Web-based Shopping Storefront :
An Application of Customer Relationship Management (CRM) Concept

by
Mr. Prakarn Parichayakorn

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

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Science
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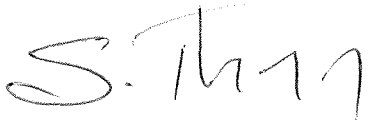|	
Project Title	Web-based Shopping Storefront: An Application of Customer Relationship Management (CRM) Concept
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Academic Year	July 2002

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

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ABSTRACT

Customer Relationship Management (CRM) concept is becoming popular by offering a chance for the business to optimize lifetime value of customers, simplified internal organization, and maximizes shareholders' equity.

be'CUBE!' was set up to function as a CRM-enabled Web application that markets 4 types of product: Book & eBook, Music CD, Movie DVD, and Computer Software. The Web design evolves around the strategic planning of keeping the right customers stay with the business. Customer actions have been recorded and analyzed in graphical bar chart to provide better understanding of their needs, desires, and anticipations. Intuitive and interactive Web technology will give the customers a chance to create their customizable choices of favorite topics. The Web also features the predictive capability by intercepting selected item's attributes and randomly displays other 3 related items. Combining these features, the Web is assumed to have customer retention rate higher than the traditional E-Commerce site.

Customer Lifetime Value (CLV) analysis reflects a corresponding result. Though the application of CRM concept requires an initial investment of Baht 153,000, it indicates that there is a chance for nearly 66% profit gain by cost reduction and higher customer retention rate. The significant improvement sounds promising.

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I. INTRODUCTION

As trade barriers fall and technology facilitates a 24 hours and 7 days a week operation, businesses face a proliferation of competition and eroding margins. And as E-Business initiatives take root, the pressures only increase. Small and large businesses are being forced to retool their organizations to survive and thrive in the Internet economy. Fundamental to this transition are software and distribution systems enabling businesses to use the Internet to sell more and to better serve their customers. Getting better acquainted with existing customers is the first step to building a lasting relationship with them. This practice is a complicated matter that can involve many departments, systems, information points, and cooperative workforce. Once 'getting close to the customer' becomes a strategic objective, the business can begin working towards reaching that goal.

In response, forward-thinking businesses are focusing their efforts on building lasting and effective Customer Relationship Management (CRM) system that creates increasing numbers of more loyal customers, increases sales and profits, raises customer satisfaction, and reduces sale cycles.

However, most CRM Solutions available on market today are developed for large enterprises with hundreds of clients and priced as a major expense in the financial statement. The situation is timid in developing countries such as Thailand, where technology advancement is limited and current economic stability is fragile. By foreseeing benefits of CRM towards his nation, the writer decided to develop, be'CUBE!', an experimental CRM on-line shopping storefront. This effort should trigger an idea for SMEs to optimize their Web sites to the highest magnitude of utilization by using readily available resources.

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1.1 Objectives

(a) To study CRM concept and foundation.

(b) To study an implementation of customer-centric environment towards the current Web technology and business software suite that is readily available in most business machines.

(c) Develop CRM strategic plan and CRM Web application.

1.2 Scope

The study will focus on the development of Web application based on a common Web browser - Microsoft Internet Explorer – together with an integration of business software suite currently available in most machines – Microsoft Office. This development scheme should create an idea for business owners how to maximize their current system resources to be in-touch with current business trend.

The CRM Web application will be segregated into 3 board categories:

(a) Collaborative technologies enable communicating and sharing information within the company, with business partners and suppliers, and with customers.

(b) Operational technologies focus on data collection, query and reporting.

(c) Analytic technologies transform operational data into the actionable customers information.

1.3 Limitation

The writer earned his bachelor degree in a field of Finance and Banking. He has 4 years experience as a loan officer in the banking industry with a primary task to give service to customers, analyze their financial viabilities, and extend their credit proposals for approval from the committee. Though he gains experience in business and financial

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statement analysis, he lacks proficiency in statistics. This cumbersome ability limits a deployment of statistical models in data analysis.

1.4   Deliverables

    (a)   On-line CRM Web application that provides functions of profiling, collaborating, and data analysis of customer behaviors. (http://www.pakp.net/crm).

    (b)   Project report.

1.5   Project Plan

(Year 2002)	Jun'01	Jan	Feb	Mar	Apr	May	Jun
Project Proposal							
Report Progress							
- information gathering							
- analysis and writing							
- format correction							
Web Development							
- information gathering							
- web development							
- web testing and review							
Submission							

Figure 1.1.   Project Plan.

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II. LITERATURE REVIEW

There are many new business models recognized in this Internet era: B2C, B2B, B2B2C, B2B2B, etc. The models are becoming more complex. Transactions are being disintermediated and reintermediated. Products and services can be bundled and unbundled. Off-marketplace/exchange transactions. Revenue streams come in a variety of flavors: direct revenue from customers, advertising revenue, revenue sharing with partners, and commissions. And the same goes for costs.

The Internet is changing the way business is done. E-Business brings with it an explosion of new information and opportunities to understand and cater to customers, partners, and suppliers, in ways previously impossible.

As businesses expand their on-line sales and marketing efforts, they need a clearer picture of visitors to their Web site. Who are those people? Where are they coming from? How are they interacting with the site? What content do they view? What do they buy and don't … why? And, how do the businesses make sure that the right ones keep coming back?

Most on-line businesses recognize that they are sitting on a goldmine of data, but lack the systems and skills to convert overwhelming amounts of raw data into actionable business intelligence.

Businesses face the challenge to capture and hold the attention of valuable customers. To make matters more complicated, these touch-points are not always under their control. Customers have far higher expectations of vendors than ever before. They expect businesses to have a detailed understanding of their needs. They expect outstanding service and support. They expect collaboration and information sharing. The idea of active dialogue with providers of products and services is becoming commonplace.

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Businesses must not only grapple with an explosion of new customer requirements, but also with the imperative to make changes to their business model in real time. A dissatisfied or bored customer can easily be lured away by competitors just a click away. Instant feedback from a marketing campaign or site redesign dramatically reduces the cycle time for competitors to make changes.

