



# KSC Hotspot In-A-Box

by

Ms. Jutikan Chantanasevee

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

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

November 2004

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Project Title                KSC Hotspot In-A-Box

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Project Advisor            Rear Admiral Prasart Sribhadung

Academic Year            November 2004


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

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## ABSTRACT

The adoption rate of the WiFi space has reached escape velocity. The analysts agree that WiFi will have an enormous impact on the technology sector. Goldman Sachs has projected that more than 95 Million people will become mobile Internet subscribers by 2004, and the Cahners In-Stat Group has estimated that the revenue generated by public space WiFi service will grow to be hundreds of millions of dollars over the next few years. Laptop manufacturers are already building WiFi radios into the motherboards of many of their machines, rapidly making the WiFi radio a standard computer component similar to the way the 56k modem is standard today.

In Thailand, there are more than 300 hotspots throughout the country. Most of them (90%) are 100% owned by ISPs such as TRUE, KSC, CS-Loxinfo, and etc. More than that, most of these locations are big name international franchise coffee houses such as; Starbucks, Au Bon Pain, or large public areas such as; International airport, Convention Centers, Hospital, Subway stations, or Office buildings.

There are a lot of small to medium size domestic owned locations, which would like to provide hotspot service to their customers also. In year 2002, there are 174,160 restaurants, 1,736 small hotels (less than 60 rooms), 775 guest houses, 1,512 bungalows, 948 resorts, and 95 apartments in Thailand. 78.4% of them still have no internet connection.

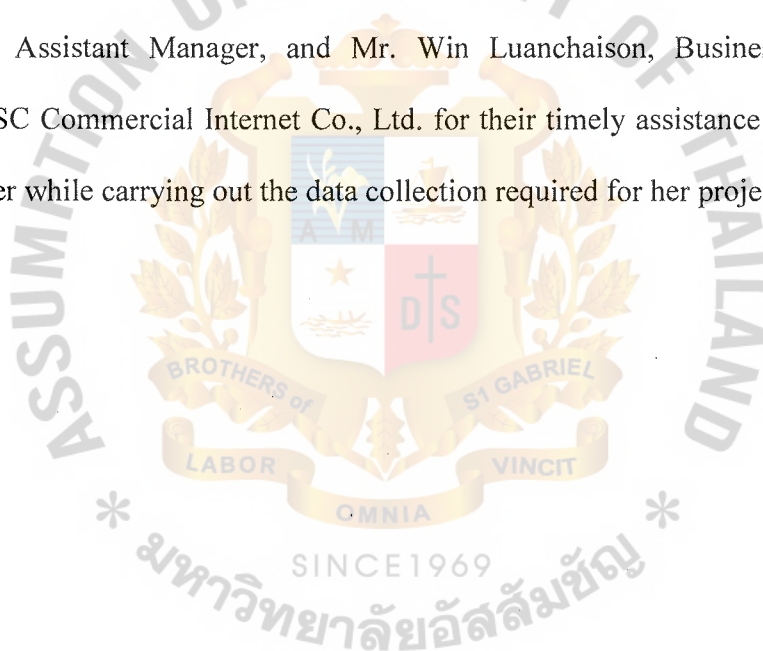
To fulfil the excessive demand in Hotspot Service in small to medium size domestic owned location in Thailand market, KSC offers a hotspot service with an affordable price for SME. This new product (KSC Hotspot-in-a-box) will increase KSC sales revenue, by go into a new market. The biggest benefit from this project is to expand KSC Hotspot coverage area, by roaming agreement between KSC Hotspot and KSC Hotspot for SME.

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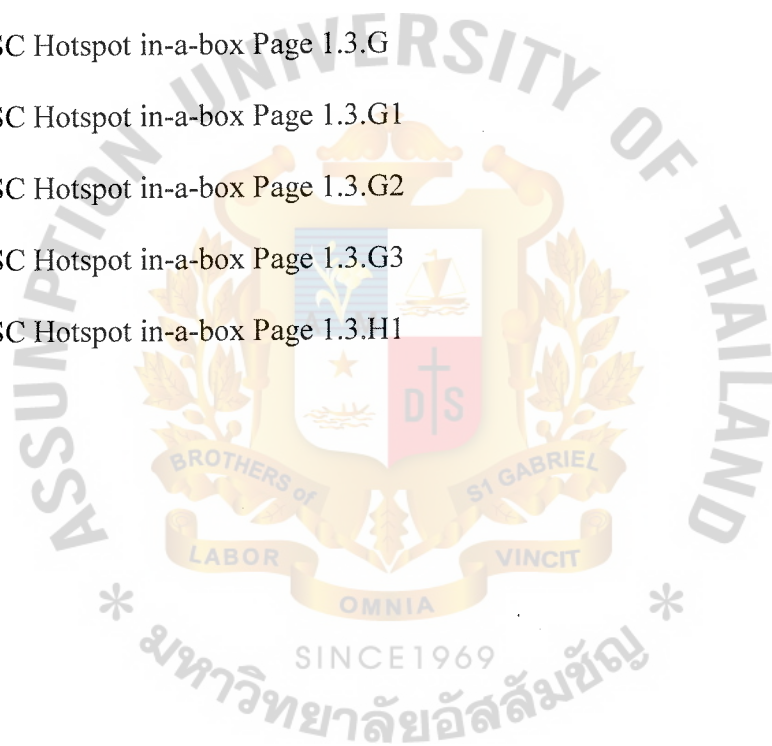


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## I. INTRODUCTION

### 1.1 Background of the Project

The decline in cost of Wireless LAN cards and chipsets has resulted in them being built into the latest generation of notebook PCs and PDAs to provide easy wireless connectivity with good performance on battery operation.

This has contributed to a rapidly evolving market for wireless network 'hotspots' areas where there are wireless broadband connections available to the Internet in public locations such as airport lounges, hotels and conference centers. Analysts forecast that by 2007, the market for such hotspots will be worth more than \$9 billion with more than 35 million frequent users utilizing around 160,000 hot spots worldwide.

A hotspot, or public WLAN (PWLAN), is based on Wireless Local Area Network (WLAN) technology, also popularly known as WiFi (short for 'Wireless Fidelity'). Hotspots is ideal for traveling business people to connect their notebook PCs or PDAs to the Internet for accessing e-mail, downloading attachments, browsing web sites or establishing VPN connections to corporate networks.

In Thailand, there are more than 300 hotspots throughout the country. Most of them (90%) are 100% owned by ISPs such as TRUE, KSC, CS-Loxinfo, and etc. More than that, most of these locations are big name international franchise coffee houses such as; Starbucks, Au Bon Pain, or large public areas such as; International airport, Convention Center, Hospital, Subway station, or Office building. ISP will invest in all of these big name locations, location owner don't have to pay for anything, and still get a revenue sharing from total sales or prepaid card. Because ISP believe that in these big name location will have an enough usage for making this investment feasible.

There are a lot of small to medium size domestic owned locations, which would

like to provide hotspot service to their customers also. The only problem is a high monthly rate. ISPs charge them the same price as corporates , because they have to keep a standard level as their own hotspot. The alternative for this small to medium size domestic owned location is to hire System Integrator to implement this service for them, but this is still not good enough for them because they need more than just an equipment or internet link. They are also looking for other necessary services such as marketing support, maintenance, customer support, etc.

The Thailand Internet operations comprises KSC, Thailand's first commercial Internet Service Provider. KSC is not only the leading Internet service provider in Thailand, but also a leading Wireless Internet Service Provider in Thailand also. KSC provides hotspot service in 70 locations throughout country, second highest number of active location in Thailand. Highest service level standard, with a corporate level leased line connection in every locations. Highest number of distribution channels, at hotspot location, via Hutch SMS, via DTAC postpaid account, via AIS M-PAY service, via four biggest International Roaming service providers (iPass, GoRemote, Boingo, and T-Systems). With all of above reasons, we can assure our KSC Hotspot-in-a-box location owners that they've made a right choice in buying a hotspot service from KSC.

## **1.2 Objectives of the Project**

The objective of the project is to develop a sub brand of KSC Hotspot, which can fulfill several goals as following:

- (1) Fulfill the excessive demand in Hotspot Service in small to medium size domestic owned location in Thailand market. KSC will provide a hotspot service with an affordable price for SME, by using SME level internet link, SME level equipments, and useful E-Commerce, which can reduce a large proportion of cost. This will not effect to KSC Hotspot brand, because we



will use a sub brand, KSC Hotspot-in-a-box, for this service.

- (2) Create a KSC Hotspot-in-a-box website, which will allow customer to see any necessary information, made an inquiry, contact KSC sales. This website also have a hotspot community section , which will provide not only technical knowledge, news, but also build a corporation between each location owner to generate more traffic into their locations.
- (3) Increase KSC sales revenue, by go into a new market.
- (4) Expand KSC Hotspot coverage area, by roaming agreement between KSC Hotspot and KSC Hotspot for SME (KSC Hotspot-in-a-box).

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

This project mainly focuses on developing the sub brand of KSC Hotspot, which will fulfill the excessive demand in Hotspot service in Thailand market today. The report will include the SWOT analysis, Marketing Strategies, Financial Analysis, and Implementation Plan. This Report also has a KSC Hotspot-in-a-box prototype web site.

### **1.4 Project Deliverables**

This project will be delivered in two parts:

- (1) A project report
- (2) A KSC Hotspot-in-a-box prototype website

## II. LITERATURE REVIEW

### 2.1 Background of the Organization

#### (1) Internet KSC History

KSC was founded on 7 June, 1994 with the objective to file a request to the Communication Authority of Thailand (CAT) to be the commercial Internet Service Provider. On 31 October 1994, CAT approved the set up of the joint venture registered under the name KSC Commercial Internet Company Limited with 65% of shares belonging to Internet KSC; while 32% of them belonging to CAT and 3% to CAT employees. The objective of KSC Comnet as registered at the Ministry of Commerce is to operate in the telecommunication business including commercial Internet. In October, 1995, Jasmine International Public Company Limited became one of the shareholders and the registered capital was, then, raised to 100 million Baht.

In February 2000, MIH acquired a majority interest in KSC with a vision to develop and grow the business in conjunction with M-Web (Thailand) Limited.

#### (2) Internet KSC Overviews

KSC Commercial Internet and M-Web (Thailand) Limited, are a part of MIH Group, a global media company with headquarters in the Netherlands and operations in the Internet and media businesses in over 50 countries.

In Thailand, MIH is one of the major shareholders in UBC, Thailand's largest and most successful cable television operator. MIH Group is listed both on the NASDAQ National Stock Market in the U.S. and on the Amsterdam Stock Exchange.

The Thailand's Internet operations comprise KSC, Thailand's first commercial Internet Service Provider and M-Web (Thailand) Limited, Thailand's leading Internet Company.

KSC is the leading Internet service provider in Thailand. Its Network Operation Center is the dynamic heart of the operations. Thousands of modems, hundreds of Internet connections and tons of mail servers, authentication servers and web servers are working day and night to deliver the best service to its customers without a blip. The Internet is growing fast and so does Internet KSC; its team delivers the best experience to the market and already faces the challenges of the future: Wireless networks, Broadband Internet, super scalable mail systems and perfect customer service.

### (3) Internet KSC Vision & Objectives

With a vision to be the on-line services provider of choice in the Kingdom of Thailand, Internet KSC dedicates itself to provide a full range of Internet Services including Internet training at every level both in-house training and on-site with the staff designated to take care of the network for 24 hours to make sure that the network is running efficiently.

In addition, KSC is part of MIH Network, one of the highest digital subscribers in Africa, the Mediterranean and Asia comprising of M-Web, UBC, Multichoice, M-Net, QQ (Thailand) & Netmed.

At the same time, it has become partners with Thailand's leading Interactive media companies such as Sanook.com, Bee Kid, Home4thai, Thaimate.com & SimpleMag.

### (4) Internet KSC Coverage Areas

Internet KSC has branches covering 38 provinces nationwide.

#### (a) Central Region

(1.) Bangkok

(2.) Nonthaburi

- (3.) Samutprakarn
- (4.) Patumthani
- (5.) Ayuddhaya
- (6.) Nakhonpathom
- (7.) Nakhonsawan
- (8.) Phitsanulok
- (9.) Uthaithani
- (10.) Samutsakorn
- (11.) Sukhothai
- (12.) Kanchanaburi
- (b) Northern Region
  - (1.) Chiangmai
  - (2.) Chiangrai
  - (3.) Lampang
  - (4.) Payao
  - (5.) Phare
- (c) Eastern Region
  - (1.) Chonburi
  - (2.) Rayong
  - (3.) Chanthaburi
  - (4.) Chacherngsao
  - (5.) Trad
  - (6.) Prajinburi
- (d) Northeastern Region
  - (1.) Buriram

- (2.) Khonkaen
- (3.) Mahasarakham
- (4.) Nakhonratchasima
- (5.) Nongkhai
- (6.) Sakonnakhon
- (7.) Udonthani
- (8.) Roi-Ed
- (9.) Ubonrachatani
- (e) Southern Region
- (1.) Nakhonsithammarat
- (2.) Pattani
- (3.) Phuket
- (4.) Songkhla
- (5.) Hadyai
- (6.) Surattani





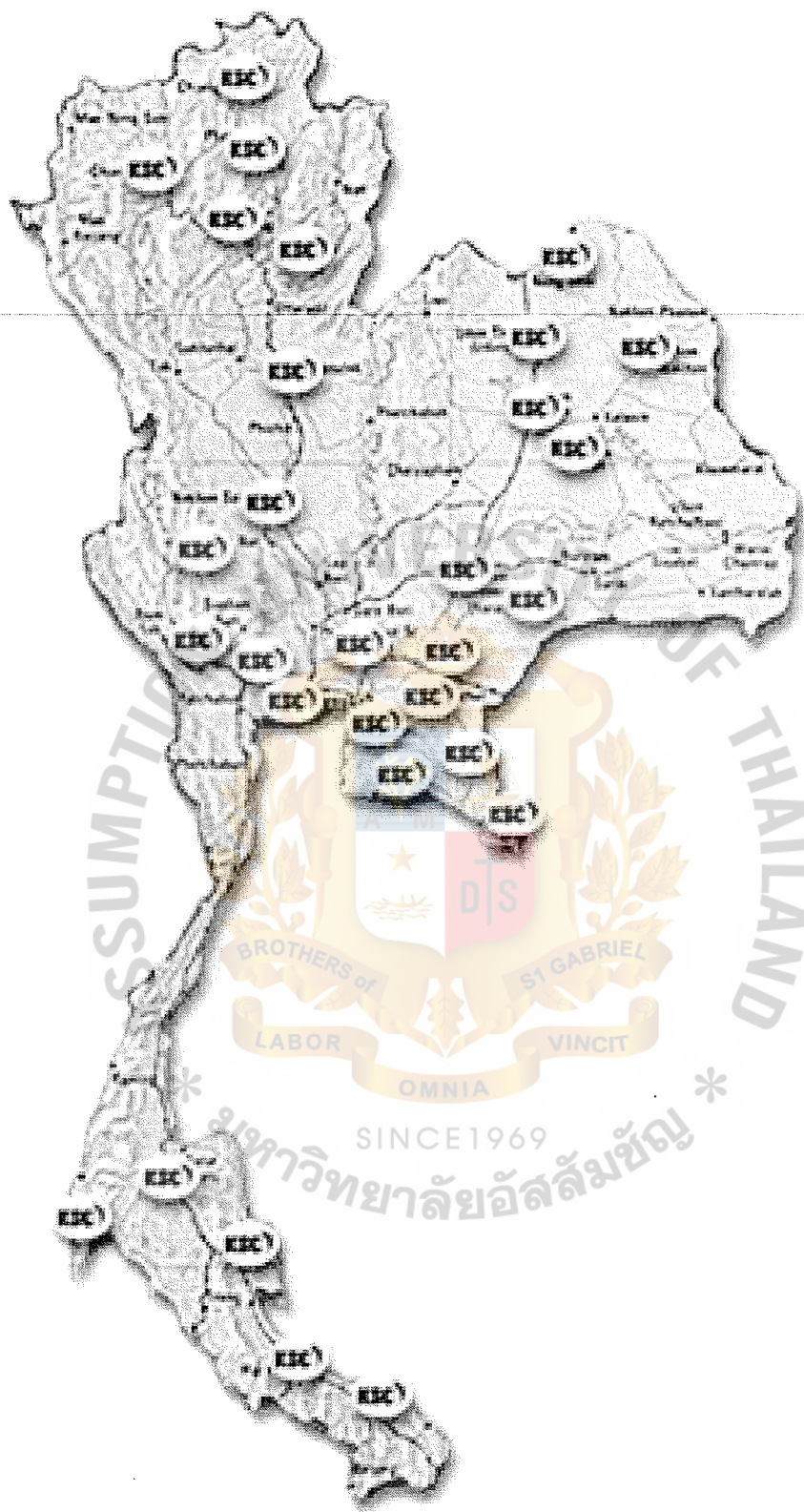


Figure 2.1. Map of Thailand Showing KSC Offices.

(5) Internet KSC Network Infrastructure

KSC Commercial Internet Co., Ltd. (Internet KSC) is considered as one of the leaders in laying the most perfect Internet infrastructure with connections to Domestic & International Internetworking at the greatest speed and most effectiveness.

Now, KSC has a total of 200 Mbps. international links with the Internet Backbone and a total of 355 Mbps. with both of the domestic Internet exchanges of Thailand namely National Internet Exchange (NIX) as the followings:

(a) International Internet Backbone:

(1.) 45 Mbps. to International Internet Gateway (IIG) (Fiber Optic via Sea-Me-We3, APCN, T-V-H & Intel-SAT)

(2.) 155 Mbps. to Reach Singapore (Fiber Optic via Sea-Me-We3) with restoration

(b) Domestic Internet Backbone:

(1.) 200 Mbps. to National Internet Exchange (THNIX) (MetroNet via Communication Authority of Thailand)

(2.) 400 Mbps. to National Internet Exchange (THNIX) (Fiber Optic via Violin)

This can ensure that KSC network will have much less chance to be completely down, unlike other Internet Service Providers.

The network diagram of Internet KSC is shown in the following page.

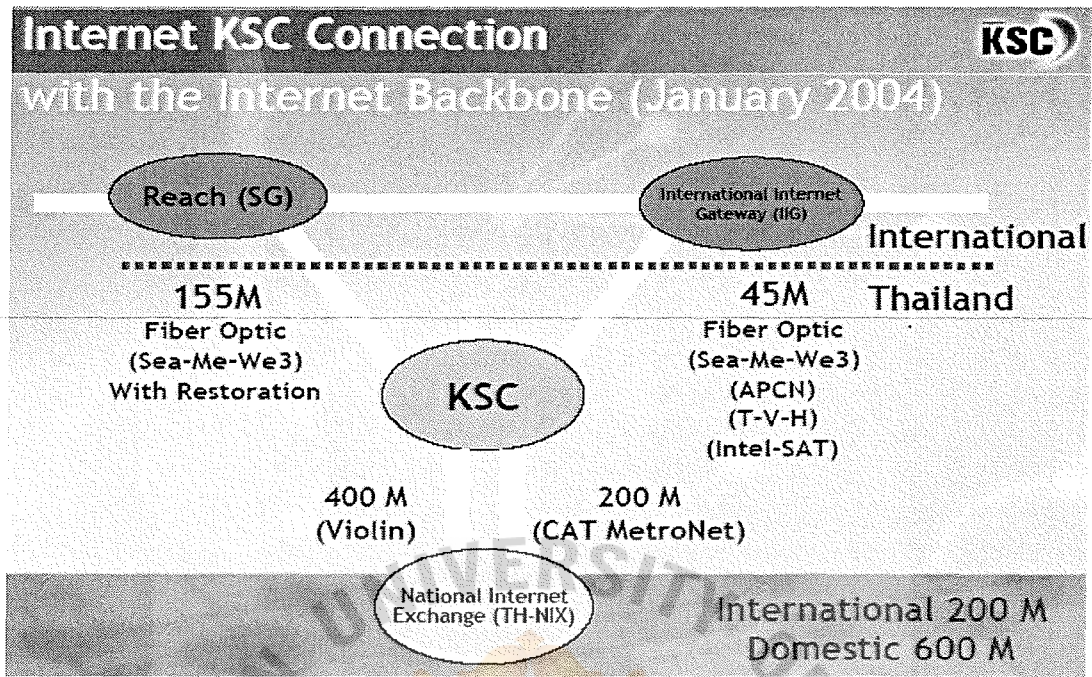


Figure 2.2. Network Diagram Showing KSC Internet Backbone.

## 2.2 Background of KSC Hotspot

### (1) What is KSC Hotspot?

KSC Hotspot is an area where a computer or PDA equipped with a wireless module can connect to the broadband Internet from KSC Commercial Internet Co., Ltd. through Wireless Access Points. You can reach from a distance of no more than 25 meters from the nearest access point. The most common IEEE 802.11b standard (also called 'WiFi') which offers a connection speed of 11 megabits per second is supported.

KSC Hotspot provides you an access to high-speed wireless internet at selected public locations such as Starbucks coffee, international airport, top business schools, office buildings, and entertainment complex across Thailand.

This robust network is made for speed with leased line connection from UIH in every location. Using a laptop, PDA, or mobile phone that has IEEE802.11b or g wire-



3641 e.1

less capability, you can access not only internet, but also your corporate intranet securely, just as you were there.

(2) What are benefits in using KSC Hotspot?

(a) Fast

Connect to the internet or your corporate intranet at a speed of up to ten times the speed of dial-up modem.

(b) Reliable

With internet from KSC and leased line connection from UIH, you will get the same highest service level as corporate user in every location.

(c) Secure

With Virtual Private Network (VPN) technology, you can access to your corporate intranet just like you were in your office securely. We also ensure your online payment security with Secure Socket Layer (SSL) technology from Verisign®.

(d) Convenience (Easy)

When you are in KSC Hotspot location, open your web browser and you are online.

No need for a wire

No need for a special setting for your computer

No need for special software

No more waiting for dial-up

(3) KSC Hotspot service plan

There are three type of KSC Hotspot prepaid cards, which are

(a) 1-Hour for 150 Baht

(b) 5-Hour for 600 Baht

(c) 20-Hour for 1,500 Baht

(4) KSC Hotspot coverage areas

KSC Hotspots are available at selected sites across Thailand. We are constantly expanding our hotspot. You can check where you can use KSC Hotspot by clicking at 'Coverage area' in KSC Hotspot login page (<http://wifi.ksc.net>). KSC Hotspot covers 8 provinces throughout Thailand.

(a) Bangkok (55)

(b) Nontaburi (2)

(c) Chacheungsao (1)

(d) Chonburi (3)

(e) Prajuabkirikan (2)

(f) Suratthani (1)

(g) Phuket (2)

(h) Chiangmai (2)

(5) KSC Hotspot locations partners

(a) Starbucks Coffee

(b) Coffee World

(c) Gloria Jeans (Siam Square)

(d) Royal Cliff Beach Resort Pattaya

(e) Samitivej Hospital

(f) United Airlines Lounge (Bangkok International Airport)

(g) Lufthansa Lounge (Bangkok International Airport)

(h) Basic Café' (Bangkok International Airport)

(i) National Institute of Development Administration

(j) Thammasat University (Prachan Road)



- (k) Sasin Graduate Institute of Business Administration
- (l) EGV Metropolis
- (m) Samaggi Insurance Tower 10th Fl. (KSC)
- (n) Chai Building (DTAC)
- (o) You-Yen Balcony (Hua-Hin)
- (p) Nanmee Book

### 2.3 Hotspot overview

Functionally, a public Hotspot is a readily available wireless network connection where users with compatible wireless network devices such as PDAs, cell phones, notebook computers, or handheld games can connect to the Internet or private intranet, send and receive email, and download files all without being encumbered by Ethernet cables.

