Website TravelGuideThailand.com

by

Ms. Pavinee Chavanotai

A Final Report of the Six-Credit Course
IC 6998 E-Commerce Practicum

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Science
in Internet and E-Commerce Technology
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The Graduate School of Assumption University has approved this final report of the six-credit course, IC 6998 E-Commerce Practicum, submitted in partial fulfillment of the requirements for the degree of Master of Science in Internet and E-Commerce Technology.

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ABSTRACT

The objective of this project is to create and develop website "TravelguideThailand.com" in order to improve the efficiency of the existing system and provide an effective website hotel information service for customers.

At present, the system to provide information about accommodation can be done by handing out a leaflet, a poster, a travelling manual and the call center. However, to get information from these things, a customer needs to go the services center by themselves, and sometimes they may be disappointed by not getting the expected information or not get help from the salesperson. Moreover, there are so many competitors in this field who develop their business be conducting their own website, and giving online services to customers.

TravelguideThailand.com is developed to enhance the original business to be more effective in the matter of more attractive advertising, better services (all information about hotel, and services given are provided on the web and ready to use twenty four hours a day – seven days a week).

Therefore, the better services given by Travelguidethailand.com, will attract more customers to use the services of the company. In this system, it reduces the face to face problem to customers who do not want to show up themselves until they make decisions. Information provided on the web help them on decision process, and encourages them to ask for the information without hesitation. This personal service is given to customer by individuals, all of their information will be kept in their own files and these will be the database of company in order to provide further services to them by customizing their needs by their personal records. For this better services given to the customer will make them impressed and cause company loyalty.

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1.1 Background of the Project

At present the computer has an important role in many businesses. In the United States, computer is counted to be one of the necessary electrical instruments in a house. It can be said that the computer has an important role for today's lives, therefore the Internet has become one of the most popular communication channels. Internet can replace the distance telephone because the charge of services is much cheaper. Internet can also be used to replace some media such as television, billboard, newspaper and radio. On the Internet there are many useful resources which is opened wide for everybody. Therefore, Thai government has launched the policy to support the use of Internet in every province of Thailand. They aim to let Thai people to get the benefit of Internet in both acknowledged gaining and commercial prospects. Since Internet is the easiest channel to do business with the foreigner, it is a chance for the local people to know the outside world and take this chance to do business with the foreigner.

In the year 2002, the Tourism Authority of Thailand has set the policy to support and develop Thai travelling system and emphasize on domestic tourism. The main policy is as follows;

(1) Encourage the foreigner tourist to come to Thailand in order to bring the money into our country.

(2) Distribute the travelling places domestically which can let the local people to have income from travelling business.

(3) Reserve and revive Thai culture, nature, art and environment for the existing Thai identity.

(4) Develop the travelling services of Thailand to be a standard for most impressions of the tourists.

(5) Ensure the safety of tourists along the trips in Thailand.

(6) Support domestic travelling for Thai people emphasizing on Thai youth in order to give welfare for Thai people.

(7) Encourage Thai people to get into the travelling business.

(8) Encourage Thai youth to join the activity related to the travelling system.

Since the number of tourist is increased every year, thus there is a high competition in this business. Therefore, many strategies are used in order to beat the competitor. The most important part of the travelling agent is offering the attractive services to the customer, which are giving the information about services provided, travelling places, tour package, accommodation and reservation service.

The preparation of these documents waste so much money, compared with the electronic documents on the web. Furthermore, an electronic document has some qualification over the paper document. An electronic document is an interactive document, which is not just a plain text but it be can active on the screen in front of the viewer. The electronic document can contain wording, images and sound. This makes the travelling document more attractive to the customer, therefore it is important to be used for the persuasion intention document. On the website the customer will be free to travel to anywhere on the web. They can get any information they want on their fingertips. That is why having the website is important to the travelling business.

TravelguideThailand.com provides the true images of hotels and their services providing detail on the web. The customer can take a look at the true images of hotel's bedroom, swimming pool, restaurant, sport club, facilities and the rental rate for the

hotel room. This is a service provided in order to solve the problem in finding the accommodation for the travelers. The problem found at the present travelling websites that they have only information of the three to five stars hotel, which might not be what they are looking for. Therefore, TravelguideThailand.com provides a wide range of hotels in Thailand, in order to fulfill the different needs of customers. Moreover, on this web, the online booking is provided to the customer in the case that they have already made a decision and they want to be sure that they will have an accommodation when they are here in Thailand.

1.2 Objectives of the Project

The objectives of the project can be classified as follows:

(1) Providing list of hotels within Thailand.

(2) Providing information services of each hotel.

(3) Providing the hotel information on the easy to use basis.

(4) Providing the online hotel booking service.

1.3 Scope of the Project

The scope of the project can be classified as follows:

(1) Provide the information about the hotels in each region of Thailand.

(2) Provide list of hotels depending on the hotel rental price.

(3) Hotel recommendation and reservation service.

  (a) Grouping hotel lists according to each section, province and area.

  (b) Grouping hotel lists according to the hotel approximating room rate.

  (c) Presenting of hotel's

    (1) Abstract

    (2) Bedroom

(3) Restaurant

(4) Swimming pool

(5) Facilities

(6) Location map

(4) Provide the online hotel booking without actual online credit card verification to the bank.

1.4 Deliverables

The deliverables for the project are as follows:

(1) A website Tour Thailand

(2) A project report

(a) Business Background

(b) Objective

(c) Project Plan

(d) Marketing Plan

(e) System Design

1.5 Project Plan

The project plan of website "TravelguideThailand.com" is shown in Figure 1.1.

No.	Task Name	January				February				March				April				May				June			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	Analysis of the Existing System																								
	-Design the Objective and Scope																								
	-Studying the Existing System																								
	-Identify the Existing Problem																								
	-Studying the Existing computer System																								
	-Develop Ddata Flow Diagram																								
2	Analysis and Design of the Proposal System																								
	-Database Design																								
	-Interface Design																								
	-Program Design																								
	-Report Design																								
3	Implementation of the Proposal System																								
	-Coding																								
	-Testing																								
4	Business Plan for TeenguideThailand.com																								
	-Marketing Analysis																								
	-SWOT Analysis																								
	-Website Strategy																								

Figure 1.1. Project Plan of www.TravelguideThailand.com.

II. LITERATURE REVIEW

2.1 Electronic Commerce

In its broadest sense, electronic commerce refers to the use of electronic means and technologies to conduct commerce, including within-business, business-to-business, and business-to-consumer interactions. The enabling technologies, of course, are also used for noncommercial activities such as entertainment, communication, filing and paying taxes, managing personal finance, research, and education, which may still include the services of online companies. As a result, it is somewhat difficult—and sometimes arbitrary—to separate electronic commerce areas from noncommercial applications of the same technologies and infrastructure.

Although these may be cutting-edge applications, conventional electronic commerce areas include:

(1) Searching for product information

(2) Ordering products

(3) Paying for goods and services

(4) Customer service

All are conducted online. The use of the Internet to support marketing and customer-interface is only part of electronic innovations that are changing the way firms do business. With intranets, corporations distribute internal memos and announcements to their employees, and knowledge exchange and scheduling communications flow worldwide in a timely fashion. With direct connection to suppliers (for instance, an extended intranet), the same technology is used for manufacturing and supply-chain management. 3M (http://www. mmm.com), for example, expanded its EDI service to the Internet, allowing its over 2,000 suppliers and customers access to its EDI transactions

via any way they choose—private VANs, phones, and faxes, as well as the Internet. To sum up, for within-business, business-to-consumer, and business-to-business applications, electronic commerce includes:

(1) Internal electronic mail and messaging

(2) Online publishing of corporate documents

(3) Online searches for documents, projects, and peer knowledge

(4) Distributing critical and timely information to employees

(5) Managing corporate finance and personnel systems

(6) Manufacturing logistics management

(7) Supply chain management for inventory, distribution, and warehousing

(8) Sending order processing information and reports to suppliers and customers

(9) Tracking orders and shipments

And countless other business activities. More important than the mere number of areas being affected by electronic commerce is the fact that these activities can be integrated into a holistic business process. Thus, all the areas mentioned above are not really a separate application, but rather, one aspect of the whole electronic commerce process. For example, inventory and supply management is tied to production as well as to the demand data collected from consumers ordering via web stores. In short, the business potential of electronic commerce is the capability to innovate and integrate business and market processes. The most obvious and immediate use is achieving transactional efficiency.

2.1.1 Electronic Commerce as a Communications Network

At the core of traditional electronic commerce is the use of electronic means to expedite commercial transactions and improve efficiencies in business processes and

organizations. In this vein, electronic commerce on the Internet means online ordering and payments. The narrowest definition of what electronic commerce holds is a networked electronic data interchange (EDI) with a more flexible messaging system. Traditional EDIs are limited to signals that only computers can read and that correspond to information on electronic forms used in standard business transactions, such as ordering, invoicing, and shipping. An open EDI using the Internet means that EDI messages may be sent and received via email. On the next level of sophistication, EDI can use electronic forms made available on web pages for customers to order. This view considers electronic commerce and the use of the Internet as merely improving business and communication, especially in business-to-business transactions. Accordingly, issues in doing business on the Internet are mainly organizational and operational, ranging from security, competitive advantages in product development, and R&D (research and development), to efficiencies from automating purchasing functions, EDIs, point of sale information, and other interorganizational transactions.

To many, familiar with EDIs, doing commerce on the Internet is not entirely advantageous compared to traditional EDIs. A clear tradeoff is made between secure, but limited VANs using traditional EDIs and an insecure, but far more flexible network with messaging and remote login possibilities over the Internet. For example, Chevron Corp. of San Francisco pays over $1,200 each time it sends an EDI report to the U.S. government via a private VAN. In comparison, it pays about $2,000 per month for unlimited access to the Internet (Radosevich 1996). However, many consider the Internet to be inferior to EDIs because of the perceived lack of security and reliability, even though they are adjusting their EDI strategies to include the Internet.

However, many interactions between sellers and buyers happen before they are

ready to exchange orders and bills. A somewhat broader view of electronic commerce includes these interactions between businesses and consumers. Consumer services and product announcements have been routinely released to the Internet by computer companies for many years. And increasingly, firms are gearing up for Internet advertising and marketing. Going even further down the digital road, electronic shops and malls are springing up that offer electronic versions of catalog shopping in which consumers can search and order products using web browsers, bypassing traditional paper and phone-based merchandising. Organizations devoted to commercial uses of the Internet such as CommerceNet (http://ww.commerce.net) and government agencies such as the National Telecommunications and Information Administration (NTIA) (http://www.ntia.doc.gov) have encouraged doing business electronically by virtue of their presence on the Internet. As recently as September, 1996, Yahoo!'s list of online malls contained over 700 shops (http://www.yahoo. com/text/Business_ and_Economy /Companies/Shopping_Centers/Online_Malls) and Open Market's Commercial Sites Index contained 41,731 listings of commercial web sites in October, 1996. (http://www.directory.net/dir/statistics.html).

2.1.2 Commercial Potential of the Internet

Businesses need to place electronic commerce within the context of broader uses of the Internet than the traditional commercial framework. As a market, electronic commerce impacts not only marketing but also production and consumption. Information collected through web stores is used to customize products, to forecast future demand, and to formulate business strategies. Consumers not only order and pay for products online, but also search for product information, reveal their preferences, negotiate with sellers, exchange information about products and firms, and use products

online by filtering, processing, and linking them with other computer programs. Likewise, supply chain relationships among businesses and competitive strategies need to aim at increasing the overall market efficiency, not just transactional efficiency.

The Internet can certainly be used as an alternative marketing channel, selling existing products online, but the future of electronic commerce will be guided by innovative digital products and services that will emerge in the electronic marketplace. But from where are these products and processes coming? The explosive growth of the Internet gives a partial answer. The core of digital commerce comes from selling digital products, but no one is certain how big the digital product market will become. To get an idea, one only needs to list products that can be digitized: all paper-based information products such as newspapers, magazines, books, journals, and databases; computer software, and games; audio products, including music, and speeches; video and multimedia products, such as movies and television programs; other information products, such as weather reports, stock quotes, government information, consumer information, and even personal information; and digital counterparts for existing products, such as room keys, digital currency, digital checks and other financial instruments, airline and concert tickets, and so on.

Many business professionals dismiss the commercial potential of the Inter-net, pointing out that the most common uses of the Internet and the web are browsing and entertainment. In turn, the most promising use of the Internet technology is found in intranets and other within-business and business-to-business applications, in which EDIs and corporate networking are already familiar. A survey found that only about one in ten uses the Internet for shopping.However, shopping here is very narrowly defined. Internet users seeking information are, in fact, in search of products, and thus, network uses

commonly categorized as informational and entertainment activities need not be viewed separately from commercial activities. Unlike television entertainment in which commercial advertising and noncommercial entertainment are alternatively presented, commercial uses of the Internet encompass all aspects of user activities. Even e-mail messages can be thought of as digital products, for instance digitized information, which can be sold directly as a product or used as a component of business transactions. All so-called non-commercial activities on the Internet are indeed commercial, an important realization for digital product sellers. In a truly informational age, the immense amount of human knowledge already accumulated and linked via the Internet will be the product being exchanged. As Christopher Anderson of The Economist argued, "In the audacious uselessness of millions of personal fish tanks (web pages) lie the seeds of the Internet revolution" (1995). These fish tanks are displayed side by side with products marketed by America's corporate giants.

2.1.3 Current Commercial Uses of the Internet

The subject of e-commerce, Internet activity and the viability of growing online business has been under scrutiny by the media and companies alike for a few years now. The recent 're-alignment' of the value of dot.com shares has created much scepticism as to the future of doing business online. However this should be seen as the end of the beginning and not the beginning of the end. What is clear is that both business and the general public are keen on sourcing and purchasing products and services online. The graphs below give an indication of current trends.

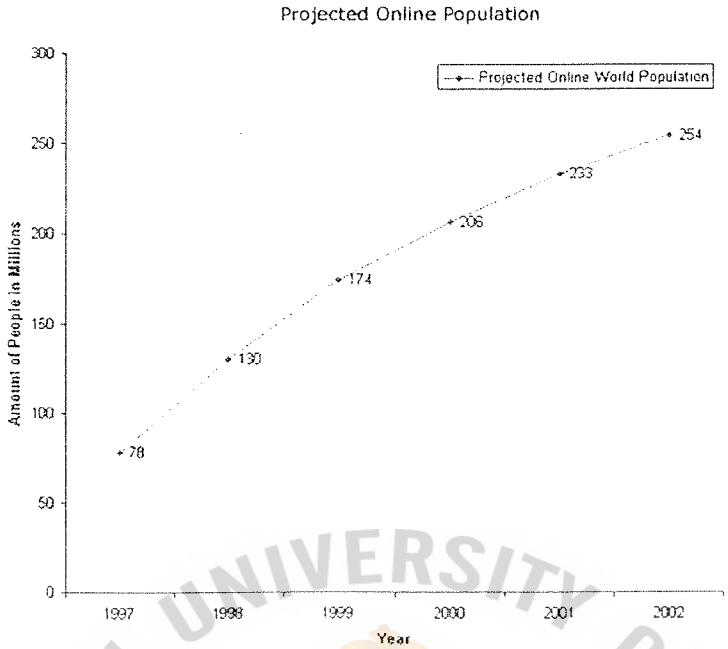


Figure 2.1. Projected Online Population.

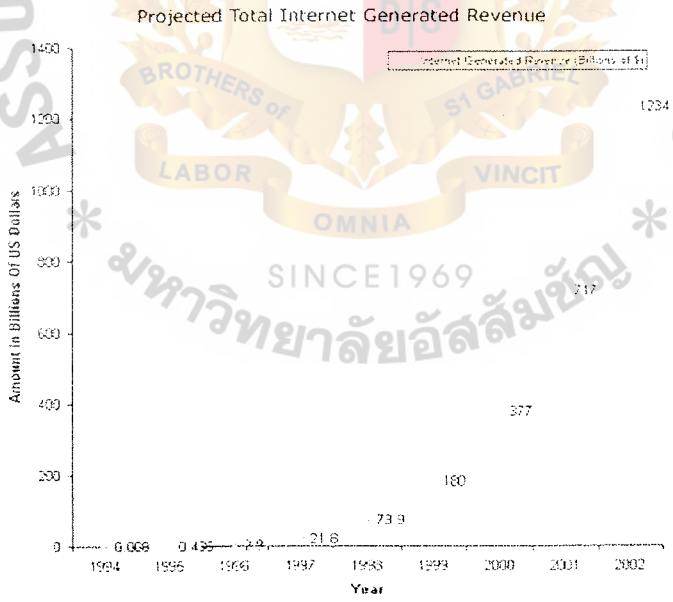


Figure 2.2. Projected Total Internet Generated Revenue.

