substantial amount of its advertisement budget to the Internet. According to the Internet Advertising Bureau (IAB) (iab.net), the top categories for Web ad spending in 2000 were computers (25 percent), consumer products (25 percent), financial services (13 percent), telecom (14 percent), and news media (10 percent).



III. THE EXISING SYSTEM

3.1 Background of the organization

SiamCraft For You Co., Ltd. was found in 2000 by Mr. Thagorn Pongpan who is now the President of the company. Firstly, it was because he had an idea to start an export business. Then he was thinking about what kind of products he will produce. He decided to produce agricultural and handicraft products, as Ayudthaya province where he lives is the place which has so many resources and skilled labor he thought that this can be one of his company strengths because he can produce better quality products and even custom-made products. After he was sure about his ability in manufacturing products, he started to call his friends and his family to discuss about this business. After a brief meeting among his friends and family, it was decided to set up the SiamCraft For You Co., Ltd. At that time, SiamCraft ForYou was firstly set up by 7 committees and had a first time investment about 1 million baht. Also it was an idea of Mr. Eric Thraiwittayagul, who is now the sales manager of the company, to extend the market of SiamCraft For You by making a company Web Site. As the targeted market of the company was not only inside Thailand but also in Europe and United States, therefore he recommended having a company Web Site. As having a company Web Site, was a fast, easy and cheap strategy to promote the company's products to the outside world, the company business and Web Site has been set up since that time.

3.2 Current Problems and Areas for Improvement

After running a company Web Site for a year Mr. Eric, who is now sales manager has received some complains from the customers that the product information on the Web is very old and rarely updated. The reason behind this is because currently the company Web Site is created based on HTML language, so it is hard and time taking when he wants to promote or add new products on the Web Site. Secondly he finds out that tracking the customer order is very hard because all the customer orders are done by e-mail. So he needs to check his e-mails and reply to customers about the orders everyday. Thirdly it is very hard for him to maintain all orders among different customers and available products in stock. Finally all customer information, such as names, e-mails, addresses and etc., is never been kept, so it is very hard for him to send e-mails to confirm the addresses with all customers before the products will be delivered to customer.

Therefore a new prototype of a company Web Site has been proposed to solve all of the above problems. This new prototype will be created based on ASP server-side script language. The benefits of having a company Web Site created by this server-side language are as follows:

- (1) Customer information will be entered through the Web Site form and kept into a database which later on customers can update.
- (2) There is the security protection of the customer information (Log-in).
- (3) All orders will be done through the Web Site.
- (4) After each customer finishes making an order, the available amount in stock of all products ordered will be deducted.
- (5) Add, update or promote new products will be done through the Back Office part.

IV. MARKET ANALYSIS

4.1 Market Analysis

For the company to survive, we need to have a good marketing strategic plan. This is to create good customer relation, loyalty and also to encourage the purchases of the company's products. Having a company Web Site is one of the objectives in Internet marketing to provide customers a new channel in order to give customers the most satisfaction. Running for 24/7 basis, they can get company products and services anytime they want through the company's Web Site. In addition we will use marketing to develop and create our competitive advantages from our services, delivery, custom-made products, high quality, and so on. Successfully creating these competitive advantages, will help us to have a higher market share in the industry and reduce the bargaining power of customers. Also these would protect our competitors from easily entering the market. Finally after customers perceive our products to have quality, so we can create our brand successfully.

4.2 Market Target

For the agricultural and handicraft products, markets compose of different kinds of customers and needs. However for the company we consider two segments, which are markets inside Thailand and outside Thailand. In addition, for markets outside Thailand we aim only on two main markets which are Europe and United States. Furthermore for the markets outside Thailand, we aim on customers who make large volume and custom-made order.

4.3 SWOT Analysis

SWOT analysis is used to describe particular strengths, weaknesses, opportunities and threats. It is used for managers to understand our business situation comparing to the competitors. SWOT analysis of this project is as follows:

Strengths

- (1) *High and guaranteed quality products:* As an experienced producer, we have a lot of skilled employees, so our customers can be ensured of our products quality. In addition we also provide our customers a guarantee based on our company rules and regulations, in case defective products are found.
- (2) *Products differentiation (custom-made order):* Since our company, is an experienced producer, we can accept custom-made orders for products as requested by our customers. This can increase flexibility in our products.
- (3) *Catalog available online:* Our customers can easily view our products' pictures and details already available on the internet. This provides our customers an access to our products at anyplace and anytime.
- (4) *Up-to-date of products newsletter sent to customers' e-mails:* As customers sign-in to be members through our Web Site, we have information in hand. Then when our company has new products, we would send this information to customers' e-mails.
- (5) *Low cost as using domestic materials and labors:* Our company, locating in Thailand, can easily find the raw materials grown up here. This provides us high quality raw materials with low cost, so we can provide our customers with better quality products with cheaper prices.

- (6) *Customers can visit the Web Site anytime:* Base on the 24/7/365 basis, customers can access to our Web Site at their convenient time.
- (7) *Customers can access to the Web Site from anywhere:* Access to the Web Site by using the internet, customers can access to our Web Site in any places.

Weaknesses

- (1) *No payment gateway supported at this stage:* During the beginning stage, this service will not be available on our Web Site. So this may make us lose some sales.
- (2) *High delivery cost:* if our customers need to use DHL or UPS services, this may cost them more than the actual products' prices.
- (3) *Inability to feel the product quality:* Viewing the products online, customers may not know how good quality the products are.
- (4) *Take time for custom-made products:* Based on the custom-made order, we may need time to design the platform of the products.