With the number of people emailing, chatting, shopping, uploading and downloading files, surfing the web, and playing games across the Internet increasing, offering Wireless network connections will bring customers into a place of business and/or lead them to choose one place of business over another. For example, business travelers can work from their hotel rooms, special events staff can update schedules, locations, results, and specialized content to their customers without installing kiosks and having lines queued up waiting for a terminal to become available. Employees can work from a local coffee shop while enjoying a café latte or cup of tea. These benefits offer a revenue opportunity for both the service provider and the owner of the site.

### 2.4 IEEE 802.11 Overview

The 802.11 standard was first adopted in 1997. The standard defines a Medium Access Control (MAC) sublayer along with management protocol and services and

three physical (PHY) layers (Infrared, Frequency Hoping Spread Spectrum Radio and Direct Sequence Spread Spectrum Radio in the 2.4 GHz frequency). 802.11b, 802.11a and 802.11g are addendums to the original specification. 802.11a specifies a new PHY layer that uses an orthogonal frequency domain multiplexing (OFDM) radio to achieve data rates up to 54 Mbps in the 5.8 GHz frequency range. 802.11b is an extension to the DSSS PHY achieving data rates up to 11 Mbps. And, 802.11g is an extension to 802.11b which uses an orthogonal frequency domain multiplexing radio to achieve data rates up to 54 Mbps while remaining in the 2.4 GHz frequency range and compatible with 802.11 b devices. These addendums are an evolution towards faster data rates and also, in the case of 802.11a an attempt to overcome the problems brought as a result of using the overcrowded 2.4GHz S-band ISM where microwaves ovens, cordless phones, baby monitors and many other commercial devices operate. The first 802.11 standard as ratified in 1997 operates at a rate of 1.0 and 2.0 Mbps in the 2.4 GHz band. The second and third 802.11 standards, the 802.11a and 802.11b respectively, came in 1999. 802.11b was designed to be backwards compatible with 802.11b. 802.11b and 802.11g devices can interoperate although at the cost of lower bandwidth. More on the 802.11g compatibility mode is presented in later sections. The purpose of this section is to present a comparison of the three major 802.11 media types. To understand the comparison between 802.11a, 802.11b and 802.11g we'll need to first understand the key technologies that most influence the differences. The following sections present an introduction to the technologies that differentiate the standards the most followed by sections that make the actual comparison of the 802.11 media types.

Many amendments to the original 802.11 standard have been included with each of the new extensions to the standard, in this section; we only look at the key enhancements in the standards that are most likely to affect a hotspot implementation mainly,

the rate, number of channels, AP coverage range and interoperability. To maintain the compatibility and maximize reuse of the technology, the major changes have been confined to the PHY layer of the 802.11 specification. Higher transmission rates have been accomplished by specifying the use of more efficient transmission technologies such as Orthogonal Frequency Division Multiplexing (OFDM) as well as more efficient signal encoding techniques. 802.11g and 802.11a use OFDM as the main transmission technology to support rates up to 54 Mbps. OFDM is a more efficient transmission means than Direct Sequence Spread Spectrum (DSSS), the transmission technology used by 802.11b. Thus, 802.11 uses a combination of encoding and transmission techniques to support rates from 1 Mbps to 54 Mbps.

(1) Reasons to use 802.11b

If your site is already implemented using 802.11b and you are happy with the level of service you provide then there is no reason for change. We'll assume in this section that you do have a reason to change/upgrade your AP and so the question is: Should you stick with 802.11b or change to support 802.11g and/or 802.11a? Let's take a look at a few Pros and Cons.

(a) 802.11b Pros

- (1.) Is the most popular standard supported today by mobile clients
- (2.) Mature and less expensive technology
- (3.) Interoperates with 802.11g so your "b" APs will be able to support clients with this new technology.

(b) 802.11b Cons

- (1.) Provides the slowest maximum data rate (11 MHz).
- (2.) Given the interoperability that "g" APs provide, b-only APs will eventually be a thing of the past posing maintenance issues.

- (3.) Only three non-overlapping channels (same as 802.11g) makes it hard to deploy in complex environments.
- (4.) Susceptible to multipath interference
- (5.) Open to interference from many other commercial products that use same band such as microwave ovens, baby monitors, cordless phones, Bluetooth-based products, etc.

## (2) Reasons to use 802.11g

802.11g was developed to meet the higher speeds achieved by the 802.11a standard while maintaining compatibility with 802.11b. This meant that higher speeds could be obtained without obsoleting the investment on 802.11b equipment already done by so many. As stated before, such compatibility did not come for free. An 802.11g AP will change its operational mode to accommodate 802.11b clients the minute it detects the presence of the first client of such type. This mode of operation consists of protecting each packet sent on the wireless medium with an RTS and CTS combination message. As we discussed in the 802.11g section, this pair of guard packets adds a large overhead to the 802.11g communications but guards it from potential collisions caused by 802.11b clients which are not able to detect when “g” clients are communicating. Let’s take a look at some of the Pros and Cons of this technology.

### (a) 802.11g Pros

- (1.) Much higher data rates than 802.11b
- (2.) Supports larger number of clients than 802.11b
- (3.) Interoperates with 802.11b (this can be both a pro and a con)
- (4.) When using OFDM, it provides for better defense from multipath interference than 802.11b

### (b) 802.11g Cons

- (1.) Throughput not comparable with data rates when operating in protected (compatible) mode
- (2.) Only three non-overlapping channels (same as 802.11b) not enough for complex implementations.
- (3.) Susceptible to interference from many other types of commercial products that use same band such as microwave ovens, baby monitors, cordless phones, Bluetooth-based products, etc.

(3) Reasons to use 802.11a

802.11a was designed to be faster and to avoid interference from multipath and from other commercial products that operate in the 2.4 GHz band. The pros and cons are listed below:

(a) 802.11a Pros

- (1.) Faster data rates than 802.11b
- (2.) More non overlapping channels (12) than 802.11b or 802.11g provide more flexibility in the layout of the network.
- (3.) Offers the highest network capacity when operating at 54 Mbps over each of twelve non overlapping channels.
- (4.) Better support for multimedia services (audio and video) due to higher network capacity and less chance for interference from other common RF devices
- (5.) More resilient to multipath interference than 802.11b and non-OFDM operating 802.11g

(b) 802.11a Cons

- (1.) Does not support the more prevalent (as of today) 802.11b devices
- (2.) Shorter range requires more APs to cover the same footprint as



802.11b/g APs.



### III. EXISTING KSC HOTSPOT PRODUCT

#### 3.1 KSC HOTSPOT PRODUCT

KSC Hotspot is an area where a computer or PDA equipped with a wireless module can connect to the broadband Internet from KSC Commercial Internet Co., Ltd. through Wireless Access Points. You can reach from a distance of no more than 25 meters from the nearest access point. The most common IEEE 802.11b standard (also called 'WiFi') which offers a connection speed of 11 megabits per second is supported.

KSC Hotspot provides you an access to high-speed wireless internet at selected public locations such as Starbucks coffee, international airport, top business schools, office buildings, and entertainment complex across Thailand.

KSC Hotspot product mixes are;

(1) Product Variety

KSC provides three main solutions of KSC Hotspot service, which are;

(a) Single access point solution (Standard Hotspot)

This is a simplest hotspot solution, which we normally provides for small public area such as Coffee shop, Book store, and etc. KSC Hotspot site reference for this solution is Starbucks, Coffee World, and Nanmee Book. This solution combines with the following equipments.

- |   |        |
|---|--------|
| (1.) Access point with Gateway built-in | 1 Unit |
| (2.) Router                             | 1 Unit |
| (3.) Modem                              | 1 Unit |

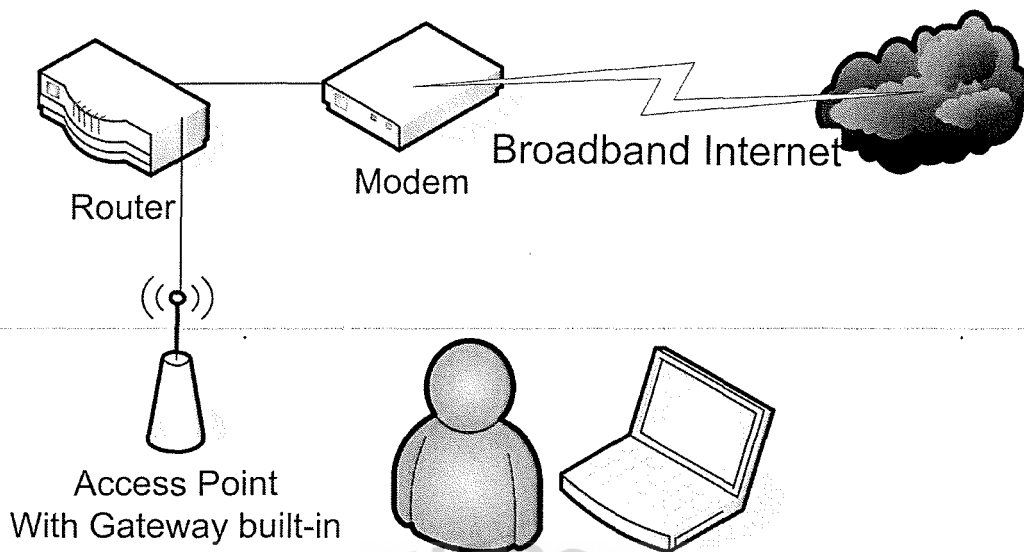


Figure 3.1. KSC Hotspot (single access point solution) Network Diagram.

(b) Multiple access points (Big area Hotspot)

This solution is for a bigger public area place such as Hospital, Convention center, and Educational Institute. KSC Hotspot site reference for this solution is Samitivej Hospital, EGV Metropolis, and Thammasart University. This solution combines with the following equipments.

- |      |                                    |          |
|------|------------------------------------|----------|
| (1.) | Access point with Gateway built-in | 1 Unit   |
| (2.) | Access point                       | ≥ 1 Unit |
| (3.) | Switch                             | ≥ 1 Unit |
| (4.) | Router                             | 1 Unit   |
| (5.) | Modem                              | 1 Unit   |

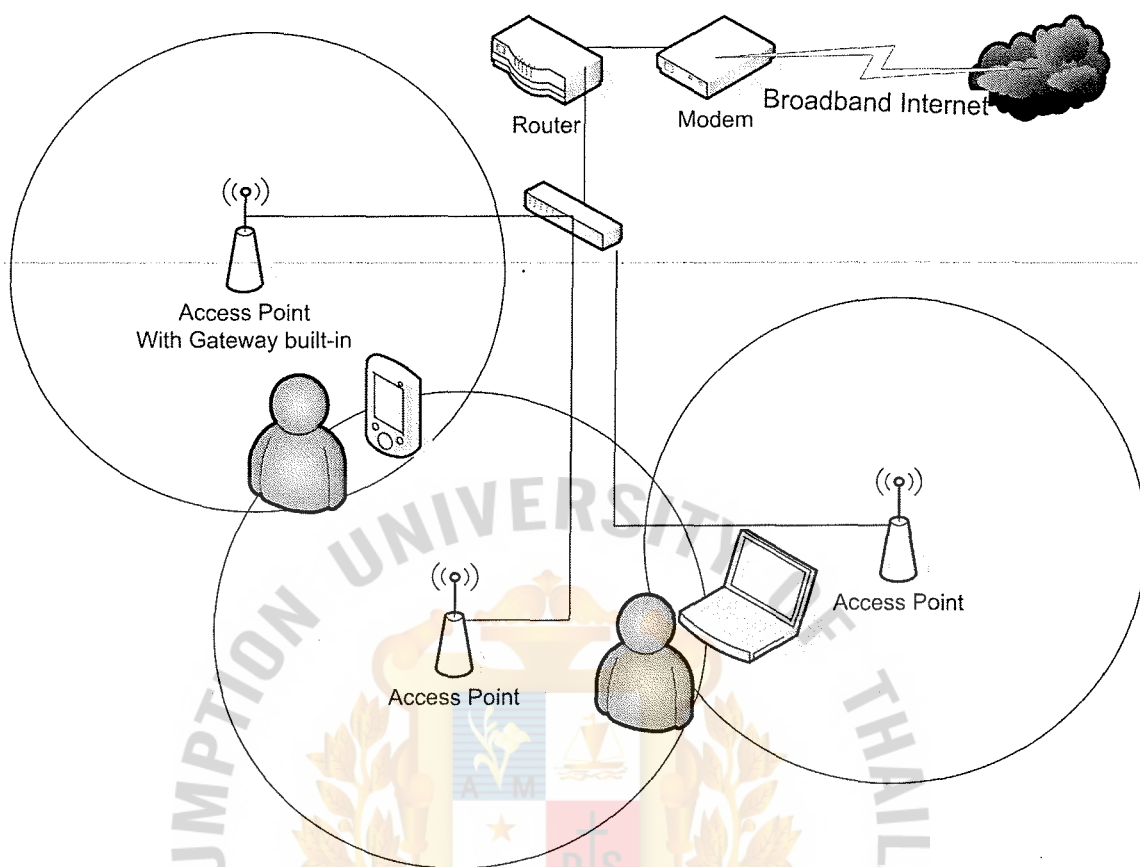


Figure 3.2. KSC Hotspot (multiple access points solution) Network Diagram.

(c) Customize solution (Follow customer requirements)

KSC's main objective in providing this solution is to explore new WLAN solution rather than a hotspot solution. This solution is a lot more complicate than a normal hotspot solution because, it needs;

(1.) Higher level of Security

Because customer wants its user a capability in access its intranet wirelessly. Rather than using only a simple Authentication process (Username & Password), customer request for a higher security level by using one or more of the following security standard;

(a) MAC Address

By matching username password with user Wireless Network Interface Card MAC Address, it make sure that only an authorized device can access to the network. KSC Hotspot reference site for this solution is SASIN.

(a) 802.1X

With the same purpose of the MAC address issue, this will give customer higher security level by using Certificate & RADIUS in Authentication process.

KSC Hotspot team has just finished 802.1X implementation in KSC Business Solution Department, and going to install in some of corporate customer network.

- (1.) Database
- (2.) Coverage
- (2) Quality

KSC select to provide KSC Hotspot service at corporate level, in the other word highest service level.

(a) Media

KSC choose Leased line as our only media in providing broadband Internet signal to our KSC Hotspot solution. Leased line is one of the best media, which are available in Thailand today's market.

(b) Equipment

KSC use only corporate level equipment for KSC Hotspot service. The most important equipment for providing hotspot service is 'access point'. Our selected access point is a corporate use level, which its unit price is more than 10 times higher than home used level access point. The advantages in using corporate level access point when compare to home used access point are;

- (1.) Each access point can handle more user, that's mean each KSC Hot-



spot can support more user than the other hotspot, who uses home used level access point.

(2.) Corporate used equipment is much more stable than home used one.

(c) Corporate level service

(1.) Guarantee Bandwidth both International and Domestic Link

(2.) Committed Service Level agreement (SLA %)

Our NSP provides CSLA 99.90 %

(3.) 24/7 Call center & Network monitoring support

(4.) Committed response time.

We guarantee that it will take no more than 4 hours to diagnose and solve problems.

(5.) On-site support.

We will send our engineer to visit your site to solve your problems within 36 hours after your request for on-site support.

(d) Full bandwidth

Internet link that KSC uses for KSC Hotspot is a dedicate link, which means KSC Hotspot service bandwidth will not be shared with others.

(3) Design

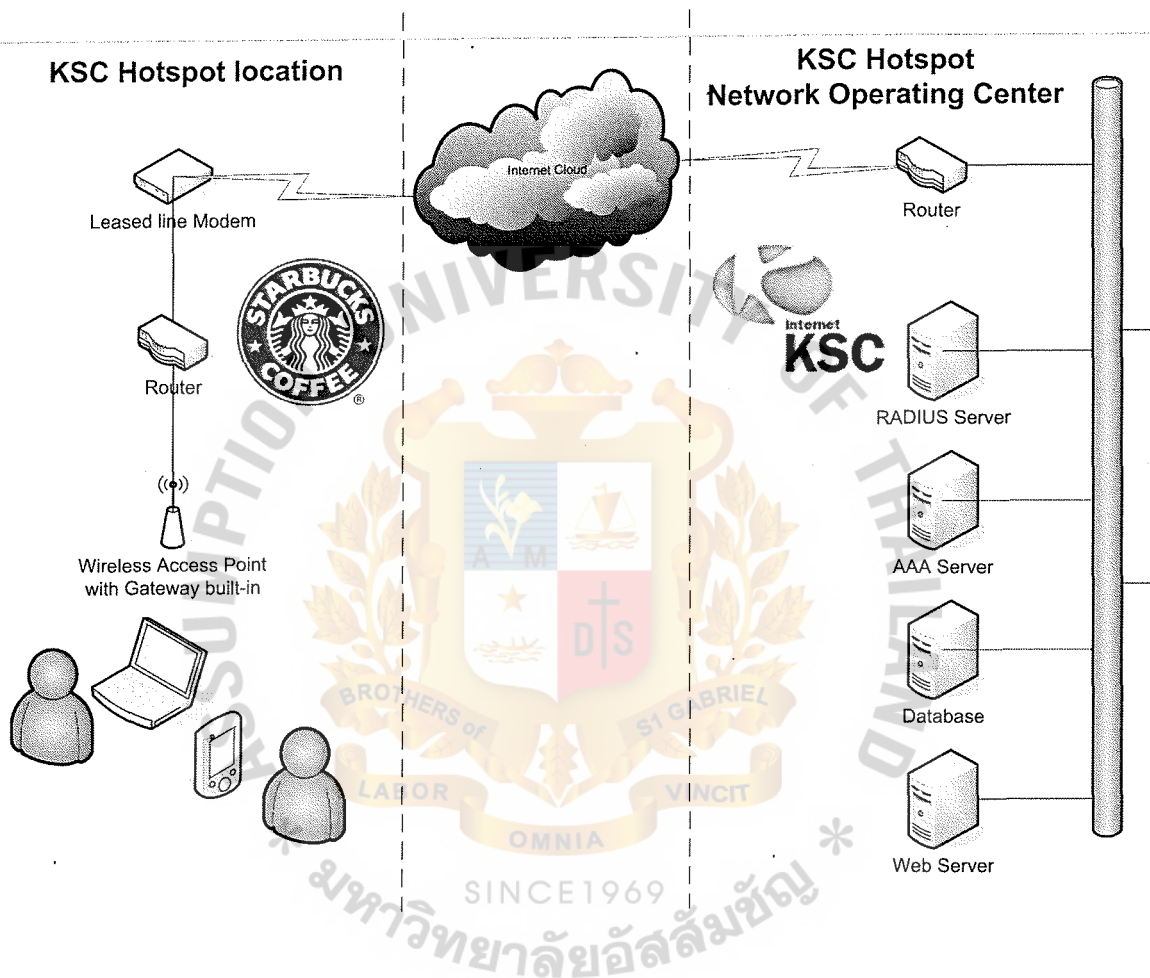


Figure 3.3. KSC Hotspot Network Diagram.

(4) Features

- (a) Wireless Broadband Internet access at selected public areas
- (b) International Roaming capability with iPass, Go Remote, Boingo, and T-Systems
- (c) Can be used with other KSC services such as ADSL, and Dial-Up

service.

### **3.2 KSC HOTSPOT PRICE**

In this present time, KSC provides three type of KSC Hotspot prepaid cards, which are;

**(1) List price**

- (a) 1-Hour prepaid card for 150 Baht**
- (b) 5-Hour prepaid card for 600 Baht**
- (c) 20-Hour prepaid card for 1,500 Baht**

**(2) Discounts**

KSC gives 20% discount to all of KSC Hotspot locations owner in buying our prepaid card for resell to its customer.

### **3.3 KSC HOTSPOT PLACE**

**(1) Channel**

- (a) Hotspot location**

KSC Hotspot prepaid card is available at all of KSC Hotspot locations.

- (b) IT related distribution channel**

KSC Hotspot prepaid card also available at IT related distribution channel such as Data IT, and IT city.

- (c) Online channel**

KSC provides an online payment for customer by go to <http://wifi.ksc.net/> buyonline. KSC use SCB payment gateway for this online transaction.

- (d) AIS M-Pay (On AIS subscriber mobile phone)**

With a cooperation between KSC & AIS, KSC Hotspot prepaid account will be available in AIS M-Pay service before end of this year.

**(2) Coverage**

On Nov 1, 2004, the number of KSC Hotspot locations will reach at 67 locations.

The following list is KSC Hotspot location name, and address.



Table 3.1. KSC Hotspot locations.

Starbucks Convent Rd.	Starbucks Samui
Starbucks Emporium	Starbucks Emporium Department Store
Starbucks CRC Tower, All Seasons Place	Starbucks B2S Central Chidlom
Starbucks Lang Saun	Starbucks Major Ratchayothin
Starbucks Thonglor 2 (Marketplace)	Starbucks The Mall 8
Starbucks SCB Park West	Starbucks Muang Thai Phatra Complex
Starbucks Thonglor House	Starbucks State Tower
Starbucks U Chu Liang	Starbucks Motorway
Starbucks Camp Davis, S.24	Starbucks Khao san
Starbucks UBC II bldg.	Starbucks Impact
Starbucks Siam Discovery	Starbucks Maleenont tower
Starbucks Siam Square	Starbucks Robinson Silom
Starbucks Bangkok City	Starbucks SFX cinema city Ladprao
Starbucks Phaholyothin	Starbucks Central Phuket
Starbucks Amarin Plaza	Starbucks Hua-Hin
Starbucks Emprie Tower	Gloria Jeans (Siam Square)
Starbucks GMM Grammy Place	Royal Cliff Beach Resort
Starbucks Chiang mai	Samitivej Hospital
Starbucks Chiang mai 2	United Airlines Lounge
Starbucks Phuket	Lufthansa Lounge
Starbucks Pattaya	Basic Café'
Starbucks Nichada Thani	National Institute of Development Administration
Starbucks Central Chidlom	Thammasat University
Starbucks Central Ladprao	Samaggi Bldg. 10th Fl.
Starbucks Bumrungrad Hospital	EGV Metropolis
Starbucks Motien Plaza	Sasin Graduate Institute of Business Administration
Starbucks Central Pinklao	Chai Building
Starbucks Siam Center	Coffee World Silom
Starbucks Central Bangna	Coffee World Patpong
Starbucks Nailerd Building	Coffee World Nana



### 3.4 KSC HOTSPOT PROMOTION

#### (1) Sales promotion

##### (a) Bundling

KSC cooperates with our partners such as HP, NOKIA, and Belta Computer in bundling KSC Hotspot package with their products.

##### (b) Special discount

For HSBC 'home and away' campaign KSC will give HSBC card holder a 10-20% off when buying KSC Hotspot prepaid card online with their HSBC card.

#### (2) Advertising

##### (a) Advertorial

Because we believe that Hotspot service is a new technology in Thailand, KSC concentrate in educating customer by using Advertorial as a main tool. Reference advertorial is with DTAC in 6 of business & marketing related monthly magazines.

##### (b) Banner

In order to build an awareness in our service, KSC use a Banner as our main advertising tool because, Hotspot is one of internet service we believe that only internet user will use our service. Our reference websites that we put our banner on;

##### (1.) Sanook! Website

Sanook! Website is a number one website in Thailand, when consider to a traffic. We put a big banner on Sanook! first page for almost 2 months in a launching process.