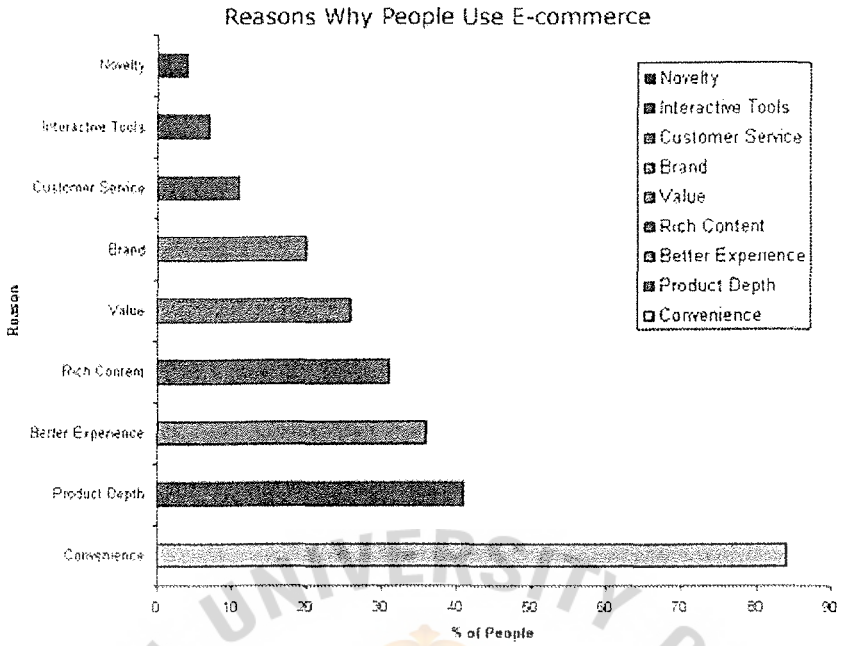


Figure 2.3. Reason Why People Use E-commerce.

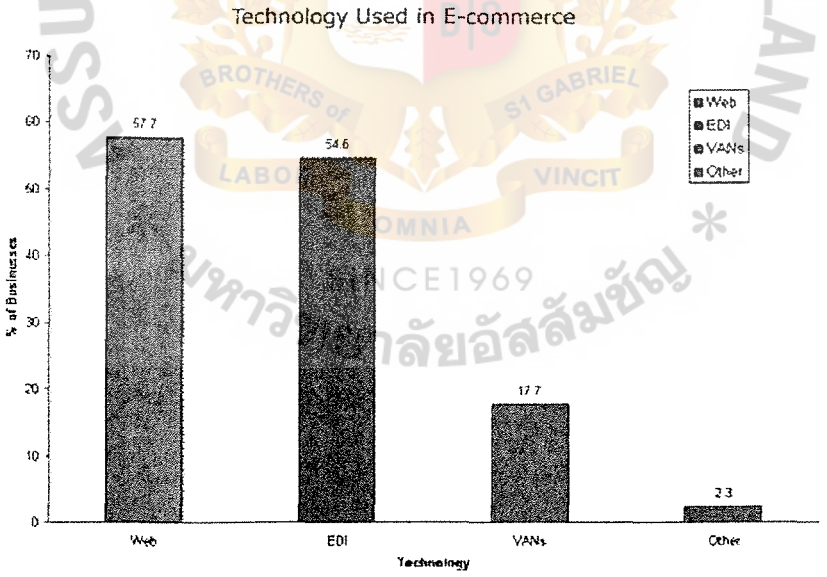


Figure 2.4. Technology Used in E-commerce.

2.1.4 Competition and Market Organization

Today's Internet users may be different from the general population in many ways, until the majority of the populations participate in the market. However, electronic commerce as a marketplace differs fundamentally from other physical markets in many respects. For example, the size of a firm is not a significant factor in establishing one's presence in the virtual marketplace. Big and small companies can be located side by side with no difference in shop floors or interior decorations. Consumers can search for product information and compare prices over the whole Internet where geographical distance plays no role. From an economics perspective, electronic commerce has many characteristics of a perfectly competitive market. Although perfect competition has been the basis of most economic studies by which we evaluate economic efficiency, it is far more an exception in real life than the norm. Electronic commerce presents an experimental stage to further realize the economic efficiency of a competitive market.

Both economists and government regulators use perfect competition as a benchmark against which market efficiency is judged. In a perfectly competitive market, a commodity is produced for which the consumer's willingness to pay equals the marginal cost of producing the commodity, and neither sellers nor buyers can influence supply or demand conditions individually or collectively. A society cannot improve its economic welfare by deviating from competitive markets. However, perfect competition is seldom evident in real markets because it requires that several assumptions be met. Among the assumptions are:

(1) Many potential buyers and sellers must be able to enter and exit the market at no cost (no barriers to entry)

(2) There are many sellers and buyers who cannot individually influence the

market (price takers)

(3) Products are homogeneous (no product differentiation)

(4) Buyers and sellers both know the price and quality of the product (perfect information).

Although wholesale agricultural markets are often cited as one example of a perfectly competitive market, in most other markets one of the above assumptions, and often all four, will not be met. Heavy investment requirements in manufacturing facilities and R&D often limit free entry by competitors. Advertising also influences consumer behavior by changing demand preferences or establishing reputation, which gives sellers a degree of market power. To exploit taste differences among buyers, firms sell differentiated products by brands or by quality, which as a result limits the competitive effects on prices. Finally, both sellers and buyers have limited information about demand and product quality given that it is costly to learn about product quality, prices, and even the location of shops. Indeed, if sellers and buyers were perfectly informed, there would be no need for advertising, marketing, or sales efforts.

Even at a quick glance, the electronic marketplace better resembles the abstract market of many sellers and buyers in which prices are determined efficiently by supply and demand. The most important differences are lowered barriers to entry (low overhead costs) and the opportunity to search and obtain perfect information about products and demand.

The Internet is supposed to be the great equalizer, where big corporations will have no inherent advantage over small vendors. In physical markets, bigness has certain advantages, helping firms to command a larger presence in physical form, market share, and reputation. The importance of this `big' presence to consumers is that it presents a

signal of the quality of a firm's products. We know that products sold by big firms are not necessarily of higher quality, but it is one viable signal available in the physical market. A similar correlation between bigness and assumed quality does not exist in electronic commerce, lowering the barriers to entry.

Another characteristic of the ephemeral perfectly competitive market, the availability of perfect information, is typically undermined in physical markets by the consumers' inability to search completely or at a cost that reflects the value of searched information. In electronic markets, automated indexing and cataloging technologies that gather and present information at low cost aid a complete search. The search for information is then as efficient as is allowed by search services. Using conventional economic reasoning, however, a complete indexing of the entire digital universe may not be economical, although desirable. Nevertheless, indexing and cataloging have been the most important Internet-based activities. Along with search services, they provide means to advertise web pages and to direct browsers to specific sites. Because of their importance, search services may be the first to be commercialized with access fees, but it will be essential to maintain search fees as low as possible, perhaps through competition, in order to minimize transactions costs.

Contrary to intuition, not only buyers benefit from perfect information, but so can sellers. Electronic transmissions generally leave a trail of information about consumer demand and tastes, which has a high value in its own right. Refined demand information is useful in reducing wastes due to demand uncertainty. Also, it leads to greater product diversity, enabling consumers to obtain customized products that better match their preferences instead of products that represent the average tastes of consumers. The flip-side effect of this is the ability for sellers to charge the maximum price consumers are

willing to pay.

Despite the benefits to both sides, informational efficiency in electronic commerce is not guaranteed. The consumers' need to know about products and the seller's desire to gain more knowledge about consumers' preferences have to be balanced to avoid one taking advantage of the other. Clearly, complete product information will be available only if sellers are willing to provide that information just as consumer information is limited by the willingness of consumers to reveal their preferences. Fully customized products may increase the total social welfare but transfer benefits from consumers to firms. It remains important, however, to recognize the unique potential for perfectly informed sellers and buyers that electronic commerce presents.

2.1.5 Business Organization and Virtual Firms

When the World Wide Web first gained in popularity, many firms created web pages and initiated direct contact with consumers. Increasingly, however, web page development is contracted out to professionals, and many Internet-based marketing activities are handled by intermediaries. Even sales in electronic malls may be delegated to intermediary merchants, with the firms having no direct contact with the buyers. Since physical distance is not a barrier to business transactions, the electronic marketplace may resemble the face-to-face business of the old tradition, making such intermediaries unnecessary. On the other hand, market intermediaries have traditionally played other functions designed to enhance efficiency. The new electronic marketplace will necessitate new innovative models of firm organization, production, delivery, and overall market institutions, including a close examination of the role of intermediaries.

Other time-tested, basic business assumptions can no longer be presumed to hold true in this new world. In the electronic age, firms no longer are based in a single

location because all functions need not be operated in one locale. Going beyond even decentralization, a firm on the Internet becomes a distributed company, or a virtual firm, where any operation can be anywhere multi-office corporation is that a virtual firm's day-to-day operation is also conducted on a network. The mundane aspects of managing a company administrative tasks, scheduling meetings, supervision of remotely located employees, and so on appear to be the greatest challenge of a virtual company because coordinating such matters most often depends on traditional means of communication.

A promising application of electronic commerce for a virtual firm is to use the web technology for within-business and business-to-business interactions. Business logistics including supplier management, inventory, warehousing, and invoicing can be integrated in a corporation-wide intranet, or intraweb, which is defined as "a secure corporate network with rich functional features of Local Area Networks interconnected by the Internet or its technologies and applications" (Chellappa et al. 1997). Suppliers and customers are given appropriate levels of access to intranets so that employees, suppliers, and customers can be integrated in the firm's production and sales functions in a network rather than a physical locale.

Another still unanswered question is whether interfirm relationships of virtual firms will be different in electronic commerce. Economists have argued that a firm is an organization by which producers can internalize transaction costs, which are costs incurred in transacting business such as writing, monitoring, and enforcing contracts. For example, if the cost of contracting bookkeeping and accounting with an outside CPA (Certified Public Accounting) firm is high, a firm may reduce costs by establishing an accounting department of its own to handle the tasks. In an extreme case, a firm may find it efficient to handle all activities from production, marketing, and payment to

delivery. When transaction costs are low, on the other hand, many functions done within a firm may be contracted out in a market . To the extent that electronic commerce reduces transaction costs, firms will contract out or delegate many of their functions to other agents in the market.

Increasing use of contracting implies a more fluid interfirm relationship and a more decentralized, nonhierarchical organization. However, Steinfeld et al. (1995) have examined the buyer-seller relationships between firms on a network, and concluded, based on case studies, that the use of an electronic network between firms tends to lock out other firms. They present this as evidence that networked businesses tend to promote hierarchical organizations (such as corporations) instead of markets. In other words, doing commerce on a network increases interdependence between existing partners, and has not encouraged firms to seek new suppliers or buyers in an open trading market. Such a trend is clearly observed when new firms have to invest in hardware and software to participate in bidding and contracting. The open Internet, however, lowers such investment requirements, and will facilitate a more market-like organization among networked companies.

2.2 Aqiring the Tool

2.2.1 Choose an Internet Service Provider (ISP)

Internet Service Providers (ISP's) may be classified in three categories: individual, regional network and national service providers. In addition, ISP's may specialize in offering to either to individuals or businesses. Geographic location may determine the choice that your business makes, but business and marketing goals will be a determining factor in most locations. It is important that a clear assessment of Internet business and marketing goals be arrived at before a significant investment in internet technology is

made.

In general, ISP's are moving into value-added services (VAS) to remain competitive. Web hosting, the most common VAS, is a commercial service that offers the shared use of the internet technology required to mount and maintain web pages at professional standards and levels of functionality, but at lower cost than achievable in-house. Hosting packages include a fixed amount of file storage (typically 20 MB to 50 MB) and data transfer (typically 1 GB to 10 GB). The benefits of a web-hosting service include reduced costs, increased functionality and technical support. Page design and installation are basic services while VAS features include e-commerce software, multimedia services, online discussions, customized e-mail services and (less commonly and still problematic) database management.

User costs are generated by an initial set-up fee and monthly fees which are determined by data transfer levels and use of other services such as technical support (including extended customer support), POP mail boxes, access to CGI and Java scripts, Front Page extensions, electronic commerce tools (shopping cart software and secure credit card transfers) and multi-media add-ons. Charges include a basic monthly charge for a specific amount of disk storage and a maximum quota for data transfer. File storage is relatively cheap but bandwidth fees (for data transfer to users) increase with use.

Many ISP's offer security services such as security audits, firewall installation and security policy consultation and monitoring. ISP's are increasing the number and the quality of their technical support staff in the face of an increasing customer awareness of and demand for post-installation services and support. Internet FAX is a value added feature currently peripheral and under development but which may become a standard feature. So too are remote Internet and e-mail access for branch offices and travelling

employees and network monitoring which tracks customer usage for the purpose of optimizing the individual service configuration.

ISP customers are increasingly aware of and concerned with Quality of Service (QoS) issues. Service guarantees are available from some providers and generally cover two areas: Internet connection and web site uptime. Failure to provide the former is usually compensated through customer account credits or rebates. The latter can be guaranteed with a high degree of reliability. While VAS's are important considerations they are useless without a strong network. Prospective ISP's should be willing and able to provide satisfactory answers to questions about network scalability, back-up and redundancy as well as the extent and level of technical support and expertise. Price should be weighed equally with infrastructure, staffing, support and value added services.

These fee package components should be considered carefully and evaluated against present business requirements and future business expectations. Providers also should be assessed for reliability, speed and availability of services. Web-hosting services can achieve 99% reliability by employing round-the-clock support staff and a high level of equipment redundancy. Potential providers should be questioned specifically and in detail about their abilities in these areas.

High-Speed Lines for Business Accounts

56K Modem is a relatively inexpensive upgrade from the currently standard 33.6K modem. It operates over a standard telephone line and can be configured as easily as its slower predecessor. However, two technologies (US Robotics with x2 and Rockwell with K56Plus) have been competing in this market, offering different and incompatible standards. Recently a compromise standard (V 90) has been agreed upon

but it is not at all clear that problems of compatibility have been solved. 56K modems have been available with programmable chips and read-only chips. If investing in this technology, be sure to obtain programmable chip hardware which will be software upgradable; ie, capable of being modified rather than replaced in the face of future developments

ADSL (Asymmetric Digital Subscriber Line) is a new technology, a form of dedicated telephone line, not yet widely available which carries data and voice on a single line. It offers significantly higher speeds (bandwidth) than ISDN and where it is available, it is less expensive. ADSL has high download speeds and relatively low upload speeds. Exactly what these speeds are depend upon the Telco's technology but 1.5-2.0 Mbps download and upload speeds comparable to ISDN are common claims. ADSL is an "always on" connection (no dial-in), does not interfere with voice or fax transmissions and it is a "private" or unshared connection. Its performance is affected by the distance from the central hub and functioning cannot be guaranteed before installation; this must be determined during post-installation testing.

Cable Modem currently is not widely available, but is likely to become so because of its high bandwidth (up to 30Mbps claimed) and low rates. In Canada, these range from $40-55 for Internet access and modem rental (modems may also be purchased). Installation is simple from the user point of view; the cable company installs the hardware and software and does all necessary configuring. These factors continue to be the cable company's responsibility after installation. Cable modem is an "always on" connection and does not interfere with TV reception. It supplies the same bandwidth in both directions. However this high speed delivery is dependant upon the number of users on the connection at the time and the amount of bandwidth they are using.

Frame Relay is a scalable (56-512 Kbps) connection providing better performance than ISDN and cheaper than T-1. Frame Relay is suitable for connecting remote locations, LAN's or servers to medium level data transfer.

ISDN (Integrated Services Digital Network) is a 64/128 kbps (rated) 2 channel, dedicated telephone line suitable a small LAN or Web server needing a 24 hr Internet connection and occasional large file transfer. ISDN is now widely available in urban centres, less so in rural areas. Canadian rates are about $100 per month. One disadvantage is that the connection must be configured both by the user and by the phone company based partly upon the type of terminal adapter installed and upon the local environment of the telephone line. ISDN may be installed either with an external or internal adapter which have different features. An ISDN connection will not significantly interfere with voice and Fax communications.

Satellite Connection is a high speed, but expensive technology suitable only for remote locations where alternatives are not available. Although it offers 400Kbps download speeds, an analog (33 Kbps) modem must be used for upload.

T-1 Line is a 1.5 Mbps, high speed, dedicated line available mainly in urban areas. T-1 connections may be configured as a "Full" or "Full Duplex" (synonymous terms) or as a "Burstable" or "Half Duplex" connection. Full T-1 is suitable for mission or time critical applications such as large file transfers, high-traffic web site hosting, or intranet connections. Burstable T-1 is suitable for environments in which data traffic levels vary greatly. It is relatively expensive both in terms of hardware investment and monthly rates. In most cases it requires in-house technical and managment skills.

T-3 Line & Ethernet are very high speed, high performance internet connections suitable for frequent and large file transfers such as video and video conferencing, web

site and FTP site hosting and full news feeds.

Bandwidth The size of the bandwidth determines the data throughput, or the speed of transmission for sending and receiving data. Therefore, the data transmission speed that the ISP connection will support is an important consideration.

Businesses that offer electronic storefronts should be particularly wary of sluggish transmission speed. A slow connection forces users to patiently wait while documents download from the server. Many people will not wait for a slow download, but rather cancel the connection and move on to the next electronic storefront or WWW site. The question is, will they return later? If the common business adage is true that "It is easier to lose a customer than gain one," then many will not visit the site again.

Slow transmission speed also has a significant financial cost. For each minute spent waiting for a slow connection to download a document, the meter is running. Faster transmission speed can significantly reduce the time spent online and thereby reduce the overall costs of using the Internet. Therefore, the data transmission speeds of a prospective ISP should be determined before subscribing to an account.