Opportunities

- (1) *Be able to expand to the global market:* Instead of selling within only Thailand, implementing the Web Site gives us global targeted market.
- (2) *Able to have access to broader market:* Selling products over the internet can eliminate the geographical barriers.

Threats

- (1) *Easy to be duplicated by competitors:* After we design our new products based on the customers order and if there is more demand for this kind of product in the market they can be easily duplicated by other producers.
- (2) *Many online competitors:* As everyone can access to the internet, other producers may also implement their Web Site too or even they can visit our Web Site then duplicate some products design.
- (3) *Insecure electronic payment system:* Customers may feel that purchasing online by credit card is not yet secure.
- (4) *There is no copyright law on the Internet:* Until now the law governing the e-commerce transactions in Thailand, is still in development process.



V. FINANCIAL ANALYSIS

5.1 Project Cost

The cost of project development and implementation composes of 2 main parts which are hardware and software cost. In addition for the hardware and software cost this is only one time investment or the fixed cost. So the cost of the 1st year will be as Table 5.1. For the following year the cost would be the domain name and hosting cost which is demonstrated in Table 5.2.

Table 5.1. 1st year cost.

Description	Unit Cost (Baht)	Total Cost (Baht)
Hardware cost:	60,000	60,000
Software cost	30,000	30,000
Web Site development cost	38,000	38,000
Domain Name Registration Fee	500	500
Set up Fee	1,000	1,000
Web hosting	1,200	14,400
Total Investment of 1 st year		143,900

Table 5.2. The following year cost.

Description	Unit Cost (Baht)	Total Cost (Baht)
Domain Name Renewal	500	500
Web hosting	1,200	14,400
Total cost		14,900

5.2 Forecast Revenue

For our revenue forecast we expect our sales to increase approximately by 5% every year. In addition as our target market are both retail and wholesale, so we expect the retail orders to be about 360 pieces per year. Furthermore for the wholesale orders should be about 1,200 pieces per year. From all orders, the profits on the retail sales will be 30% of total revenue whereas the profit from the wholesale sale is 20% of total revenue. All the calculations and figures are shown in Table 5.3.

Table 5.3. Forecast Revenue.

	No. of unit sale	Average price/unit (Baht)	Total Income (Baht)
1st Year : Retail	360	200	72,000
Wholesale	1,200	180	216,000
Total Income of 1st Year			288,000
2nd Year : Retail	380	200	76,000
Wholesale	1,300	180	234,000
Total Income of 2nd Year			310,000
3rd Year : Retail	400	200	80,000
Wholesale	1,400	180	252,000
Total Income of 3rd Year			332,000

5.3 Break-Even Analysis

To know about the project feasibility, we need to do a break-even analysis. This is normally the calculation of the revenue equal to all cost. There are 2 types of the cost related in break-even analysis. Firstly the fixed cost is the cost that will never change when the output increases which are our first year investment and following year

expense. Secondly the variable is the cost that will increase according to the increase of the output and for our product the average variable cost is 140 Baht per piece. For our project the break-even point will be approximately at the middle of the 3rd year of investment. The figures are shown in Table 5.4.

Table 5.4. Break-Even Analysis.

	Fixed Cost	Variable Cost	Total Revenue	Balance
1st year	143,900	218,400	288,000	-74,300
2nd year	14,900	235,200	310,000	-14,400
3rd year	14,900	252,000	332,000	50,700