It is a strategic imperative to have good information at your fingertips. And the keyword is 'information', not 'data'. The Web offers a world of new data gathered across the entire customer life cycle – from initial contact, to exploration and information-gathering, to purchases or equivalent interactions, to customer support, to loyal behavior or attrition. For businesses that can effectively analyze and interpret this data and integrate it into their operating cycles, the Web represents an opportunity: businesses will be able to better understand and target their customers by accurately targeting profitable segments and precisely tailoring their offerings. However, the revolutionary change brought about by the Internet cannot change the familiar business principles e.g. customer retention and loyalty, customer segmentation, and partnering/alliance strategy.

E-Business intelligence enables businesses to make informed business decisions and remain competitive. Whether the initiative is CRM, campaign management, or personalization, good information radically increases the probability of success. High-impact actions can range from modifying site design to changing product mix to more active content management. It can take time to actually close the loop on E-Business.

The lowest common denominator is the imperative to understand and quantify the drivers of E-Business, to create intelligence out of data, and to act.

III. CUSTOMER RELATIONSHIP MANAGEMENT (CRM)

One of the business purposes is to 'create and keep customer'. The business should view the entire business process as consisting of a tightly integrated effort to discover, create, arouse, and satisfy customer needs. The term CRM or Customer Relationship Management gains its recognition and currency value in 1990s.
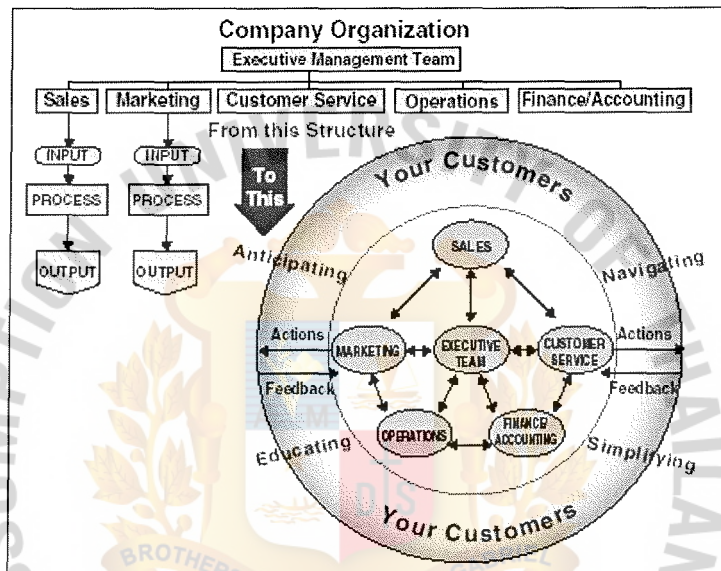

Figure 3.1.   CRM-Implemented Business Viewpoint.

CRM can best be defined as the establishment, development, maintenance and optimization of long-term mutually valuable relationships between customers and businesses. Successful CRM focuses on understanding the needs, desires, and expectations of customers and is achieved by placing these needs at the heart of the business by integrating them with the business' philosophy, strategy, people, technology and business processes. In short, CRM can also be defined as customer-centric business

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strategies that optimize the long-term value of selected customers. The trend toward CRM is the key to the past and the creation of mutual value for all parties.

Most people believe that CRM means using IT tools or software solutions that achieve incremental business improvements. In fact, CRM is a business strategy whose basic principles involve:

(1)   Aligning the business around customers rather than products or channels

(2)   Sharing information across all arms of business

(3)   Leveraging data from disparate sources to better understand the customers and anticipate their needs

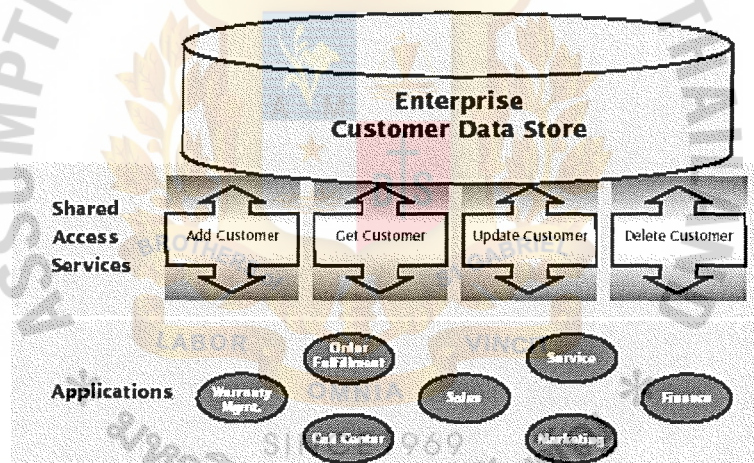(4)   Maximizing customer lifetime value and business profitability

Figure 3.2.   Shared Access Services.

3.1   eCRM

eCRM enables the customers to take care themselves via the Internet or on-line channel. A complete, integrated eCRM system is characterized by faster, automated services available on-line 24 hours a day. A focus of eCRM is integrating front- and

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back-office activities and cross-divisional functions by providing a seamless experience between different departments and business units.

Table 3.1. Cross-Divisional eCRM Functions.

PROCESS	FRONT-OFFICE	BACK-OFFICE
Sales	Customer-directed E-Commerce Dynamic, intereactive catalog integration	→ Sales Force Automation → Product Database
Marketing	One-one relationship Proactive notification	→ Data mining & analysis → Lead generation/routing
Service & Support	Customer self-service	→ Communications channel/ call center management
Product Development	Direct customer feedback	→ Product knowledge base integration
Distribution & Supply Chain	Direct information transactions	→ Integrated management system

eCRM's value comes from giving a customer that 'total experience' on the Web. Traditional CRM channel cannot do that because it is based on applications that may not be amendable to giving the customer direct access to the interfaces and functionality.
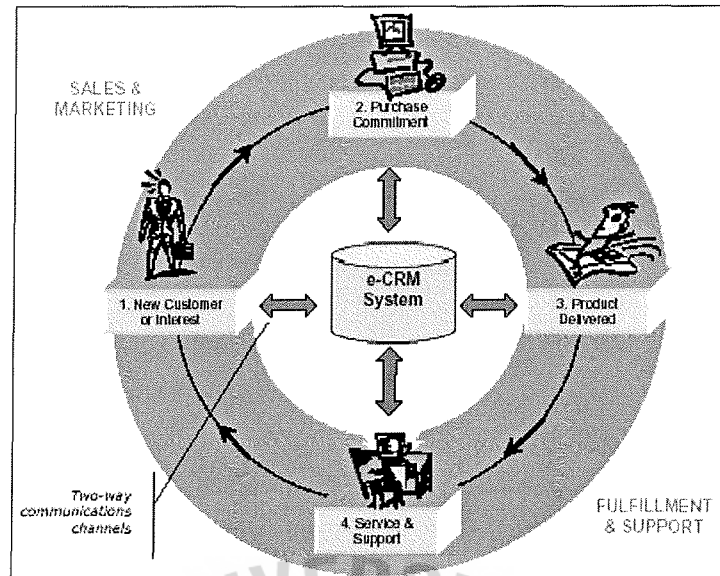
Figure 3.3.   eCRM as a Continuous Sales Cycle.