##### (2.) Mr.Palm Website

Mr. Palm website is also a number one website in Thailand, for PDA and Smart mobile related website. The reason that we choose this website because this website is one of the first website, who provides a WiFi technology knowledge in their websites. And this website viewer usually has WiFi related equipment already.

(3.) Our major partner and location partner websites such as

- (a) Starbucks
- (b) DTAC
- (c) Samitivej Hospital
- (d) Royal Cliff Hotel

(3) Public relations

(a) The cooperation

KSC normally use Public relation when we want to announce our cooperation with our partner such as DTAC, Starbucks, and other partner. Reference cooperation public relation;

- (1.) Free trial period for DTAC subscriber
- (b) Achievement

KSC use Public relation in announcing our achievement also such as succession in providing KSC Hotspot in all of Starbucks stores.

(c) New service

KSC also use Public relation in announcing our new service and feature, such as Online payment.

## IV. KSC HOTSPOT SWOT ANALYSIS

### 4.1 STRENGTHS

- (1) High quality of service
  - (a) Corporate service level

KSC uses the same service level as we use for our corporate customers, instead of using SME or consumer service level. What are benefits in using corporate service level? Customers will get a

- (1.) Guaranteed Bandwidth with both International and Domestic Link
- (2.) Committed Service Level agreement (SLA %)  
Our NSP provides CSLA 99.90 %
- (3.) 24/7 Call center & Network monitoring support
- (4.) Committed response time.

We guarantee that it will take no more than 4 hours to diagnose and solve problems.

- (5.) On-site support.

We will send our engineers to visit your site to solve your problems within 36 hours after your request for on-site support.

- (b) Leased line connection

Leased line connection is a most consistent media that are available in Thailand today's market. Leased line is a dedicate line, which means this line will not be shared with the others, and also means security. Most of our competitors use ADSL, which is a sharing technology at least their upload bandwidth will lower than ours. Some of them use IPSTAR, Satellite technology, which will face with a problem when raining and cloudy.

(c) Corporate level equipment

When compare to our competitors, some of them use a home used level access point that will give a lower quality of service to customers.

(2) Prime locations

(a) High traffic locations

One of the most important factors for succession, Hotspot must be located in a high traffic area. Two of our location partner Starbucks and Coffee World did this homework for us already. Because they have a lot of criteria in selecting a location to open their store. So we can be sure that all of these stores will have an enough traffic per day.

(b) WiFi suitable environment

All of our hotspot location has a suitable environment for using WiFi technology. Because 72% of Wifi users are still use laptops we believe that the user must have at least 'a seat', and it will be better is table is available. , which needs table and chair. Electrical Outlet still in a main concern for WiFi user, because if his or her laptop is not a centrino, its battery will not last for more than one hour when using a WiFi.

On the other hand, our number one competitor (TRUE) decide to offer hotspot service in unsuitable areas such as 11 subway stations.

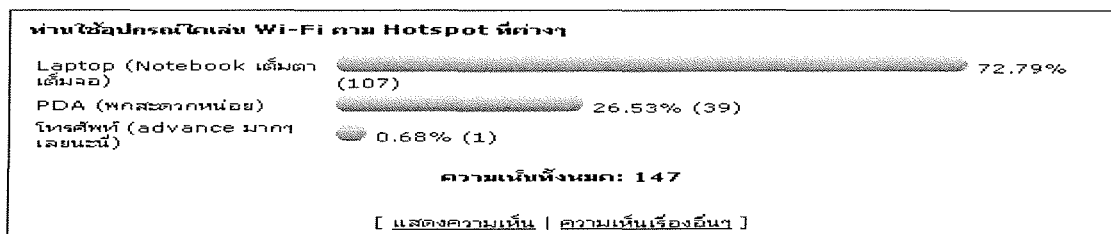


Figure 4.1. Poll result from Thai Wireless LAN website.

(3) Brand awareness

(a) Mother company’s Brand Recognition

KSC has a highest ISP brand recognition, from Marketeer magazine survey.

(b) KSC Hotspot own brand recognition

KSC is the first ISP who go into hotspot market seriously, so customers get used to KSC Hotspot brand. KSC Hotspot is voted as a number one Hotspot service provider in Thai Wireless LAN website (<http://www.thaiwirelesslan.com>)

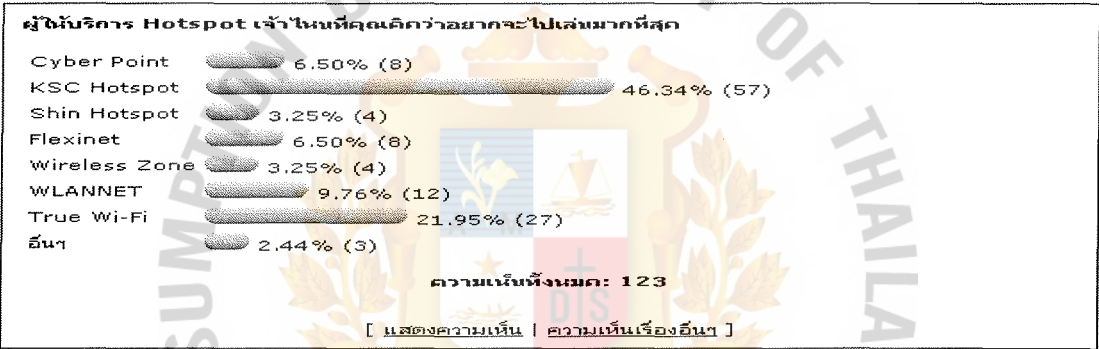


Figure 4.2. Poll result from Thai Wireless LAN website.

(4) Strong partners

KSC has very strong partnership with;

(a) Network Service Provider

KSC has a very strong relationship with UIH (United Information Highway), UCOM subsidiary, which has a largest leased line network in Thailand. UIH provides leased line for KSC Hotspot in every locations. For other Network Service Provider such as TRUE, TOT, ADC, SAMART, TT&T, and Violin, KSC also has a relationship with them, and we can use them as our second choice. Compared to our com-



petitors who has their own network infrastructure such as TRUE, TOT, and Shin Hotspot, they will face with a limited choice of media selection because they have to use their own network.

(b) Mobile Operator

KSC Hotspot's closet partner is DTAC, a number two Mobile Operator in Thailand, who has more than 7 millions subscribers. KSC Hotspot provides DTAC postpaid customer in using their own DTAC mobile phone number as a username in accessing to KSC Hotspot service. By the way, KSC still has a relationship with other Mobile Operators such as AIS, the number one, by selling KSC Hotspot prepaid card via its new service called 'AIS M-Pay'. KSC is also developing a relationship with Hutch in selling its subscriber KSC Hotspot account via its SMS service. Compares to our competitors there are only two of them, TRUE and Shin hotspot, who has a mobile phone operator as their partners.

## 4.2 WEAKNESSES

(1) Don't have our own Network infrastructure

This is a our biggest weakness, because we have to rely on Network Service Provider. In customer point of view, when internet does not work it is KSC's fault. In addition, our competitors who have their own network infrastructure have a lot of advantages over us as an example installation, network management, maintenance, new technology testing process. We can't manager all of these processes without a help from NSP, and sometime they will not give us a help on this.

(2) Lacking coverage area in a Huge public locations such as Conference center, Exhibition hall, and Airport.

Our main competitors, TRUE, Shin, TOT, and WLAN, have a coverage in these referred locations. This give them an advantage in introducing and persuading cus-

customer to buy their product.

- (3) Limited choice of product and service.

Compare to our main competitor, TRUE, who offer five type of products in the market. KSC still lacking of a number of product and service to offer to public.

- (4) Less number of location

Compare to our main competitor, TRUE, who has more than 80 locations today, and is going to be 300 within this year. In next year KSC will have 100 locations at most, one third of them.

#### **4.3 OPPORTUNITIES**

- (1) Use a new wireless standard, IEEE 802.16 (WiMAX), as our last mile instead of using a wired network infrastructure, which we have to rely on Network Service Provider.

- (2) Implement KSC Hotspot in large public area such as Conference center and airport to gain more business use customer.

- (3) Offer a new product and service into the market  
There are still plenty of room for new product and service.

- (4) Expand our number of hotspot by offering a new product with a lower monthly rate, and let location owner to be investor instead of us.

#### **4.4 THREATS**

- (1) New regulation

Deregulation in telecommunication market, will bring in new competitors from both of in and out of country.

- (2) New Technology

WiMAX, Internet over Electrical wire, an etc. will bring in new competitors from different industry, such as EGAT.

### (3) Other technologies

Decline in GPRS, EDGE, and CDMA1X equipment and minute price will persuade more customer in using them as a way to connect to internet rather than using our hotspot. These technologies biggest advantage over WiFi is their coverage area. Their customer can use where ever their mobile phone has a signal, compare to our hotspot which is only in store are.



## V. THE PROPOSED PRODUCT

We would like to propose a new KSC Hotspot product, which is called '**KSC HOTSPOT IN-A-BOX**'. This product will give us an opportunities as the following.

To fulfill the excessive demand in Hotspot Service in small to medium size domestic owned location in Thailand market. KSC will provide a hotspot service with an affordable price for SME by using SME level internet link, SME level equipments, and useful E-Commerce, which can reduce a large proportion of cost. This will not effect to KSC Hotspot brand, because we will use a sub brand, KSC Hotspot-in-a-box, for this service.

Create a KSC Hotspot-in-a-box website, which will allows customers to see any necessary information, made an inquiry, contact KSC sales. This website also have a hotspot community section , which will provide not only technical knowledge, news, but also build a corporation between each location owner to generate more traffic into their locations.

Increase KSC sales revenue, by go into a new market. In small to medium size domestic owned location market, most of them still have no internet access into their locations.

Expand KSC Hotspot coverage area, by roaming agreement between KSC Hotspot and KSC Hotspot for SME (KSC Hotspot-in-a-box).

### 5.1 TARGET MARKETS

#### (1) LOCAL COFFEE HOUSE & RESTAURANT

In year 2002, there are 174,160 restaurants in Thailand. This group including coffee house also. These type of locations are two of the most successful locations for hotspot service, because these type of locations has WiFi suitable environment. They have

seat, electrical outlet, etc. They place near a road or other kind of transportation.

Actually most of these locations owner are willing to have hotspot service in their stores, the two main concerns for them are a high monthly fee and lack of technical knowledge. KSC HOTSPOT IN-A-BOX is a solution for them, we offer an affordable monthly fee and handle everything for them.

## (2) SMALL HOTEL, GUEST HOUSE, RESORT, BUNGALOW, AND APARTMENT.

In year 2002, there were 1,736 small hotels (less than 60 rooms), 775 guest houses, 1,512 bungalows, 948 resorts, and 95 apartments in Thailand. 78.4% of them still have no internet connection to use. This segment is a highly rated prospect for us, because internet service is one of the most valuable add service to hotel guest in the world today.

Same as in coffee house and restaurant segment, these group of locations owners are willing to have hotspot service for their guest also, and main concerns are the same.

## 5.2 KSC HOTSPOT IN-A-BOX PRODUCT MIX

### (1) PRODUCT

#### (a) Product variety

In the first stage we will provide customers only two type of products

#### (1.) Pure hotspot

This pure hotspot means only wireless internet available and purely for customer use.



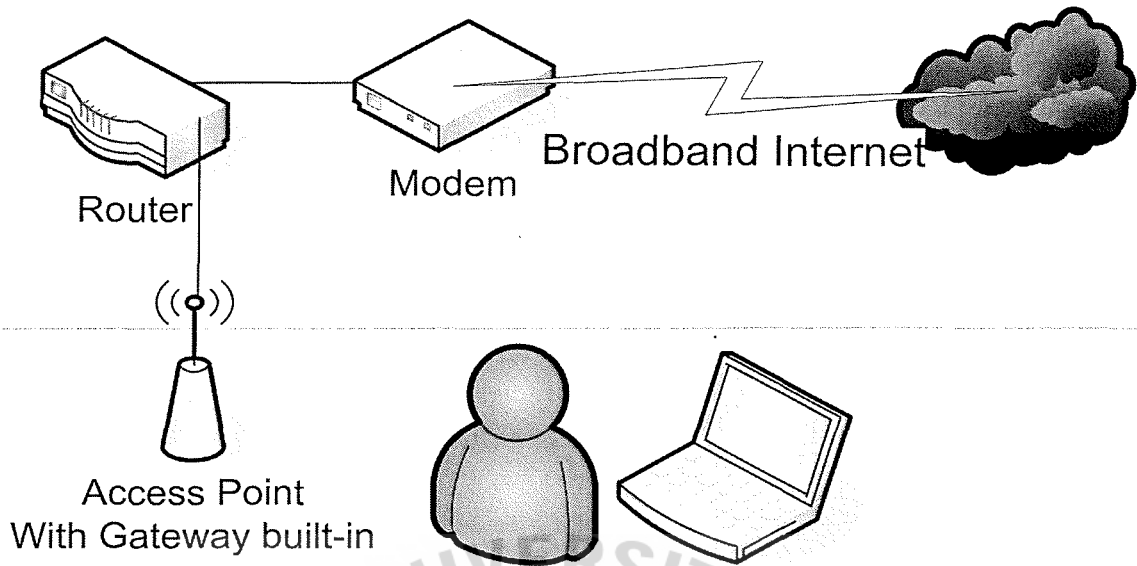


Figure 5.1. KSC HOTSPOT IN-A-BOX (Pure Hotspot).

(2.) Hotspot plus office use

This will give store an extra benefit rather having only internet service for customer, but also for its store use.

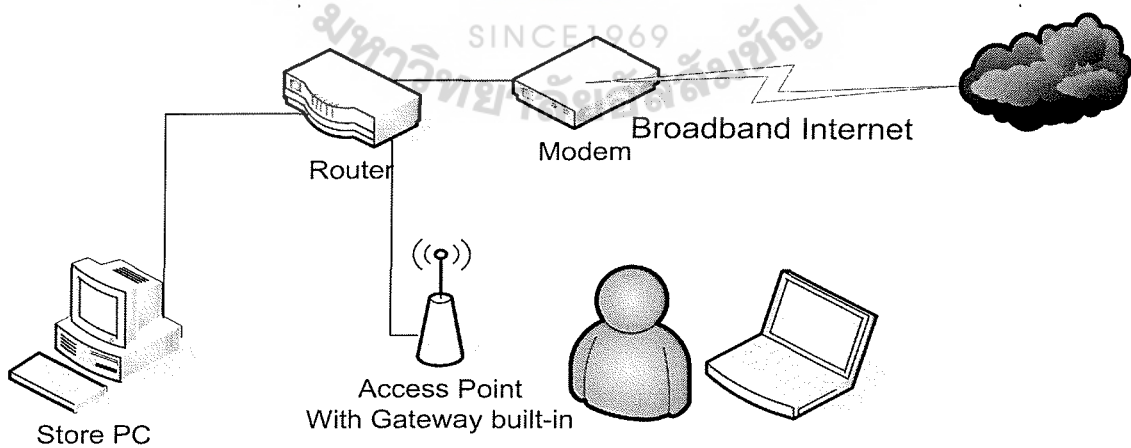


Figure 5.2. KSC HOTSPOT IN-A-BOX plus office use.

(b) Quality

KSC HOTSPOT IN-A-BOX quality is lower than standard KSC HOTSPOT service, because we will use SME level for everything from media, bandwidth, equipment, and SLA.

(1.) Media

We will use ADSL as our media for this service, ADSL service is not reliable as Leased line, but its cost is much more lower.

(2.) Bandwidth

SME package normally use a sharing basis, its contention ratio is 1:5.

(3.) Equipment

We will use SME level equipment also, in the first phase we have only one choice of WiFi gateway router **Linksys WRV54G**.

(4.) SLA

We will use SME SLA, which means no bandwidth guarantee, onsite service will be within 24 hours, and no backup link.

(c) Design

KSC HOTSPOT IN-A-BOX brand is positioned lower than standard KSC HOTSPOT brand. This product will be more younger looking and more user friendly. Because our target group profile is lower than standard brand.

(d) Features

KSC HOTSPOT IN-A-BOX features almost the same as KSC HOTSPOT, the only different is roaming policy. When standard KSC HOTSPOT account is used at KSC Hotspot in-a-box location, the amount of time left will be multiplied by two point five. When KSC Hotspot in-a-box account is used at standard KSC Hotspot location,

the amount of time left will be divided by two point five. And International roaming is not allowed for KSC Hotspot in-a-box service.

(2) PRICE

(a) KSC HOT SPOT IN-A-BOX price for location owner

(1.) KSC HOTSPOT IN-A-BOX installation fee

KSC will charge location the owner a one time charge for installation fee as the following;

(a) For pure hotspot 10,000 Baht

(b) For hotspot plus office use 12,000 Baht

These above installation fees includes;

(a) Wireless Access Router **Linksys WRV54G (6,000 Baht)**

(b) Network wiring (4,000 Baht for pure hotspot, and 6,000 for hotspot plus office use)

2. KSC HOTSPOT IN-A-BOX monthly fee

KSC will give location partner a specific number of KSC Hotspot in-a-box prepaid cards per month with free of charge, depends on speed that location partner selected. These cards will compensate our monthly fee, if location partner can sell all of their prepaid cards in each month. And if location partner would like to have order more prepaid card, they will get 20% of total sales that they can made in this extra order.

(a) 128 Kbps at 9,000 Baht per month, which location owner will get KSC HOTSPOT IN-A-BOX 1-Hour prepaid card 150 cards.

(b) 256 Kbps at 13,200 Baht per month, which location owner will get KSC HOTSPOT IN-A-BOX 1-Hour prepaid card 220 cards.

(c) 512 Kbps at 19,200 Baht per month, which location owner will get

KSC HOTSPOT IN-A-BOX 1-Hour prepaid card 320 cards.

(d) 1 Mbps at 28,800 Baht per month, which location owner will get KSC HOTSPOT IN-A-BOX 1-Hour prepaid card 480 cards.

(e) 1.5 Mbps at 39,000 Baht per month, which location owner will get KSC HOTSPOT IN-A-BOX 1-Hour prepaid card 650 cards.

(f) 2 Mbps at 45,000 Baht per month, which location owner will get KSC HOTSPOT IN-A-BOX 1-Hour prepaid card 750 cards.

(b) KSC HOT SPOT IN-A-BOX prepaid card price

KSC HOTSPOT IN-A-BOX 1-Hour prepaid card price is 60 Baht, The reason that we choose this price are;

(3.) KSC Hotspot in-a-box price must be lower than Standard KSC Hotspot price (150 Baht per hour).

(4.) KSC Hotspot in-a-box substitute product is GPRS, which its price is 1 Baht per minute (60 Baht per hour)

(c) Discount

KSC gives 20% discount from prepaid card listed price to all of KSC HOTSPOT IN-A-BOX locations owner in buying our prepaid card for reselling to its customer, in additional order.

### (3) PLACE

(a) For end user, we will use the same distribution channel as standard KSC Hotspot, which are;

(1.) Hotspot location

KSC Hotspot prepaid card is available at all of KSC Hotspot locations.

(2.) IT related distribution channel

KSC Hotspot prepaid card also available at IT related distribution channel

such as Data IT, and IT city.

(3.) Online channel

KSC provides an online payment for customer at <http://wifi.ksc.net/buyonline>. KSC use SCB payment gateway for this online transaction.

(4.) AIS M-Pay (On AIS subscriber mobile phone)

With a cooperation between KSC & AIS, KSC Hotspot prepaid account will be available in AIS M-Pay service before end of this year.

(b) For location partner part, we will concentrate in using 'KSC Hotspot in-a-box Online registration page' (<http://wifi.ksc.net/inabox>) as a main tool in communicate, manage, and serve our location partner. Our prospect location partner can apply to be our location partner in this website. After that they can use this website in made an order, check order status, change password, check usage, check network status, and even made a payment. This 'Online Registration' website is secured by using Secured Sockets Layer (SSL) Certificates by Verisign®. By using same domain as Standard KSC Hotspot, this new section benefits in having SSL by Verisign already. SSL from Verisign has two strong point, which are;

(1.) Server Gated Cryptography, or SGC. Using an SGC-enabled SSL allow you to learn which client systems connect at which encryption levels, and how to offer the strongest available encryption to the most possible site visitors.

(2.) High-level SSL encryption (full 128 bits), in fact the strongest SSL encryption you can get for your Web servers—without exception. Whether a given SSL session occurs at the low or the high level of encryption depends on both the configuration of the client system and the type of SSL Certificate in place on the Web server. Many client systems are unable to take advantage of full 128-bit SSL encryption unless an SGC-enabled certificate is in place. The difference between these encryption levels



is dramatic. 128-bit encryption offers 288 times as many possible combinations as 40-bit encryption, which is approximately equal to 300 septillion (300,000,000,000,000,000,000,000,000) times stronger.

This 'Online Registration' website uses SCB Payment Gateway solution from Siam Commercial Bank, by charging customer's credit card or debiting from customer's accounts and then credit on KSC merchant's accounts. Transactions would be processed in real-time. It is protected by SIPS (SCB Secure Internet Payment System), as Standard KSC Hotspot.

Benefits in using SCB Payment Gateway solution from Siam Commercial Bank are;

- (1.) Direct Debit Account or Credit cards - Visa, Master, JCB, and SCB card are available for this service.
- (2.) Real-time transferring to KSC and can immediately download the summary report after the transaction is done.
- (3.) KSC can check transactions via SCB Payment Gateway Merchant Center and check the updated statement via SCB Business Net.
- (4.) KSC can alter the specific currencies for their payments to be in Thai Baht or U.S. Dollar.
- (5.) Secure Socket Layer (SSL) 128 bit, Firewall, Triple DES Encryption / Decryption module etc. are provided for the system to safeguard the transaction.

In addition, our prospect location partner can apply to be our location partner via a traditional communication way by calling to WiFi department at 02-979-7312.

#### (4) PROMOTION

This product is positioned lower than standard KSC HOTSPOT so we will use a different method in promoting it.

(a) Advertising

We will concentrate on this tool more than standard KSC HOTSPOT did, because we position this product for mass product. For mass product promotion, advertising is a must to lure in our other location type customer.

(b) Public Relations

We will not concentrate on this tool much, will use only for announcement.

(c) Direct Marketing

Because we already have our prospects as hotels, coffee stores, and restaurants, direct marketing must be the most effective tool for this product.

### 5.3 Hardware & Software requirements

(1) Hardware Requirements

We use our KSC HOTSPOT existing hardware, which are;

(a) Authentication server

(b) Web server

(c) Database server

(2) Software Requirements

We use our existing KSC HOTSPOT existing software, which are;

(a) Unix operating system

(b) Radius server

(c) Web/Application server

(d) Database server

(e) Development tools

### 5.4 Project cash flow

In calculate this project cash flow we have assumptions as the following;

(1) Manpower

An average salary for this project team is 25,000 Baht (this includes all other benefits and expenses)

(a) One project manager

(b) One marketing officer for acquiring 10 customer per month.

(c) One Engineer for every 100 hotspots

(d) One administration officer for every 100 hotspots

(2) Subcontractor

In implementing all of hotspots we will use subcontractor, which will charge us 2,500 Baht per side.

(3) Web Development

We use a freelance in developing our website, which will cost us 50,000 Baht.

(4) Require Hardware & Software

Because all of this product's require hardware & software are the same as our Standard KSC Hotspot, so we can use our existing hardware & software with no charge (because our Standard KSC Hotspot has already paid for them).

(5) Number of customer

We expect 10 new customers per month from 3rd month after launching into the market. And there is no churn at all. All of them select 128Kbps package.

(6) Marketing expense

We estimate marketing cost at 10% of our revenue.

(7) Operating Cost

We estimate operating cost at 10% of our media & bandwidth cost.