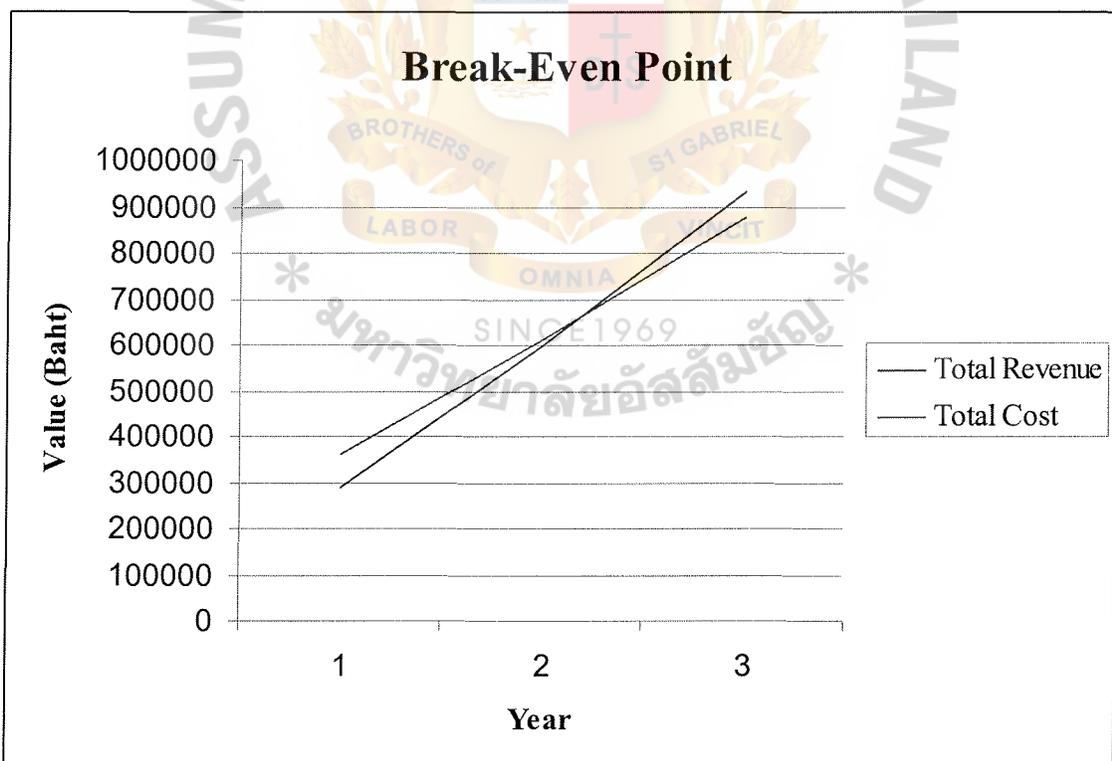


Figure 5.1. Break-Even Point.

VI. WEB PROTOTYPE DESIGN AND DEVELOPMENT

6.1 Web Prototype Objective

The following is the web prototype objective:

- (1) Provide up-to-date information about products to customers on the Web Site
- (2) Provide newsletter to customers who are member
- (3) Provide an online shopping cart to customers
- (4) Provide the back office part so that the web administrator can easily add, update, and promote new products
- (5) Provide an FAQ section to customers
- (6) Provide an online customer support

6.2 Web Site Hardware and Software Requirement

These are the hardware and software requirements for Siamcraft For You online shop:

Hardware Requirement: We need to have one desktop computer to design, edit and programming the Web Site. The details of this computer are shown in Table 6.1. Also we need to have other equipments, for example a scanner, a printer, etc.

Table 6.1. Computer Specification.

Hardware	Description
CPU	Intel Pentium4 2.2 GHz
Ram	512MBs DDR
Harddisk	60.2 GBs Ultra ATA 133 7200 RPM
Floopy disk	1.44 MBs
DVD Rom	8X or higher

Table 6.1. Computer Specification (Continued).

Hardware	Description
Graphic Card	Asustek nVIDIA GForce4 MX 4000 128MB DDR
Sound Card	Creative Sound Card Vibra 128 PCI
Monitor	15 inches or higher
Modem	D-Link ADSL modem USB1.1
Printer	HP LaserJet printer
Scanner	Canon Scanner 1200 X 2400 dpi USB

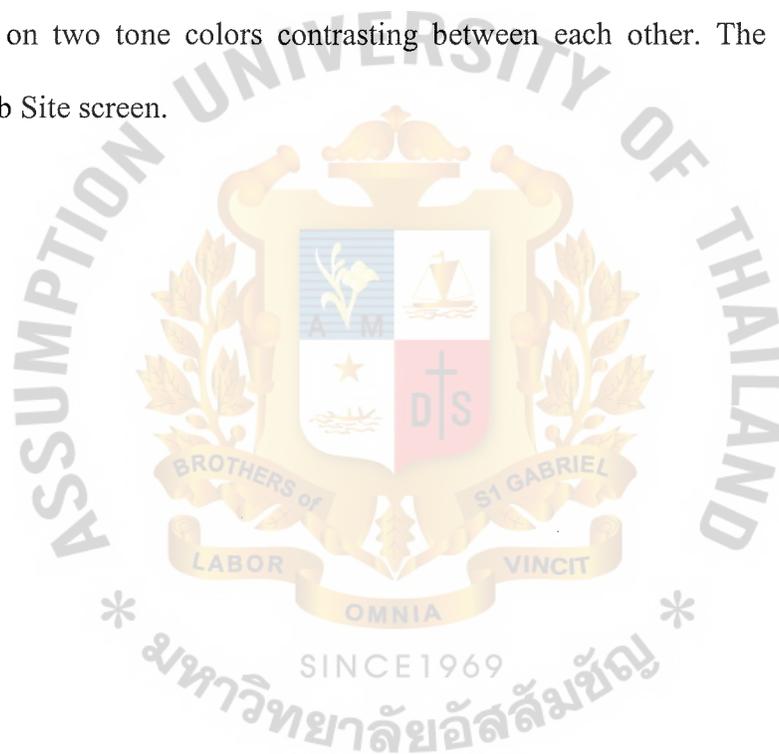
Software Requirement: On the desktop computer, we need to install the ASP, which is the requirement to run our Web Site. And Microsoft Access database needs to be installed also. The followings are the list of all software requirement:

Table 6.2. Software Specification.

Software	Description
Operating System	Windows 2000 or higher
Server Adds on	Microsoft IIS 5.0 or higher
Graphic	Adobe Photoshop 7.0 or higher
Web Development	Macromedia Dreamweaver MX or higher
Office	Microsoft Office 2000 or higher
FTP	WS Ftp Pro
Browser	Internet Explorer 6 or higher

6.3 Web Site Visual Design

A combination of text and images communicate the theme and the meaning of the whole site of being the unique this website. Visual Design creates memorable, accessible, and audience-friendly communications. Design helps focusing on the goals and content along with the audience's needs to produce effective communications. Background and text color are easy to read. The color maximizes the contrast between the orange image, white background and the black text. The design is attractive emphasizing on two tone colors contrasting between each other. The followings are some the Web Site screen.