Large bandwidth is good, but is bigger always better? Bandwidth is equivalent to the width of the highway. Measured over the same period of time, more vehicles can pass through an empty two lane road than an eight lane highway during rush hour. Traffic significantly affects both data and automotive transmission speeds. Therefore, bigger is not always better.

Most types of commercial or large scale Internet connection providers offer very fast T1 or T3 links. At first glance this appears fantastic for the end user but a second look might reveal a much different picture. There are two types of bandwidth to be concerned with:

(1) The Internet connection provider's bandwidth link to the Internet backbone

(2) The usable bandwidth experienced as reflected in data throughput

Bandwidth is fixed and data transmission speed is determined by the ratio of the size of the bandwidth measured against the data traffic. Since data transmission speed decreases as data traffic increases, the usable bandwidth experienced can be calculated by comparing the anticipated, regular data traffic to the bandwidth of the connection. What is the ratio of lines allotted to customers against the bandwidth of the connection? As a guideline, the usable bandwidth of the ISP can be determined by dividing their bandwidth link to the Internet's backbone by the number of lines they have. For example, if they have a T1 connection and 50 lines, divide 1.544 mbps (megabytes per second) by 50. This calculation produces a usable bandwidth of about 30kbps. The average user consumes less than 4 kbps when online.

Peak Period Busy Signals

Businesses will often opt for some form of dedicated line for which they will pay a premium rate (higher than an individual subsciber line). Their service contract should prevent them from getting a busy signal, with penalties incurred by the ISP (rebates etc.) if such should occur. Individual subscribers with standard dial-in access should check a potential ISP by dialing in at peak periods (9-11 pm) over a period of days to see if they get a busy signal with any kind of regularity.

2.2.2 Internet Security

Security is a critical concern for exchanging information and delivering business services via the Internet. Fear of security breaches is arguably the greatest obstacle to full public and business participation in Internet based electronic commerce. The public requires full assurance that the information they supply will not be misused, and that credit card information or other payment mechanisms are confidential and secure.

Businesses share these concerns but also demand their systems are protected from intrusion and tampering. Robust solutions to Internet security concerns are rapidly emerging, driven by major software developers, corporations and banking institutions who have strong vested interests in developing a vibrant climate for electronic commerce. Consequently the Internet has never been a safer place to conduct business. The main challenges remaining in Internet security are to ensure that solutions are simple and inexpensive enough to implement, and that the widespread public confidence in these solutions is strong. The large credit card companies, among others, realize this, and are conducting public awareness programs to educate cardholders about Internet secure payment systems and security protocols such as SET (Secure Electronic Transactions).

Security Elements

Internet security can be divided into six related parts:

Confidentiality - The transmitted information remains private, and is disclosed only to the intended recipient. Others cannot eavesdrop on exchanges or view private records. In the paper world, a sealed envelope prevents others from viewing information. In a digital world, encryption provides comparable protection both during transmission and storage.

Authenticity - The communicating parties are accurately identified. All parties must know the valid identity of the others to avoid fraud and misrepresentation. Identification and authentication components can be further classified as:

(1) "Something you know" - such as a password or PIN (personal identification number), that is provided on request to establish identity.

(2) "Something you have" - such as an object like a key, credit card, token or

passport. A driver's license or other document issued by a respected authority may be accepted as proof identification. Digital certificates issued by trusted third parties serve as digital equivalents. Token or card reader systems also fall into this category, but because they require the user to have special hardware these devices tend to be impractical for general Internet use.

(3) "Something you are" - such as a recognizable unique physical attribute like a fingerprint, voice, signature or picture. Digitally, biometric techniques such as voice recognition or retinal scans deal with the "something you are" aspect of identification and authentication. Hardware demands for these sophisticated systems limit their applicability for the Internet. In contrast, digital signatures also fall into this category but are practical for Internet use. Note that digital signatures are not quite analogous to handwritten signatures; a digital image of a signature is not secure as it can be easily copied.

Non-repudiation - The user cannot deny their electronic actions or that an exchange took place. For example, a customer cannot order a product, transmit electronic funds then deny the purchase at a later date. By convention and law, a signature and a third party witness bind a person to their actions. Digital signatures serve this purpose electronically.

Integrity - The information cannot be changed. The message received must be identical to the message sent. There can be no changes made either deliberately or accidentally in transit or during storage. A sealed envelope prevents tampering with paper documents. The nature of the printed page makes it difficult to alter without detection. Digital signature technology can create virtual envelopes that can be verified

by the recipient to ensure that no unapproved changes are possible without detection. To ensure integrity of stored data against malicious changes it is necessary to guard against virus invasion and against unauthorized access to storage facilities. Encryption of stored data can provide additional protection. Data backups allow recovery in the event that data is damaged.

Access Control - The resources are under the exclusive control of authorized parties and no others can access the systems or information. In the non-digital world, access control is provided by lock and key. In the digital world firewalls, access privileges and user identification and authentication techniques (such as passwords and authorization certificates) serve as equivalents.

Availability - The information or service is available for access when needed. Sending channels must deliver reliably, and information storage facilities must function when they are required. In the paper world, availability is assured through reliable mail and courier systems. Secure storage is achieved by protecting against damage by fire, water and other perils, by protection from theft, and by measures to ensure against accidental loss. Similar measures provide digital security, but additional steps must be taken to prevent disruption of service by power outages, or due to failure or overload of systems and communication networks. Data backup, virus protection, sufficient capacity to handle the demands posed by heavy network traffic, and redundant servers help assure availability.

Thought must be given both to the security of information in transit, and to the security of information stored on computers and networks. A secure transaction over the Internet must ensure confidentiality, integrity, authenticity, and non-repudiation. Access control is vital when records of electronic commerce are stored and a company's internal

computer network is connected to an Internet, extranet or intranet site. Availability of systems and services is crucial as companies increase their reliance on Internet, extranet and intranet channels for doing business.

Web sites vary in the type and level of protection they need, depending on their function. Availability of service is important for all web sites, but vital for Internet services that are mission critical to a company. Web applications that mostly provide advertising can make do with provisions to ensure that the site is available, information presented is accurate and has not been accidentally or deliberately changed. Secure Internet, extranet or intranet sites must also ensure that the information they contain is safe from unauthorized access. When such sites are used not just for presenting information but also for conducting transactions, non-repudiation of transactions become increasingly important and protection of data integrity in transit and during storage must be considered more closely. Sites providing electronic commerce require strong solutions in all aspects of security.

Tools and Techniques for Internet Security

Encryption

Encryption involves scrambling a message using a code, so that someone can only unscramble the message with a specific key. This ensures message privacy from view by all but the intended recipient. In traditional cryptography, the same key was used to both encrypt and decrypt a communication. This is also known as private key encryption. Public key systems use two separate keys, one for encryption and another for decryption and has proven to be well-adapted to Internet use, because it avoids the difficulty of transmitting the symmetrical key securely. The public key can be published and distributed widely with no need to expose the private key to discovery.

Public Key Encryption

Public key systems can be used for encryption and decryption, as well as for digital signature generation and file integrity verification. Public key or asymmetrical cryptography operates with the use of two encryption keys. One key is made public, and the other is held in secret. Data encrypted with one key is only decrypted using the other key. The standard procedure for this type of encryption is:

(1) The intended recipient generates a public and private key.

(2) The intended recipient transmits their public key to the sender.

(3) The sender encrypts and transmits a document to the intended recipient.

(4) The intended recipient decrypts the document with their matching private key.

This method of encryption is secure because only the matching private key can decrypt the document and only the recipient has the matching private key. For practical purposes, anyone who may deliberately or accidentally intercept the encrypted document will be unable to crack the code. The hardware and time required to crack a 512 bit encrypted code is so great that is unfeasible.

Public key encryption can also be used for digital signatures to ensure authenticity. This involves two sets of public and private keys. The sender uses their private key to sign a document and encrypt the message with the recipient's public key. The recipient uses their private key to decrypt the document then the public key of the sender to verify the signature. If the document decodes properly when the public key is applied, then it is authentic.

One other step is important - the person using a public key must have assurance that the private key is in fact held by the person with whom they wish to communicate.

The public/private key pair should be registered with a Certificate Authority, who like a notary public in the paper world bears the responsibility for verifying that a certain public key belongs to a specific individual, and issues a digital certificate to that effect. This verification can be done at various levels, ranging from little more than a simple confirmation that the person concerned has claimed the key, up to higher levels where individuals must present themselves in person with personal documents to prove their identity along with their public key.

The public key can be publicly distributed at will, often by posting it to Web sites, placing it in a central network directory or e-mailing it to potential users. The private key is held in confidence and protected from discovery by its owner.

Web users wishing to use public key encryption can obtain key pairs for general use and register them by visiting the web site of a certificate authority, such as VeriSign and following their online procedure. Generally, no charges are required for personal use but there is some fee required for the administration of the certificates for commercial purposes. Users may require several certificates, for example, one issued in association with a credit card for SET-based purchases on the Internet, one for a web browser, one for signing and securing e-mail, and another for logging in to a company network. Digital wallets, browser plug-ins for managing digital certificates and key pairs, will assist in managing a user's certificates.

Companies wishing to use public key encryption systems may purchase key generation software and certificate management servers, or outsource these functions to a vendor. Netscape, Microsoft, Entrust and others provide systems for developing in-house solutions. VeriSign, GTE Corp, BBN Planet Corp and others provide services for those wishing to outsource. Outsourcing may be the fastest to set up and the most cost-

effective solution for smaller organizations. Purchasing a server may be most appealing for large Intranet applications because it avoids per-certificate charges and may provide more flexibility in managing directory-based access for employees.

Digital Signatures

A digital signature is the functional equivalent of a handwritten signature. It provides a means by which information cannot be repudiated by binding the communication to the person who signed it. In addition, any change to the information after the digital signature is affixed can be detected, thereby establishing the reliability and integrity of the information contained in the digitally signed file. Digital signatures rely on public key systems, where anyone can access the public key associated with the private key that was used in signing the document. If the public key matches the message, the authenticity of the sender is verified, and the recipient can be confident that the message was not tampered with in transit.

Digital signatures are created by using public key cryptography and message digests. A message digest is a value generated for a message (or document) that is unique to that message. A message digest is generated by passing the message through a one-way cryptographic function; that is, one that cannot be reversed. When the digest of a message is encrypted using the sender's private key and is appended to the original message, the result is known as the digital signature of the message. The recipient of the digital signature can be sure that the message really came from the sender. Changing even one character in the message changes the message digest in an unpredictable way, the recipient can be sure that the message was not changed after the message digest was generated.

Digital Certificates

Digital signatures are poised to become a major tool in Internet security. A certificate identifies its owner to someone who needs proof of the bearer's identity; thus digital certificates are useful in a wide variety of situations. They can be used to sign an e-mail document to positively identify and authenticate the sender. Certificates are exchanged between web browsers and web servers using the Secure Sockets Layer (SSL) protocol to identify both the user of the web browser and the provider of the information and services on the web server. Certificates can be used to replace passwords and log-in ID's anywhere that access is to be restricted to certain users, such as registered customers. In many applications, certificates may replace "cookies, " which have proven unpopular with many Web users. Companies can issue digital certificates to their employees, and use the certificates as the basis to allow access to network resources, again replacing passwords and log in names. Employees accessing company networks from home or when travelling can use digital certificates to identify themselves to the corporate firewall.

A certification authority provides the digital certificate. The authority is responsible for establishing that a given public key does indeed belong to a given individual. The level of confidence that can be placed in a certificate depends on the rigour of the process used to verify identity when the certificate is issued. For example, VeriSign offers four classes of digital IDs. The identification requirements are greater for higher numbered classes. A Class 1 digital ID offers minimal assurance of the owner's identity. A Class 4 digital ID offers assurance of not only the individual's identity, but also of that person's relationship to a specified company or organization.

Although versatile, the certificates rely on an infrastructure of services to issue and

revoke them, store them and verify their status and ownership. Digital certificates are not yet fully standardized and interoperable. Many different issuing bodies exist, and a certificate issued for one popular browser may not work with another one, each application has its own way of handling the certificates, and not all certificates can be exchanged between all applications. This leads to the nuisance and complexity of obtaining and managing numerous digital certificates. The process of getting and using certificates is still difficult and confusing for people, although major players such as Verisign and the browser vendors understand this and are attempting to make the process easier, as well as conducting publicity campaigns to increase consumer awareness and confidence.

Enhanced Digital Certificates

Incorporating additional information into digital certificates can expand their use significantly. For instance, by including a certification of the bearer's age, web site access could be limited to those over the age of majority. Information on a consumer's preferences, age, gender or preferred language for communication could allow merchants and information providers to tailor their content to that user's visit to their web site. Coding address information into the certificate can further automate web purchasing, by eliminating the need for the shopper to type in delivery information, thus easing the purchasing transaction and reducing the possibility of errors.

Enhanced digital certificates are governed by the X.509 v3 standard, which allows for certificate extensions.

Digital Wallets

As in the physical world, digital consumers need a single place to store cash, credit cards and identification for easy access. The digital wallet is a concept integrated into

the SET protocol (Secure Electronic Transactions). The digital wallet is installed as a plug-in to the consumer's Web browser. Digital certificates, credit card numbers and address information for shipping may all be contained there. Just as consumers guard their real wallets carefully, the digital wallet is protected by a secret password.

Secure E-mail: Secure Multipurpose Internet Extensions 3 - S/MIME

E-mail is one of the oldest and most widely accessible services available on the Internet. It provides an excellent mechanism for communicating person to person, or to targeted groups. The ability to mail to a list of recipients and to attach files to e-mail messages provides an easy and versatile means of communications. Secure e-mail is long overdue. Extensions to the basic e-mail protocol provide a system of signed receipts, labels that identify the sensitivity of messages, the ability to send encrypted messages to individuals and mailing lists. Support for secure email is expected in upcoming releases of major products such as Netscape's Communicator browser, Microsoft Internet Explore and Lotus Development Corporation's Domino servers and Lotus Notes clients.

To use secure e-mail, an S/MIME compatible e-mail package is needed. Recent versions of e-mail software from Microsoft, Netscape, Eudora, Deming, Frontier, Pre-mail, Opensoft and Connectsoft support secure e-mail. The user must also have a digital certificate, available from a certificate authority such as VeriSign. Once these components have been obtained and installed, the process of using secure email is quite straightforward.

To sign e-mail messages: The browser can be configured to sign all e-mail messages automatically, or individually by hand. The user signs a document by simply clicking a box or icon before sending the message. The recipient knows the message is

authentic, that is, contains the certified digital signature of the sender and was not tampered with during transit.

To encrypt e-mail messages: the browser software can be configured to encrypt all messages, or the user may encrypt selected messages. It is necessary to know the recipient's Digital ID, or certificate in order to send that person encrypted mail. The easiest way to obtain this information from the recipient is to have them send a digitally signed e-mail message. When that e-mail is received, most secure e-mail programs will save the sender's digital ID to the address book for future use. Alternatively, the recipient's ID can be sought from a web site registry of ID's. Once the recipient's certificate is known, the actual encryption process is typically as simple as clicking on a message sending option. Encrypting the e-mail ensures that only the intended recipient can view the contents of the message.

Digitally signed e-mail can be sent to any recipient who has a mail reader that supports S/MIME. Encrypted e-mail can only be sent to those who have digital certificates for mail.

To read encrypted e-mail messages

An encrypted e-mail message has the recipient's digital ID used to code it. When the encrypted e-mail is received, the secure e-mail enabled browser recognizes it, and decrypts or unscrambles the message so it will appear normally in the in-box.

Secure Socket Layer protocol

This protocol allows the server and client to authenticate each other and to negotiate an encryption algorithm and cryptographic keys before the application protocol transmits or receives its first byte of data. One advantage of SSL is that it is independent of the application protocol. SSL depends on several cryptographic technologies. RSA

Data Security's (Redwood City, CA) public key encryption is used for the exchange of the session key and client-server authentication. SSL encryption capability is built into many web browsers, including Netscape and Microsoft Internet Explorer browsers.

SET Standard

The SET protocol was developed jointly by IBM, Sprint, MasterCard, Visa, and other technology vendors to provide a level of security for bankcard transactions over the Internet that would encourage wide-spread acceptance of such services by consumers and businesses. The protocol has been designed to allow for "bolt-on" implementation of the payment protocol to existing Internet shopping applications, minimize change to the relationship between acquirers and merchants, cardholders and issuers and allow for minimal impact to existing merchant, acquirer, payment system applications and infrastructure. (An acquirer is the financial institution that establishes an account with a merchant and processes payment card authorizations and payments.

SET uses encryption to provide confidentiality of information, ensure payment integrity, and authenticate both merchants and cardholders.

On the technical side, SET is an open standard, and its specifications have been published for industry-wide application. The objective of those who designed SET was to provide a standard solution for Internet credit card use to ensure that any cardholder with compliant software would be able to communicate with any merchant software that also meets the defined standard, rather than have a variety of competing products.

Software vendors can use the SET protocol to develop financial handling packages, whether on the browser, server, or supporting network sides. The SET protocol addresses only the payment phase of the transaction, from the individual, to the merchant, to the acquirer (the merchant's existing credit card processor). Other products

must provide the remaining components of online purchasing, such as online catalogues and "shopping carts," but can integrate the SET protocol to take care of payment functions.