(8) Maintenance Cost

We estimate maintenance at 25% of equipment cost, which we will ass into in-stallation cost.

(9) Cost of Capital

We use 12% per year as our cost of capital in calculate all return rates.

(10) Project life time

All of calculation is based on 2 years, we believe that WiFi technology will last long at least 2 years.

From above assumptions, this KSC Hotspot in-a-box project's payback period is 8 months, IRR equals to 27.23%, NPV equals to 5,947,883.17 Baht.



Table 5.1. KSC HOTSPOT IN-A-BOX Cash Flow in First 6 months.

Income	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Number of Hotspot			10.00	20.00	30.00	40.00
Monthly Fee			9,000.00	9,000.00	9,000.00	9,000.00
<b>Total Income</b>	-	-	90,000.00	180,000.00	270,000.00	360,000.00
<b>Accum. Income</b>	-	-	90,000.00	270,000.00	540,000.00	900,000.00
<b>Operation Expense</b>						
ADSL (Internet + Media)	3,700.00	-	37,000.00	74,000.00	111,000.00	148,000.00
Operating Cost	-	-	3,700.00	7,400.00	11,100.00	14,800.00
Man Power	4.00	4.00	4.00	4.00	4.00	4.00
Salary	25,000.00	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00
Web Development	50,000.00					
<b>Total Operation Expense</b>	150,004.00	100,004.00	140,704.00	181,404.00	222,104.00	262,804.00
<b>Accum. Total Operation Expense</b>	150,004.00	250,008.00	390,712.00	572,116.00	794,220.00	1,057,024.00
<b>Marketing Expense</b>						
Total Marketing Expense	-	-	9,000.00	18,000.00	27,000.00	36,000.00
<b>Accum. Marketing Expense</b>	-	-	9,000.00	27,000.00	54,000.00	90,000.00
<b>Total Expense</b>	150,004.00	100,004.00	149,704.00	199,404.00	249,104.00	298,804.00
<b>Accum. Total Expense</b>	150,004.00	250,008.00	399,712.00	599,116.00	848,220.00	1,147,024.00
<b>EBITDA</b>	- 150,004.00	- 100,004.00	- 59,704.00	- 19,404.00	20,896.00	61,196.00
<b>Accum. EBITDA</b>	- 150,004.00	- 250,008.00	- 309,712.00	- 329,116.00	- 308,220.00	- 247,024.00



Table5.2. KSC HOTSPOT IN-A-BOX Cash Flow in 7th-12th month.

Income		Month7	Month8	Month9	Month10	Month11	Month12
Number of Hotspot		50.00	60.00	70.00	80.00	90.00	100.00
Monthly Fee		9,000.00	9,000.00	9,000.00	9,000.00	9,000.00	9,000.00
Total Income		450,000.00	540,000.00	630,000.00	720,000.00	810,000.00	900,000.00
Accum Income		1,350,000.00	1,890,000.00	2,520,000.00	3,240,000.00	4,050,000.00	4,950,000.00
<b>Operation Expense</b>							
ADSL (Internet + Media)	3,700.00	185,000.00	222,000.00	259,000.00	286,000.00	333,000.00	370,000.00
Operating Cost		18,500.00	22,200.00	25,900.00	29,600.00	33,300.00	37,000.00
Man Power		4.00	4.00	4.00	4.00	4.00	4.00
Salary	25,000.00	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00
Web Development							
Total Operation Expense		303,504.00	344,204.00	384,904.00	425,604.00	466,304.00	507,004.00
Accum Total Operation Expense		1,360,528.00	1,704,732.00	2,089,636.00	2,515,240.00	2,981,544.00	3,488,548.00
<b>Marketing Expense</b>		45,000.00	54,000.00	63,000.00	72,000.00	81,000.00	90,000.00
Total Marketing Expense		45,000.00	54,000.00	63,000.00	72,000.00	81,000.00	90,000.00
Accum Marketing Expense		135,000.00	189,000.00	252,000.00	324,000.00	405,000.00	495,000.00
Total Expense		348,504.00	398,204.00	447,904.00	497,604.00	547,304.00	597,004.00
Accum Total Expense		1,495,528.00	1,893,732.00	2,341,636.00	2,839,240.00	3,386,544.00	3,983,548.00
EBITDA		101,496.00	141,796.00	182,096.00	222,396.00	262,696.00	302,996.00
Accum EBITDA	-	145,528.00	- 3,732.00	178,364.00	400,760.00	663,456.00	966,452.00

Table 5.3. KSC HOTSPOT IN-A-BOX Cash Flow in 13th-18th month.

Income		Month 13	Month 14	Month 15	Month 16	Month 17	Month 18
Number of Hotspot		110.00	120.00	130.00	140.00	150.00	160.00
Monthly Fee		9,000.00	9,000.00	9,000.00	9,000.00	9,000.00	9,000.00
Total Income		990,000.00	1,080,000.00	1,170,000.00	1,260,000.00	1,350,000.00	1,440,000.00
Accum. Income		5,940,000.00	7,020,000.00	8,190,000.00	9,450,000.00	10,800,000.00	12,240,000.00
<b>Operation Expense</b>							
ADSL (Internet + Media)	3,700.00	407,000.00	444,000.00	481,000.00	518,000.00	555,000.00	592,000.00
Operating Cost		40,700.00	44,400.00	48,100.00	51,800.00	55,500.00	59,200.00
Man Power		6.00	6.00	6.00	6.00	6.00	6.00
Salary	25,000.00	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00
Web Development							
Total Operation Expense		597,706.00	638,406.00	679,106.00	719,806.00	760,506.00	801,206.00
Accum. Total Operation Expense		4,086,254.00	4,724,660.00	5,403,766.00	6,123,572.00	6,884,078.00	7,685,284.00
<b>Marketing Expense</b>							
		99,000.00	108,000.00	117,000.00	126,000.00	135,000.00	144,000.00
Total Marketing Expense		99,000.00	108,000.00	117,000.00	126,000.00	135,000.00	144,000.00
Accum. Marketing Expense		594,000.00	702,000.00	819,000.00	945,000.00	1,080,000.00	1,224,000.00
Total Expense		696,706.00	746,406.00	796,106.00	845,806.00	895,506.00	945,206.00
Accum. Total Expense		4,680,254.00	5,426,660.00	6,222,766.00	7,068,572.00	7,964,078.00	8,909,284.00
EBITDA		293,294.00	333,594.00	373,894.00	414,194.00	454,494.00	494,794.00
Accum. EBITDA		1,259,746.00	1,593,340.00	1,967,234.00	2,381,428.00	2,835,922.00	3,330,716.00



Table 5.4. KSC HOTSPOT IN-A-BOX Cash Flow in 19th-24th month.

Income		Month 19	Month 20	Month 21	Month 22	Month 23	Month 24
Number of Hotspot		170.00	180.00	190.00	200.00	210.00	220.00
Monthly Fee		9,000.00	9,000.00	9,000.00	9,000.00	9,000.00	9,000.00
Total Income		1,530,000.00	1,620,000.00	1,710,000.00	1,800,000.00	1,890,000.00	1,980,000.00
Accum. Income		13,770,000.00	15,390,000.00	17,100,000.00	18,900,000.00	20,790,000.00	22,770,000.00
<b>Operation Expense</b>							
ADSL (Internet + Media)	3,700.00	629,000.00	666,000.00	703,000.00	740,000.00	777,000.00	814,000.00
Operating Cost		62,900.00	66,600.00	70,300.00	74,000.00	77,700.00	81,400.00
Man Power		6.00	6.00	6.00	6.00	6.00	6.00
Salary	25,000.00	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00
Web Development							
Total Operation Expense		841,906.00	882,606.00	923,306.00	964,006.00	1,004,706.00	1,045,406.00
Accum. Total Operation Expense		8,527,190.00	9,409,796.00	10,333,102.00	11,297,108.00	12,301,814.00	13,347,220.00
<b>Marketing Expense</b>		153,000.00	162,000.00	171,000.00	180,000.00	189,000.00	198,000.00
Total Marketing Expense		153,000.00	162,000.00	171,000.00	180,000.00	189,000.00	198,000.00
Accum. Marketing Expense		1,377,000.00	1,539,000.00	1,710,000.00	1,890,000.00	2,079,000.00	2,277,000.00
Total Expense		994,906.00	1,044,606.00	1,094,306.00	1,144,006.00	1,193,706.00	1,243,406.00
Accum. Total Expense		9,904,190.00	10,948,796.00	12,043,102.00	13,187,108.00	14,380,814.00	15,624,220.00
EBITDA		535,094.00	575,394.00	615,694.00	655,994.00	696,294.00	736,594.00
Accum. EBITDA		3,865,810.00	4,441,204.00	5,056,898.00	5,712,892.00	6,409,186.00	7,145,780.00

## 5.5 Product delivery process

### (1) KSC Hotspot in-a-box installation process

After got a payment confirmation from SCB, KSC can activate KSC Hotspot in-a-box at customer location within 5 business days.

#### (a) Open a ticket

WiFi team opens a job to NOC by using KSC ticket system, this usually use one business day after KSC got a payment confirmation from SCB.

#### (b) Cooperate with Network Service Provider

NOC team confirm ADSL availability, configuration, and ADSL installation date with Network Service Provider, normally take two business days after NOC got a ticket from WiFi team.

#### (c) Site survey

After WiFi confirms survey, and installation date with customer, NOC team do a site survey at customer location, this process take 2-3 hours.

#### (d) Assigns Subcontractor

WiFi team send and order, network configuration, pre-configured equipment, pre-paid cards, POP, and wiring plan to subcontractor.

#### (e) Installation

Subcontractor do a wiring and installs necessary equipments at customer location. NOC team will remotely activate KSC Hotspot in-a-box service for customer. Subcontractor will do a test to get customer acceptance. This process normally take half a day.

### (2) KSC Hotspot in-a-box prepaid card delivery process

After got a payment confirmation from SCB, KSC Hotspot in-a-box will be delivered to customer within 3 business days.

VI. PROJECT IMPLEMENTATION

6.1 KSC HOTSPOT IN-A-BOX IMPLEMENTATION PLAN

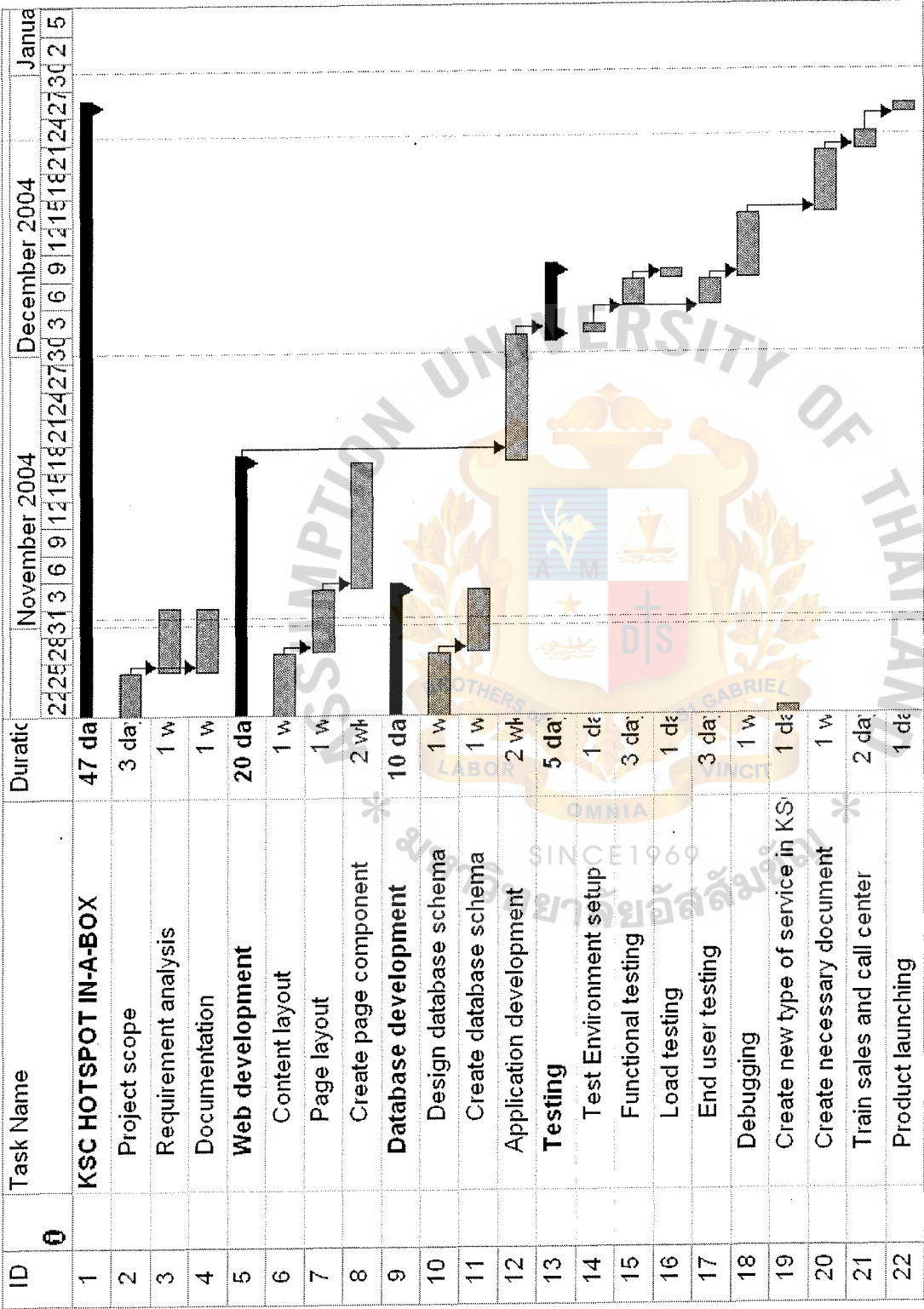


Figure 6.1. KSC HOTSPOT IN-A-BOX IMPLEMENTATION PLAN.



## 6.2 KSC HOTSPOT IN-A-BOX WEBSITE DEVELOPMENT

### (1) Pre-Production

(a) Requirement Gathering

(b) System Analysis

(c) Collecting Content Data

(d) Finalized Outline

Table 6.1. KSC Hotspot in-a-box web outline (0-1.2A.2).

No.	Links/Components	Type			Description	Remark
		S	D	B		
0	Home หน้าหลัก					
1	KSC Hotspot in-a-box	x			Product Information Registration Operator Login	Link to List of Products Link to Registration Page
2	Buy Online		x			
3	About KSC Hotspot	x				
4	Coverage Area	x				
5	Login		x			
6	Change Password		x			
7	Check Usage		x			
8	English Version Thai Version	x				
1	KSC Hotspot in-a-box					
1.1	Product Information	x				Link to List of Products
1.1A	List of Products	x			Show List of Products	
1.2	Apply now		x			
1.2A.1	Coverage area checking		x		Show coverage area checking form - Telephone number (at desired hotspot location)	
1.2A.2	Coverage area checking report		x			Link to registration page

Table 6.2. KSC Hotspot in-a-box web outline (1.2A.3-1.2A.9).

No.	Links/Components	Type			Description	Remark
		S	D	B		
1.2A .3	Registration Form		x		Show Registration Form Corporate or Individual Full name ID card number Address Province Postal code Telephone number Billing address Address Province Postal code Telephone number Contact person Name Home phone number Mobile phone number Fax number E-mail ADSL speed KSC Hotspot in-a-box monthly fee Number of computer (share this link) Installation fee VAT Total price	
1.2A .4	Confirmation Page		x		Show what customer filled in registration form	Link to agreement
1.2A .5	Agreement	x				Link to Online payment
1.2A .6	Online Payment		x		Credit card information	
1.2A .7	Payment confirmation		x		Show Bank Approval	
1.2A .8	Payment summary report		x		Show payment information	
1.2A .9	Confirm User status		x		Show user status	

No.	Links/Components	Type			Description	Remark
		S	D	B		
1.3	Operator Login		x		Enter Username & Password	
1.3.1	Operator Login		x		Order Status My Account Change Package type Order prepaid card My network status Usage report Contact us Change password	
1.3A	Order Status		x			Link to Order Status
1.3A.1	Order Status report		x		Shows order status report	
1.3B	My Account		x			
1.3B.1	Accounting report		x		Shows account B/L & History payment	
1.3B.2	Online Payment		x		Credit card information	
1.3B.3	Payment Confirmation		x		Show Bank Approval	
1.3B.4	Payment summary report		x		Show payment information	
1.3C	Change Package type		x			
1.3C.1	Select Package type		x		Select drop down list box 256 Kbps 512Kbps 1Mbps	
1.3C.2	Confirm New type		x			
1.3D	Order Prepaid card		x			
1.3D.1	Order form		x		Select radio button 1-Hour prepaid card 5-Hour prepaid card 20-Hour prepaid card	
1.3D.2	Confirm Order		x			
1.3D.3	Online payment		x		Credit card information	
1.3D.4	Payment confirmation		x		Show Bank Approval	

Table 6.3. KSC Hotspot in-a-box web outline (1.3-1.3D.4).

No.	Links/Components	Type			Description	Remark
		S	D	B		
1.3D.5	Payment Summary report		x		Show payment information	
1.3E	My Network status		x			Link to network status
1.3E.1	Network status report		x			
1.3F	Usage report		x		Report by user type Report by usage time	
1.3F.1.1	Report by user type		x			
1.3F.1.2	Report by usage time		x			
1.3G	Contact Us	x			Contact technical form Contact Accounting form Contact WiFi form	
1.3G.1.1	Contact technical form		x		input question in text box	
1.3G.2	Contact Accounting form		x		input question in text box	
1.3G.3	Contact WiFi form		x		input question in text box	
1.3H	Change password		x			
1.3H.1	Change password		x			

Table 6.5. Note for Type.

**Note for Type:**

<b>S</b>	Static content
<b>D</b>	Dynamic content
<b>B</b>	Content with back-web feature

Table 6.4. KSC Hotspot in-a-box web outline (1.3D.5-1.3H.1).

(e) Process Flow

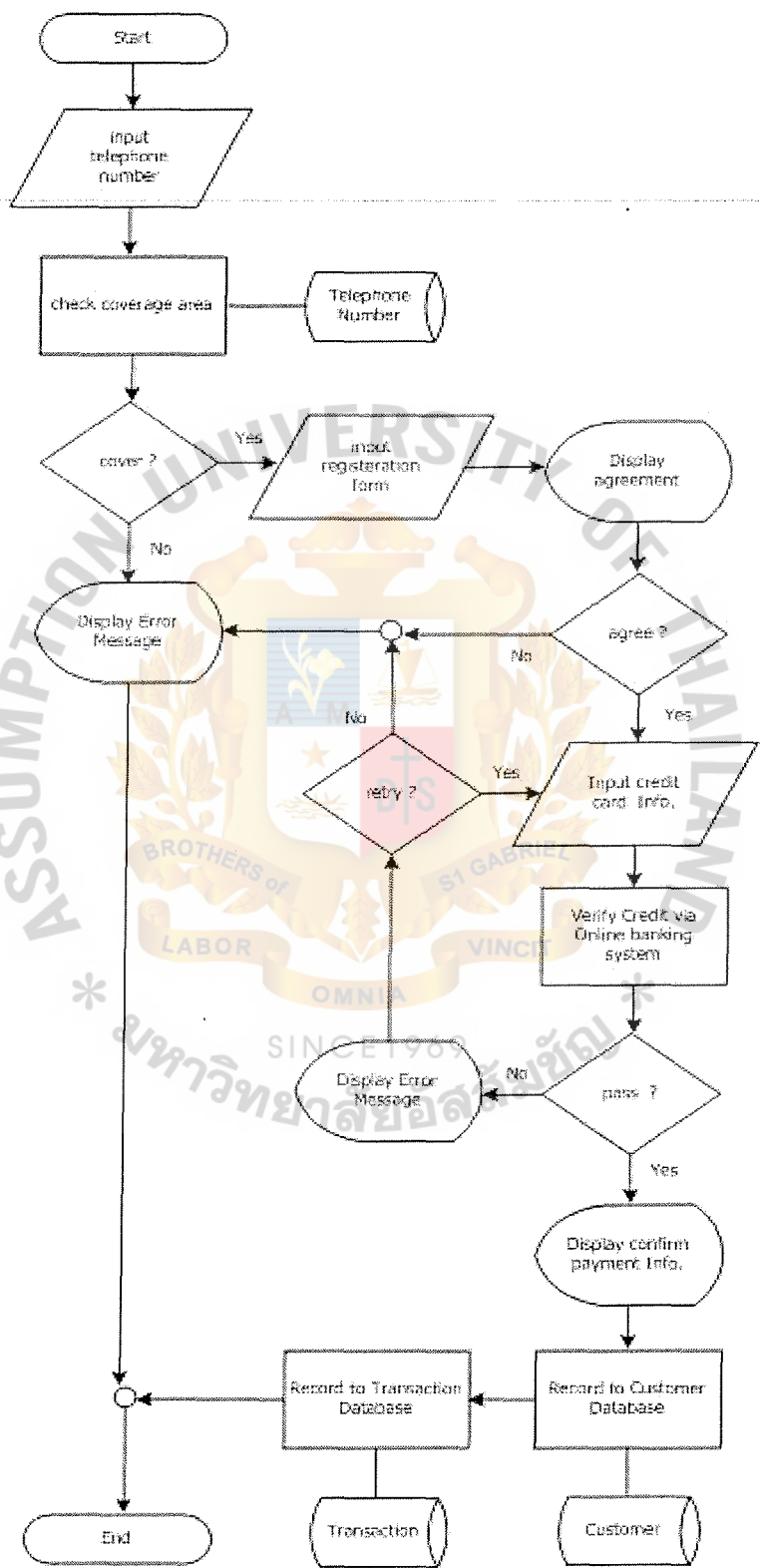




Figure 6.2 Process Flow Apply Account.