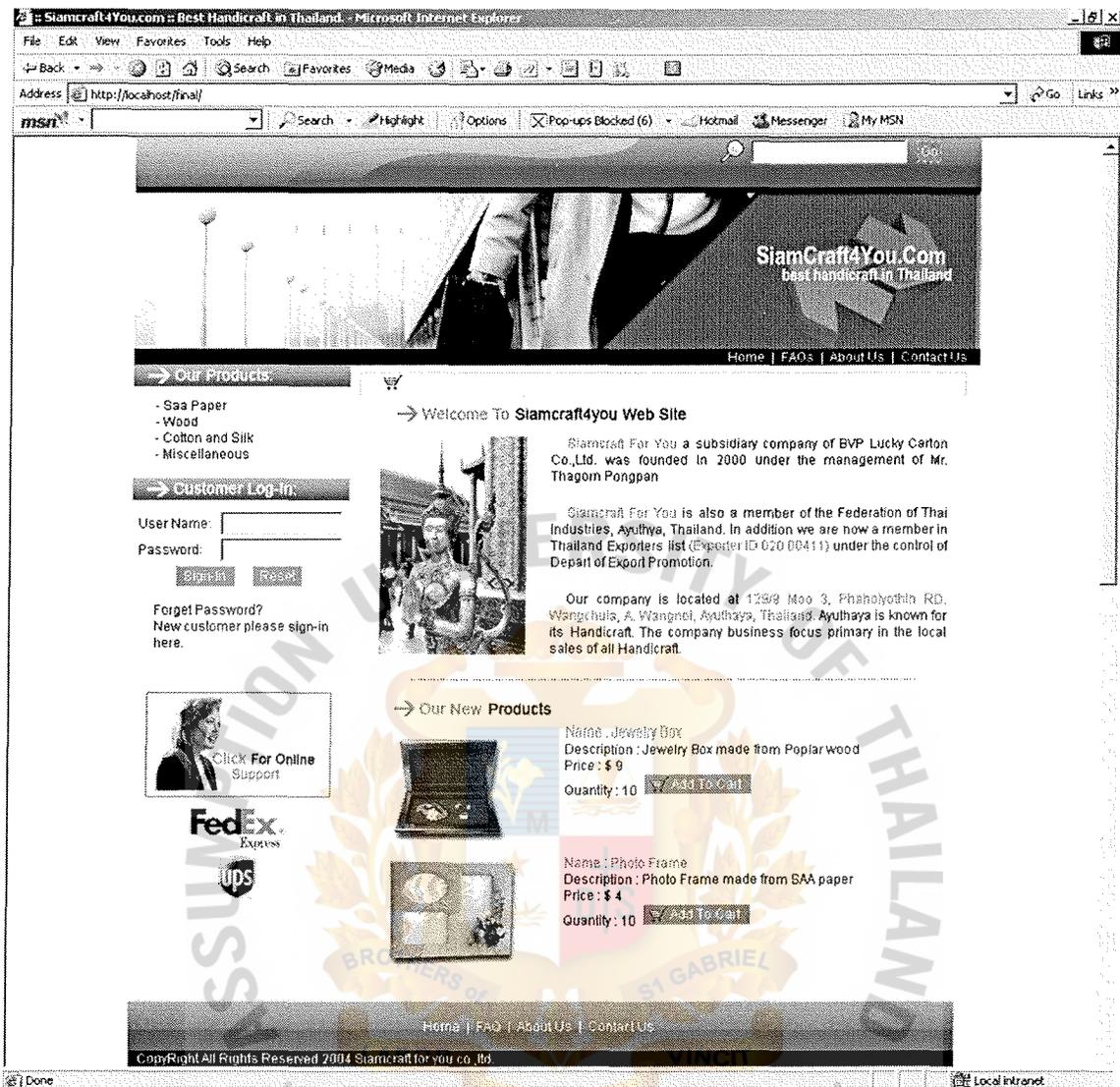


Figure 6.1. Home Page.