Brent Frei, president and CEO of Onyx Software, provides this caution:

"eCRM is the customer-facing Internet portion of CRM. It includes capabilities like self-service knowledge bases, automated e-mail response, personalization of Web content, on-line product bundling and pricing, and so on. eCRM gives Internet users the ability to interact with the business through their preferred communication channel, and it allows the business to offset expensive customer service agents with technology. So the value is largely one of improved customer satisfaction and reduced cost through improved efficiency. However, an eCRM strategy deployed alone can also backfire and actually result in decreased customer satisfaction. If the customer's interactions through electronic channels are not seamlessly integrated with those taking place through traditional channels, the customer is likely to become extremely frustrated. Also, if the basis for the content being served up to the customer doesn't consider all the data gathered by the rest of the business, the customer is likely being served in the wrong

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way. Therefore, it's imperative that eCRM be installed in conjunction with traditional CRM and that the two are tightly integrated. Otherwise, the value of eCRM might actually be negative."

3.2   CRM Implementation Areas

There are 5 broad categories of CRM implementation:

(a)   Marketing automation

The business that defines CRM as marketing automation will generate personalization, profiling, telemarketing, e-mail marketing, and campaign management project. These initiatives are designed to get the right mix of the business' products and services in front of each customer at the right time. The process involves understanding what customers do and want, matching that knowledge with product and service information, presenting opportunities to customers and measuring process.

(b)   Sales automation

Sales involve the direct transferring of products and services to customers. It covers both making sure the customer receives the correct product and the activities of people within the organization who are responsible for selling. Projects in the sales category might be client or campaign management, sales configuration, call management, contact management, advertising management and sales force automation, and account and lead management systems. Collaborative tools that enable all parties of the transaction to interact with one another is included in this category, as well as systems that put sales representatives in-touch with customers at the point of sale.

(c) Service and service fulfillment

This area encompasses the ability of the business to serve customers it already has. Projects in this area might be e-mail response management, telephony capabilities such as automatic call distribution, computer-telephony integration, queue/workflow management, interactive voice response and predictive dialing. Problem resolution systems and workflow automation also be included in this category.

(d) Customer self-service

This concept views CRM as systems or capabilities that can be directly invoked by the customer – such as Web self-service, search, interactive chat, e-mail, voice over IP, browser and application sharing, and conferencing. For these businesses, CRM is more accurately described as eCRM.

(e) E-Commerce

In this case, capabilities such as shopping, marketplace, transaction and payment processing, and E-Commerce security are addressed. E-Commerce capabilities can be some of the most essential CRM projects for businesses to pursue, depending on their readiness to handle transactions via multiple methods.

3.3 Develop CRM Initiative

There are two strategic pillars need to be addressed in order to form a solid foundation for CRM initiative:

(a) Organization issues

CRM should be about holistically managing the entire customer life cycle. In order for the systems and people to begin operating in a more customer-

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centric manner, many of the business' internally focused departmental processes will need to begin to share a common, more highly integrated process flow and information structure.

Implementing the cross-departmental processes that will be needed to drive the business' transformation to customer-centricity, can only be led by a CEO, or other high-level executive, above the departmental level.

The process flow and information structure should transform the business into a unified whole that is committed to anticipating customer needs, navigating customers to value, educating customers about solutions that will address their needs, and simplifying the process of doing business.

(b)   Information issues

CRM's promise includes capturing information from each customer touch-point so that all customer-facing personnel have a complete understanding of the business relationship with each customer. However, this promise can be difficult to keep. The availability of customer data is exploding. This data is typically located among many different data systems located throughout various divisions and departments.

In addition, many businesses have split their Web businesses and/or activities from the rest of their operations. If the Web is indeed just a tool for providing another customer touch-point, then combining all of the customer data gathered on the Web with other customer touch-point data will be critical to the success of the CRM initiative.

3.4   CRM Strategic Plan

The business needs to spend time bringing together various departments and working through the necessary steps to begin creating a CRM strategy. The project team

needs to evaluate the business infrastructure to understand its gaps and holes. By taking a look at what it already has in place and how ready the business is to evolve to a new way of conducting business, the business can create a CRM strategy. The CRM strategy will include detailed recommendations on how the business can achieve their customer-driven goals in support of the overall business strategy.

The CRM strategy includes:

(1) Business Environment. A document that details the corporate business strategy, the systems in place to fulfill that strategy, and where data resides within the systems and the corporation. This is often referred to a business readiness plan.

(2) Business System Plan. A comprehensive overview of the future corporate system infrastructure.

(3) Gap Analysis. A document that details the variances between the existing business plan and infrastructure and the future corporate system infra-structure.

(4) Recommendations. A list of recommendations on how to move from the existing environment to the desired environment.

3.4.1 Business Environment

Business environment documents existing processes that can be leveraged for the CRM strategy. There are three primary areas that may identify for improvement.

(a) Corporate environment

An analysis of the corporate environment that includes a review of the current business strategy as well as business processes in place that may or may not support the strategy.

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Business Strategy

If the business has decided to undertake a CRM strategy, the business must align its business strategy and internal efforts. Business strategy drives the business to define its operating procedures. As business processes are reengineered across departments to streamline the customer interaction, a business can also take a look at realigning its organization to put the customer at the center of the organization. This process may require the business to rethink its corporate structure and possibly realign the departments to focus on customer segments or profiles to better suit the customer's needs.

Business Processes

The business must align its business processes to share information across departments. Understanding how customer interactions take place within each department and how information is handed off between departments will define the processes that will serve as the foundation for CRM.

The audit team should be encouraged to look outside the current business scheme and evaluate processes that may not serve the best interest of the customer. Some processes are built on the ability of a person or department to control information, but may not serve the best interest of the corporation. It is important for the team to build process that streamline customer interactions across the organization without trying to decrease time spent in any one department. It is important to analyze the high-level processes then drill-down to those where improvement opportunities are identified.