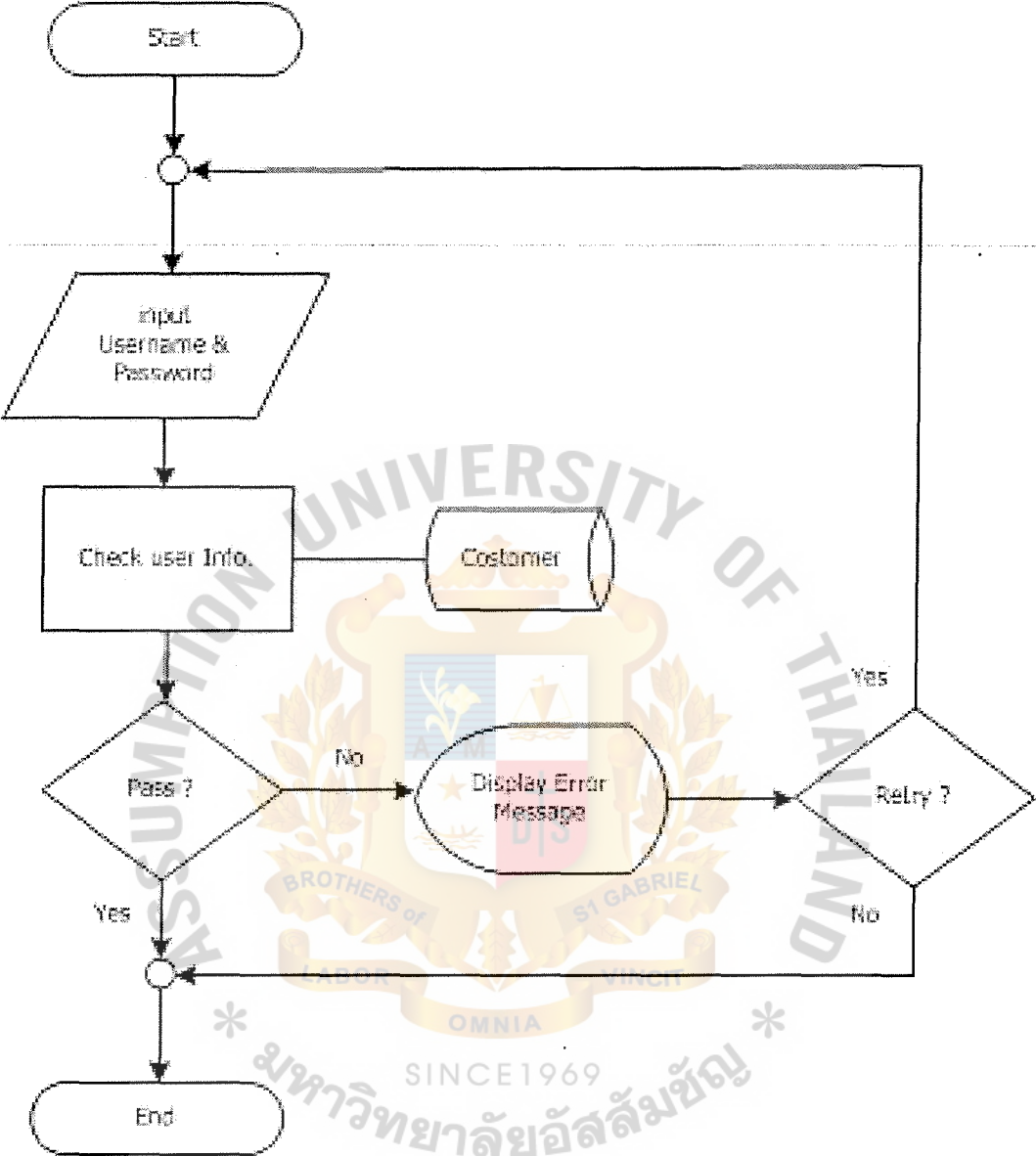


Figure 6.3. Process Flow Operator Login.

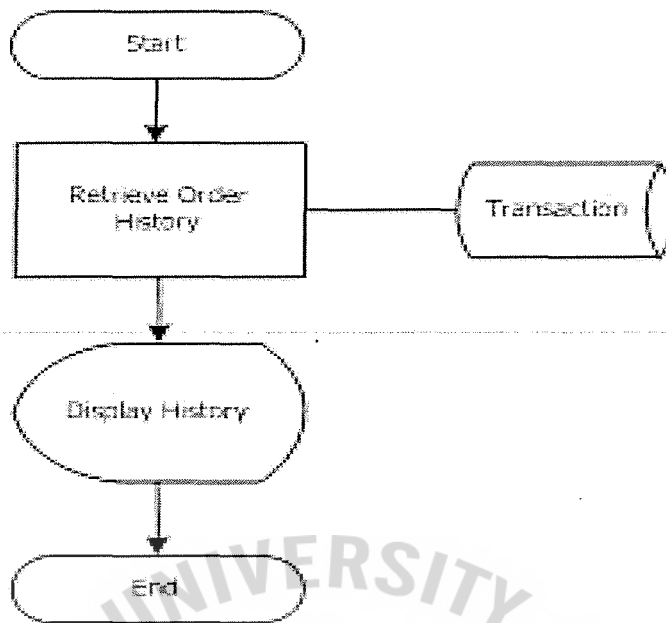


Figure 6.4. Process Flow My Account.

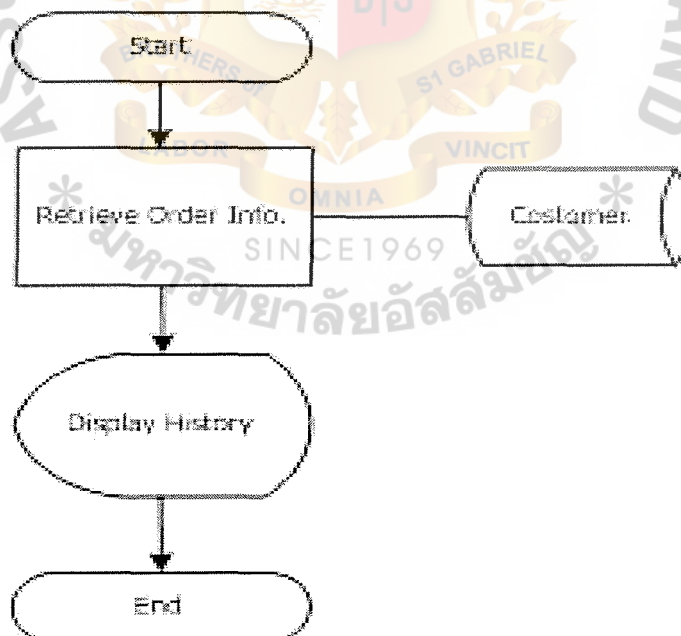


Figure 6.5. Process Flow Order Status.

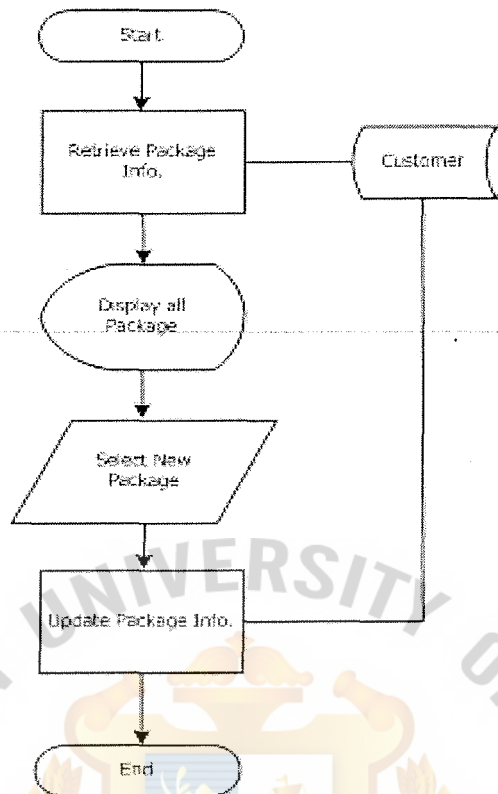


Figure 6.6. Process Flow Change Package Type.

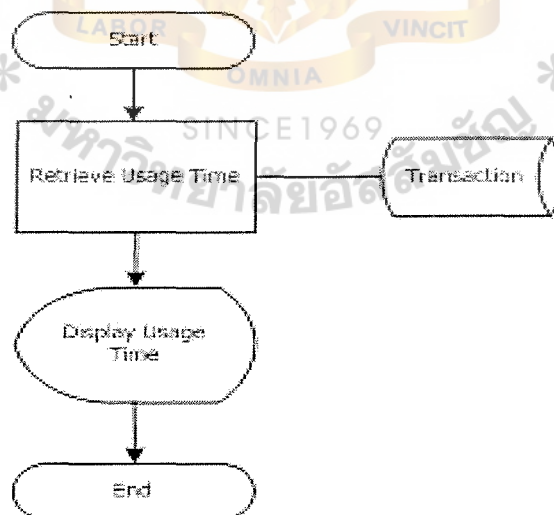


Figure 6.7. Process Flow Usage Report.

(f) Home & Main Page Design

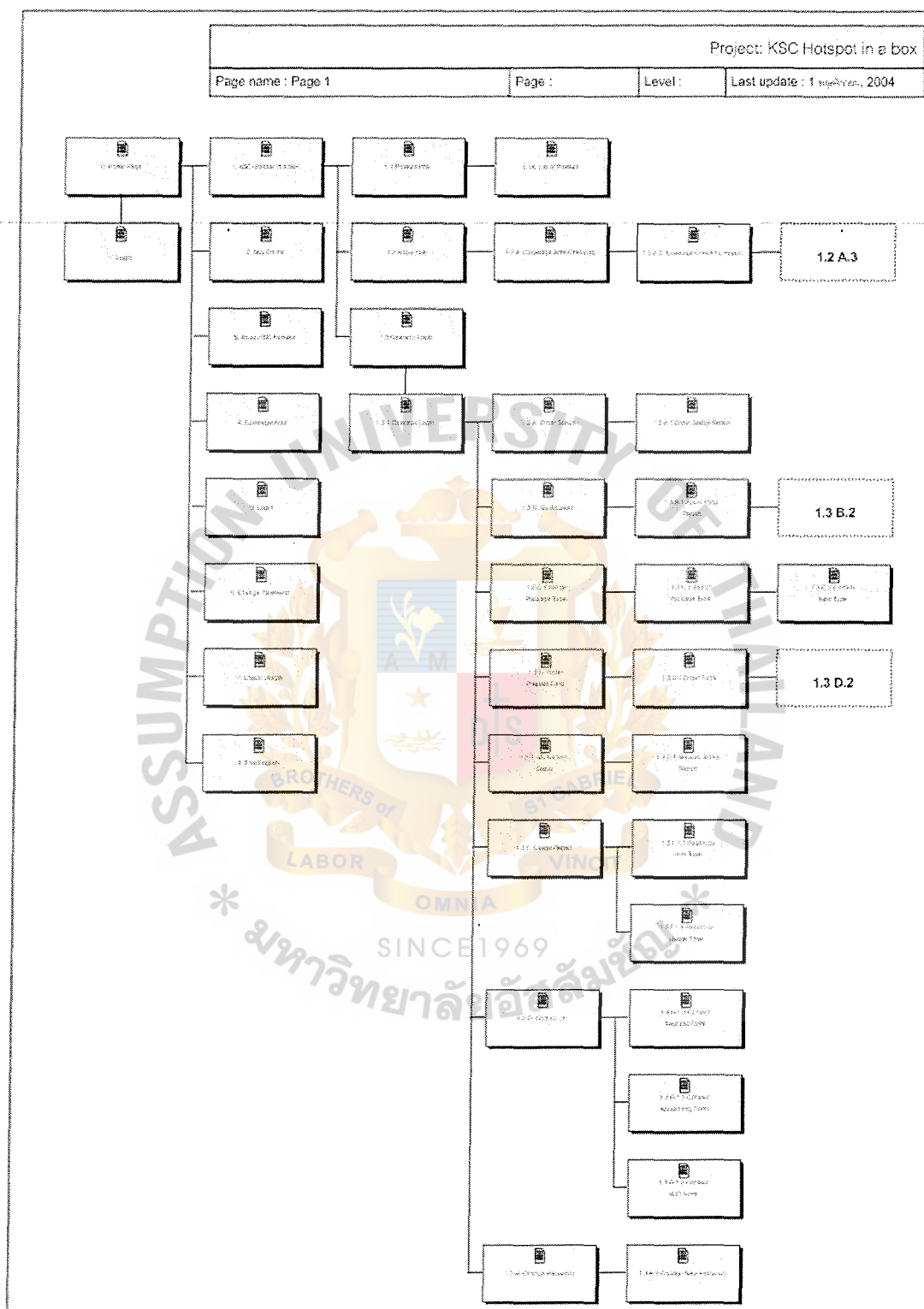


Figure 6.8. KSC Hotspot in-a-box Page Flow 1.

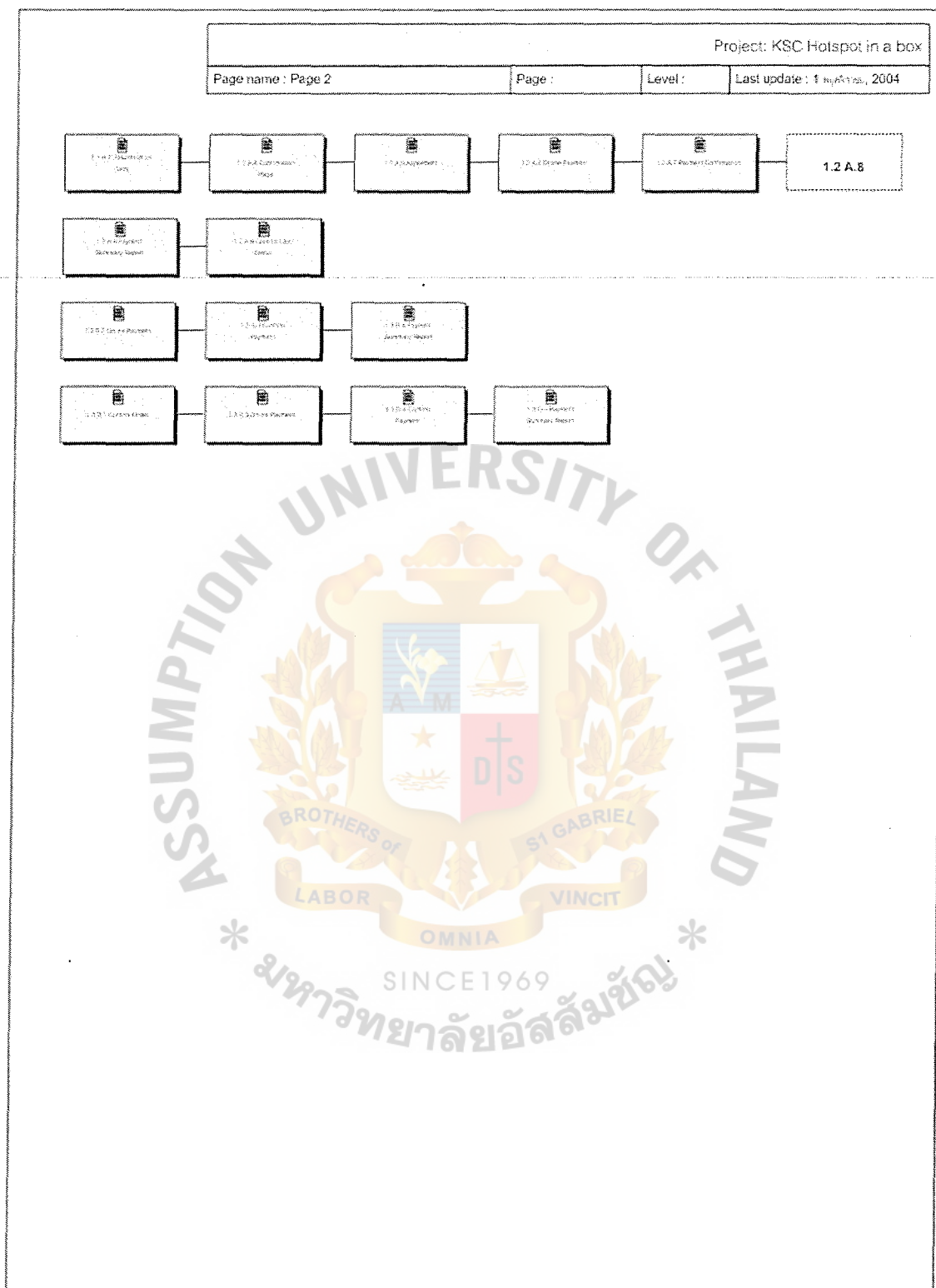


Figure 6.9. KSC Hotspot in-a-boxPage Flow 2.



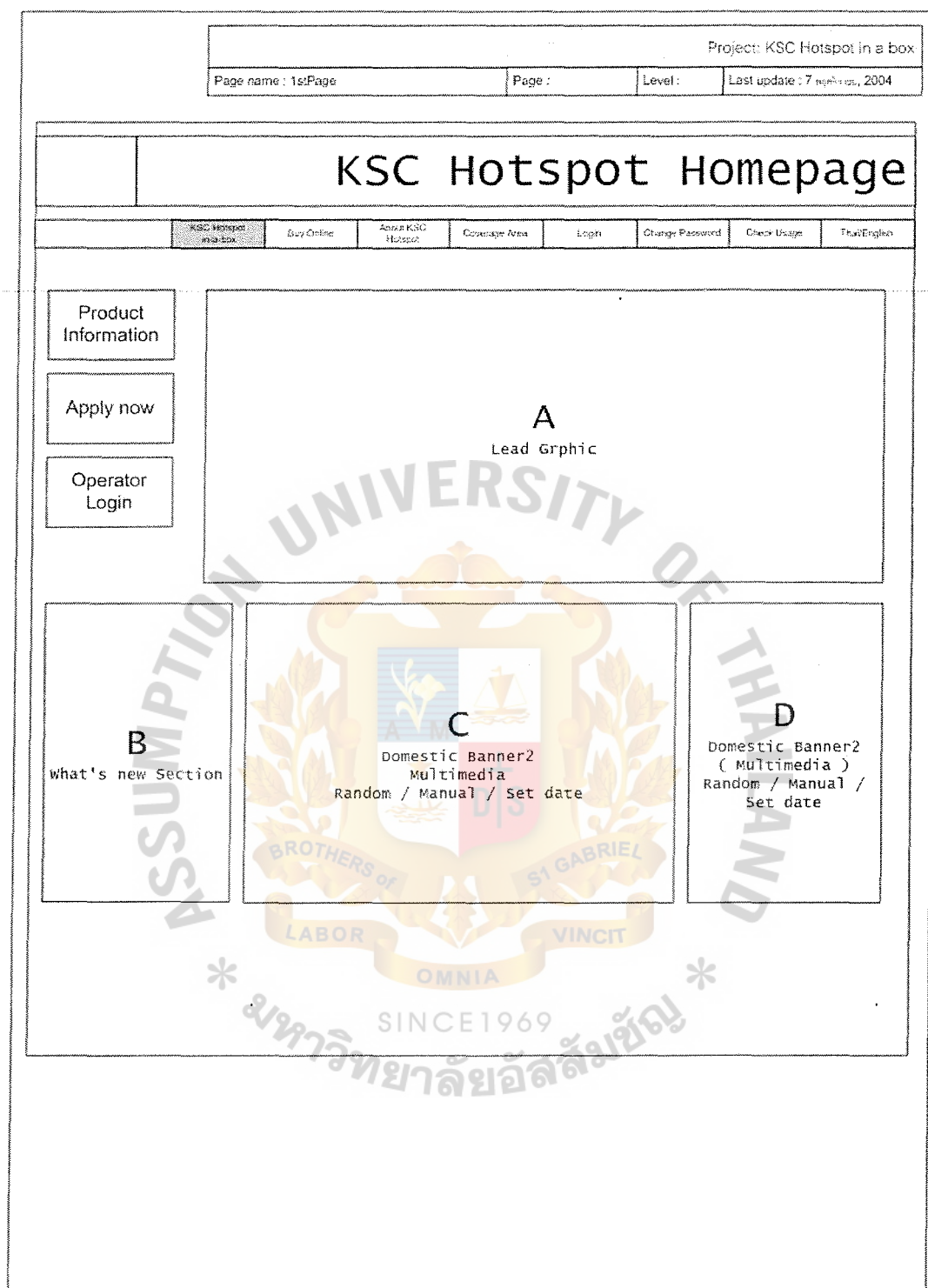


Figure 6.10. KSC Hotspot in-a-box Page 1.

This is KSC Hotspot in-a-box first page, in this page there will be 3 main sun

menus for customer to select, which are Product information, Apply now, and Operator Login.

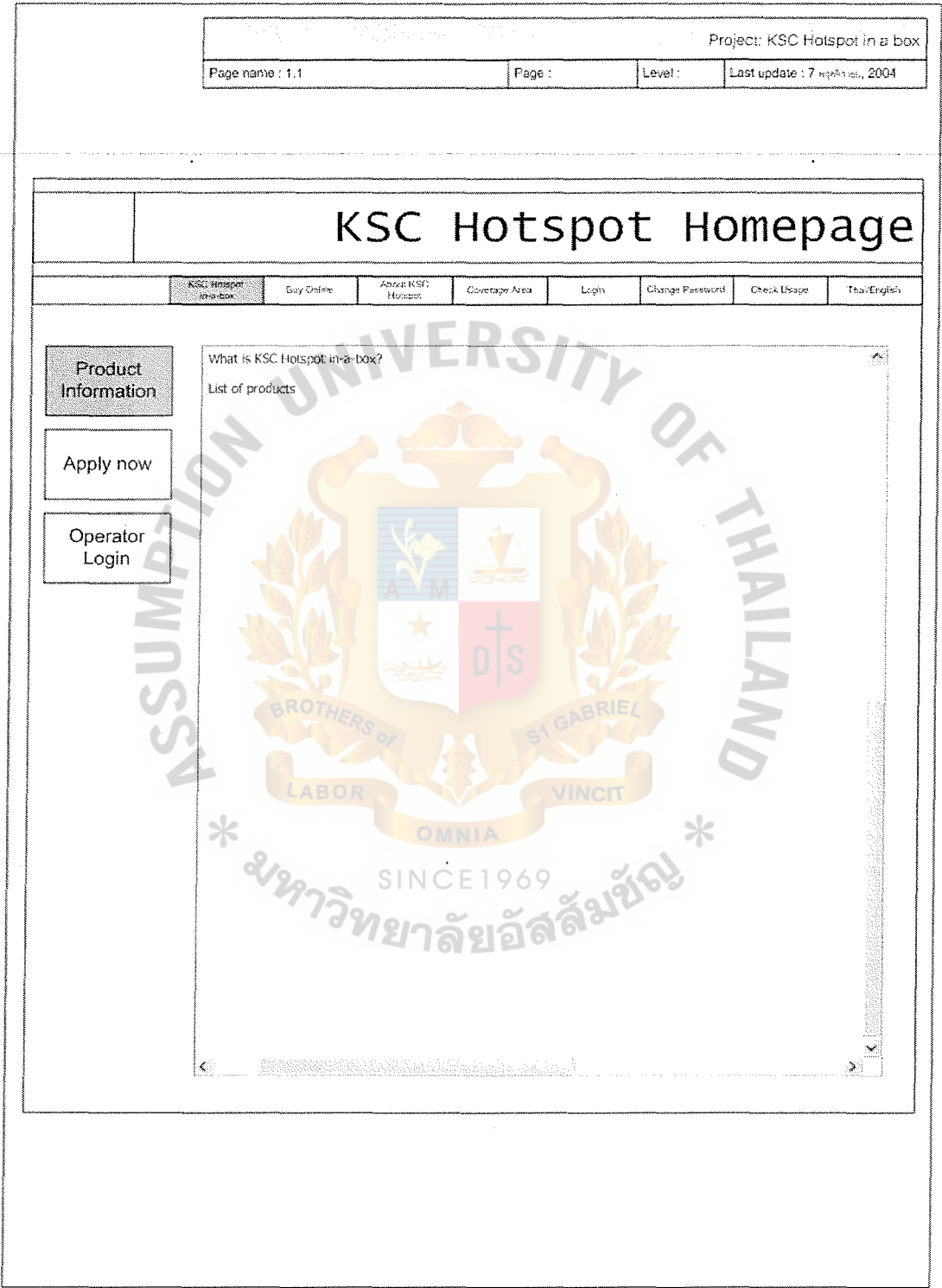


Figure 6.11. KSC Hotspot in-a-box Page 1.1.

Product information page, there will be an information of KSC Hotspot in-a-box product, and list of products (in this case means package, and prepaid cards).

Project: KSC Hotspot in a box			
Page name : 1.2A.1	Page :	Level :	Last update : 7 Sep 2004

## KSC Hotspot Homepage

KSC Hotspot in-a-box	Buy Online	About KSC Hotspot	Coverage Area	Login	Change Password	Check Usage	Thai/English
----------------------	------------	-------------------	---------------	-------	-----------------	-------------	--------------

Product Information

Apply now

Operator Login

### ADSL coverage area checking

Telephone number 9 digits

Check

Figure 6.12. KSC Hotspot in-a-box Page 1.2A.1.

The first page in ‘Apply Now’ sub menu is ‘ADSL Coverage Area Checking’. Prospect customer has to fill in his or her 9 digits telephone number that will be used

for KSC Hotspot in-a-box ADSL, and press ‘Check’.