The standard provides for encryption of information and electronic confirmation of the identity of each party to the transaction. The system can verify that the credit card holder is genuine and that the cardholder is indeed interacting with the intended merchant. Digital signatures or certificates issued by a trusted certification authority (provided by the bank) ensure this.

Secure Payment Options

Several approaches to secure payment over the Internet have been developed. These technologies are rapidly maturing and there does not seem to be one clear choice to implement at this time. Software upgrades, market acceptance and consumer confidence should dictate which option becomes the de facto standard for secure payment transactions in the near future.

First Virtual and PIN numbers

First Virtual was formed to facilitate Internet commerce. Notably, its system does not rely on encryption to ensure the safety of its commercial transactions. Instead, payment authorization is made without sending any sensitive personal information, credit card numbers or bank account information across the Internet. Ordinary e-mail is all that anyone needs to make payments with First Virtual's system, no special software is needed.

Cybercash

CyberCash (Reston, VA), founded in 1994, is a leading developer of software for secure Internet payments. Users of the CyberCash system first must obtain copies of

software, available from the CyberCash Web server. Once a price is negotiated with the merchant, the customer is sent an online invoice detailing the purchase information and a statement confirming the total charges. The customer then adds a credit card number or debit card information, including a PIN where appropriate. This information is encrypted and returned to the merchant with the original invoice. The merchant adds identification information and forwards all the information to the CyberCash server. At this point, CyberCash initiates a standard credit card or debit authorization request to the merchant's bank or designated merchant acquirer (processing center). After the authorization request is processed, CyberCash forwards a response to the merchant, who completes the transaction. CyberCash'sinvolvement is automated completely and is run off the Internet file server.

CyberCash also provides a payment service that shares many features of ordinary cash payments, most notably, anonymity for the payer. Users establish accounts directly with CyberCash; CyberCash accounts are non-interest-bearing holding accounts for cash that the account holder intends to transfer or has received through CyberCash. The only way to place cash into or remove cash from a CyberCash account is through a demand deposit account in a bank. Consequently, any funds in CyberCash accounts remain within the participating banks. CyberCash accounts are suitable particularly for electronic cash payments that are too small to be processed cost effectively as discrete credit card or debit card payments. This service will permit companies to process a large volume of small payments.

The CyberCash Secure Internet Payment Service allows banks to address their merchants' needs for a universal, automated, convenient, and secure online payment mechanism. Through agreements with established authorization processors, CyberCash

extends the automated point-of-sale paradigm to online transactions, thus leveraging the existing electronic payment infrastructure.

WaveMeter Chip

"Wave Systems has announced an agreement with IBM to incorporate Wave Systems' WaveMeter chip into IBM computers. The patented chip, which works much like a credit card, is a cryptographic engine and electronic content metering system integrated in a single chip which holds consumers' account balances, transaction logs and software execution licenses.

Wave Systems claim the chip is a more secure method of online payment than SET, the secure electronic transactions protocol and also claims it will change the way people purchase online, offering users the opportunity to rent, pay-per-use or rent to own. The two companies are looking at ways to make this the industry standard.

Firewalls

A firewall is an important component of security for any company intending to connect its computers to the Internet over anything but a dial-up modem connection. A firewall stands between a corporate network and the Internet and all traffic or communication between the internal system and the Internet must pass through the controlled gateway. Firewalls are based on network configuration, hosts, routers and filters and screen out traffic that is not authorized by the corporate security policy. For instance, a firewall could limit FTP transfers to only certain trusted sites. A firewall could be configured to give employees full access to the Internet, while allowing only e-mail to pass from the Internet into the company. Firewalls can also be established inside a corporate network or intranet to control access to certain segments of the network containing sensitive information.

Firewalls may provide numerous security functions, such as encrypting all or certain data leaving the corporate network, controlling internet and internal addresses that may be accessed, reviewing content for viruses or suspicious Java or ActiveX code, and providing user authentication services. It may provide services such as balancing loads between several servers, directing incoming traffic to the server best equipped to handle the demand. Thus firewalls can be quite complex.

Firewalls are usually set up on computers that are used for nothing else, possibly with non-essential parts of the operating system removed. Using a machine with a limited amount of software and with passwords or system information stored on it limits the options of an intruder attempting to breach the firewall and gain access to other corporate computers. Such stripped down computers are often known as bastion hosts.

There are three main approaches to firewalls: packet filtering, application gateways and stateful inspection. Packet filtering and stateful inspection are known as network-level firewalls, they intercept every packet that attempts to go in or out of your network. Application gateways works by handling the traffic destined for a specific application such as e-mail or FTP, rather than all network traffic.

Packet Filtering

Each IP network packet of data contains the IP address of its origin and destination. Filtering gateways or packet filters check the IP address information of every IP network packet to determine if either its origin or destination is acceptable or not. Routers, which direct information packets, can provide some firewall support because their function is to forward and filter data packets. Data from unapproved packets can be dropped instead of permitted through, thus blocking those sources from access to internal networks. Some of the more sophisticated routers support additional

features such as encryption technology. Packet filtering through routers is usually the least expensive firewall option but despite this advantage, the firewall support offered by routers is typically inflexible and may slow network performance significantly.

Application Gateways

Application-level firewalls use a carefully isolated machine outside the network that runs proxy services for news, HTTP, FTP, Telnet, and other services. These application gateways provide a viable alternative to router-based solutions, serving as intermediaries between the Internet and corporate intranets. However, application protocol gateways can also slow a network's performance and only support particular software applications. In a sense, the application gateway acts as a relay station between the external user and the internal system. Thus external users do not communicate directly with internal computer resources.

Proxy servers allow all passwords and internal IP addresses to remain internal, making them more difficult to detect and misuse. For example, in an FTP session, an external user would request a file transfer from the application gateway. The gateway would make the request to the FTP server on which the requested file resides. It would appear to the external user as though they were communicating directly with the FTP server. In fact, the external user would never see the address of the internal server, and would be blocked from accessing other parts of the system.

Application gateways offer fine-grained control over what a user can do, which applications a particular user is allowed to use, when the application could be used, and what sites or addresses can be accessed. For instance, a trusted external user could request a file, but be blocked from sending a file to the FTP server on the internal network. This offers some protection from importing viruses through FTP transfers, or

from someone altering a file and returning that altered file to the network. Also, unlike routers, application gateways can keep detailed records of activity that passes through them.

Circuit-level gateways are similar to application gateways in function; however, they are not specific to a particular application. Circuit-level gateways enable the use of more protocols than application-level gateways, but don't provide as much control. The SOCKS package is one such TCP circuit gateway that works with numeric IP addresses. Many network security server and client products support SOCKS.

Stateful Inspection (SI)

The third major approach to firewalls relies on a technique known as stateful inspection. Stateful inspection servers operate at the network layer and are considered by some experts to be the most effective. A SI server constructs a record of previous packet transmissions. Rather than checking each packet individually as it is received, SI servers query its record of packet transmissions. This system significantly improves the speed for packet filtering over standard application gateways.

2.2.3 Internet Search Tools

Many different programs are available to search for information on the Internet. According to Susan Feldman of Searcher: The Magazine for Database Professionals, an online magazine, there are more than 1,800 search services on the Web. The term search engines is often used generically to describe both true search engines and subject directories. However, search engines and directories are not the same. While directories depend on human judgement for their listings, search engines create their listings electronically and automatically.

Although helpful, search engines and directories are far from perfect even when a

specific subject is researched. All search engines and directories offer varying options, both in how to create the index and in what commands oroptions a researcher can choose. Different search engines and directories will give different results, not only from each other, but amongst each other. Taking a few minutes to read the help instructions and frequently asked questions (FAQs) will be well worth the effort. Diligence in learning the basics of various search systems will lead to more successful search results.

Elements of a Search Engine

All search engines have three basic elements: the spider, the index and the search engine software. The spider -- also referred to as the crawler --visits a Web page to build an index for the search engine. Most search engines run several spiders that explore the Web as a team. Which pages the spiders visit and how often then do so varies from search engine to search engine. The index -- also referred to as the catalogue -- is where the spider stores what it finds. In most cases, the index contains a text-only copy of every Web page visited. Because this process is automated, the resources are vast, with the biggest search engines categorizing over 100 million sites.

Some search engines remove often-repeated words (stop words) like"the" or "an" to save space, though there are methods of replacing them with characters so that advanced functions such as phrase searching can be preserved. If a Web page changes, the index is updated with the new information. It should be noted that sometimes it can take some time for new pages or changes that the spider finds to be added to the index. Consequently, a Web page may have been "spidered" by not yet added to the index.

Until a Web site has been indexed, it is not available to those searching with the search engine. The search engine software is the program that sifts through millions of Web pages recorded in the index to find matches to a search and rank them in order of

what it believes is most relevant. This search engine software usually looks for pages containing one or more of the search terms entered, and then displays matches -- together with links to those sites-- ranked by a method that usually involves the location and frequency of the search terms. Because search engines run automatically and index so many Web pages, search engines may often find information not listed in directories.

Although search engines have the three basic elements, each search engine implements them differently. This is why the same search using different search engines often produces different results. For researchers, well-known commercially-backed search engines generally mean more dependable results as they are more likely to be well-maintained and upgraded when necessary in order to keep up with the constantly changing and growing number of Web pages.

While searching using a search engine can bring more precise information, it can also produce results that, while they contain the search terms, have nothing or substantively very little to do about the subject searched. Since Web pages on specific topics can come and go, search engines can also return links to pages that have disappeared since they were indexed.

Search engines scan the Web only for the exact words entered. For example, to search for the Internet Marketing Association of Global Enterprises Web address, the query would simply be Internet Marketing Association of Global Enterprises. At the time of writing, over 4.5 million documents are said to match this query using the AltaVista search engine.

Search systems that can conduct natural language queries are emerging. A natural language query is one that is expressed using normal conversational syntax; that is, one phrases a query as if making a spoken or written statement to another person. There are

no syntax rules or conventions to learn. For example, a search query may simply be: "gold medal winners in the 1998 Olympics".

Directories

Directories are a great place to start when one is looking for information on a fairly broad subject. In addition to being manually compiled --directories use staff searchers to evaluate, review and categorize Web sites --they are hierarchically organized indexes of subject categories that allow the user to browse through lists of Web sites -- by subject -- in search of relevant information. Each site is hand-picked and is assigned a subject classification. Be aware that although many directories include search features, these features are specific to each directory.

Directories provide direct links to only a tiny fraction of the total pages on the Web. One would use it to find detailed information by moving from a general subject category to the more specific though the use of hypertext links. For example, to search for the Internet Marketing Association of Global Enterprises Web address using Yahoo!, begin with the category Business and Economy, choose Marketing and then Organizations. Because they are compiled by humans, links in directories are selective and, therefore more likely to give a general but relevant result.

Because directories are arranged by category and typically return links to the top level of a Web site rather than to individual pages, they lend themselves best to searching for information about a general subject rather than for a specific piece of information.

Directory databases tend to be smaller than those of search engines. This often results in shorter lists of results. Directories are often said to produce more relevant results because which a search engine typically indexes every page of a given Web site, a

directory is more likely to provide a link only to the Web site's home page. Furthermore, because each listing is created by a human being, directories greatly reduce the probability of retrieving results out of context.

Meta Search Tools

Meta search tools have been called the Web's best-kept secret. Meta search tools are those that will access multiple search engines, collect the results and present them to the user. It is interesting to note that these search tools do not search the Internet itself. Rather, they search the other search tools. The query transparently goes to several search engines' servers, although the browser does not. The best meta search tools do some additional processing -- for example, eliminating duplicate hits and reordering hits according to their evaluation of relevance.

Their weakness will that they will not exploit the individual strengths of the different engines as they get to the lowest common denominator in search capabilities; search results are not only generally less precise but are slower. Still, if one does not know where to begin, a search strategy that includes meta search tools might help.

2.2.4 Discussion Groups

Discussion groups are a variety of online forums in which people communicate about subjects of common interest. The best way to track discussion groups is through specifically searching for them.

Searches of discussion groups tend to be up-to-date. Since there are millions of people out there with opinions about everything, a discussion group search is almost guaranteed to bring something back. For example, a search for discussion groups on Canada using Liszt yielded a match with 101 discussion groups at the time of this writing.

2.2.5 People Finders

Searches may often be for a specific person or a particular business. Beaware that there are often many outdated listing and many people with the same name. Search systems such as Canada411 include over 10 million listings and can locate addresses and telephone numbers of people and businesses

2.2.6 E-mail Communication

The primary Internet communication tool is e-mail. While e-mail is the least expensive type of Internet communication tool to implement, it is also the most powerful tool because it is simple to operate, fast, and reliable. For these reasons it is the most widely installed and used Internet technology and therein the surest way to communicate with the broadest possible audience. Itis estimated that world wide there are 25 million e- mail users sending 15 billion messages per year, a growth from an estimated 4 billion messages in 1994. In 1995 the number of pieces of e-mail sent is thought to have exceeded the amount of ground mail.

E-mail combines the near immediacy of the telephone for reaching people with the word processing power of the computer. Although e-mail can include complex data types such as graphics, audio files and video, most often it is used to send plain ASCII text encoded messages. Using e-mail and plain text messages alone, businesses can send and receive product information, customer support, place orders, as well as subscribe to mailing lists that receive up to date information on a variety of topics such as industry news reports, product announcements, policy updates, etc.

E-mail is also an extremely low cost form of communication. Unlike telephone or standard postal mail, there are no volume or long distance surcharges for sending e-mail. This means there are no charges other than the basic subscription to an e-mail account to

send one e-mail message is across the city or 10,000 messages to the other side of the world.

2.2.7Mailing Lists

Mailing lists are a type of software that distributes e-mail messages to groups of people registered on a centrally managed list. They are usually established around common topics of interest. Registration is voluntary. Participants subscribe and unsubscribe from the list by sending an e-mail message to the mailing list's registration e-mail address.

There are two main types of lists, announcement lists and discussion lists. Announcement lists function much like traditional newsletters: the list'se-mail messages flow in one direction, from publisher to subscriber. Often distributed on a regular schedule, announcement lists are the functional equivalent of a direct mailing package, disseminating catalogue or product information, to a broad list of subscribers.

Discussion lists function like a public forum, providing a place to ask questions, offer advice and exchange ideas with list subscribers. In contrast to announcement lists, discussion list subscribers not only receive information from the list, but can also post information, questions or comments to the other list subscribers. Discussion lists may be moderated or unmoderated. In moderated lists, posts are filtered through a human moderator who screens and possibly edits submissions to be sure that they are appropriate and on-topic. Once approved by the moderator, the mailing list software redirects the messages to all the subscribers. In unmoderated discussion lists, no one reads, edits or screens messages before they are distributed. The mailing list software simply receives and redirects posts to all the subscribers.

Mailing lists provide an inexpensive way distribute corporate information to

clients, customers and business partners. Mailing lists are an effective replacement for direct mailing because they:

(1) Eliminate the costs of printing and shipping

(2) Reach the target audience immediately.

Subscribing to mailing lists can be an easy way to stay up to date with events in your industry, receive product and event announcements, and stay connected with people of similar interests.

Mailing lists are a push communication tool, meaning that each message is sent to subscribers without their request, excluding their initial registration to the list. Compare this to another information forum tool: newsgroups. Newsgroups are an electronic alternative to mailing lists however newsgroups have one principle difference from mailing lists: newsgroups require active monitoring whereas mailing lists are passively monitored. Active monitoring means the user must log into the newsgroup in order to read the posted messages. If the user does not log into the newsgroup they will not know what messages were posted. In contrast, passive monitoring means that after the user subscribes or registers to a special interest mailing list, each letter thereafter posted to the group will redirect to the user's e-mail address. Mailing lists are good for individuals who do not have the time to actively monitor a range of newsgroups yet need to remain current on a designated topic.

2.2.8 Public Discussion Technologies

Newsgroups

Special interest Usenet newsgroups are excellent resources to locate expertise. Newsgroups function as electronic bulletin boards through which people communicate, ask technical questions, offer solutions, gather leads and forge new contacts. With

thousands of newsgroups in existence it is difficult to imagine a subject matter that is not covered.

Newsgroups are distributed on a publication-for-all basis. Newsgroups may reach a broader audience than mailing lists, as advance subscription is not necessary, and they can be browsed using a news reader so users can choose which topics they want to read. News articles posted by readers of the newsgroup are organized into topics, called threads. A user can begin a new topic; related responses are organized and displayed below the original article. This organization allows several discussions to form within a newsgroup and interested readers can easily follow one discussion, ignoring those that are of no interest to them. There are over 20,000 different newsgroups organized into hierarchies and covering almost any conceivable business or personal interest.

Chat and Internet Relay Chat (IRC)

Chat is a live text-based form of communication over the Internet. Internet Relay Chat is a service that offers over 6000 different channels that allow users to join active discussions. Messages from others are displayed on the computer screen, and the user may participate in the chat by typing in a message, which then appears to others who have joined the same chat channel. Participation involves obtaining chat software, which can be downloaded from a number of sources on the Internet, generally free of charge. The business application of IRC is limited, but text-based chat features of telephone conferencing software may allow those with computers that have limited multimedia capabilities to participate in a limited way in discussions.