When building business processes it is important to understand who uses the information, what systems the information is shared with, and how much

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processing the data undergoes as it moves from system to system. Instead of building processes that work for specific groups, team members should look outside their immediate sphere of influence and build processes that streamline the movement of information throughout the business to support the customer. The transformation and processing layer acts as the 'gate' that helps link the back office applications to the front office applications.

(b)   Business systems

Business systems are the programs that track the customer and business's interactions. These systems apply the business processes and rules and capture the interactions between the customers and the business.

Web / E-Commerce

With the continued growth of the Internet, the ability to reach people on a one-to-one basis continues to grow. The technology that supports the Internet has made it possible to collect information about millions of people and still interact with them on a personal basis. This is an area that will see continued growth, as more applications are developed to support personalization.

An example of this technology in use is Customer Self-Service. This is a set of Web pages where customers can place an order and obtain information or support over the Web. This set of information is broadcasted to the users through their secure login and is personalized to show users only the information that is important to them. For example, they may only be able to see their order history, past service calls, and information related to products they have ordered, etc.

Marketing Automation

Historically, marketing generated a set of leads and passed them over to sales. Determining what was learned during the sales process or its final outcome was difficult. Now, Marketing Automation can enable Marketing departments to focus on areas of customer identification, acquisition, interaction, retention and expansion, and satisfaction. Marketing Automation can work with the Web or Sales Force Automation applications to share information about customer transactions and create a closed-loop process. Marketing Automation can take corporate or external data to create campaigns. Sales activity can be tracked against these campaigns to determine their effectiveness.

Sales Force Automation

Sales Force Automation (SFA) helps sales people manage their interactions with their customers and leads. Salespeople can store contact information, meeting notes, past purchases, current opportunities, and suggested next steps. This information is also used to identify up-sell or cross-sell opportunities.

Customer Support

Customer Support applications help the business understand typical product problems. They contain information that can help resolve customer issues. The system automatically recognizes customers by their account number and helps the customer support representatives learn about the customers' preferences and dislikes. The representatives can then customize customer interactions based upon past history.

Enterprise Resource Planning

The Enterprise Resource Planning (ERP) system contains a significant amount of customer data. Past purchasing habits, payment methods, and other attributes are contained within the ERP system. This data can help the business complete the picture of a customer. This information, if automated and readily available, can also streamline the customer interaction by utilizing past order information.

(c)   Data

Data must be captured and defined within all of the systems mentioned. When pieced together, this data assists the business in building customer profiles. Most established businesses have data within their transactional systems (ERP, etc.). New businesses may not have much history. They can, however, purchase external data to augment their internal data.

A data warehouse or data mart can provide a centralized location to store this information. By aggregating the data into a structure that is built specifically for reporting and analysis, the business can better understand its customers. Using ad-hoc query or data mining tools, the business can evaluate the data to better understand consumer trends, business drivers, cross-sell opportunities, and consumer preferences and profiles.

3.4.2 Business System Plan

A Business Systems Plan looks at the business strategic objectives and determines what systems are needed to support them over the next one to five years by using a cross-functional audit team to survey and evaluate the business readiness.

The audit team looks at all systems within the business. Corporate systems such as Enterprise Resource Planning, Customer Support, and Financial Systems should all be

evaluated for their interactions with customers and for customer data. The team should interview various individuals across different levels in the organization to determine their needs for customer information. When interviewing staff, identify whom hands them work and to whom they hand work, horizontally as well as vertically. Determine what systems they utilize to complete their tasks. Determine what they are doing manually. Collect sample forms and documents they use as part of the execution of their tasks. These functional requirements will help align the systems with business needs and requirements. There are two key questions to ask: Do the existing systems meet the needs of the business as it does business today? Will the systems meet the needs of the business as it strives to attain its strategic objectives in the future?

3.4.3 Gap Analysis

The Gap Analysis documents the variance between the existing systems and the CRM strategy. By comparing the existing infrastructure against what is necessary to reach the business objectives, the business can identify a list of requirements.

The requirements should be ranked in importance and relevance. A requirement may be very important to the corporate business strategy or objective, but without certain other systems in place, it will not be usable or relevant.

3.4.4 Recommendations

Recommendations are based on the Gap Analysis and offer suggestions to integrate the CRM strategy into the corporate business strategy. The recommendation document details the steps necessary for the business to meet its CRM goals. It should include concrete findings about current gaps and a list of evaluation criteria. Some examples of evaluation criteria include:

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(a)   Rank of Importance: as mentioned above, this helps the project team define how closely a proposed solution (e.g. SFA or Marketing Automation) matches the business strategy.

(b)   Cost: total cost includes hardware, software, consulting and training. Costs are vital to prioritize opportunities based upon cost/benefit or ROI analysis.

(c)   Level of Effort (Time): another variable that can significantly affect a project is time. Time in today's world is almost as important as money. Being first to market is often a critical success factor.

(d)   Relevance: a system meets the business objective, but provide the business with no value until another system is built that it can leverage or use.

The CRM project first needs definition from the business. Before starting, the business must define the business strategy. It must address questions about how to look at the customer – what attributes are important and what systems need to be in place to translate the strategy. By first understanding what business processes, systems, and data it already has in place, the business can then define the steps to incorporate it into its CRM strategy.

Answers to those questions build the framework required to create the CRM environment. New systems such as Marketing Automation or Web/E-Commerce may have to be built to carry out the CRM strategy. Business processes may have to be realigned to focus more directly on the customer and less on the internal business processes. The business may need to analyze the data through analytic applications or data mining techniques to understand its customers.

3.6   Customer Value Analysis

Successful business needs to react to customer demands in a timely fashion. Interacting with the customers is not as simple as it has been in the past. Customers and

prospective customers want to interact on their terms, meaning that the business needs to look at multiple criteria when evaluating how to proceed. There are needs to automate:

    (a)   The Right Offer

    (b)   To the Right Person

    (c)   At the Right Time

    (d)   Through the Right Channel

Therefore, the business should prepare and develop a timely analytical database to sustain a growth margin or status on a market. Data analysis can be described by the following phases:

    (a)   List Your Goals and Problems. The ability to define goals that are clear and measurable can help the business paves the right way to go.