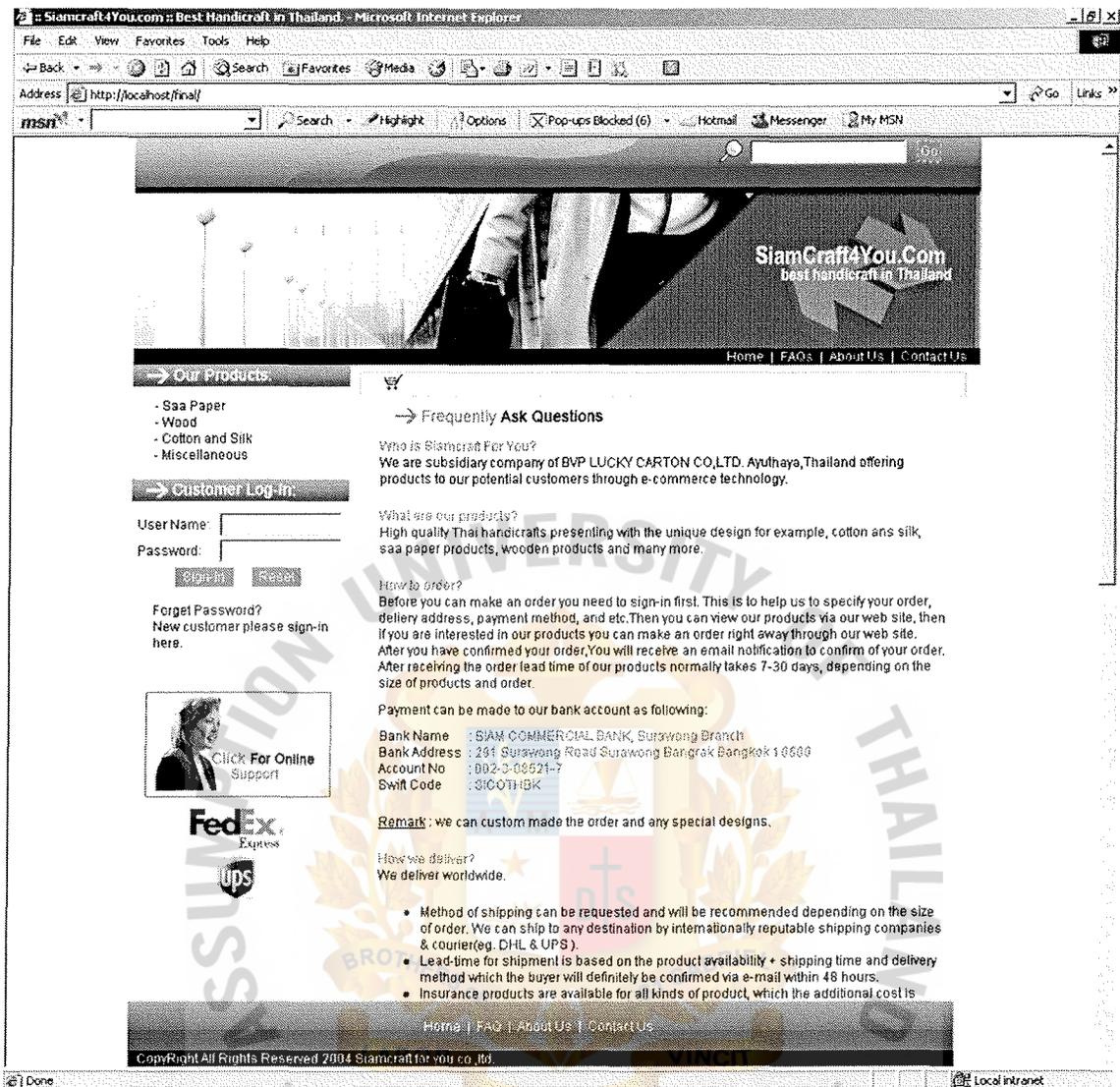


Figure 6.2. Frequently Ask Questions.