Web-based Forums

Discussion forums are an excellent way to provide two-way interactivity to a corporate web site. This helps keep the site fresh and interesting, so visitors return

frequently. Forums are text-based discussions that reside on a web page on the World Wide Web. There is no need for forum members to be logged on at the same time in order to communicate. Various lines of discussion can be established, and users can read comments posted by others as well as contributing their own comments, which then appear on the web page for others to read and respond to at their convenience. These discussion sites feature an easy-to-use interface and participants can enhance their messages with HTML codes or include hypertext links to sites of interest. Users need no special software other than their web browser. Web forums share many of the characteristics of Usenet newsgroups, but can be set up by any business. In addition, private discussion forums can be established that can only be accessed by registered users and are password protected. These can be useful additions to corporate intranets or extranets.

2.2.9 Internet Publishing Tool

For many businesses publishing is a standard practice, which commonly overlaps with communication and marketing operations. The goal of publishing is simply to disseminate information to an audience, to publicize information that may increase awareness of products, services, company operations, opportunities, etc. Publishing is traditionally a print media operation, but just as publishing may serve multiple purposes for different audiences it may also employ multiple types of technologies and media. Electronic media presents new possibilities for publishing with expanded capabilities. Unlike print media, it offers enhanced functionality such as powerful searching capabilities, sophisticated adaptable user interfaces, and the capability to create complex multimedia documents. The Internet extends the power of electronic media even further. As a global distribution channel the Internet is a useful publishing tool to reach target

audiences quickly, accurately and inexpensively.

Once a publishing operation is established it can be both simple and inexpensive to publish almost any kind of information. Despite this, not all types of information are worth the expense of publishing. Some types of information do not suit the medium or have true value to the target audience. Although the inclination to publish every document in a legacy database may be strong, successful businesses have learned that only certain types of information are worthwhile publishing, including:

(1) Product catalogues and price lists

(2) Product announcements and news releases

(3) Product recalls

(4) Product warranty information and parameters

(5) Personnel changes, hiring and opening notifications

(6) Corporate documents: missions statements, annual reports, board minutes, business plans, policies, legal disclaimers

2.3 E-Commerce Business Integration

By virtue of its similarities, the scope of operations for E-Commerce is nearly as broad as traditional commerce. E-Commerce includes both traditional activities (e.g. providing product information) and new activities (e.g. conducting online retail in virtual malls, publishing digital information). Some of the common operations that define E-Commerce are specific business-to-business and business-to-customer interactions, such as:

Information exchange

(1) Goods or services trading

(2) Sales promotion and advertising

(3) Online digital content delivery

(4) Electronic funds transfers and transaction processing

(5) Electronic share trading

(6) Electronic bills of lading processing

(7) Collaborative work interaction

(8) Manufacturing management

(9) Accounts settlement

(10) Online sourcing

(11) Public procurement

(12) Direct consumer marketing

(13) Inventory management

(14) Post-sales service

(15) Commercial auctions.

Although every E-Commerce implementation will differ, most SMEs focus operations on:

(1) Product promotion via online catalogues

(2) Transaction processing (exchanging digitized monetary information)

(3) Customer Support.

E-Commerce conducted over the Internet differs from typical commercial activity in that it is influenced by the unique characteristics of the medium itself. In contrast to print media, E-Commerce is dynamic, allowing users to interact with the commercial site, send comments, and even define the scope of a document. Unlike person-to-person commerce, E-Commerce allows for a controlled interaction between vendorand potential purchaser, where the vendor may strategically direct the customer through a series of

options and processes. E-Commerce also differs from traditional commerce by its boundless relation to time and space. Interaction is not restricted to normal working hours or geopolitical borders. There is potential to conduct business with other merchants and consumers around the world in different time zones, 7 days a week, 24 hours a day.

In the short-term, entry into E-Commerce may offer a competitive advantage over slower to act competitors. The market for E-Commerce is growing, as more consumers and businesses gain Internet access and transaction processing technologies improve security. Companies that establish an operation today, still in the early stages of Internet based E-Commerce, will have a fuller understanding of the issues and be better prepared to capitalize on emerging technologies when E-Commerce markets open up in the next few years.

The benefits of E-Commerce to a small business may include capabilities to:

(1) Extend the range of sales territory

(2) Streamline communication to suppliers and clients

(3) Expand reach to new clients

(4) Improve service to existing clients

(5) Reduce paperwork and time spent on correspondence

(6) Track customer satisfaction

(7) Expedite billing

(8) Improve collaboration on work projects

(9) Expand markets beyond geographical, national boundaries

(10) Leverage legacy data

(11) Improve inventory control, order processing

(12) Establish position in emerging E-Commerce marketplace

(13) Lower costs of overhead

(14) Realize economies of scale by increasing sales volume to new markets

(15) Monitor competition and industry trends

(16) Improve or expand product lines - locate new suppliers, products that could be included in catalogue.

2.3.1 How Does It Integrate with Traditional Services?

As E-Commerce matures and more traditional businesses enter the electronic marketplace, it will become difficult to distinguish the E-Commerce merchant from traditional merchant. Although some firms operate exclusively as E-Commerce merchants, it appears that the greatest opportunities are for established firms that venture into E-Commerce as a means to refine existing business processes and gain new customers.

E-Commerce may complement or replace traditional commercial activities, depending upon the industry and the functions. Because it is both a threat and an opportunity for various industries, it is worthwhile to:

(1) Study how E-Commerce can integrate into operations. Determine needs and capabilities. E-Commerce operations may shadow traditional operations to provide redundant services such as product information distribution.

(2) Develop an E-Commerce strategy into the business and marketing plans. Understanding how an E-Commerce system will strategically fit with the firm's existing operations will help to allocate the management and financial resources necessary for it to be a success. In the long-run, there have to be resources to set-up and sustain a system, making it work best for the type of

operation that will be managed.

(3) Monitor competitors, suppliers, and customers' movements into E-Commerce. Special attention to their capabilities will help determine areas of E-Commerce that need development.

(4) Establish a consistent operations review process. E-Commerce technology and operations are constantly evolving. Changes in technology frequently introduce opportunities to refine or create new services.

2.3.2 Barriers to Business and Consumer Target Markets

Business-to-business E-Commerce presently represents the bulk of commercial volume over the Internet, although business-to-consumer traffic is growing and has the potential to become an even larger market. The primary reason why business-to-consumer E-Commerce has not kept pace is that the Internet is still not as established in the home as it is in the office. Many businesses have invested in Internet access technologies, are online and ready to expand their commercial capabilities into this emerging marketplace. Consumers should come online as the costs of Internet access decrease, data throughput increases and Internet connectivity becomes as simple to initiate and commonplace in the home as television and telephones.

Low confidence in security technologies has also restricted growth of E-Commerce activity. Business-to-consumer E-Commerce in particular has suffered from poor consumer confidence in secure monetary and personal data transactions. Business confidence in secure transactions is higher and continues to increase as electronic payment and encryption technologies are widely employed. It is important to note that this issue is strictly about confidence. Secure technology exists today. This indicates that business is either more informed or willing to take risks than consumers are. In either

case, business-to-business E-Commerce is vibrant and demonstrates a confidence in the supportive technologies that should continue to transfer to consumers.

A third barrier to growth is the concern of legal issues, mostly the uncertainty of litigious boundaries. Since the Internet crosses political boundaries, legal jurisdiction is in question. Although the Internet improves access to foreign markets, national export/import laws still apply to all E-Commerce transactions.

III. E-COMMERCE AND TRAVELLING BUSINESS

3.1 Business Overview

Thai Hotels Association was founded on February, 6, 1963 The Thai Hotels Association (THA) was formerly known as the "Thai Hotels Association for Tourists". It was renamed the Thai Hotels Association in 1968, composed of leading hotels representing every part of Thailand. All Association Ordinary members, have been approved by the Ministry of Interior. The Association has thus been in existence for over 30 years. To serve arriving tourists in finding suitable accommodation on their first step into the country, THA has set up two counters at Don Muang International Airport's arrival lounge and Domestic Airport's departure lounge. The Official seal of association is a three peak-pavilion with an abbreviation "THA" inside. Below the pavilion is the name "Thai Hotels Association"

3.1.1 Objective

The objectives of the association shall be as follows:

(1) To serve hotel enterprises or hotel business and tourism.

(2) To promote and foster cooperation among all members of association.

(3) To support and assist members in solving problems including negotiation with outsider for the mutual benefit of the members' enterprises.

(4) To foster the spirit of unity and to exchange knowledge, and opinions concerning hotel business and tourism technical-wise as well as informative-wise.

(5) To protect and promote mutual benefits

(6) To cooperate and to coordinate with public as well as private sectors, e.g. organizations associations companies, persons to

persons, when the Association deems that such cooperation will assist or facilitate the fulfillment of the Association's objective.

(7) To propagate and publicize the Association's activities as well as information concerning the hotel and tourism industries.

(8) To conduct and promote the organization of training programs and seminars in the field of hotel business and other businesses in connecting with the hotel business, including tourism.

(9) To carry on any kind of business with the aims of promoting and increasing benefits of the members.

(10) To clarify and give advice to the Government as to the right concept and help solving problems and obstacles of hotel business and other kind of business in connection with the hotel and tourism businesses.

(11) To cooperate with the Government in promoting hotel business with regard to a good standard and in concurrence with the Government policy.

(12) To make agreements or set mutual regulations for the members to follow or to refrain from any practices, all for the good of the member's business.

(13) To settle disputes in business between follow members, or between members and outsiders

(14) To arrange sales promotion domestically and internationally

(15) To join any charitable activities or make contribution to charity for public welfare and for national security.

3.1.2 Organization Chart

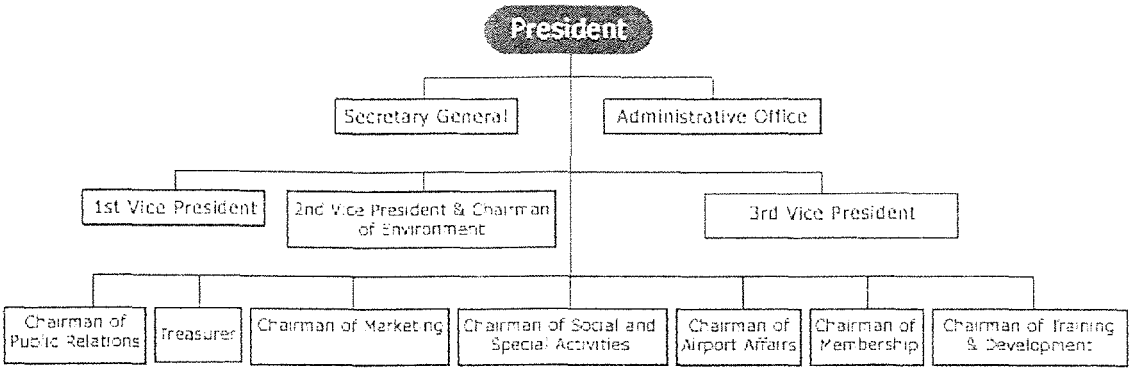


Figure 3.1. Organization Chart.

With the continued growth in the world tourism and business travel, the Thai tourism industry can look confidently toward better business prospects.

Visitors to Thailand can choose from a choice of historical, cultural and natural attractions for an enjoyable and memorable holiday. In addition, it has become an increasingly important modern trade and business center. Its well-developed tourist and hotel industries, top class entertainment venues and modern shopping centers has made the country a favorite destination with businessmen and holiday makers.

The Thai Hotels Association and its members give top priority in preserving and enhancing the high standards of hotels in Thailand, both in terms of accommodation and service and to project an image of excellence throughout the world. Members of THA are reputable hotels and many of them regularly receive recognition for being amongst the best hotels in the world.

The objective is to work towards the rational development of tourism in Thailand, with emphasis being placed on the protection of the environment and scenic beauty spots, and the preservation of the Thai culture.

In supporting our members, THA contribute to the healthy and sustainable development of tourism in Thailand.

The membership is divided into 4 categories, namely;

(1) **Ordinary Members:** are juristic persons, who engage in the hotel business and who are lawfully registered and possess the qualifications and standard set forth by the Thai Hotels Association Board of Committee and approved, such as by a Board meeting with a vote not less than four-fifth the number of the Board members present.

(2) **Extra-ordinary Members:** are juristic persons who openly engage in the hotel business at a standard set forth by the Thai Hotels Association Board of Committee, but who lack the necessary qualifications to become Ordinary Members, or are hotels under construction having a valid hotel construction license. A meeting of the Thai Hotels Association Board of Committee with a vote must approve this membership not less than four-fifth the number of the Board members present.

(3) **Associate Members:** are natural or juristic persons who engage in the business contribution to the tourist promotion industry, exclusive of boarding houses, with approved as such by a meeting of the Thai Hotels Association Board of Committee with a vote not less than four-fifth the number of the Board members present.

(4) **Honorary Members** are natural or juristic persons having rendered valuable services to the Association, who are invited to become such members by a resolution of the Association and who have accepted the invitation.

Tourism profile in Thailand in the first half of 2000 (January to May):

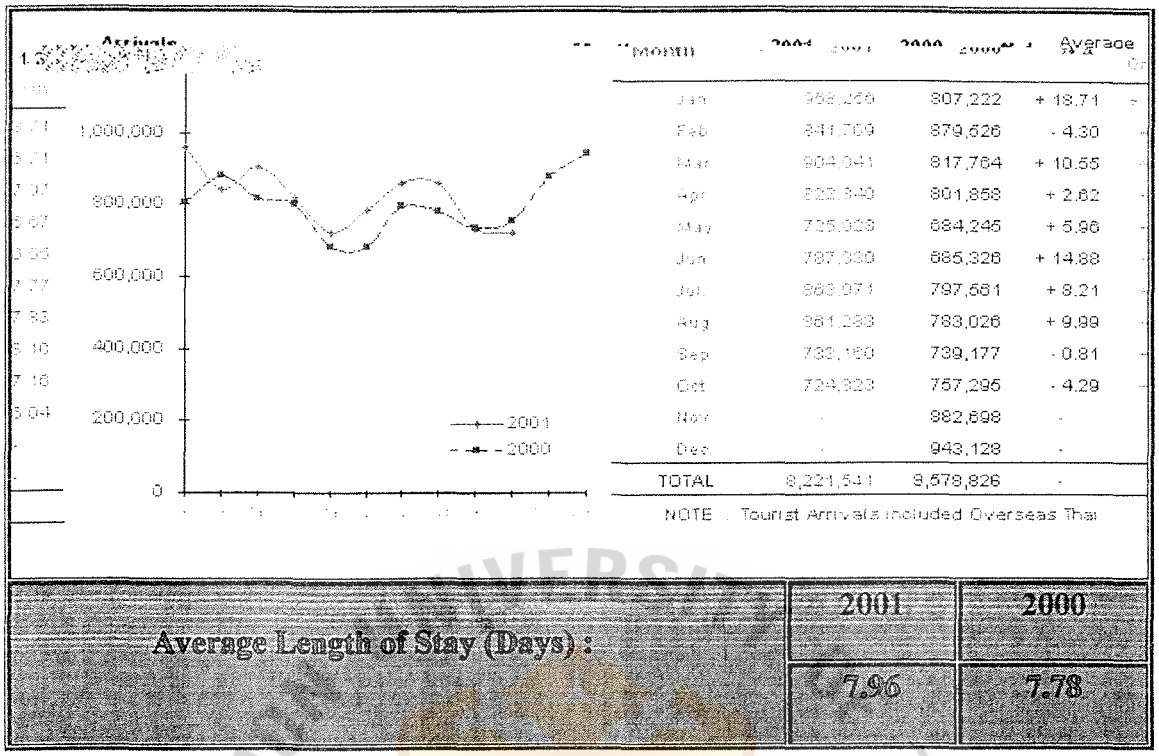
Tourist arrivals to Thailand in the first half of the year equaled 3,990,615 visits. This is an increase of 11.27% compared to the same period in 1999. The breakdown is as fllows:

Table 3.1. Increase of Tourist in Thailand.

East Asia	2,379,884	11.68%
Europe	983,875	8.56%
America	252,410	13.15%
South Asia	130,916	23.25%
Oceania	142,635	9.18%
Middle East	69,985	13.02%
Africa	30,910	10.35%
Total	3,990,615	11.27%

Source of Data: Immigration Bureau, Police Department.

Comparing the situation in Thailand with other countries, Thailand's has yielded satisfactory results. In most other Asia/Pacific destinations a negative trend has been reported, ***Example:*** *Brunei -2.53%, Austria – 3.94%, Italy – 0.61%, and Brazil – 4.72%. Other countries reporting increases are Korea and the Pakistan +33.65% and +30.10% respectively.*



MONTH	2001	2000	Average
Jan	958,269	807,222	+ 18.71
Feb	841,709	879,626	- 4.30
Mar	904,041	817,764	+ 10.55
Apr	822,940	801,858	+ 2.62
May	725,039	684,245	+ 5.96
Jun	787,030	685,328	+ 14.88
Jul	863,071	797,681	+ 8.21
Aug	861,283	783,026	+ 9.99
Sep	736,180	739,177	- 0.81
Oct	724,323	757,295	- 4.29
Nov	-	882,698	-
Dec	-	943,128	-
TOTAL	8,221,541	9,578,826	-

NOTE : Tourist Arrivals included Overseas Thai

Average Length of Stay (Days) :	2001	2000
	7.96	7.78

Figure 3.2. Thailand Tourism Statistics 2001, International Tourist Arrivals from January- October 2001.