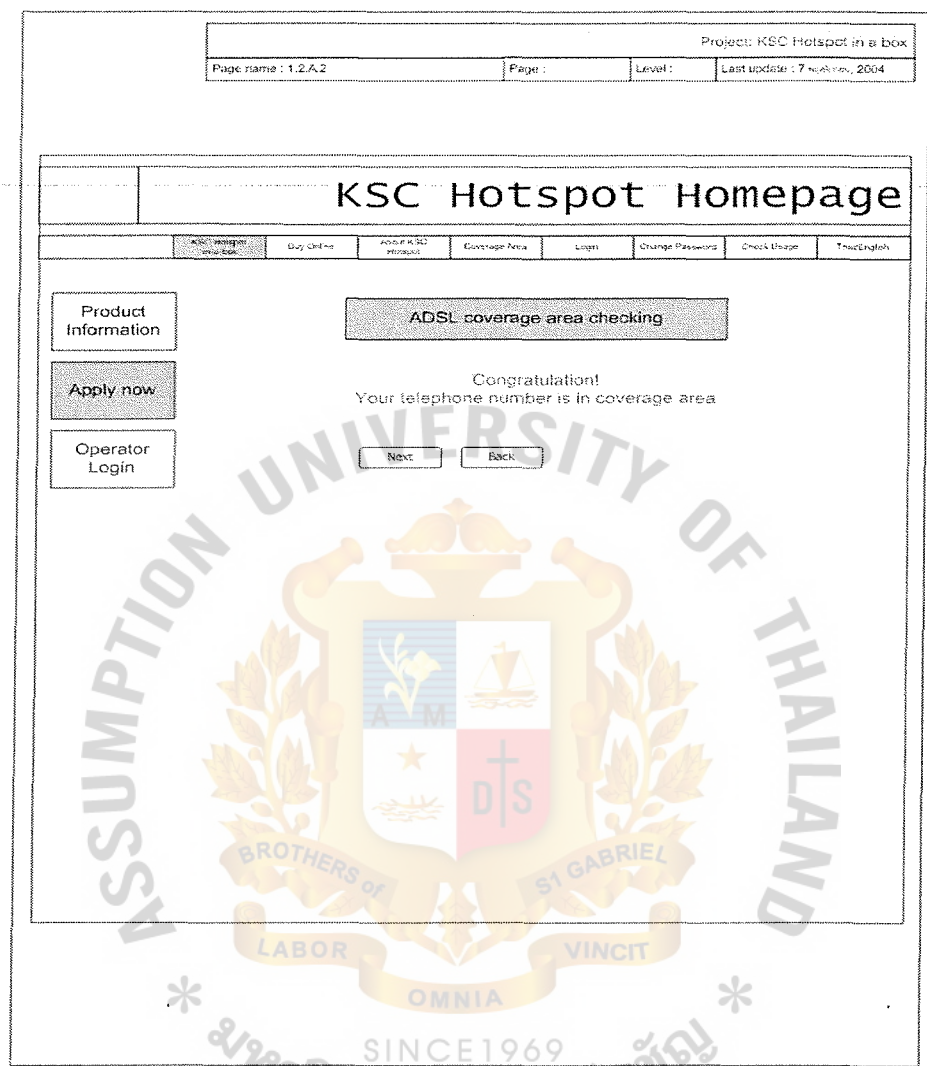


Figure 6.13. KSC Hotspot in-a-box Page 1.2A.2.

If prospective customer telephone number is in ADSL coverage area, the system will show message ‘Congratulation! Your telephone number is in coverage area’, and you can go to further step by clicking ‘Next’. If your telephone number is not in ADSL coverage area, system will shows message ‘Sorry! Your telephone number is not in coverage area, please try with your other telephone number’. Prospect customer can try

his or her other telephone number by click at 'Back'.

Project: KSC Hotspot in a box

Page name : 1.2.A.3

Page :

Level :

Last update : 7 สิงหาคม, 2004

KSC Hotspot Homepage

KSC Hotspot in-a-box

Buy Online

About KSC Hotspot

Coverage Area

Login

Change Password

Check Usage

Thai/English

Product Information

Apply now

Operator Login

Registration Form

☐ Corporate

☐ Individual

Full name

Enter Text

ID Card number

Enter Text

Address

Enter Text

Enter More Text

Province

Bangkok

Nonthaburi

Postal Code

Enter Text

Telephone number

Enter Text

Billing Address

☒ Same as above address

☐ Other

Enter Text

Enter More Text

Province

Bangkok

Nonthaburi

Postal Code

Enter Text

Telephone number

Enter Text

Figure 6.14. KSC Hotspot in-a-box Page 1.2A.3.

In applying for KSC Hotspot in-a-box service, customer need to fill in his or her



personal (in case that apply for Individual), company (in case that apply for Corporate) , contact, billing information.

Project: KSC Hotspot in a box

## KSC Hotspot Homepage

[KSC Hotspot in-a-box](#) [Buy Online](#) [About KSC Hotspot](#) [Coverage Area](#) [Login](#) [Change Password](#) [Check Usage](#) [Thai/English](#)

**Product Information**

**Apply now**

**Operator Login**

### Registration Form

Contact person

Full name

Telephone number

Mobile phone number

Fax number

E-mail address

ADSL speed ☒ 256 Kbps ☒ 512 Kbps ☐ 1 Mbps

KSC Hotspot in-a-box Monthly Fee

Number of computer

Installation Fee

VAT

Total Price

Figure 6.15. KSC Hotspot in-a-box Page 1.2A.3(continue).

After that customers have to select type of package, and number of computers, and the system will calculate monthly fee, installation fee, VAT, and total price. To go to next step click at 'Next'.

Project: KSC Hotspot in a box

KSC Hotspot Homepage

[KSC Hotspot in a box](#)
[Buy Online](#)
[About KSC Hotspot](#)
[Coverage Area](#)
[Login](#)
[Change Password](#)
[Check Usage](#)
[Thai/English](#)

Product Information

Apply now

Operator Login

Confirmation Page

- Corporate or Individual
- Full name
- ID card number
- Address
- Province
- Postal code
- Telephone number
- Billing address
- Address
- Province
- Postal code
- Telephone number
- Contact person
- Name
- Home phone number
- Mobile phone number
- Fax number
- E-mail
- ADSL speed
- KSC Hotspot in-a-box monthly fee
- Number of computer (share this link)
- Installation fee
- VAT
- Total price

Confirm

Back

Figure 6.16. KSC Hotspot in-a-box Page 1.2A.4.

System will show summary of customer information, selected package, and fees.  
If all of information correct, click at 'Confirm' to go to next step. If not, click at 'Back'  
to go back to previous page for correcting a wrong information.

Project: KSC Hotspot in a box

KSC Hotspot Homepage

KSC Hotspot Homepage

Buy Online

About KSC Hotspot

Coverage Area

Login

Change Password

Check Usage


Thai/English

Product Information

Apply now

Operator Login

Agreement



☒ I accept with this agreement

☐ I'm not accept with this agreement

Accept

Back

Figure 6.17. KSC Hotspot in-a-box Page 1.2A.5.

In order to apply for KSC Hotspot in-a-box service, customer has to accept with KSC Hotspot in-a-box agreement. If customer accept with agreement, select at 'I accept with this agreement', and click at 'Accept' to go to next step. If not select 'I'm not agree with this agreement'.

The screenshot displays the 'KSC Hotspot Homepage' with a navigation bar at the top containing links: 'KSC Hotspot in-a-box', 'Buy Online', 'About KSC Hotspot', 'Coverage Area', 'Login', 'Change Password', 'Check Usage', and 'Thai/English'. The main content area is divided into two columns. The left column contains buttons for 'Product Information', 'Apply now', and 'Operator Login'. The right column features an 'Online Payment' section with a form for user registration. The form includes fields for 'Full name', 'ID Card number', 'Address' (with a 'Show More Text' link), 'Province' (a dropdown menu showing 'Bangkok' and 'Nonthaburi'), 'Postal Code', 'Telephone number', 'E-mail address', 'Card Type', 'Card Number' (four separate input boxes), 'Expiry Date' (Month and Year dropdowns), and a field for the 'Last three digit number of appearing on signature panel'. At the bottom of the form are 'Next' and 'Back' buttons. A large, semi-transparent watermark of Assumption University of Thailand is overlaid on the form.

Figure 6.18. KSC Hotspot in-a-box Page 1.2A.6.

Customer needs to fill in all of his or her credit card information in order to made an online payment in SCB Payment Gateway page, which our system will redirect to.

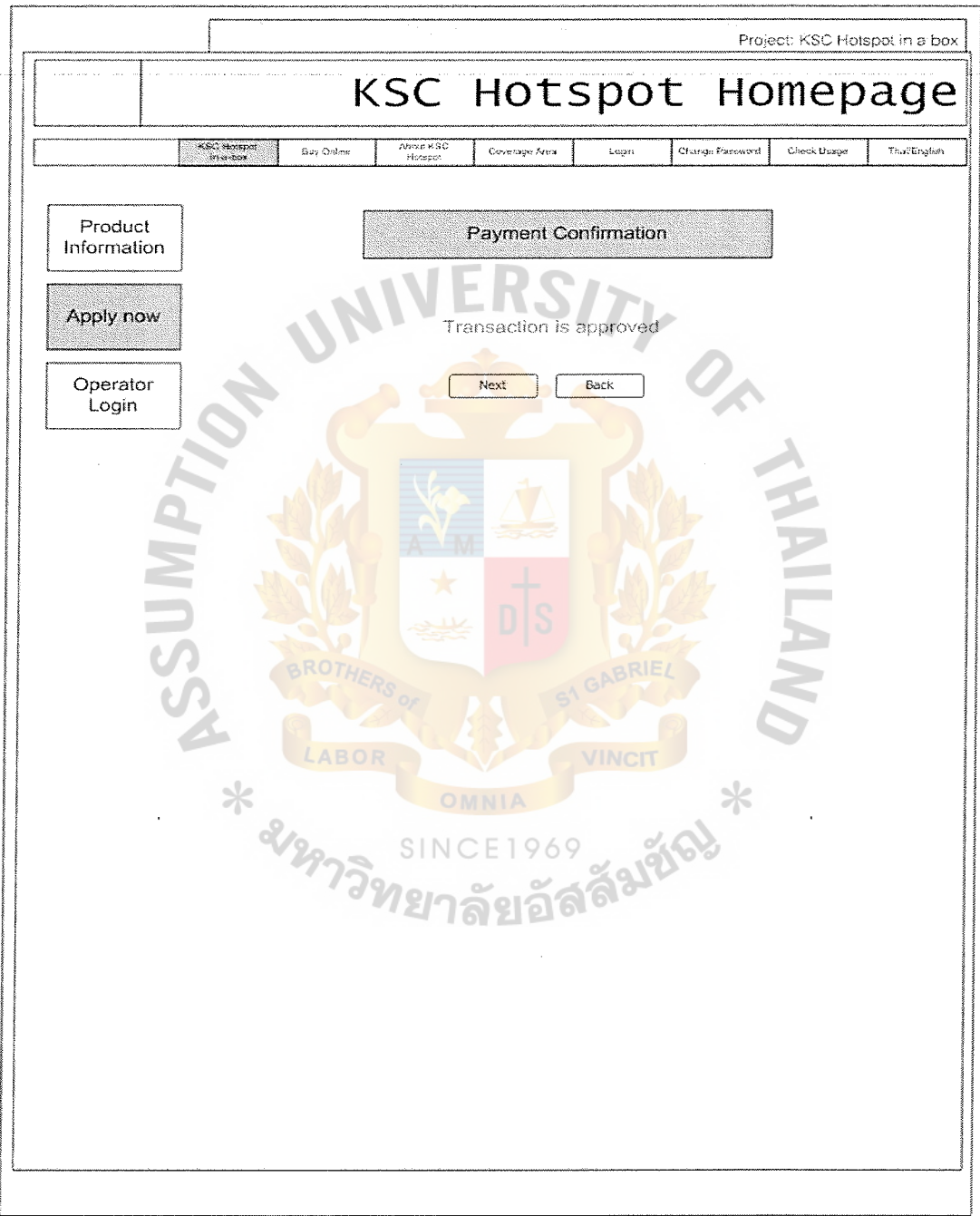


Figure 6.19. KSC Hotspot in-a-box Page 1.2A.7.



SCB will send us a payment confirmation. If his or her account is valid and approved, our system will show message ‘Transaction is approved’. To go to next step click at “Next”.

Project: KSC Hotspot in a box

## KSC Hotspot Homepage

KSC Hotspot in-a-box Buy Online About KSD Hotspot Coverage Area Login Change Password Check Usage Thai/English

Product Information

Apply now

Operator Login

Payment Summary Report

Full name

ID Card number

Address

Province

Postal Code

Telephone number

E-mail address

Card Type

Card Number

Total Price

Transaction Code

Username

Password

Next Back

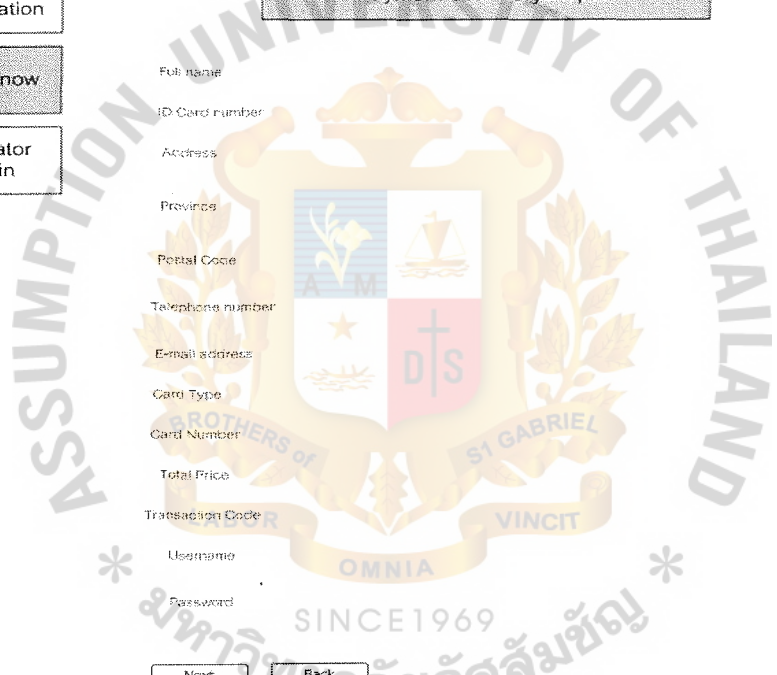


Figure 6.20. KSC Hotspot in-a-box Page 1.2A.8.

System will show summary report of this Online payment, his or her user-name ,and password. Within the same time system will send a copy of it to customer E-mail address. To go to next step click ‘Next’.

Project: KSC Hotspot in a box

KSC Hotspot Homepage

KSC Hotspot in-a-box

Buy Online

About KSC Hotspot

Coverage Area

Login

Change Password

Check Usage

Thai/English

Product Information

Apply now

Operator Login

Order Status

☒ Order received

☒ Installation Date Confirmed

☒ Installed

☒ Service Activated

OK

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Figure 6.21. KSC Hotspot in-a-box Page 1.2A.9.

After that system will redirect customer to his or her 'Order Status' page. There are 4 steps, which are 'Order Received', 'Installation Date Confirmed', 'Installed', and 'Service Activated'.

Project: KSC Hotspot in a box

## KSC Hotspot Homepage

KSC Hotspot in a box	Buy Online	About KSC Hotspot	Coverage Area	Login	Change Password	Check Usage	Thai/English
----------------------	------------	-------------------	---------------	-------	-----------------	-------------	--------------

Product Information


Apply now

Operator Login

Operator Login

Username

Password



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Figure 6.22. KSC Hotspot in-a-box Page 1.3.

The third sub menu of KSC Hotspot in-a-box homepage is “Operator login”. Only registered customer can login to this page by using his or her username and password.

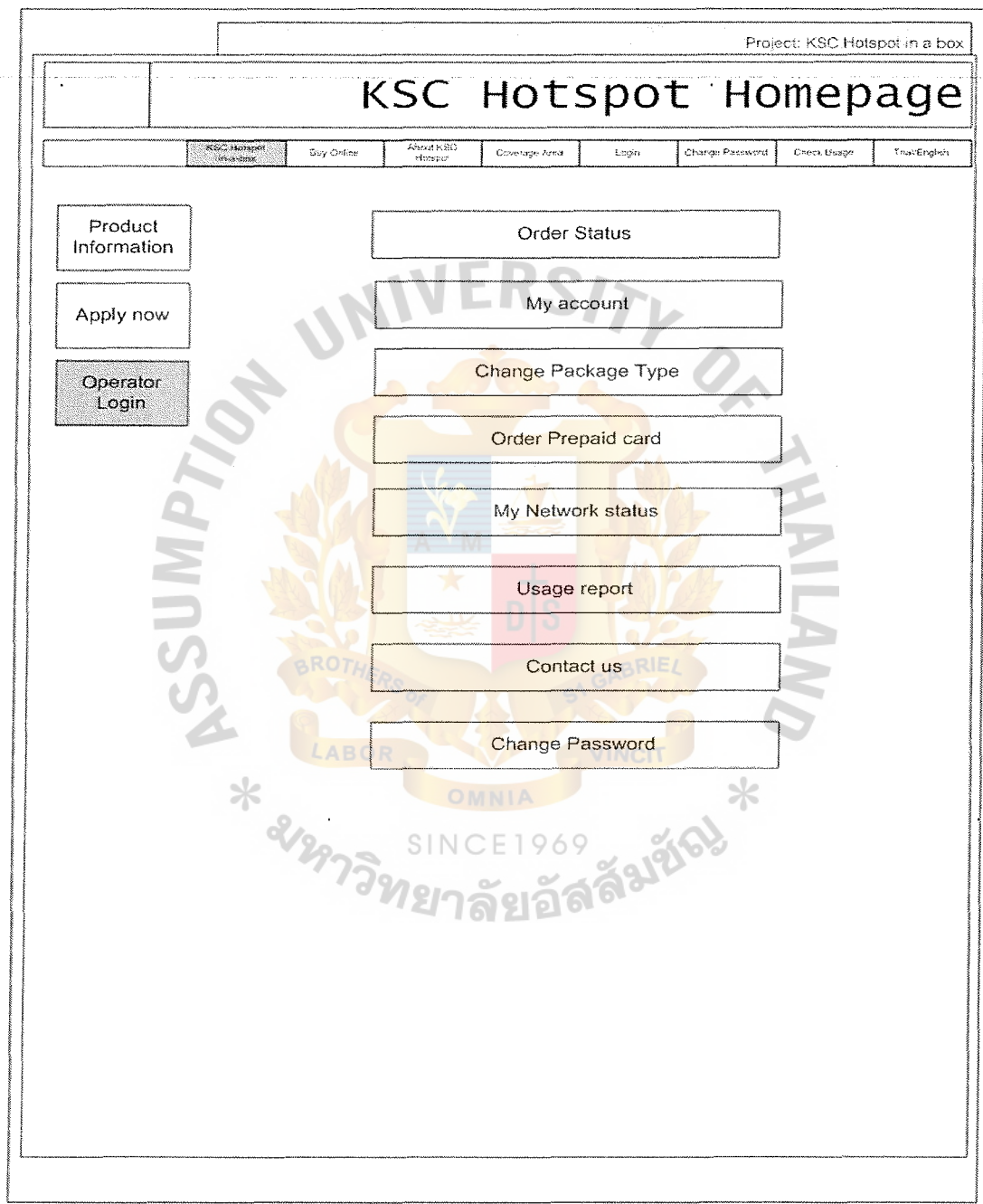


Figure 6.23. KSC Hotspot in-a-box Page 1.3.1.

If login process is successful, customer will see 8 sub menus, which are ‘Order Status’, ‘My Account’, ‘Change Package Type’, ‘Order Prepaid Card’, My Network Status’, ‘Usage Report’, ‘Contact Us’, and ‘Change Password’.

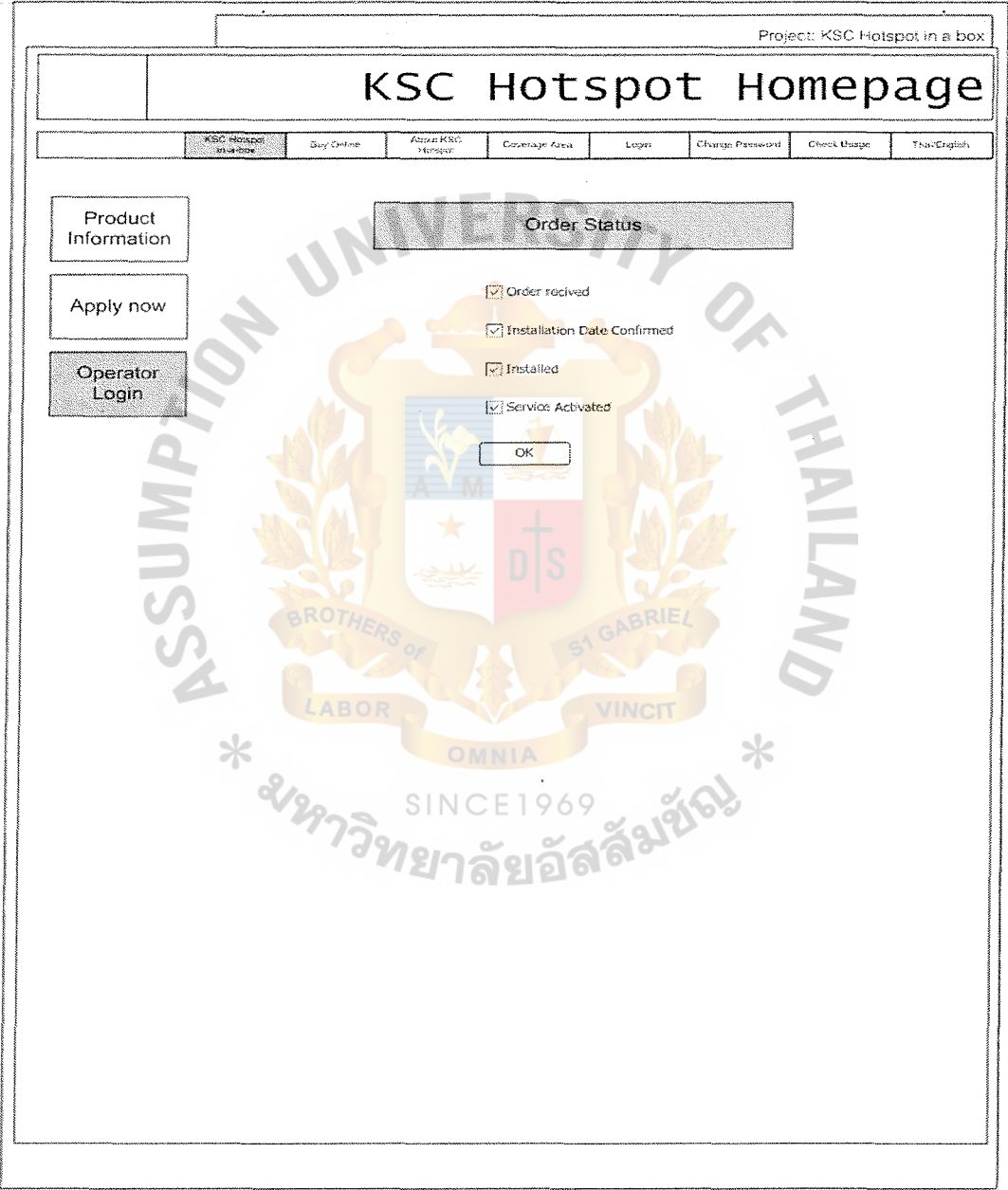


Figure 6.24. KSC Hotspot in-a-box Page 1.3.A1.