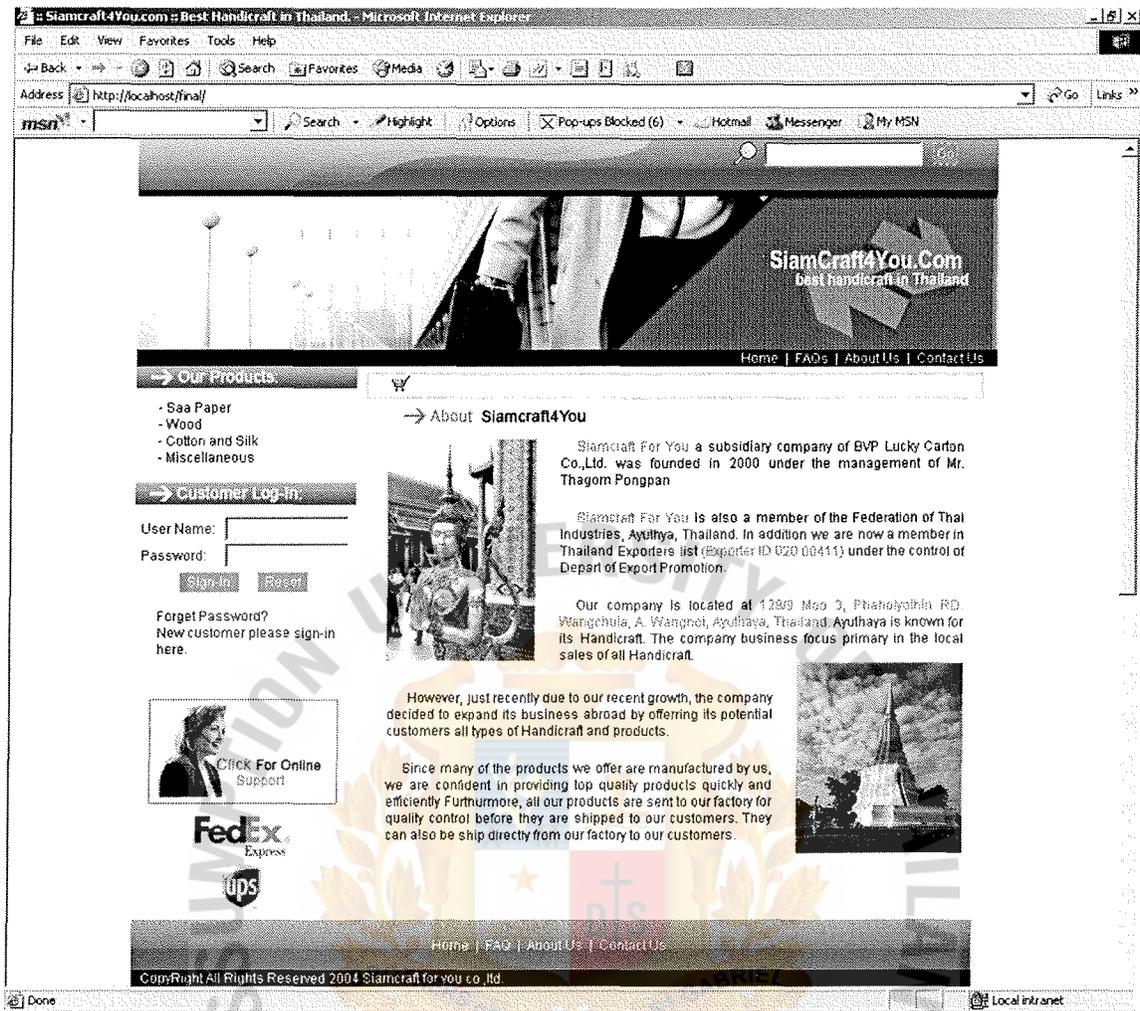


Figure 6.3. About Us.

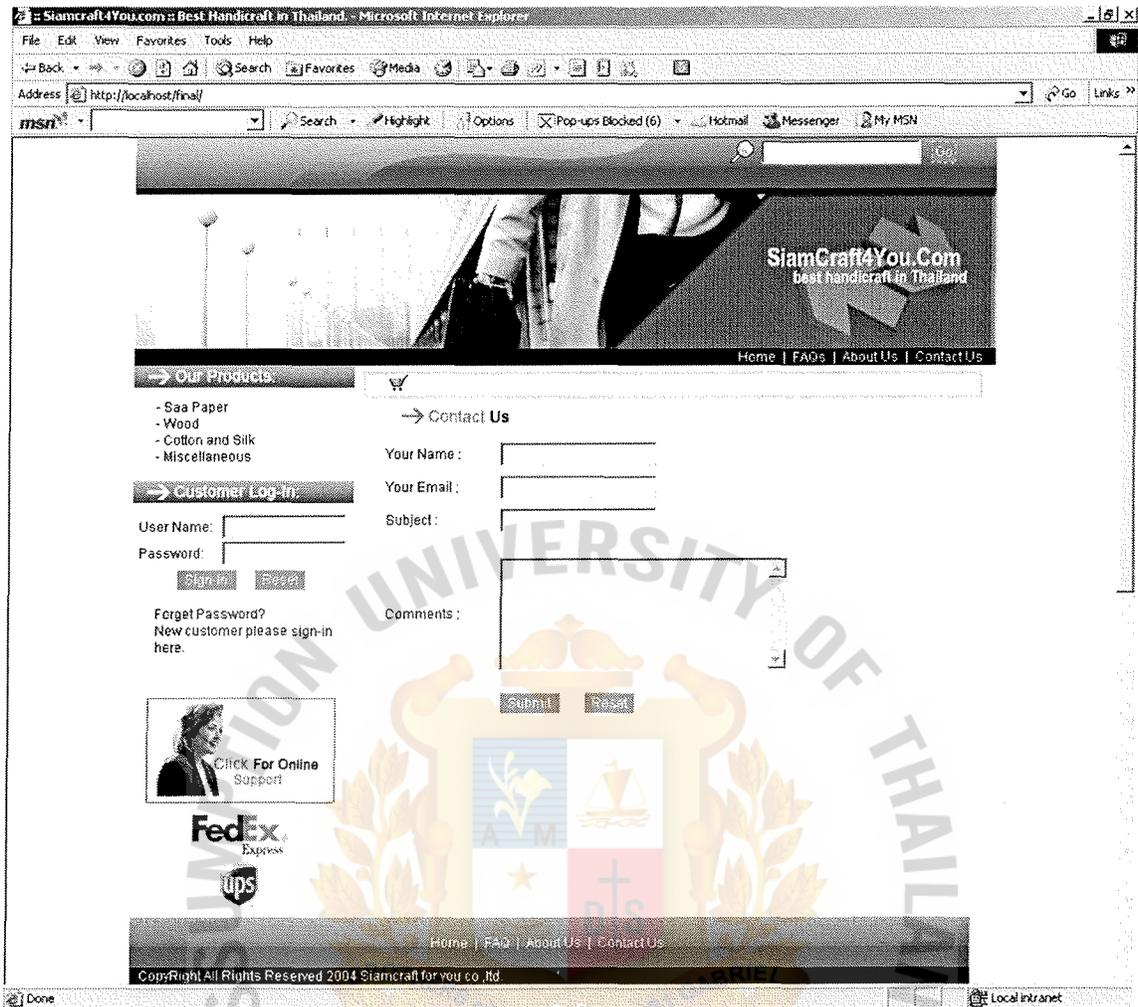
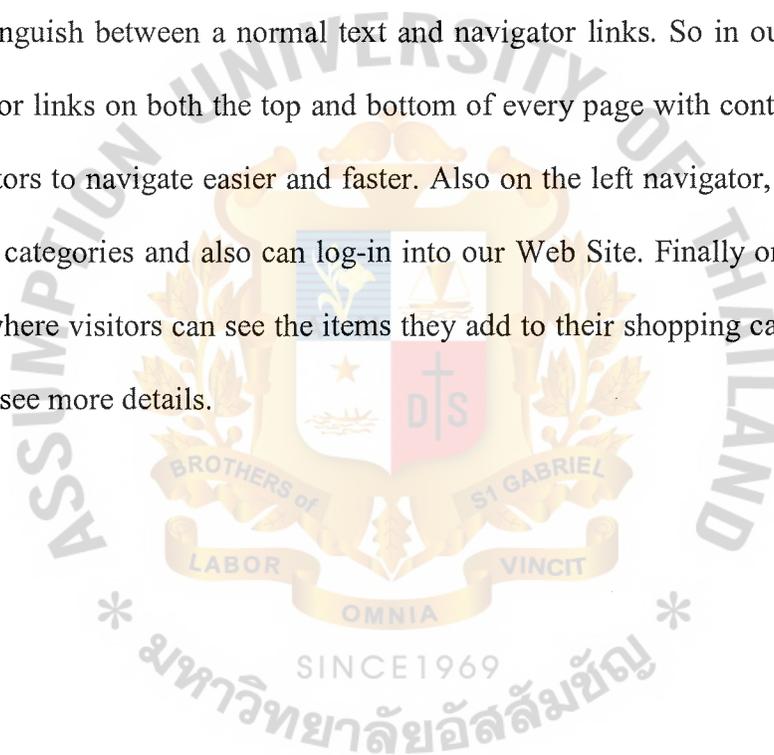