3.2 About the Organization ATTA

The Association of Thai Travel Agents, more commonly known as "ATTA", is a private sector association of travel and tour companies. It is non-profit making and aims at promoting and supporting the Thai travel industry for the benefit of its members, global travelers as a whole and the Thai Nation at large.

ATTA was first established in 1968 with ten members. By the end of 1999 the Association's membership had grown to more than eight hundred companies. Four of these constitute honorary members, approximately six hundred are actively participating members and a further two hundred are enrolled with associated membership status. The Association's reputation is self-evident in that Membership continues to increase

steadily year by year.

During 1998 alone, some two million tourists have used ATTA member companies' services at Bangkok International Airport. This has realized eighty billion Baht in revenue, which in turn represents thirty percent of the 240 billion Baht, which official figures estimate as being the Country's total income from tourism. Additionally ATTA has created employment both directly and indirectly for more than two hundred thousand people, who are employed in various facets of the tourism and travel sector generally.

3.2.1 ATTA's Principle Objectives:

(1) To promote and support the Thai travel industry.

(2) To research, analyze, exchange and promote technical information and skills to the travel and tourism sector.

(3) To protect and promote mutual interests of members and to arbitrate on issues of disagreement between its members and outsiders as and when applicable.

(4) To support and cooperate with the Tourism Authority of Thailand and the Government so as to increase the volume of tourists and business travelers visiting Thailand.

(5) To stimulate, encourage and promote travel in Thailand.

(6) To establish rules and regulations designed to assist its members to boost the performance and integrity of the travel industry.

(7) To encourage fair and just competition in the travel industry.

(8) To work with individuals, companies and associations functioning outside of the travel sector so as to further mutual interests and improve the role and

status of tourism within the national economy.

(9) To support and improve the efficiency of services rendered by its member companies.

(10) To refrain from politics and issues which could adversely affect the travel sector generally and ATTA members in particular.

3.2.2 ATTA's Management Hierarchy

ATTA's management structure is divided into two major parts. Firstly there is the Board of Directors which consists of thirty active members. These include the President, four Vice Presidents, the Honorary Secretary-general and the Honorary Treasurer. Additionally there are other executives who occupy such positions as Public-Relations Officer, Registrar, Events Coordinator and Committee Members. The Board of Directors has an administrational term of two years and is responsible for policy-making and the control of the Association's operation and the fulfillment of its stated objectives. The second part of the management structure consists of 75 staff officers led by the Executive Secretary, who is responsible for ensuring the correct implementation of policy edicts, planning requirements and for the execution of all operations required to meet its declared objectives.

3.2.3 ATTA's Major Policies

In a determined effort to promote, sustain and further develop the Country's tourism industry, the Association has established five primary objectives as part of its declared policy, these being as follows:

(1) To campaign for a greater degree of cognizance in the tourism industry concerning the need to further enhance Thailand's reputation for being hospitable and friendly towards all tourists and business visitors. This effort

includes increased provisions for education in schools of all levels in order to create and sustain responsible attitudes of behavior by school children and students of all ages, when coming into contact with foreigners and guests irrespective of their nationality, gender or age.

(2) To campaign for more awareness of these matters in all the provinces and to develop plans to support and promote the travel industry in a serious and wholly dedicated professional manner.

(3) To upgrade and increase the effectiveness and efficiency of member companies' management and supervisory personnel so as to maximize on the facilities and benefits for tourism and business travel in general.

(4) To introduce activities to promote tourism such as the "Travel Exchange", the organization of short duration workshops, weekend seminars and skill enhancement exercises for all office staff with emphasis upon those who are in direct contact with the public and visitors to the country.

(5) To cooperate fully with both government and the private sectors so as to promote the tourism industry at large.

IV. BUSINESS PLAN FOR TRAVELLING WEB SITE

4.1 Executive Summary

Hotel business has an incredibly growing rate in several years, especially in East Asia zone, which has become very popular for the worldwide tourism. Thailand is also one of the most popular countries for foreigners to visit, therefore there is a high competition among travelling business in Thailand.

Journey Planning Group Co., Ltd. is a Thai travelling agency which has a wide network in Thailand and a database resources, which is available in order to service their customers. The company also intend to give the best service to their customers, not only setting the travelling program with more variety for the most satisfactory of the wide range customers; but also conducting the website www.travelguidethailand.com in order to ease the way to find out the travelling information and giving the company services via the internet. They also join the Tourism Authority of Thailand (T.A.T) to promote the company to the worldwide customers.

(1) List of recommended hotels, which will be the hotels' information and services provided.

(2) Provide the newsletter, information about tour packages and other important events such as seasonal festivals.

(3) Services will be available for customers twenty four hours a day, seven days a week

(4) Customers can search for the hotel that they like and make an online booking service via the website.

4.1.2 Key to Success

(1) Promote the website by promoting the web on other websites such as mthai.com, mweb.co.th, sanook.com for Thai market, and yahoo.com for the foreigner target market.

(2) Link exchange with other websites to create the travelling network.

(3) Generate additional income to cover all expense to support the website as an individual profit center.

(4) Train the customers about how to use the services given on the online system of www.travelguidethailand.com.

4.2 Market Analysis Summary

The marketing strategy of the company is to provide the information about hotels in Thailand, including the online reservation. In order to reach the target customers and to obtain new customers to expand the business boundary. Our marketing strategy will create awareness, attractiveness and appeal from our target market for what travelguidethailand.com offers our customers.

4.2.1 Customers' Need

Need of the target market of the website travelguidethailand.com can be analyzed into 5 types:

(1) Stated needs: Customer needs to stay in the best hotel

(2) Real needs: Customer needs the accommodation along the trip in Thailand

(3) Unstated needs: Customer needs the most convenient in making a reservation on travelling package and hotel

(4) Delight needs: Customer needs a promotion or a special tour package, including a special discount and souvenir

(5) Secret needs: Customer needs to have the impressing memory

4.2.2 Market Segmentation

Normally, customers of travelguidethailand.com can be analyzed on geographic, demographic, psychographic and behavior factors, which will be the important bases on the market segmentation of travelguidethailand.com.

Geographics

The company has geographic segmented their market by as follows;

(1) Customers from the countries in East Asia, from where about 2,300,000 tourists per year come to Thailand.

(2) Customers from the countries in Europe, from where about 980,000 tourists per year come to Thailand.

(3) Customers from the countries in America, from where about 250,000 tourists per year come to Thailand.

(4) Customers from the countries in South Asia, from where about 130,000 tourists per year come to Thailand.

(5) Customers from the countries in Oceania, from where about 140,000 tourists per year come to Thailand.

(6) Customers from the countries in Middle East, from where about 69,000 tourists per year come to Thailand.

(7) Customers from the countries in Africa, from where about 30,000 tourists per year come to Thailand.

Demographics

(1) Both genders

(2) Married

(3) The average incomes are in the range of 20,000-50,000 Baht

(4) Middle size family 2-5 people

(5) Ages about 20-50 years

Psychographics

(1) The social appearance of them is a priority, their lifestyle shows their social status;

(2) New Generation, modernized people

(3) Interested in Thailand and Thai culture

(4) Using the internet

Behaviors

(1) Always use the internet in everyday life

(2) Setting up the budget for the travelling plan, which leads to the final decision of which hotel they like

(3) Need much information for the comparison before the decision can be made

Type of Buying Behavior of the customers of website Travelguidethailand.com can be classified as Dissonance-Reducing Buying Behavior. This is because each travelling agency has less difference, therefore customers do not need to take so much time for decision making. The major topic for customer to be considered is promotion given and how interesting the tour package is. As a consequence website travelguidethailand.com tries to build the reliable image and provide the outstanding services and promotion given.

4.3 Market Target

The market target of travelling business can be identified by size as follows:

(1) Teenagers 20%

(2) Adult 20-50 years 50%

(3) Older people over 50 years 30%

As can be seen from the proportion of the target market of the website travelguidethailand.com, the majority of tourists are at the age between 20 to 50 or the people in the working age. This group is probably the most interesting group, which also has an increasing growth rate, therefore it is seems to be worth to choose this group as the target market.

Market Target

The market that is chosen to be the target market is concentrated (Niche) marketing, where the market is separated to be as follows;

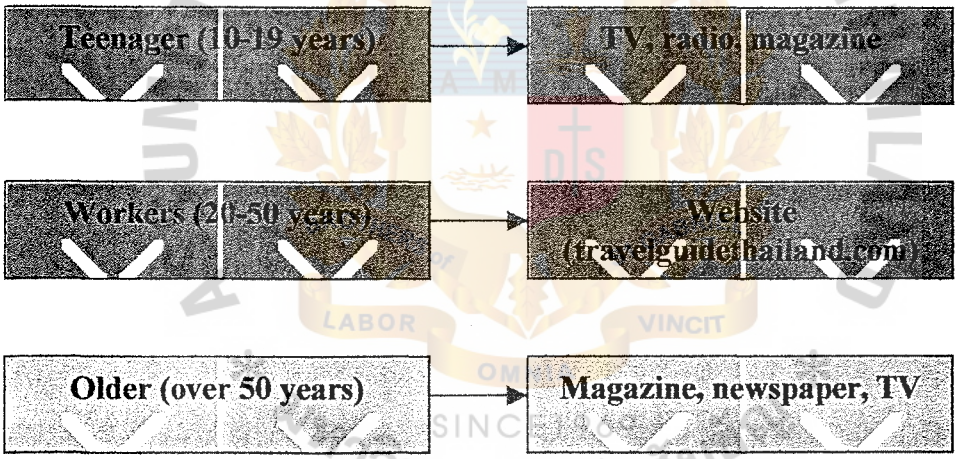


Figure 4.1. Market Target.

Teenagers are the group that many entertainment media such as TV, radio and magazine have much influence on this group. While the older people have are more interested in ads and information resources such as newspaper, magazine, and TV. Although, this group is interested in finding the information resources, most of them

lack knowledge of new technology especially the internet.

Therefore the target market is the group of people in the working age, since these people have more knowledge about new technology and they may have to use them in everyday lives. This people are dealing more with the internet both for their job and personal use

Market Target

Travelling business emphasized in giving the best services to customers. There is a high competition in positioning their company as the one that give the best services which is mostly worth the charge that the customers have to pay. Many promotions are used in order to be the most attractive choice, also with the services given to customer to ease the way to look for the information they need. Travelguidethailand.com is conducted with the purpose to help the customers find the information about hotels and accommodations, which is much in detail such as room rental rate and reservation services through the website.

4.4 SWOT Analysis

The primary purpose of the SWOT analysis is to identify and categorize each significant factor, positive and negative, into one of the four categories and allow us to take an objective look at our business.

Strength

(1) The Journey Planning Group Co., Ltd. is a travelling agency that has strength in business relation with other business alliances. The company also has the cooperation from the leading hotels in Thailand, which is about 70% of all the existing hotels in our country.

(2) The company has more than 10 years experience in travelling, so we know

what we need to do in order to satisfy our customers.

(3) The website www.travelguidethailand.com is developed to be one of the most interesting hotel recommendation websites.

(4) Travelguidethailand.com has plenty of information about hotels and accommodation in Thailand which is easy to use and give the best offers and services to customer. Customers can take their time to look for the best offer for them and make a reservation on the web. This is much more convenient for the customer and give them the most satisfaction for services.

Weakness

(1) Company's budget is much lower than the competitors.

(2) Distribution channel of company in other countries is still not enough.

(3) The website travelguidethailand.com is the new up and coming website, it needs time to advertise the web.

Opportunity

(1) Thai government has a policy to support the travelling business in our country and encourage the foreigner to come to Thailand.

(2) In the several years past Thailand is one of the most popular countries for tourists around the world.

(3) The money exchange rate of Thai Baht compared with US$ is devalued, which makes it more attractive for the foreigner to come to Thailand.

Threat

(1) There is high competition in travelling business.

(2) The crime or jeopardy, which happens to the tourists in Thailand is discrediting our country's image.

4.5 Value Set

(1) Product Value: Hotel information and accommodation reservation service and details.

(2) Service Value: Twenty four hours a day seven days a week services given.

(3) Image Value: This web is the biggest Thai hotel information pool.

(4) Personal Value: The call service and computer staff will serve the customer with the service mind.

4.6 4P Analysis

(1) Price: Price of each tour package depends on the trip and the season of the travelling date, therefore the price will be set on the average market price, but giving special prices for the seasoned tour packages.

(2) Product: The tour package of The Journey Planning Group Co., Ltd. is the Thailand travelling package, which can be grouped as follows;

(a) Site seeing (within the specific province)

(b) Package tour

(c) Cruise

(d) Adventure

(3) Promotion: The special promotion will be set up for every special season such as;

(a) In the case of reservation for the group of 10 people, it will be free for the eleventh.

(b) 10% discount for the group of students in the summer season.

(c) A free travelling bag for every customer, who buys the tour package.

(4) Place: www.Travelguidethailand.com

4.7 Break Even Analysis

Investment capital

Website development	21,000	Baht

Operating cost per year

Fixed cost

Salary	180,000	Baht
Host service	9,000	Baht
Facilities	100,000	Baht
Total Fixed cost (FC)	**289,000**	Baht

Revenue commission 10%

Total Variable cost = 90% = 0.9TR

Total cost = 289,000 + 0.9TR

A = 289,000 + 0.9A

A-0.9A = 289,000

0.1A = 289,000

A = 2,890,000 Baht

This is Break-Even point in sale volume. This Tell us that we must sell 2,890,000 Baht to break even.

4.8 Future Plans

(1) Set up the tour package to other countries for the Thai customer.

(2) Generate the membership in order to be more personalized to the customers, and to offer special promotions to members.

(3) Develop the website to involve the travelling guide such as recommendation for interesting places in each province, and give chances to customers to

recommend the company for interesting places or events, and set up their own travelling path.

4.9 Channels

Travelguidethailand.com has 3 channels of distribution that are relevant to this business.

(1) Our Sales Agents: The Journey Planning Group Co., Ltd. has set up the tour package via the sale agents in Thailand.

(2) Direct Channel: Set up our sale department to sell the package tour.

(3) Website Channel: Set up the website to sell the package tour.

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

At present Internet is the latest solution to all of life's problems. Internet is the biggest resource of information.

The Internet has touched nearly everyone in the developed world in some manner or an other. Entering households faster than television or even the cell phone, the internet is here to stay. It offers an efficient channel of information and another way to reach the customer, but it must be handled with care.

The Internet will not work alone, but when it is used in combination with good business fundamentals and an existing offline infrastructure, it is an incredibly powerful tool to interact with both consumers and other industry players.

It's easy to see that a lot of people are online, but what are they doing and why should the travelling agency care.

The money flow in today's E-commerce business reaches the value of several billion US dollars. From the observation of the customers who are interested in having services through the web Travelguidethailand.com, they used to know how to deal with this business, therefore there is no problem about changing the way to do travelling business.

The Journey Planning Group Co., Ltd. has conducted the website to serve the needs of customers in order to get the faster services in the easier way. To extend the market size of this business, Internet is used as a tool for advertising and it is a new channel to reach more people worldwide.

Doing travelling business on www.Travelguidethailand.com has many advantages over the traditional tour agency; for example, it helps to reduce the paper task and also

ease the way to communicate with customers which can go over the limit of traditional business. Travelguidethailand.com can give 24-7 services to customers and it will be more personal, and shorten the time in reservation process.

According to the advantage of the website, the Journey Planning Group Co., Ltd. gains the advantage over the competitors, both in improvement of the service given to customers and increase to extend business worldwide.

5.2 Recommendations

The important factors for the each tourists are different, some emphasize on the travelling program but some love to choose the hotel by them selves, and some can be impressed by the food. Because of these differences, negotiation on the phone sometimes will be needed. Therefore a strategic marketing plan is a key element of a good business plan.