    (b)   Business Understanding. This initial phase focus on understanding the project objectives from a business perspective and converting objectives into a knowledge discovery problem definition and designing a preliminary achievement plan.

    (c)   Data Understanding. Starting with initial data collection, this stage gains initial insights into the data and identifies data quality issues

    (d)   Data Preparation. This phase focuses on collecting, of cleaning and transforming data to get it ready for the modeling phase. These tasks are likely to be performed repeatedly and not in any specified order.

    (e)   Modeling. Various modeling techniques can be applied. Some techniques require certain forms of data, so stepping back to data preparation phase is often required.

(f) Evaluation. Consider the model built able to solve the original problem or is something missing? At the end of the evaluation phase a decision on the use of the knowledge discovery results should be made.

(g) Deployment. The knowledge gained needs to be organized and presented in a way the business can use. The deployment may be as simple as a report or it may require the model to be embedded into another application.

The most basic CRM involves customers, organizations, and relationships - the combination creates the need for management. The heart of all transactions is the creation of mutual value for all parties. So the business should clarify an understanding towards its customers. Who they are? What they want? How they value our products and services? How can we boost sale to them?

Not only providing the product or service but also understanding and managing customer 'expectations' is the key to creating satisfied customers. An old mantra 'Customer is the King' still be applicable in today's marketing strategy, but has been changed considerably in the process of implementation. Keeping existing customers is significantly less expensive than acquiring new ones.

3.6.1 Customer Value Management (CVM)

Real customer relationships, those that result in the customer feeling a genuine sense of loyalty to the firm, are predicated on a series of satisfying experiences with the business. Relationships are not developed overnight. Until the customer senses some attachment to the business, then no relationship can be said to exist. Thus, relationships are results of successive experiences of customer satisfaction.

The drive of customer satisfaction is an ongoing creation of value in the mind of the customer. Customers will not be satisfied unless some form of value is created. Nonetheless, the business must clearly classify the term of 'creating customer value'

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and 'increase value of the customer'. The latter concept tries to make the customer more valuable to the business by selling them more products and services, which is a mis-understanding of the term 'customer value'. Moreover, there is one interesting point to get the business attention. Some customers who buy a great deal from the business do not have anything approaching a genuine relationship.

Customer Value can be created in 2 broad categories:

(a)   Functional Value, pertaining to the customer's acquisition and use of the product, is generated by price, convenience, access or technology. Competitors can most easily duplicate functional value. Thus, creating functional value offers a fleeting competitive advantage.

(b)   Emotional Value is less easily duplicated by the competition and generally contributes to less emphasis on price. Consider the value that is created for customers when the business employs qualified, friendly, helpful employees. Value is created every time a customer felt welcome, important, and valued.

The creation of such emotional value for customers is fundamentally different from the creation of functional value through price reductions, increased convenience and technology. Both forms of value are important. Nonetheless, genuine customer relationships cannot be formed on the basis of functional value alone. Customer relationships require an emotional connection with the business.

The management of customer value is a cyclical process that has four key steps:

Step 1: Define customer actions

The first stage in creating customer value is to understand customer base. Analysis of existing data can provide information about segmentation, behavioral characteristics, and profitability that create an understanding of customers.

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Step 2: Determine customer expectations

Expectations, while difficult to manage, are often the cause of dissonance that results in loss of customers. Understanding the needs and wants of customers with regards to service delivery levels and product quality is essential if ongoing, mutual value relationships are to be established and endure.

Step 3: Design the customer value model

The combined understanding of customers' behavior, needs and wants, the customer value model will deliver value in the most cost effective manner. Defining the customer journey, performance measurements and product offerings will all be critical.

Step 4: Deliver the customer value model

Implementing the integration of systems, processes, service providers, business technology and infrastructure in addition to the creation of measurement systems to monitor progress.

3.6.2 Customer Lifetime Value (CLV)

Act as a gauge for measuring CRM value; determining customer lifetime value (CLV) is essential for business who has become a stakeholder in a CRM implementation. It is a measurement of what a customer is projected to be worth over a lifetime. It is a mean to benchmark the value of customers and a tool in determining what level of priority to give a customer.

The CLV can be calculated by 2 methods:

(a)   Net Present Value (NPV). Valuing cash flow over time in today's currency.

(b)   Expected Value. Probability of event × Outcome of event

      (1)   Measuring the expected financial benefits from retention and referrals provides for sustained investment in customer care.

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(2)   Quantifying the expected results provides metrics for measuring the impact of customer care programs and actions.

IV.   be'CUBE!': ON-LINE SHOPPING STOREFRONT

As the E-Business opens a chance for new economy, both SMEs and large enterprises are now considering E-Business alternatives. be'CUBE!' on-line shopping storefront is set up as an alternative for traditional distribution channel. The shop adopts E-Marketplace concept by hosting its Web site for local customers in Thailand. Typical products provided in the shop are Book, Music CD, Movie DVD, and Computer Software. By opening a virtual storefront, the shop enjoys satisfactory contribution margin from cutting cost in storefront rental expense.

Nonetheless, site statistic provided from the hosting agency is fluctuate and meaningless. Transaction management is achieved by manual bookkeeping method. Previous transaction records show unsatisfactory customer retention rate and support officers are busy all day by a number of call enquiries about order status, revocation, shipment, and claim. be'CUBE!' executive decided to revamp overall Web site to provide customer support function and Web activities analysis. The CRM concept is evaluated and adopted as a mean for Web development and sustainable growth.

4.1   Strategic CRM Planning

As a new business plan evolves around customer, the shop set up a working group to study basic and implementation method of successful customer satisfaction. First, an assigned working group defines value that be created when the customers visit be'CUBE!' Web site.

Functional Values are defined as attractive and easy to use Web pages, on-line interactive customer support, in-trend products, and competitive pricing.

Emotional Values are derived by lively Web page that will interact with the customer, customer learning intelligence, delightful and helpful service personnel.

4.1.1 Business Environment

Mission

The mission of be'CUBE!' is to become a well-recognized and successful company that has a good-governance practice. Employing an E-Business concept together with the power of Internet economy, be'CUBE!' will become the market leader of on-line shopping mall business. Mutual relationship between our robust employees and the company will be created to optimize the customer lifetime value.

Business Objectives

(1)   Attains recognition from Thai community as a leader in comprehensive on-line shopping storefront.