Customer can check his or her Order Status in this page. There are four status, which are ‘Order Received’, ‘Installation Date Confirmed’, ‘Installed’, and ‘Service Activated’.

Project: KSC Hotspot in a box

KSC Hotspot Homepage

KSC Hotspot in a box

Buy Online

About KSC Hotspot

Coverage Area

Login

Change Password

Check Usage

Pay/English

Product Information

Apply now

Operator Login

Accounting Report

Balance XX,XXX Baht

Due Date dd/mm/yyyy

Pay

Payment History

2004	Amount	Recived	Paid by	Transaction Code
Jan	XXXXXX	Dd/mm/yyyy		

OK

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Figure 6.25. KSC Hotspot in-a-box Page 1.3.B1.

In ‘My Account’ there will be customer accounting information. In this page customer can check his or her balance of payment, due date, and payment history. Customer can pay his or her unpaid monthly fee by click at ‘Pay’.

Project: KSC Hotspot in a box

KSC Hotspot Homepage

KSC Hotspot in a box

Buy Online

About KSC Hotspot

Coverage Area

Login

Change Password

Check Usage

Thai/English

Product Information

Apply now

Operator Login

Online Payment

Full name

Enter Text

ID Card number

Enter Text

Address

Enter Text

Enter More Text

Province

Bangkok

Nonthaburi

Postal Code

Enter Text

Telephone number

Enter Text

E-mail address

Enter Text

Card Type

Card Number

Enter Text

Enter Text

Enter Text

Enter Text

Expiry Date

Month

Year

The last three-digit number of appearing on signature panel

Enter Text

Next

Back

Figure 6.26. KSC Hotspot in-a-box Page 1.3.B2.

System will redirect him or her to SCB Payment Gateway page. Customers need to fill in all of his or her credit card information.

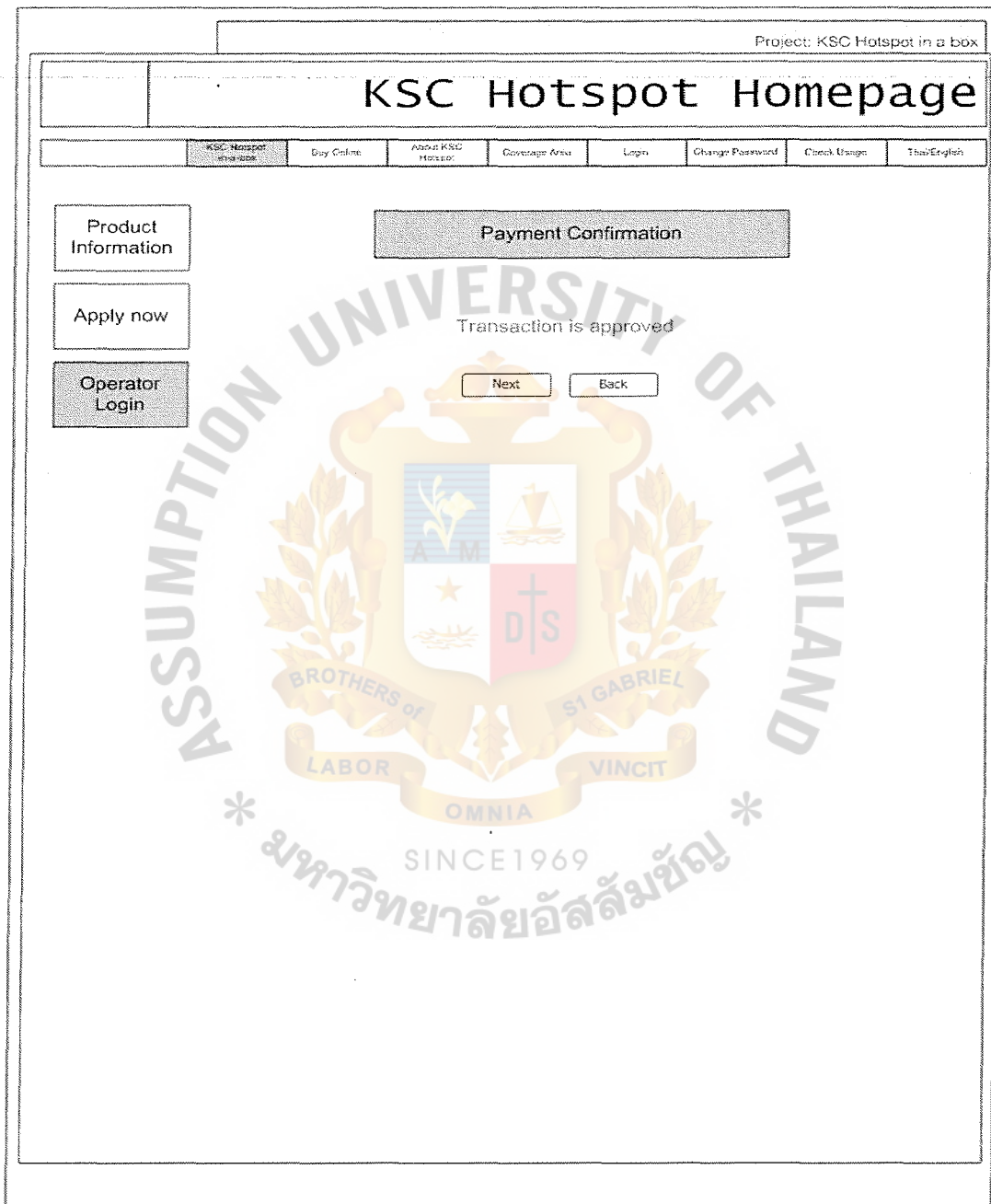


Figure 6.27. KSC Hotspot in-a-box Page 1.3.B3.

SCB will send us a payment confirmation. If his or her account is valid and approved, our system will show message ‘Transaction is approved’. To go to next step click at ‘Next’.

Project: KSC Hotspot in a box

KSC Hotspot Homepage

[KSC Hotspot in a box](#)
[Buy Online](#)
[About KSC Hotspot](#)
[Coverage Area](#)
[Login](#)
[Change Password](#)
[Check Usage](#)
[Thai/English](#)

Product Information

Apply now

Operator Login

Payment Summary Report

Full name  
ID Card number  
Address  
Province  
Postal Code  
Telephone number  
E-mail address  
Card Type  
Card Number  
Total Price  
Transaction Code

Next

Back

Figure 6.28. KSC Hotspot in-a-box Page 1.3.B4.

System will show summary report of this Online payment, his or her username ,and password. Within the same time system will send a copy of it to customer E-mail address. To go to next step click 'Next'.

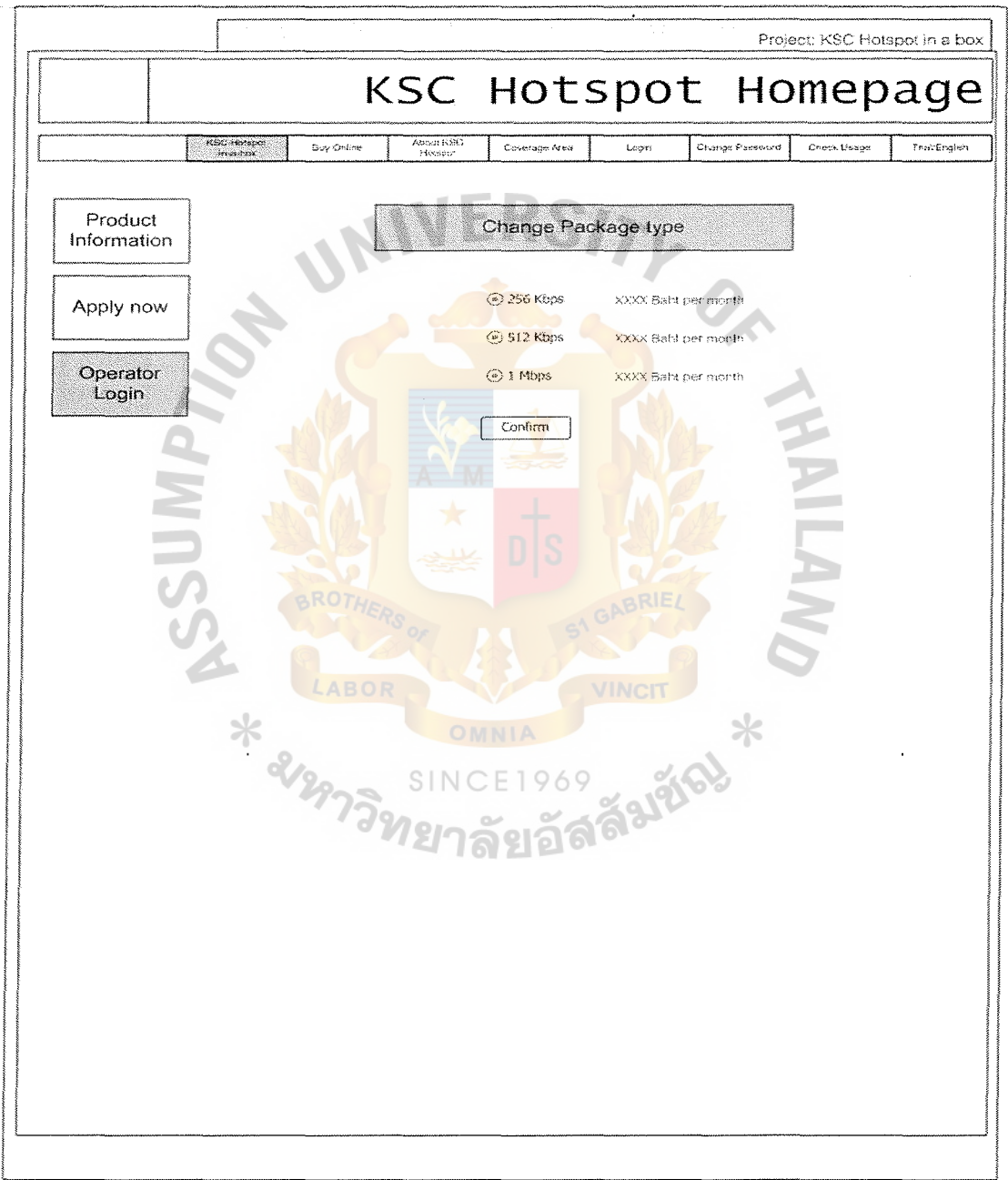


Figure 6.29. KSC Hotspot in-a-box Page 1.3.C1.





Customers can order KSC Hotspot in-a-box prepaid card by go to ‘Order prepaid card’ sub menu, and select type of prepaid card and enter desired unit of each type. To finish this order process click at ‘Next’.

Project: KSC Hotspot in a box

KSC Hotspot Homepage

KSC Hotspot Homepage

Buy Online

About KSC Hotspot

Coverage Area

Login

Change Password

Check Usage

Thai/English

Product Information

Apply now

Operator Login

Confirm Order Prepaid Card

1-Hour prepaid XXX Card(s)

5-Hour prepaid XXX Card(s)

20-Hour prepaid XXX Card(s)

Total Price XXXX Baht

Confirm

Back

Figure 6.31. KSC Hotspot in-a-box Page 1.3.D2.

84

System will show summary report of this order, if all information is correct, click at 'Confirm'. If not click 'Back' to correct it.

Project: KSC Hotspot in a box

KSC Hotspot Homepage

KSC Hotspot in-a-box

Buy Online

About KSC Hotspot

Coverage Area

Login

Change Password

Check Usage

Thai/English

Product Information

Apply now

Operator Login

Online Payment

Full name

Enter Text

ID Card number

Enter Text

Address

Enter Text

Enter More Text

Province

Bangkok

Nonthaburi

Postal Code

Enter Text

Telephone number

Enter Text

E-mail address

Enter Text

Card Type

Card Number

Enter Text

Enter Text

Enter Text

Enter Text

Expiry Date

Month

Year

The last three-digit number of appearing on signature panel

Enter Text

Next

Back

Figure 6.32. KSC Hotspot in-a-box Page 1.3.D3.

If order confirmed, system will redirect customer to SCB Payment Gateway page.  
Customers need to fill in all of his or her credit card information.

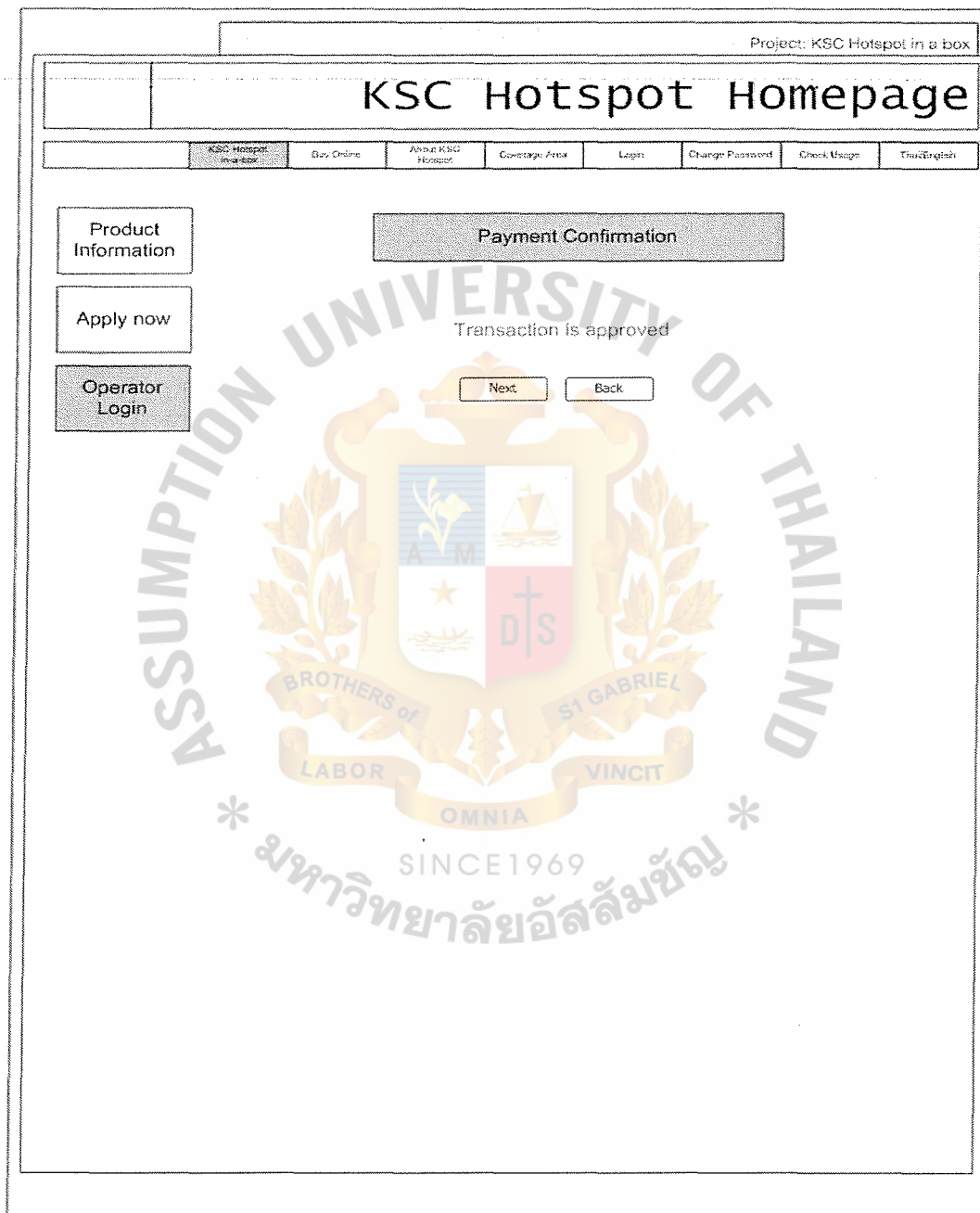


Figure 6.33. KSC Hotspot in-a-box Page 1.3.D4.

SCB will send us a payment confirmation. If his or her account is valid and approved, our system will show message ‘Transaction is approved’. To go to next step click at ‘Next’.

Project: KSC Hotspot in a box

KSC Hotspot Homepage

KSC Hotspot in a box

Buy Online

About KSC Hotspot

Coverage Area

Login

Change Password

Check Usage

ThaiEnglish

Product Information

Apply now

Operator Login

Payment Summary Report

Full name

ID Card number

Address

Province

Postal Code

Telephone number

E-mail address

Card Type

Card Number

Total Price

Transaction Code

Next

Back

Figure 6.34. KSC Hotspot in-a-box Page 1.3.D5.



System will show summary report of this Online payment, his or her user-name ,and password. Within the same time system will send a copy of it to customer E-mail address. To go to next step click 'Next'.

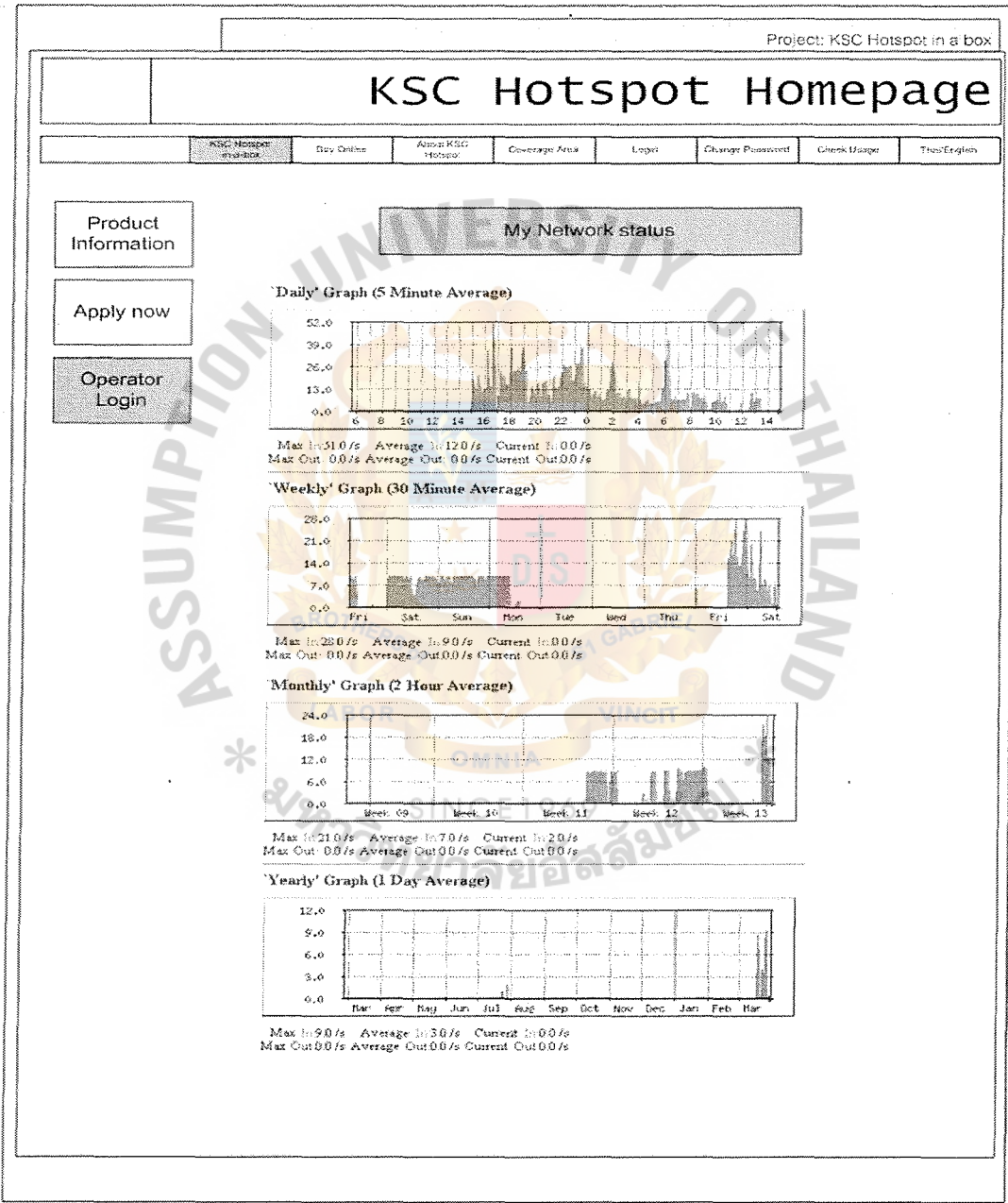


Figure 6.35. KSC Hotspot in-a-box Page 1.3.E1.

Customers can check his or her KSC Hotspot in-a-box Network Status by go to 'My Network Status' sub menu. In this page there will be four different MRTG reports, which are, 'Daily', 'Weekly', 'Monthly', and 'Yearly' report.

Project: KSC Hotspot in a box

## KSC Hotspot Homepage

[KSC Hotspot in-a-box](#)
[Buy Online](#)
[About KSC Hotspot](#)
[Coverage Area](#)
[Login](#)
[Change Password](#)
[Check Usage](#)
[Thai/English](#)

Product Information

Usage report by user type

Usage report by time

Apply now

August 2004

1-Hour Prepaid	5-Hour Prepaid	20-Hour Prepaid	IR	Postpaid	DTAC

July 2004

1-Hour Prepaid	5-Hour Prepaid	20-Hour Prepaid	IR	Postpaid	DTAC

June 2004

1-Hour Prepaid	5-Hour Prepaid	20-Hour Prepaid	IR	Postpaid	DTAC

Operator Login

Figure 6.36. KSC Hotspot in-a-box Page 1.3.F1.

Customers can check his or her KSC Hotspot in-a-box customer usage report by customer type, by go to 'Usage report' sub menu, and select 'Usage report by user type'. In this page there will be 3 latest month report. Each month usage will be divided 6 type of customers, which are '1-Hour prepaid', '5-Hour prepaid', '20-Hour prepaid', 'International Roaming', 'Postpaid', and 'DTAC'.

Project: KSC Hotspot in a box

## KSC Hotspot Homepage

KSC Hotspot in-a-box
Buy Online
Review KSC Hotspot
Coverage Area
Login
Change Password
Check Usage
Thai/English

Product Information  
  
 Apply now  
  
 Operator Login

Usage report by user type

Usage report by time

August 2004

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
6:00							
8:00							
10:00							
12:00							
14:00							
16:00							
18:00							
20:00							
22:00							

July 2004

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
6:00							
8:00							
10:00							
12:00							
14:00							
16:00							
18:00							
20:00							
22:00							

June 2004

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
6:00							
8:00							
10:00							
12:00							
14:00							
16:00							
18:00							
20:00							
22:00							

Figure 6.37. KSC Hotspot in-a-box Page 1.3.F2.

Customers can check his or her KSC Hotspot in-a-box customer usage report by time, by go to ‘Usage report’ sub menu, and select ‘Usage report by time’. In this page there will be 3 latest month report. Each month usage will be divided into specific time and date.