APPENDEX A

INTERFACE DESIGN

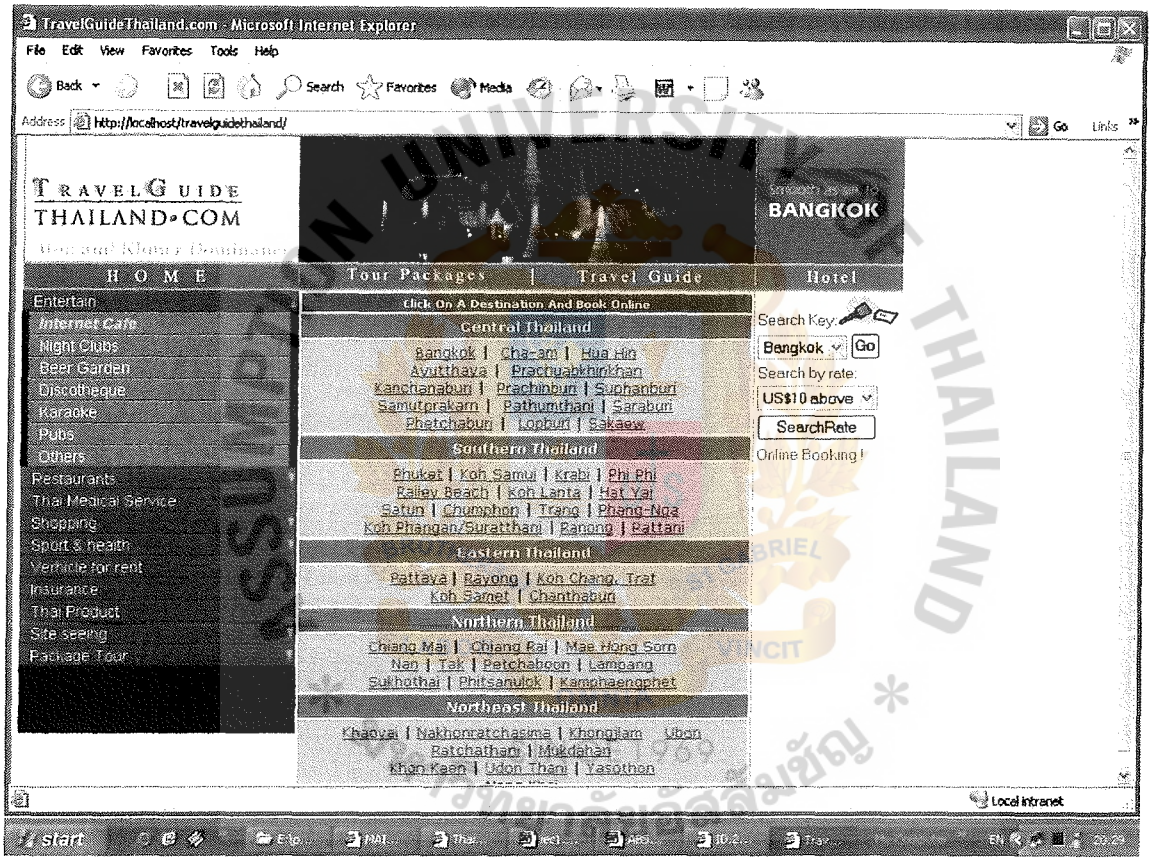


Figure A.1. Main Page.

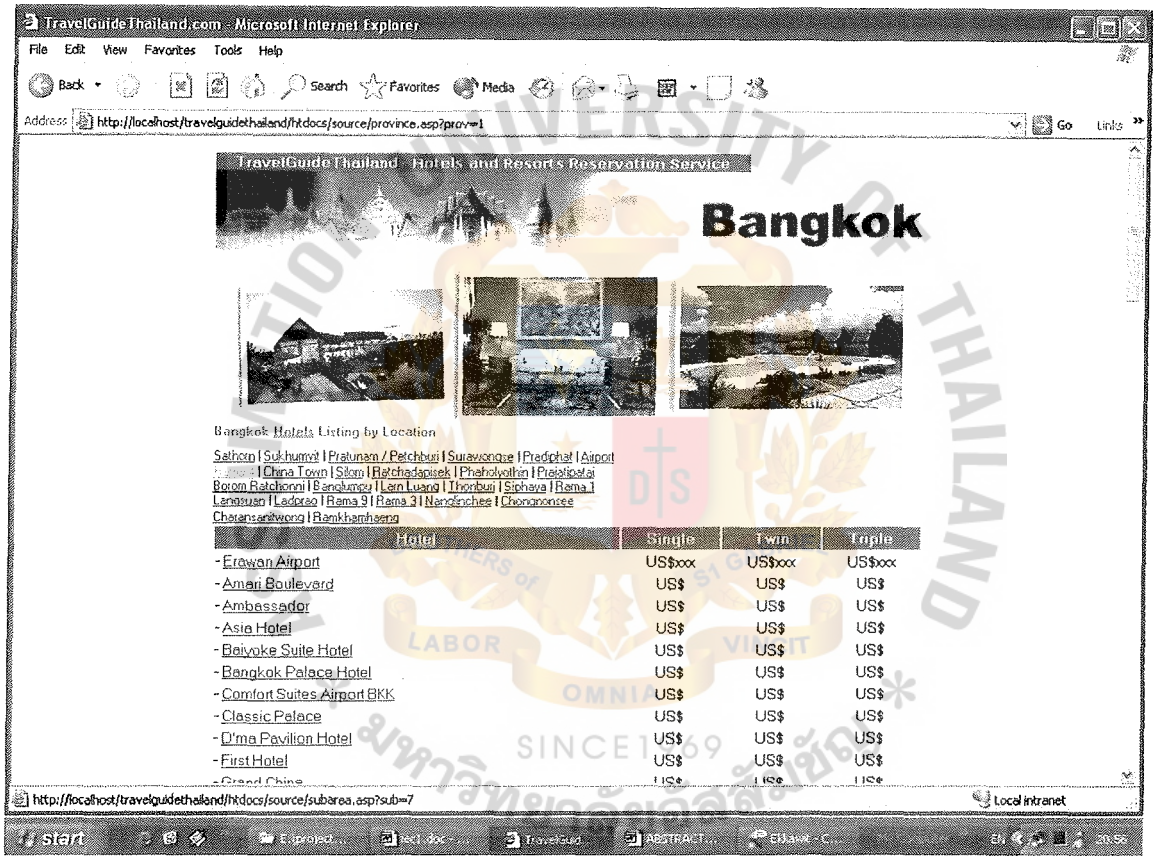


Figure A.2. List of Hotel.

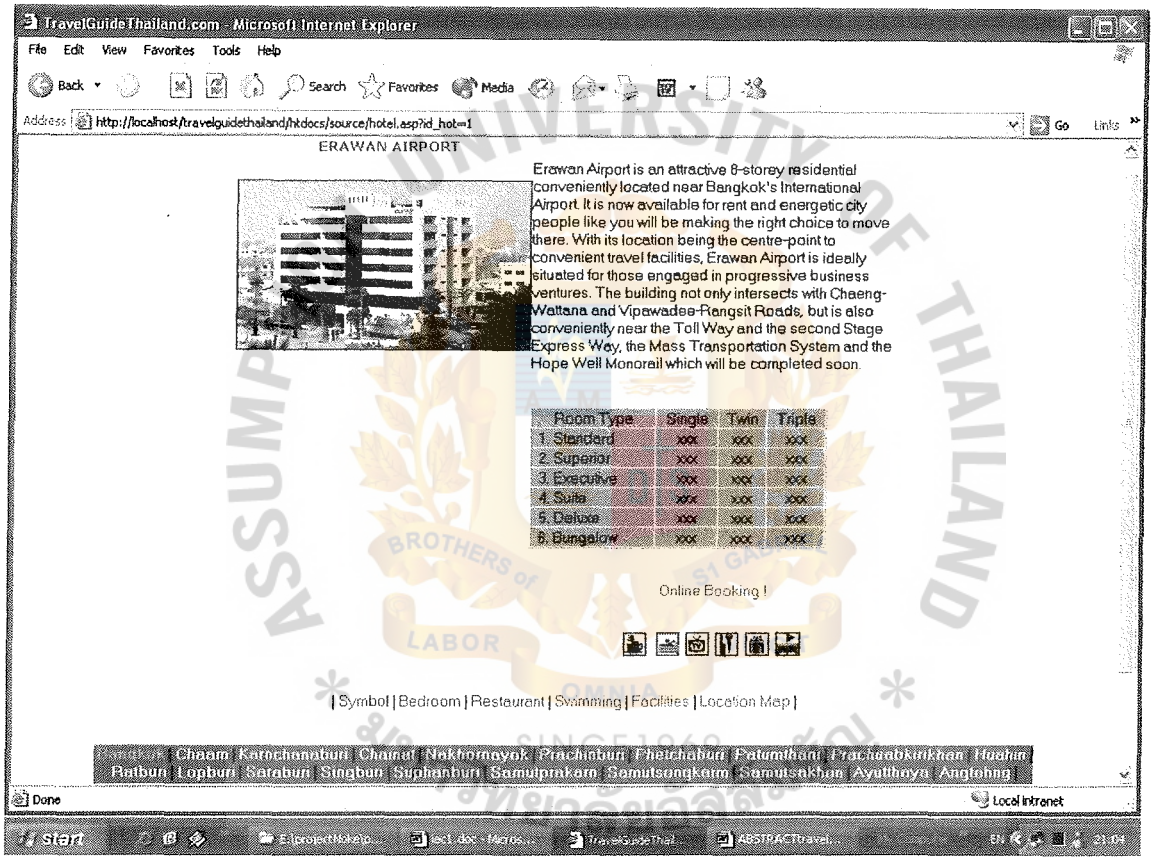


Figure A.3. Information of Hotel and Room Price.

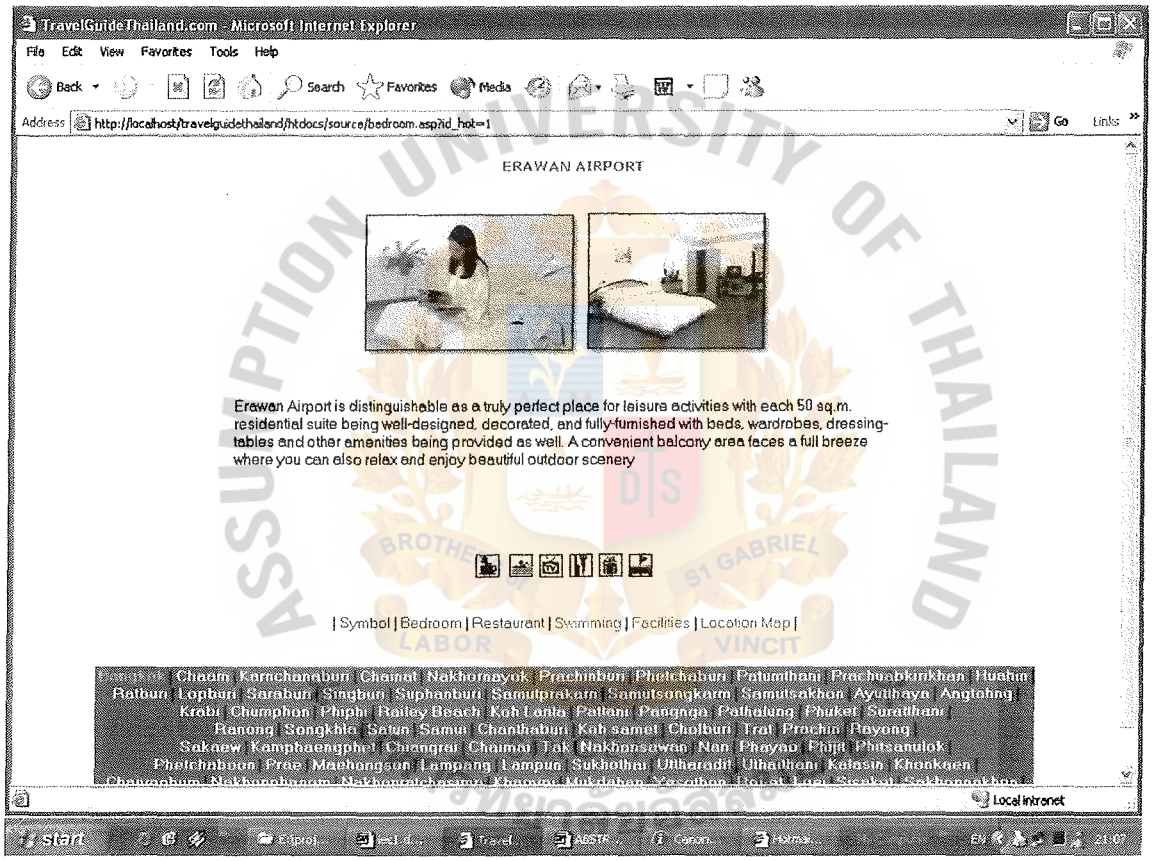


Figure A.4. Information of Bedroom.

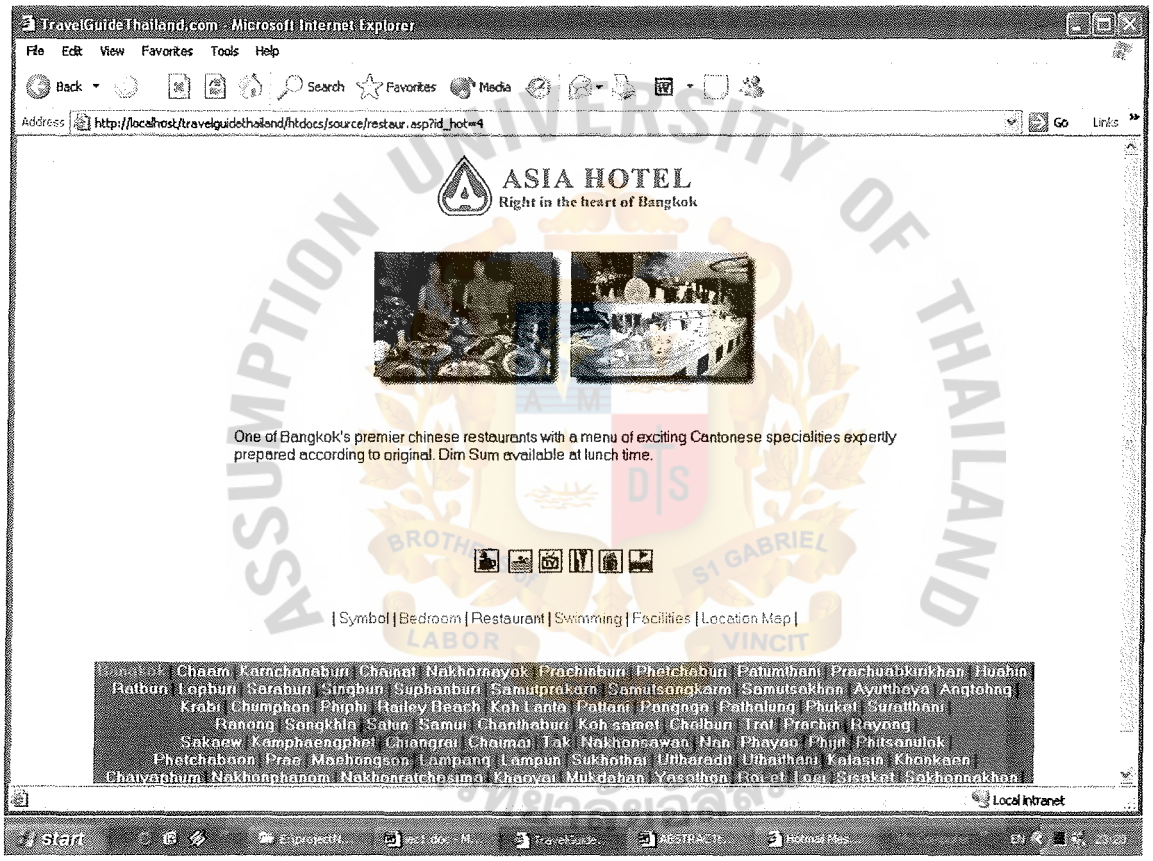


Figure A.5. Information of Restaurant.

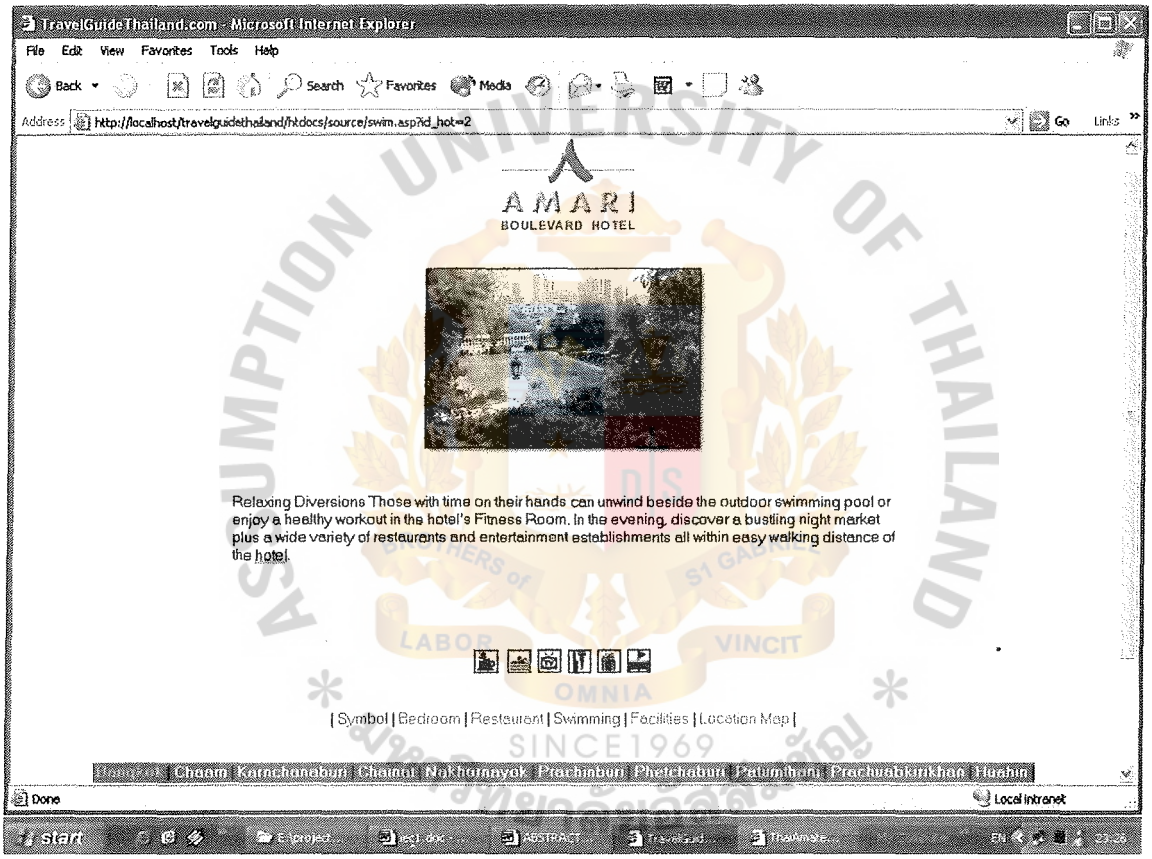


Figure A.6. Information of Swimming.