(2)   Provides up-to-date and in-trend products.

(3)   Provides good relationship with customer support activities.

(3)   Achieve 55% gross profit margin.

Market Analysis

Market Segmentation

be'CUBE!' positions itself in a middle to upper-income target groups. People in these 2 groups are mainstream white-collar workers who live in an untidy and busy environment of city life. As these customers tend to earn an above average income, they perceive unique and specialized products as their gift of lives. Product diversification with related impulse buying items and short response time are matters of concern for buying decision.

The demographics of target market can be categorized in 3 groups.

(1)   Early aged white-collar workers are expected to be the most likely target group to shop on-line because of their relatively high Internet use compared to other segments. These customers tend to have shortest decision-making

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time because they can generate self-revenue and live in fashioned community.

(2)   Whether by research or leisure objectives, high school and college students spend a considerable time in Internet surfing. This is the most likely group that tends to make impulse buying decisions. However, this group tends to switch to other new Webs that catch a community attention easily. The other concern is the limited purchasing power because of an educational age.

(3)   Professionals and researchers represent a smaller customer segment with an average age above 35. This group is expected to be a small but faithful sector of buyers.

(4)   Other shopping-window buyers. This is potentially the largest market; however, there is a relatively high turnover rate in this segment that will require more extensive marketing efforts to attract new customers.

Market Trends

Thailand on-line financial transaction is not so popular in Internet surfer group. The delay in empowering E-Commerce laws restrains entrepreneur to venture in E-Business. However, some on-line businesses resolve this issue by applying for secure Web payment service from trusted financial institution.

Traffic problem inclines decision of the customer to shop at a large department store located in a business center area. On-line purchasing of deliverable products is becoming popular. E-Marketplaces begin their lives by providing a narrow range of targeted products for a buyer base. Vertical E-Marketplaces is growing to provide a single access point for commerce and information within an industry combining multiple services like logistics, payments, and credit with product offerings in real time.

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The ability to compare several products from one single point also helps to boost a popularity of E-Marketplace.

SWOT Analysis

Strengths

Ease-of-use and interactive customer responsiveness give the be'CUBE!' a superior E-Commerce performance. The ability to provide customizable content, predictive items, and user account management help to increase customer retention rate that is the successive rate of pertaining previous year customers to with the business in the consecutive years. Furthermore, the tracking system analyzes our customers' behavior and provides an idea of how to keep customers stay with us.

Weaknesses

The sophisticated tracking system and interactive contents require a tremendous data exchanged between client and server. Consequently, the high performance server with fast and efficient network bandwidth is necessary to provide the service at satisfactory speed.

Opportunities

A maturity of IT infrastructure opens an opportunity for be'CUBE!' to enter an E-Marketplace by providing convenient Internet access throughout the country with a more satisfactory performance. The changing lifestyle of modern people also contributes to the existence of be'CUBE!'. This group of people requires a convenient way to conduct their day-to-day life activities.

Threats

Unfortunately that our marketed products lack its uniqueness, so we face a fierce competition from both other virtual channels and traditional ones.**Business Strategy**

Pricing

The utilization of on-line virtual store helps be'CUBE!' reduces major expense of physical storefront rental. This will not boost sales by playing a role of the lowest price distributor. Nonetheless, product price will remain competitive with other distributors by a discount of 5% to 15%.

Sales Strategy

be'CUBE!' will develop the most recognized and trusted brand for on-line shopping business by expanding customer base and extending the image of the business. The site will be promoted aggressively through a combination of online and traditional media advertising, and public relations.

CRM program will be implemented for reshaping overall be'CUBE!' operating process to evolve around customer satisfaction. As an acquiring of new customers is time-consuming and costly, the retention program will help the shop to reduce cost and get in-depth understanding of customer behavior. This analysis will help be'CUBE!' to realign product lines and support functions to better serve the customer.

Strategic Relationship

CRM implementation opens new opportunity for be'CUBE!' to view the customer as valued strategic partners. The creation of mutual relationship with the customer will create a sense of loyalty to the shop. Moreover, the new CRM system allows be'CUBE!' suppliers to access stock database remotely for a preparation of just-in-time inventory service. This practice helps be'CUBE!' to manage inventory more effectively.

Current Business Analysis

Understanding the existing business state is a key component of properly planning for the CRM implementation. It is the first step towards understanding the inefficiencies in the current processes and will drive the requirements for the new system. So, the working group analyzes current business practice as follows.

Customer Touchpoints

The current be'CUBE!' Web site provides only a catalog function. Customer can browse to different product category that is listed alphabetically. New release products are displayed on the first page. Buying process is straight-forward.

Typical customer activities in a shopping mall are:

Sales department

(1)   Browse product catalog

(2)   Search for specific product.

(3)   Compare promotion campaign

(4)   Ask for product recommendation.

(5)   View and test product.

(6)   Making buying decision.

(7)   Cancel order.

(8)   Profile management

Support department

(1)   Product delivery.

(2)   Product registration

(3)   Product feedback

(4)   Technical support requirement

Finance department

(1)   Billing issue

(2)   Order tracking

Inventory department

(1)   Contact vendors.

(2)   Stock management.

(3)   Claim vendors for defected products.

Sales and support personnel are direct support functional groups that contact customers on a regular basis. There is no pre-configured plan to support different customer problems. The resolution is based on past experience and trial & error basis. Each department records past customer activities in separated database.

Indirect functional groups are finance and inventory department. They communicate internally with other departments but do not contact directly to the customer. Their functions are maintaining day-to-day operation to facilitate business activities inherited from other departments.

4.1.2 Business System Plan

CRM Objectives

(1)   Align entire be'CUBE!' operating structures and philosophy to create customer-centric environment structure.

(2)   Increase customer retention rate to 70% within 1 year.

(3)   Increase sales of promotion items by 50% within 1 year.

Mapping Business Process

Local area network will be used to facilitate resources available across different departments. Centralized database will aggregate all customer activities data. The shop needs to recruit new Webmaster who has experience in CRM project implementation. A new data center gateway is needed.

The working group defines the development process in 3 phases.

Phase 1. Hire new Webmaster, purchase new computer, connect available computers to local area network, and restructure corporate database.

Phase 2. Develop new data-driven Web interface to enhance customer experience.

Phase 3. Develop back-end management and analysis tools.

Phase 4. Develop vendor connectivity.