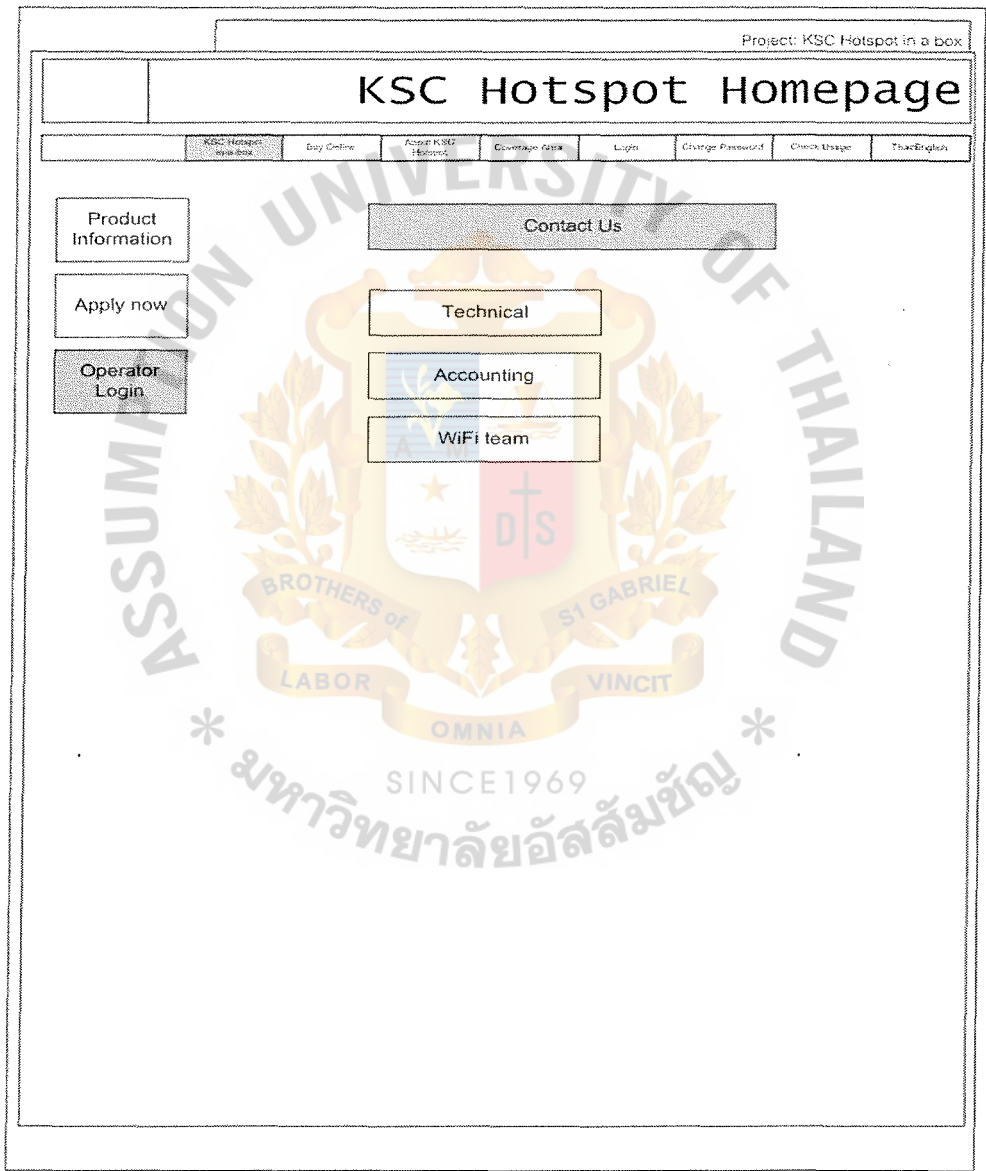


Figure 6.38. KSC Hotspot in-a-box Page 1.3.G.

Customer can contact KSC by select 'Contact Us' sub menu. In this page there will be three contact points, each of them serve a different issue. If a customer has a technical problem or question click at 'Technical'. If there is a question with their account balance or payment click at 'Accounting'. For other question or problem click at 'WiFi team'.





Project: KSC Hotspot in a box

KSC Hotspot Homepage

KSC Hotspot in-a-box
Buy Online
About KSC Hotspot
Coverage Area
Login
Change Password
Check Usage
Thai/English

Product Information

Apply now

Operator Login

Contact Us

Technical

Enter Text  
Enter More Text

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Figure 6.39. KSC Hotspot in-a-box Page 1.3.G1.

In each contact sub menu, there will be a text box where customers can fill in

their question or problem.

Project: KSC Hotspot in a box

KSC Hotspot Homepage

KSC Hotspot in-a-box

Buy Online

About KSC Hotspot

Coverage Area

Login

Change Password

Check Usage

Tba/English

Product Information

Apply now

Operator Login

Contact Us

Accounting

Enter Text

Enter More Text

Submit

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Figure 6.40. KSC Hotspot in-a-box Page 1.3.G2.

In each of contact sub menu, there will be a text box where customers can fill in

their question or problem.

Project: KSC Hotspot in a box

KSC Hotspot Homepage

KSC Hotspot  
your box

Duty Online

About KSC  
Hotspot

Coverage Area

Login

Change Password

Check Usage

Team/English

Product  
Information

Apply now

Operator  
Login

Contact Us

WiFi Team

Enter Text  
Enter More Text

Submit

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Figure 6.41. KSC Hotspot in-a-box Page 1.3.G3.

In each of contact sub menu, there will be a text box customer can fill in their question or problem.

Project: KSC Hotspot in a box

## KSC Hotspot Homepage

KSC Hotspot in a box	Buy Online	About KSC Hotspot	Coverage Area	Login	Change Password	Check Usage	Thai/English
----------------------	------------	-------------------	---------------	-------	-----------------	-------------	--------------

Product Information

Apply now

Operator Login

Change Password

New password

Confirm New password



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Figure 6.42. KSC Hotspot in-a-box Page 1.3.H1.

Customers can change their password by selecting 'Change password' sub menu, and type in his or her new password, and retype it again for confirmation.

(g) Approved

(h) Web Architecture

#### Development and Designing Concepts

(1) Web pages Design and Construction

Design and construct 70 web pages in English version with the latest technology and marketing concept for the best result in Web page presence, usage and functions.

(2) Full Graphics Design

Includes graphics, images, photographs in Full Color Mode, nevertheless at a suitable amount as for the best download speed. Image files will be compressed to give 30% decrease in file size (40% decrease in download time). All Web pages will be tested for the best Design /Speed condition.

(3) Users' Friendly Design

The Web pages will be designed with 'Easy to Use & Easy to Understand' (EUEU) concept. We will provide all necessary browsing tools for user's convenience i.e. Header Links, Footer Links, Alternate Texts, etc.

(4) Animations

Includes Animation Effects in several appropriate positions of the pages for the most attractive presence of the Web site.

(5) Interactive Animation Links

All main link buttons will be equipped with Interactive Animation features to give a visible confirmation to the user on mouse pointer and mouse click.

(6) Technology and Tools

(a) Web Server and Application Server



- (b) Microsoft Windows 2000 Server with IIS version 5
- (c) Database Server
- (d) Microsoft Windows 2000 Server with MS SQL2000
- (7) Design Tools
  - (a) Adobe Photoshop
  - (b) Macromedia Flash
  - (c) Macromedia DreamWeaver
- (8) Application Tools
  - (a) ASP Script Language
  - (i) Revise Design
  - (j) Database Design
  - (k) Approved
- (2) Production
  - (a) Production Entry
  - (b) Graphic Design
  - (c) Web Assembling
  - (d) Application Development
  - (e) Create Test Script
  - (f) Unit Test & Modify
  - (g) Integration
  - (h) Integration Test
  - (i) Web Proof & Modification
- (3) Post Production
  - (a) Web Presentation
  - (b) Document

(c) User Training

(d) Web Launch



## VII. CONCLUSIONS AND RECOMMENDATIONS

### 7.1 CONCLUSIONS

The adoption rate of the WiFi space has reached escape velocity. The analysts agree that WiFi will have an enormous impact on the technology sector. Goldman Sachs has projected that more than 95 Million people will become mobile Internet subscribers by 2004, and the Cahners In-Stat Group has estimated that the revenue generated by public space WiFi service will grow to be hundreds of millions of dollars over the next few years. Laptop manufacturers such as Hewlett Packard, Sony, Dell, Toshiba and IBM are already building WiFi radios into the motherboards of many of their machines, rapidly making the WiFi radio a standard computer component similar to the way the 56k modem is standard today.

There are a lot of small to medium size domestic owned locations, which would like to provide hotspot service to their customers also. In year 2002, there were 174,160 restaurants, 1,736 small hotels (less than 60 rooms), 775 guest houses, 1,512 bungalows, 948 resorts, and 95 apartments in Thailand. 78.4% of them still have no internet connection to use.

To fulfill the excessive demand in Hotspot Service in small to medium size domestic owned locations in Thailand market. KSC will provide a hotspot service with an affordable price for SME. This new product will increase KSC sales revenue, by going into a new market. The biggest benefit from this project is to expand KSC Hotspot coverage area, by roaming agreement between KSC Hotspot and KSC Hotspot for SME (KSC Hotspot-in-a-box).

We have two main target markets for this product, which are restaurants, and small hotels. KSC offers two hotspot in-a-box installation model, which are pure hot-

spot, and hotspot plus with office use. For pricing, there are 6 packages for selection, range from 128Kbps to 2Mbps. KSC will give location partner a specific number of KSC Hotspot in-a-box prepaid cards per month with free of charge, depends on speed that location partner selected. These cards will compensate our monthly fee, if location partner can sell all of their prepaid cards in each month. And if location partner would like to have order more prepaid card, they will get 20% of total sales that they can made in this extra order. For end user, KSC will use same distribution channels standard KSC Hotspot. For location partner, KSC will use KSC Hotspot-in-a-box website as a main tool to communicate, manage, and contact with the customers. Because this product has a specific target market, KSC decides to use a direct marketing as our main advertising tool.

In the implementation process, this product will use the existing hardware and software as standard KSC Hotspot, so there will be no additional cost for this. We expect 10 customers each month. At the end of second year of this project, total profit will be 9,195,080 Baht. With cost of capital at 12% per year, KSC Hotspot in-a-box project's pay back period is 8 months, IRR equals to 31.83%, and NPV equals to 7,680,689.70 Baht.

## **7.2 RECOMMENDATIONS**

Although the KSC Hotspot in-a-box project is complete, there can still be further improvements done.

In the future, this hotspot in-a-box can be made to synchronize with the Hotel management system, or store POS system, which will give location partner benefits in manage and operate their hotspot.

Other than the synchronization, hotspot in-a-box should be made to be more secure by using IEEE security standard such as IEEE 802.1x, IEEE 802.1i, WPA, or

WPA2 in order to expand our targets group to SME office use.

Moreover, a possible plan is to lower our cost of media by using WiMAX as our last mile instead of telephone line infrastructure.







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ภาค และจังหวัด	รวม		โรงแรม		เกสต์เฮาส์		บังกะโล		รีสอร์ท		อพาร์ทเมนต์		โมเต็ล		อื่น ๆ	
	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง
ทั่วราชอาณาจักร	6,201	335,421	2,592	228,547	775	15,229	1,512	33,495	948	34,006	95	11,264	130	7,279	149	5,601
กรุงเทพมหานคร	613	81,184	310	60,183	160	4,937	0	0	1	84	86	10,545	39	4,280	17	1,155
ภาคกลาง	1,731	91,530	764	64,159	165	2,616	446	11,458	279	9,064	7	699	36	1,822	34	1,712
สมุทรปราการ	29	1,918	13	878	2	45	1	21	0	0	1	153	12	821	0	0
นนทบุรี	15	1,341	10	1,057	0	0	1	40	0	0	2	187	0	0	2	57
ปทุมธานี	14	1,101	14	1,101	0	0	0	0	0	0	0	0	0	0	0	0
พระนครศรีอยุธยา	43	1,811	21	1,432	15	229	2	70	5	80	0	0	0	0	0	0
อ่างทอง	6	347	6	347	0	0	0	0	0	0	0	0	0	0	0	0
ลพบุรี	34	1,598	23	1,163	0	0	5	177	4	217	0	0	0	0	2	41
สิงห์บุรี	11	274	10	265	0	0	0	0	1	9	0	0	0	0	0	0
ชัยนาท	10	456	7	312	0	0	0	0	2	24	0	0	0	0	1	120
สระบุรี	37	1,765	18	1,323	0	0	4	135	14	258	0	0	0	0	1	49
ชลบุรี	361	35,976	273	32,654	27	489	39	1,400	4	230	3	329	11	482	4	392
ระยอง	190	8,224	38	3,467	5	83	116	3,436	25	954	1	30	1	28	4	226
จันทบุรี	48	2,050	20	1,493	0	0	12	242	16	315	0	0	0	0	0	0
ตราด	167	4,559	15	896	25	255	82	2,011	44	1,382	0	0	0	0	1	15
ฉะเชิงเทรา	17	779	10	604	0	0	4	99	1	28	0	0	0	0	2	48
ปราจีนบุรี	27	1,073	14	556	0	0	2	90	11	427	0	0	0	0	0	0
นครนายก	14	865	3	166	0	0	3	75	8	624	0	0	0	0	0	0
สระแก้ว	23	975	14	703	1	95	5	78	3	99	0	0	0	0	0	0

ตาราง 8 จำนวนโรงแรม และห้องพัก จำแนกตามประเภทโรงแรม ภาค และจังหวัด พ.ศ. 2545 (ต่อ)

ภาค และจังหวัด	รวม		โรงแรม		เกสต์เฮาส์		บังกะโล		รีสอร์ท		อพาร์ทเมนต์		โมเต็ล		อื่น ๆ	
	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง
ราชบุรี	51	1,703	24	1,238	0	0	16	205	3	39	0	0	6	192	2	29
กาญจนบุรี	202	7,647	41	2,558	25	505	42	1,161	86	3,092	0	0	0	0	8	331
สุพรรณบุรี	35	1,525	30	1,438	1	8	1	20	3	59	0	0	0	0	0	0
นครปฐม	21	1,560	16	1,381	1	15	4	164	0	0	0	0	0	0	0	0
สมุทรสาคร	16	786	12	541	0	0	1	65	1	15	0	0	2	165	0	0
สมุทรสงคราม	9	288	8	283	0	0	0	0	1	5	0	0	0	0	0	0
เพชรบุรี	142	5,799	46	3,537	24	337	49	1,090	15	512	0	0	4	134	4	189
ประจวบคีรีขันธ์	209	7,110	78	4,766	39	555	57	879	32	695	0	0	0	0	3	215
ภาคเหนือ	964	40,940	477	29,771	204	3,978	35	484	216	5,808	0	0	11	219	21	680
เชียงใหม่	308	16,438	117	11,810	131	2,861	6	91	40	1,239	0	0	8	161	6	276
ลำพูน	22	395	13	137	0	0	2	16	5	110	0	0	0	0	2	132
ลำปาง	32	1,492	24	1,300	0	0	1	10	4	124	0	0	3	58	0	0
อุตรดิตถ์	19	766	17	711	0	0	0	0	0	0	0	0	0	0	2	55
แพร่	27	970	24	922	0	0	3	48	0	0	0	0	0	0	0	0
น่าน	21	676	8	485	0	0	8	99	5	92	0	0	0	0	0	0
พะเยา	24	763	16	640	0	0	7	100	1	23	0	0	0	0	0	0
เชียงราย	156	6042	79	4236	19	364	3	37	51	1335	0	0	0	0	4	70
แม่ฮ่องสอน	71	1615	46	1211	17	149	2	23	5	200	0	0	0	0	1	32
นครสวรรค์	39	1791	37	1717	0	0	0	0	2	74	0	0	0	0	0	0
อุทัยธานี	9	463	6	363	0	0	0	0	3	100	0	0	0	0	0	0
กำแพงเพชร	10	646	6	487	0	0	0	0	4	159	0	0	0	0	0	0

ตาราง 8 จำนวนโรงแรม และห้องพัก จำแนกตามประเภทโรงแรม ภาค และจังหวัด พ.ศ. 2545 (ต่อ)

ภาค และจังหวัด	รวม		โรงแรม		เกสต์เฮาส์		บังกะโล		รีสอร์ท		อพาร์ทเมนต์		โมเต็ล		อื่น ๆ	
	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง
ตาก	71	2,114	15	1,055	14	120	0	0	41	929	0	0	0	0	1	10
สุโขทัย	37	1,219	14	804	18	286	0	0	4	113	0	0	0	0	1	16
พิษณุโลก	49	3,166	29	2,622	3	158	0	0	16	366	0	0	0	0	1	20
พิจิตร	12	449	11	429	0	0	0	0	1	20	0	0	0	0	0	0
เพชรบูรณ์	57	1,935	15	842	2	40	3	60	34	924	0	0	0	0	3	69
ภาคตะวันออกเฉียงเหนือ	550	25,986	352	21,759	31	352	40	696	114	2,927	0	0	7	156	6	96
นครราชสีมา	115	6,558	66	5,009	4	29	1	15	41	1,417	0	0	3	88	0	0
บุรีรัมย์	29	914	21	746	1	7	0	0	5	121	0	0	0	0	2	40
สุรินทร์	16	994	10	886	3	69	1	12	0	0	0	0	1	17	1	10
ศรีสะเกษ	12	550	9	512	0	0	3	38	0	0	0	0	0	0	0	0
อุบลราชธานี	48	2,461	41	2,384	2	26	0	0	5	51	0	0	0	0	0	0
ยโสธร	10	381	8	362	0	0	1	12	1	7	0	0	0	0	0	0
ชัยภูมิ	29	608	9	395	0	0	7	86	12	105	0	0	0	0	1	22
อำนาจเจริญ	6	141	4	87	0	0	0	0	2	54	0	0	0	0	0	0
หนองบัวลำภู	1	19	0	0	0	0	0	0	1	19	0	0	0	0	0	0
ขอนแก่น	44	3,460	34	3,232	0	0	0	127	3	50	0	0	3	51	0	0
อุดรธานี	41	2,629	34	2,433	3	53	2	79	1	50	0	0	0	0	1	14
เลย	36	1,128	8	533	2	20	1	20	24	545	0	0	0	0	1	10
หนองคาย	51	1,543	25	1,154	14	130	3	52	9	207	0	0	0	0	0	0
มหาสารคาม	17	612	12	496	0	0	4	83	1	33	0	0	0	0	0	0
ร้อยเอ็ด	13	998	10	822	0	0	1	10	2	166	0	0	0	0	0	0



ตาราง 8 จำนวนโรงแรม และห้องพัก จำแนกตามประเภทโรงแรม ภาค และจังหวัด พ.ศ. 2545 (ต่อ)

ภาค และจังหวัด	รวม		โรงแรม		เกสต์เฮาส์		บังกะโล		รีสอร์ท		อพาร์ทเมนต์		โมเต็ล		อื่น ๆ	
	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง	จำนวน	ห้อง
กาฬสินธุ์	10	364	6	310	0	0	4	54	0	0	0	0	0	0	0	0
สกลนคร	26	947	25	926	0	0	1	21	0	0	0	0	0	0	0	0
นครพนม	29	861	19	728	1	6	5	50	4	77	0	0	0	0	0	0
มุกดาหาร	17	818	11	744	1	12	2	37	3	25	0	0	0	0	0	0
ภาคใต้	2,343	95,781	689	52,675	215	3,346	991	20,857	338	16,123	2	20	37	802	71	1,958
นครศรีธรรมราช	90	3,104	40	2,133	4	81	29	507	2	16	0	0	14	321	1	46
กระบี่	309	9,926	46	2,503	42	633	129	3,028	86	3,623	0	0	0	0	6	139
พังงา	108	2,760	20	522	1	21	52	914	34	1,290	0	0	0	0	1	13
ภูเก็ต	585	31,506	193	17,897	117	1,784	145	4,138	86	6,654	2	20	0	0	42	1,013
สุราษฎร์ธานี	763	21,025	91	5,874	16	247	566	11,306	81	3,219	0	0	1	42	8	337
ระนอง	54	1,308	13	861	1	9	34	319	5	69	0	0	0	0	1	50
ชุมพร	55	1,929	22	1,322	8	96	5	73	10	329	0	0	7	93	3	16
สงขลา	173	15,402	140	14,680	19	370	3	82	10	237	0	0	0	0	1	33
สตูล	40	1,041	12	381	6	95	9	148	11	331	0	0	0	0	2	86
ตรัง	51	2,320	18	1,452	1	10	14	304	5	125	0	0	8	218	5	211
พัทลุง	16	463	5	323	0	0	5	38	0	0	0	0	6	102	0	0
ปัตตานี	7	410	6	360	0	0	0	0	1	50	0	0	0	0	0	0
ยะลา	37	2,161	34	2,085	0	0	0	0	2	62	0	0	0	0	1	14
นราธิวาส	55	2,426	49	2,282	0	0	0	0	5	118	0	0	1	26	0	0

ที่มา: การท่องเที่ยวแห่งประเทศไทย กระทรวงการท่องเที่ยวและกีฬา



ตาราง 18 จำนวนและร้อยละของโรงแรมและเกสต์เฮาส์ จำแนกตามการมีและการใช้เทคโนโลยีสารสนเทศ และการสื่อสารเป็นรายภาค พ.ศ. 2545

การมีและการใช้เทคโนโลยี สารสนเทศและการสื่อสาร	ทั่วราชอาณาจักร	กรุงเทพมหานคร	ภาคกลาง	ภาคเหนือ	ภาคตะวันออกเฉียงเหนือ	ภาคใต้
คอมพิวเตอร์	2,503	372	583	602	339	607
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)
ไม่มีคอมพิวเตอร์	1,627	185	410	429	240	363
	(65.0)	(49.7)	(70.3)	(71.3)	(70.8)	(59.8)
มีคอมพิวเตอร์	793	169	143	164	96	221
	(35.0)	(50.3)	(29.7)	(28.7)	(29.2)	(40.2)
จำนวนเครื่องคอมพิวเตอร์ มีทั้งหมด(เครื่อง)	12,109	6,830	1,733	1,012	552	1,982
จำนวนบุคลากรที่ใช้เครื่องฯ ในการปฏิบัติงาน(คน)	21,462	11,161	3,366	1,967	936	4,032
อินเทอร์เน็ต	2,503	372	583	602	339	607
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)
ไม่มีการใช้อินเทอร์เน็ต	1,963	225	497	499	299	443
	(78.4)	(60.5)	(85.2)	(82.9)	(88.2)	(73)
มีการใช้อินเทอร์เน็ต	540	147	86	103	40	164
	(21.6)	(39.5)	(14.8)	(17.10)	(11.8)	(27.0)
เว็บไซต์	540	147	86	103	40	164
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)
ไม่มีเว็บไซต์	131	24	20	40	18	29
	(24.3)	(16.3)	(23.3)	(38.8)	(45.0)	(17.7)
มีเว็บไซต์	409	123	66	63	22	135
	(75.7)	(83.7)	(76.7)	(61.2)	(55.0)	(82.3)
ร้อยละของโรงแรมฯที่รายงาน กิจกรรม/บริการที่มีบนเว็บไซต์	100.0	100.0	100.0	100.0	100.0	100.0
ข้อมูล/ข้อความโฆษณากิจการ มี	13.5	9.7	19.7	23.8	9.1	9.6
ไม่มี	86.5	90.3	80.3	76.2	90.9	90.4
การติดต่อสำรองห้องพัก มี	10.3	5.7	10.6	17.5	18.2	9.6
ไม่มี	89.7	94.3	89.4	82.5	81.8	90.4
การชำระเงินค่าห้องพัก / ค่าสำรองห้องพัก มี	73.6	81.3	68.2	69.8	81.8	69.6
ไม่มี	26.4	18.7	31.8	30.2	18.2	30.4

ที่มา: รายงานการสำรวจการประกอบกิจการโรงแรมและเกสต์เฮาส์ พ.ศ. 2546  
สำนักงานสถิติแห่งชาติ กระทรวงเทคโนโลยีสารสนเทศและการสื่อสาร

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