Figure 6.4. Contact Us.

6.4 Web Site Navigator

Web Site navigator is the way how the pages are connected to each other. The good navigator should minimize the time of visitors to move around the web pages. As the statistics show that the more time the visitors spend on our Web Site without getting the desired information, the less chance they will revisit our Web Site. Thus we should have a very clear and attractive navigator system on our Web Site. Also the Web Site navigator should be consistent through out the Web Site, this is to give visitors a clearer view to distinguish between a normal text and navigator links. So in our Web Site we have navigator links on both the top and bottom of every page with contrast text, this is to allow visitors to navigate easier and faster. Also on the left navigator, users can view our products categories and also can log-in into our Web Site. Finally on the middle of every page where visitors can see the items they add to their shopping cart and they can click on it to see more details.



6.5 Layout Grids

The layout grid of our Web Site is the same through out the site, this is to give visitors the consistent, clearer, and easier navigation system to navigate, every page is divided into 3 parts.

- (1) Navigation area: this is the link to every page which locates in the top and bottom of every page
- (2) Display area 1: this part displays the links to each product category and also the customer log-in area.
- (3) Display area 2: this part displays contents according the page visitors select.

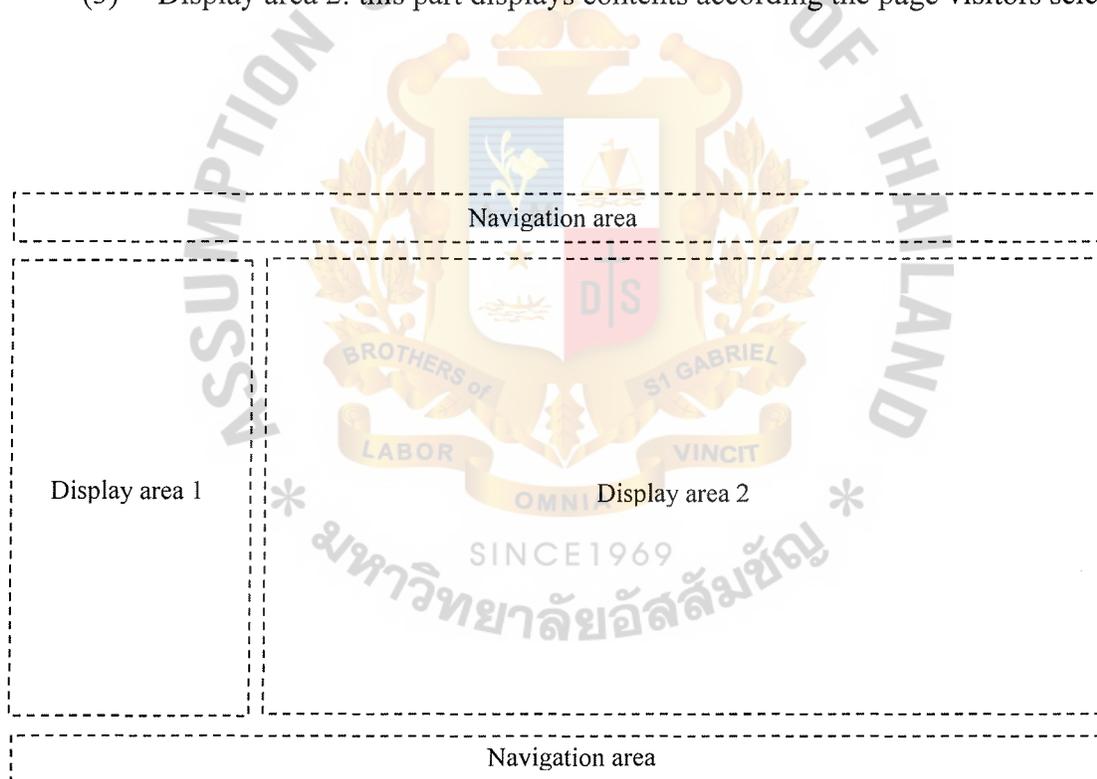


Figure 6.5. Layout Grid.