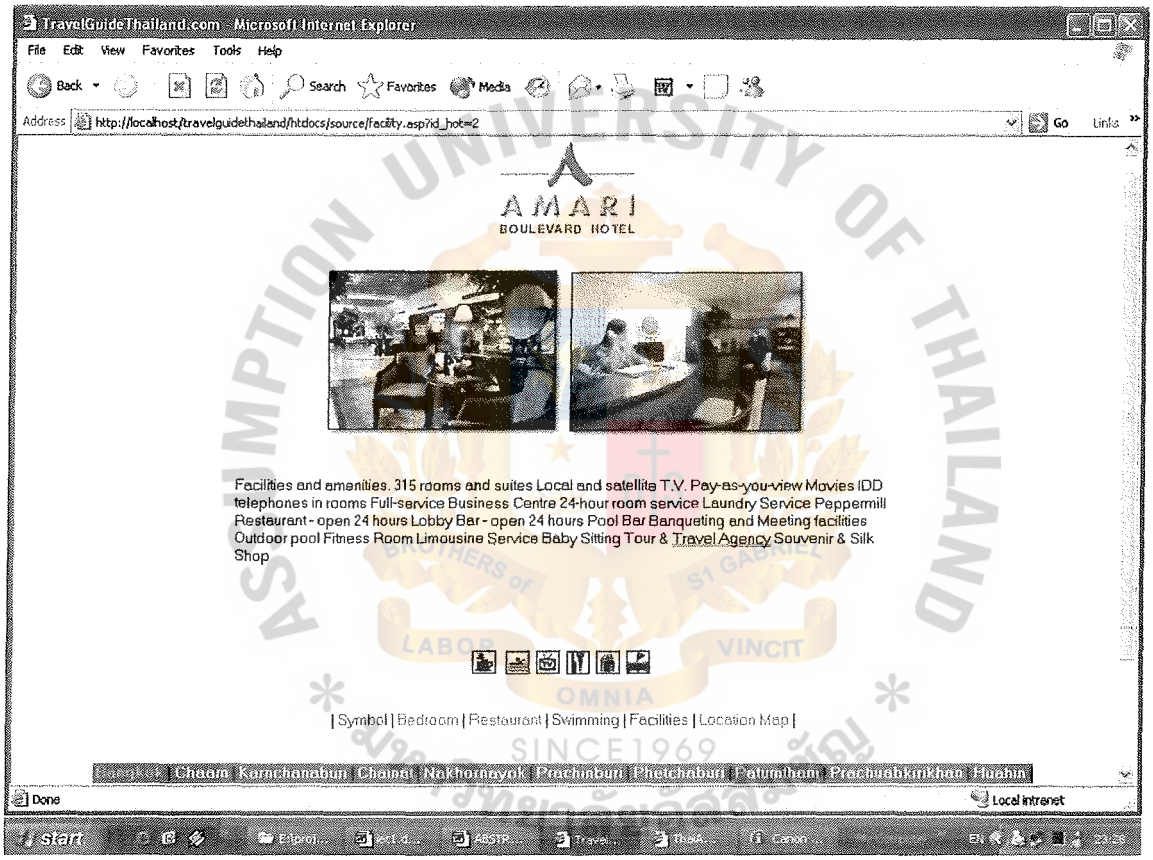


Figure A.7. Information of Facilities.

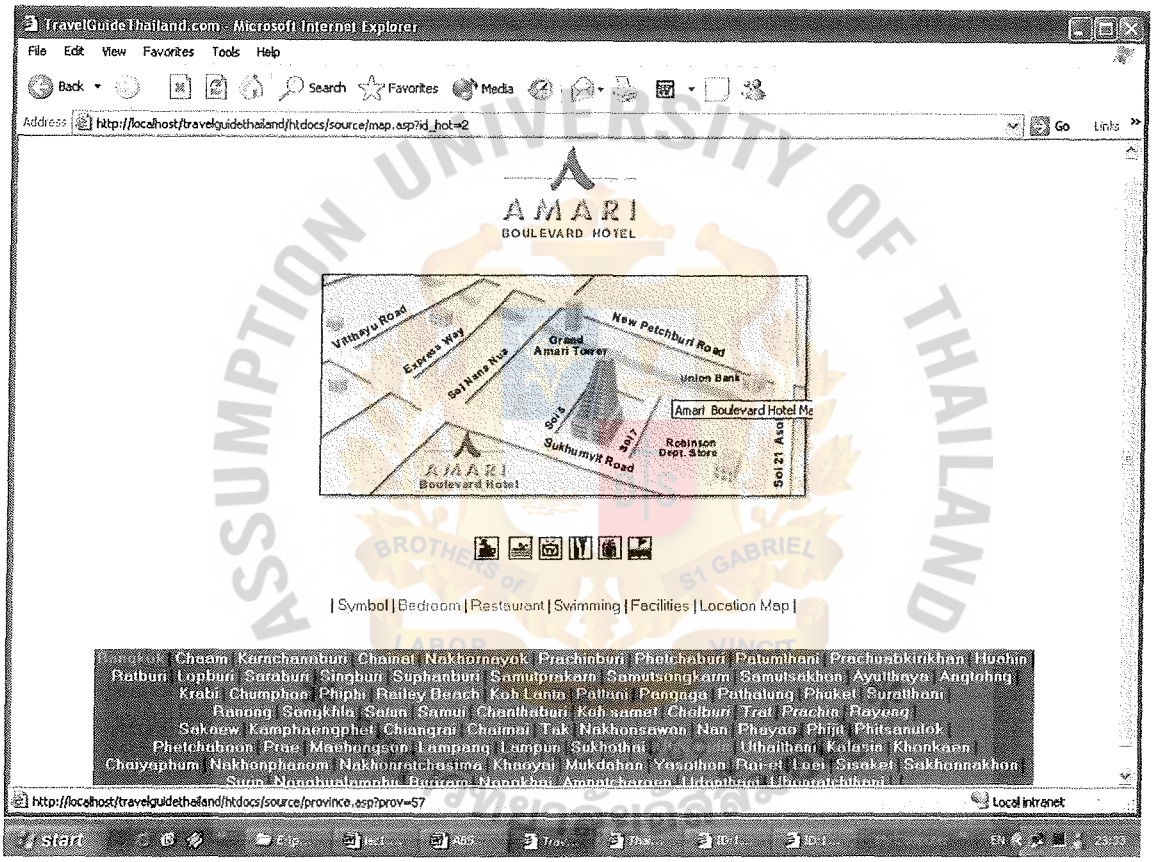


Figure A.8. Location Map.

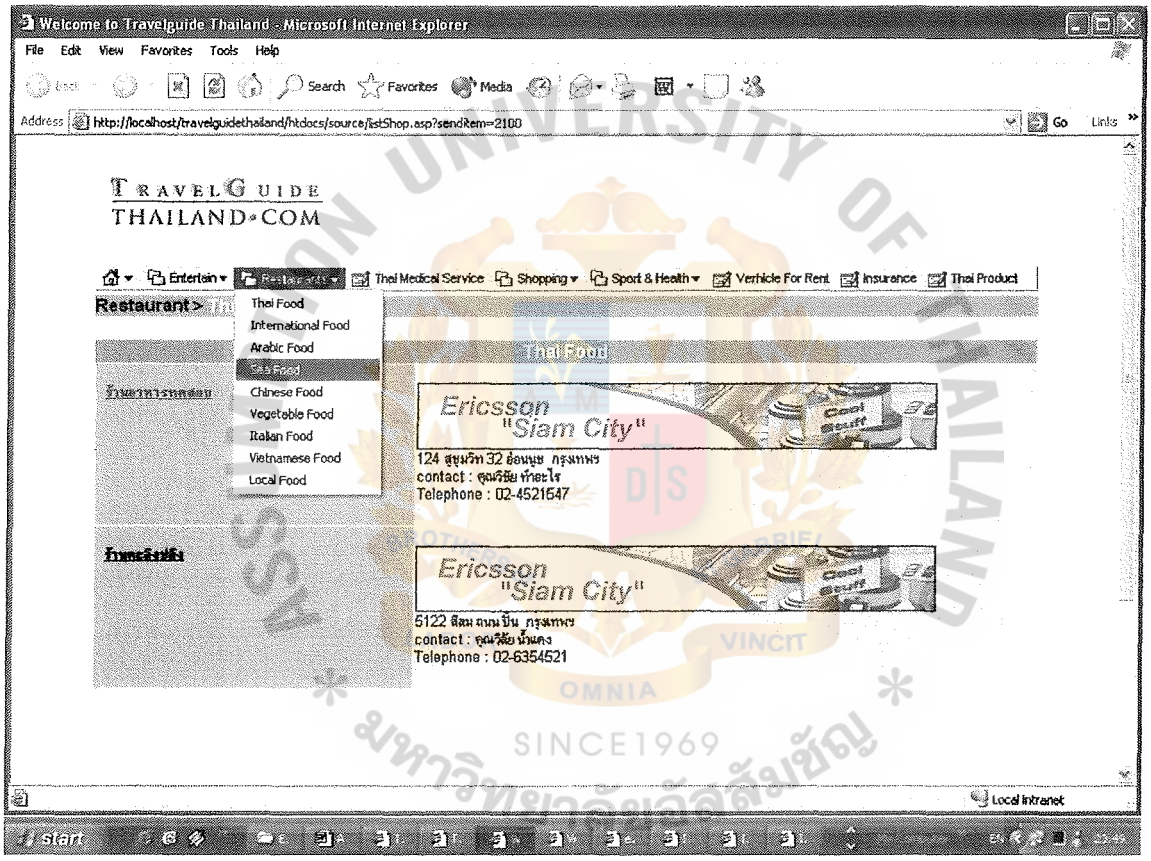


Figure A.9. List of Shop.

Figure A.10. Information of Shop.

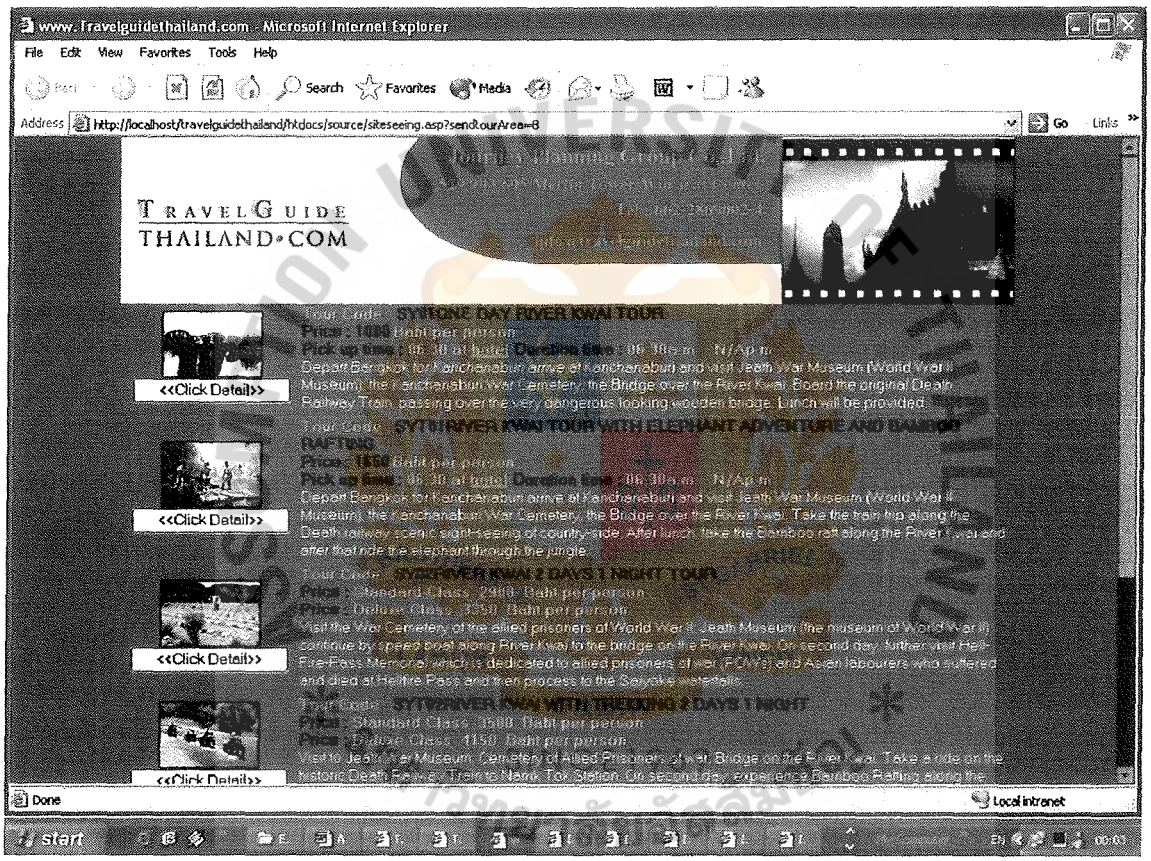


Figure A.11. List of Siteseeing and Tour Package.

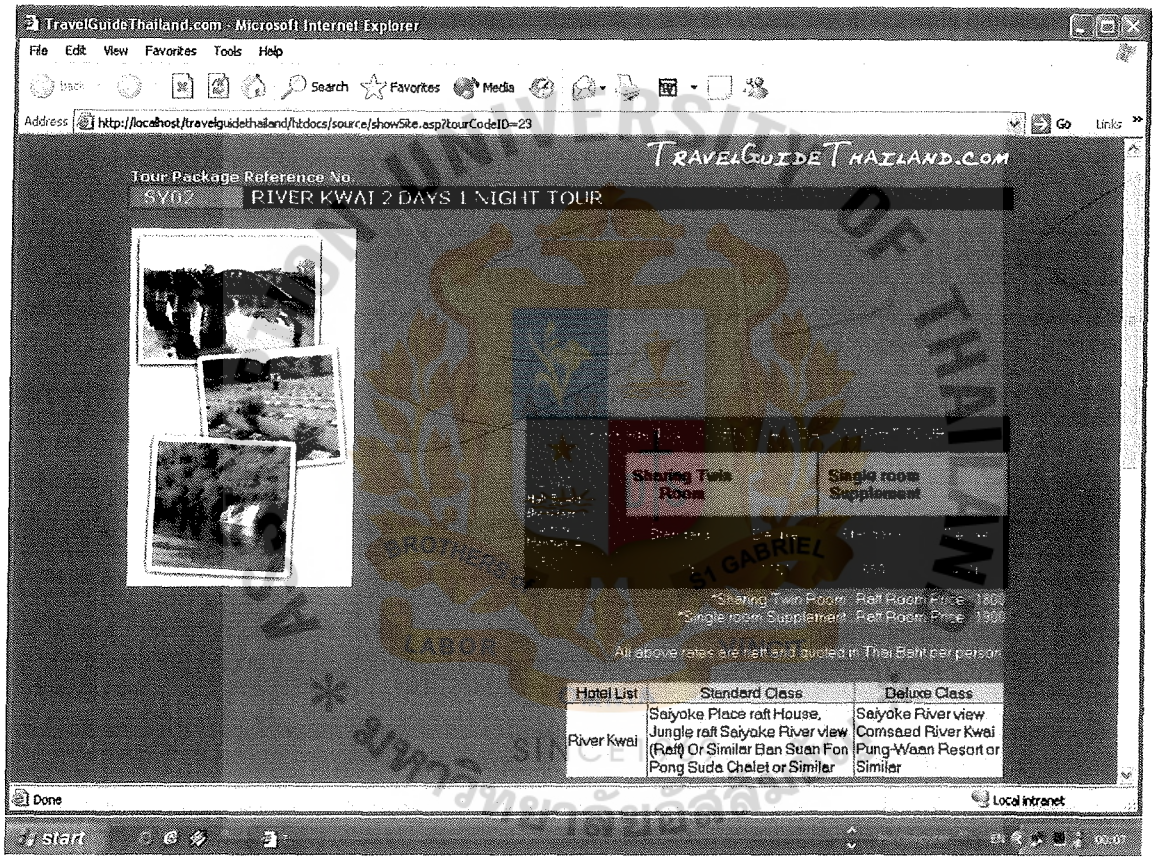


Figure A.12. Information of Siteseeing and Tour Package.

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