4.1.3 Gap Analysis

The working group concludes function of current and CRM system as follows.

Table 4.1.   Gap Analysis.

Function	Current	CRM Implemented
Sales	On-line catalog	On-line catalog with search and personalization.
Support	Manual support call center	On-line Web Self-Help and manual support call center.
Finance	Separate data record	Shared database that evaluate over all customer performance.
Inventory	Manual inventory tracking	Automatically decrease stock and alert at an alarm level. Remote access from vendors.

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4.2   Project Implementation

Designing a Web site may be viewed as a simple task. On the contrary, a powerful and simplified Web site requires careful planning and implementation. Apart from an impressed and easy-to-use front-end user interface, the Webmaster must design a back-end system that supports a requirement to manipulate catalog data in time. Traditional Web site uses a static HTML programming language to display its content. This method burdens the Webmaster to a tedious task of creating new Web page manually.

Thus, a Web site management is a key issue for the business. The optimization of back-end system can be obtained by the dynamic programming language and relational database. Although the dynamic scheme gives more power to Web site visitors and supporting personnel, it consumes more resources than a static one. Consideration for fast and reliable Web hosting is ranked as a major concern.

be'CUBE!' adopts Microsoft Active Server Page (ASP) technique and Microsoft VBScript as a default dynamic programming language for database connectivity and a mean for interactivity between server and clients. This language is a derivative of well-known Microsoft Visual Basic family. Most of Microsoft applications available on market today are capable to understand this language. The selection reduces time that the Webmaster requires to set up a proper Web site in conjunction with the database program, Microsoft Access, which is one of the applications in Microsoft Office Suite.

In addition, Sun Javascript programming language and Macromedia Flash animation have also been deployed to enhance dynamic user interface. Crafting by these interactivity techniques, the customer will get a total CRM Web experience when surfing be'CUBE!' shopping storefront.

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4.2.1 Setup & Requirement

be'CUBE!' is hosted by 123ThaiHosting.com, a private company in Thailand. The hosting service also registered be'CUBE!' Web site under the domain of 'pakp.net'. Internet users can browse to be'CUBE!' under a URL of 'http://www.pakp.net/crm'. The domain registration fee is 499 Baht per year while the hosting fee for basic package is payable in quarterly basis at the rate of 299 Baht per month.

Specific features the hosting provides to support dynamic CRM contents are:

(1)   Microsoft Windows 2000 Server

(2)   Internet Information Services 5.0

(3)   Active Server Pages (ASP 3.0) support

(4)   Microsoft Access with ODBC support

(5)   E-mail automatic responder

(6)   ASP component: Jmail

(7)   200 MB data space

(8)   4 GB data transferring per month

The Webmaster developed be'CUBE!' Web site on a Pentium II 366MHz notebook that configured with 128 MB main memory. The system runs Microsoft Windows XP Professional and Internet Information Services 5.1. Development tools are listed accordingly:

(1)   Microsoft Internet Explorer 6.0   : default Web browser

(2)   Microsoft Access 2000   : database program

(3)   Macromedia HomeSite 5.0   : coding a programming language

(4)   Adobe Photoshop 6.0   : create visual graphics

(5)   Macromedia Flash 5.0   : create animated graphics

(6)   GlobalSCAPE CuteFTP Pro 2.0   : FTP client

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Figure 4.1.   Hosting Agent and Available Packages Option.

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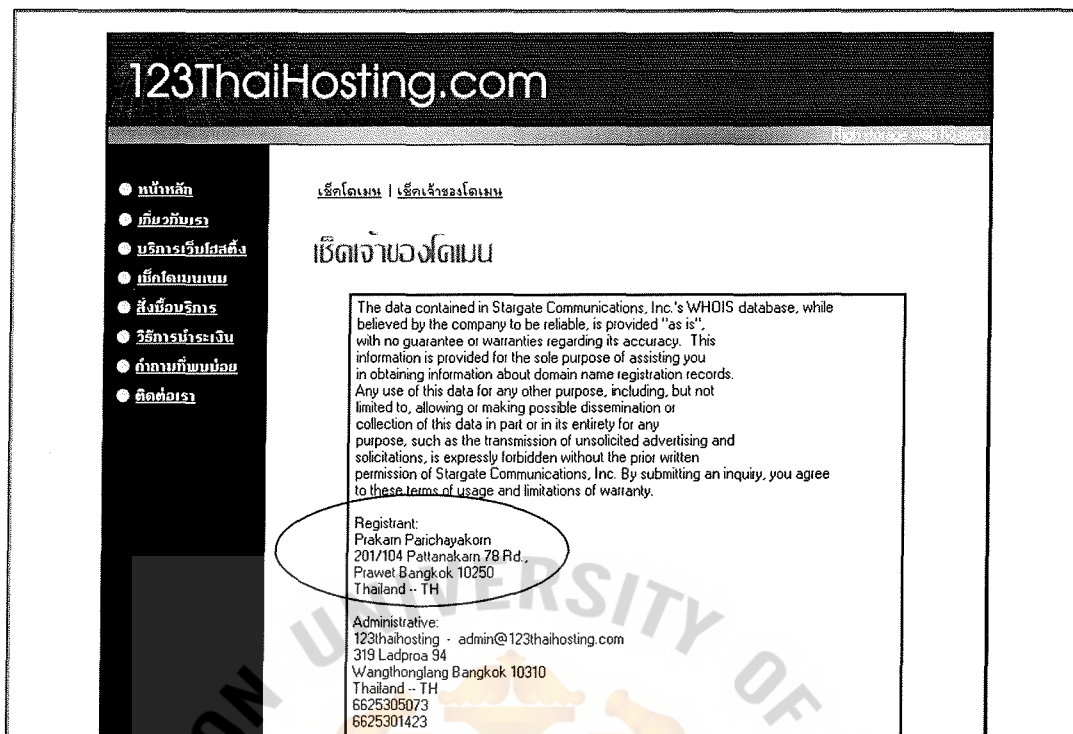
Figure 4.2. Domain Name Registration.

4.2.2 Web Design

be'CUBE!' offers 2 types of service, a shopping and a management area. Restriction applied to normal user will prevent accession to an administrative page whereas the 'admin' user can switch to a main shopping page at anytime.

Three main CRM Web application technologies that be'CUBE!' implemented can be categorized as follows.