6.6 Database Design

As the problems specified in section 3.2, we proposed the new system which will be developed based on ASP technology. In addition all information will be kept in Microsoft Access database, so in this section it will give you more details on how we design each table and what information will be kept inside each table. In Table 6.3 shows list of all tables.

Table 6.3. List of all tables.

Table Name	Description
Category	Table contains product category
Cart	Table contains all orders by customers
Customer	Table contains customer details
Product	Table contains product details
User	Table contains users who have authorize to use back-office menu.

After we have seen the list of all tables then we will see the details inside each table. This is shown in Table 6.4.

Table 6.4. Details of each table.

	Category	Cart	Customer	Product	User
Fields	CategoryID Description	CartID ProductID CustomerID OrderDate Name Price Quantity TotalCost	CustomerID Name Passwd Address Email	ProductID Name Description Quantity Price CategoryDesc PicturePath FirstPage	UserID Name Passwd



VII. CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

Siamcraft For You Co., Ltd. was found in 2000 by Mr. Thagorn Pongpan. The main business of the company is to sell handicraft and agricultural products. The target market of the company is both inside and outside Thailand. To be able to reach the international market, Siamcraft4you.com Web Site had been created. However there are some problems about the Web Site because it was created by using HTML language. To solve the above problems, the new prototype of a Web Site has been proposed. This new prototype will be created based on server-side script language ASP which is the new technology from Microsoft. By implementing the Web Site using this new technology the Web Site has more new features, for example an ability to promote new products, customer information has been kept in database, online orders can be made, and etc.

Finally in the financial analysis part, to implement this project, it will use the initial investment of 143,900 Baht in the first year, and the following year is 14,900 Baht. The previous investment is considered as the fixed cost whereas the average variable cost is 140 Baht per piece, and we expect our sales revenue to be 288,000 Baht in the first year and it will keep increasing approximately by 5% every year. According to this number, the break-even point of this project will be approximately at the middle of the 3rd year.

7.2 Recommendations

While implementing this Web Site at the first stage, there is no any payment tool available online to customers. This could make us lose some revenue, as customers may feel inconvenient to use our service. So after running a Web Site for a year we would recommend to apply for a payment gateway. This payment gateway will let customers to

be able to pay by using credit card online. Secondly as running a Web Site, it will help us to reach a global market. So we would recommend having a Web Site in more than one language. This is to create our strength over the other competitors. Thirdly we should launch a marketing program or promotion to get more orders in every quarter. Finally we will apply to the site a banner exchange program. This is the way to let more customers know about our Web Site and we will get more orders.





APPENDIX A

DATA DICTIONARY

Table A.1 Cart.

Field Name	Description
CartID	CartID or OrderID used to specify each order
ProductID	ProductID used to specify the product details
CustomerID	CustomerID used to specify customers who order
OrderDate	OrderDate or it is the current date when order
Name	Name of the products which are ordered
Price	Unit price of each product
Quantity	Quantity which is ordered
TotalCost	Total price derived from Unit Price * Quantity

Table A.2. Category.

Field Name	Description
CategoryID	CategoryID used to specify each category
Description	Description of each category, ex Saa paper

Table A.3. Customer.

Field Name	Description
CustomerID	CustomerID used to specify each customer
Name	Name of customer
Passwd	Password to log-in
Address	Address of customers, also the delivery address of product
Email	E-mail address of each customer

Table A.4. Product.

Field	Description
ProductID	ProductID used to specify each product
Name	Name of each product
Description	Description of each product
Quantity	Quantity of each product available in stock
Price	Unit price of each product
CategoryDesc	Description of each category
PicturePath	Path of product picture
FirstPage	Status of showing this product in the 1st page

Table A.5. User.

Field	Description
UserID	UserID used to specify each user
Name	Name of each user
Passwd	Password to log-in

BIBLIOGRAPHY

English Reference

1. Brigham, E. F., and L.C. Gapenski., Financial Management, 8th Edition, Florida: The Dryden Press, 1997.
2. Turban, E., D. King, J. Lee, M. Warkentin, and H.M. Chung. Electronic Commerce 2002. New Jersey: Prentice Hall, 2002.
3. Laudon, K. C. and J.P. Laudon. Management Information System, 7th Edition (International). New Jersey: Prentice Hall, 2002.
4. Ward, H. Principle of Internet Marketing. Stanford University, Stanford: South-Western College Publishing, 2000.

Thai Reference

1. สมานไทย มณีโชติ. รวมโปรเจกต์ ASP เพื่อการสร้างเว็บไซต์ที่สมบูรณ์. สำนักพิมพ์ อินโฟเพรส. ธันวาคม 2544.
2. วรฉัตร กิตติภูมิ. เพิ่มพลังอินเทอร์เน็ตเอททีฟให้เว็บเพจด้วย ASP. บริษัท วิดีโอกรุ๊ป จำกัด. 1 มีนาคม 2542.
3. บัณฑิตลักษณ์ สุรัตน์. เพิ่มพลังอินเทอร์เน็ตเอททีฟให้เว็บเพจด้วย ASP คุณสอง. บริษัท วิดีโอกรุ๊ป จำกัด. 1 มิถุนายน 2543.
4. บัณฑิตลักษณ์ สุรัตน์. เพิ่มพลังอินเทอร์เน็ตเอททีฟให้เว็บเพจด้วย ASP คุณสาม. บริษัท วิดีโอกรุ๊ป จำกัด. 1 มิถุนายน 2544.