Collaborative Technologies

be'CUBE!' utilizes a centralized database which means that every team member will deploy the same and updated data. The scheme helps be'CUBE!' personnel to better understand needs, wants, past performance, and business trend successively. Several communication medium are provided for interactivity response communication

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e.g. e-mail, web board, conferencing chat room. Web content personalization is obtained from the selection of different personal choices tailored to each customer's favorite. These optimizations help be'CUBE!' to create lively and attractive Web site for the customer.

Operational Technologies

Underlying each visit to the Web site, a tracking engine will record user activities. Each visited pages will be kept in the user activities database. The recorded fields are date, time, username, activated file name, and attributes of that page. The attribute is a key variable that the page received from a previous activated page and uses it as criteria in SQL statement query engine. The engine then displays a result page tailored to that variable. Attributes recorded in the database are product identification number, media type, category code, and content characteristic code.

Analytic Technologies

Several simple analysis modules are provided to the administrative users for their revision of Web statistic and marketing trend. The analysis displays result in graphical bar chart. There are 8 analysis modules available to view.

(1) Login activities

(2) Order frequencies

(3) Top 10 categories of choice

(4) Customer activities

(5) New subscribers

(6) 10 best selling products

(7) Top 10 media type

(8) Buying habits

be'CUBE!' personnel will use this information to refine the Web for optimum inventory management and promotional campaign on a continual basis.

4.2.3 Database Design

Relational database model based on Microsoft Access data structure is used in concurrence with active server page programming technique. Several related tables are built to keep different data input. These tables are linked together with some related fields i.e. an order table has a field named 'idCust' as a linkage to a member table.

Data recorded in relation database does not duplicate each other. This setting improves query performance. Related data in different tables are linked up via a designated field. In addition, be'CUBE!' database connection string was written with OLEDB method. It eliminates the need to query Web page's DSN with an internal data source of traditional ODBC or DSNLess method. Thus, a faster performance is gained.

Figure 4.3.   Database Design.
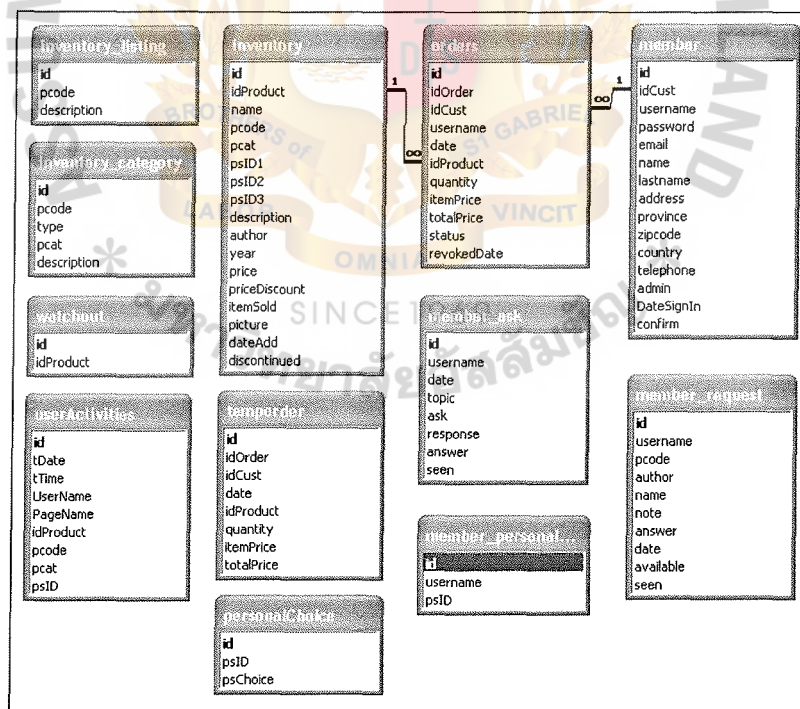
38
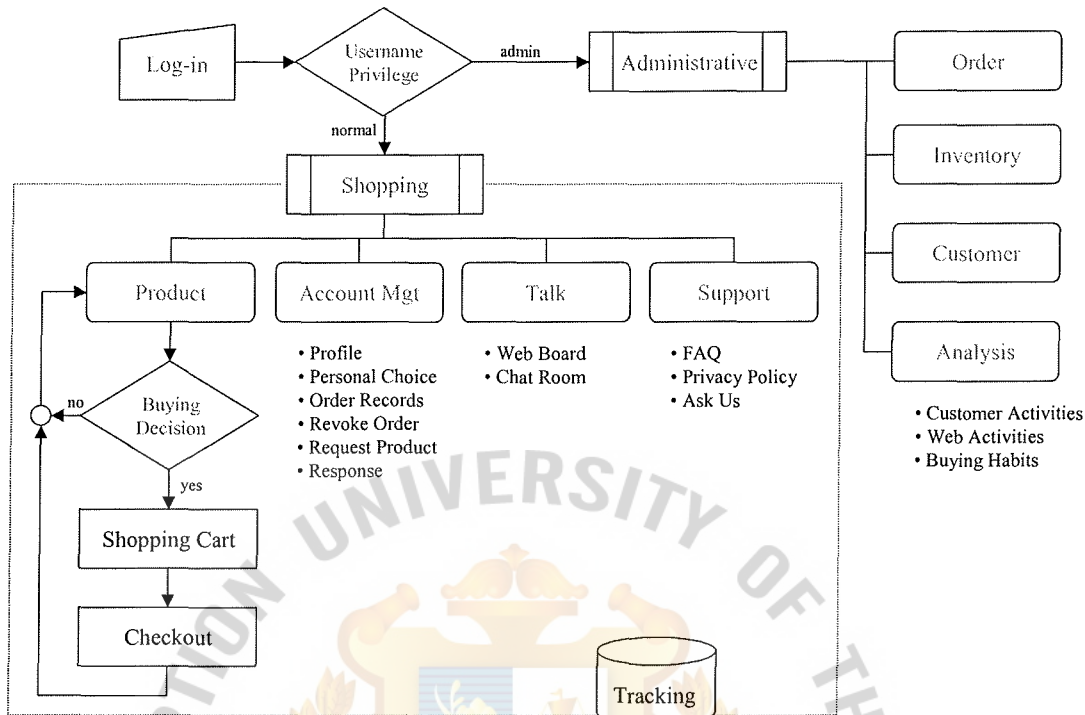
4.2.4 Site Map

Figure 4.4.   Site Map.
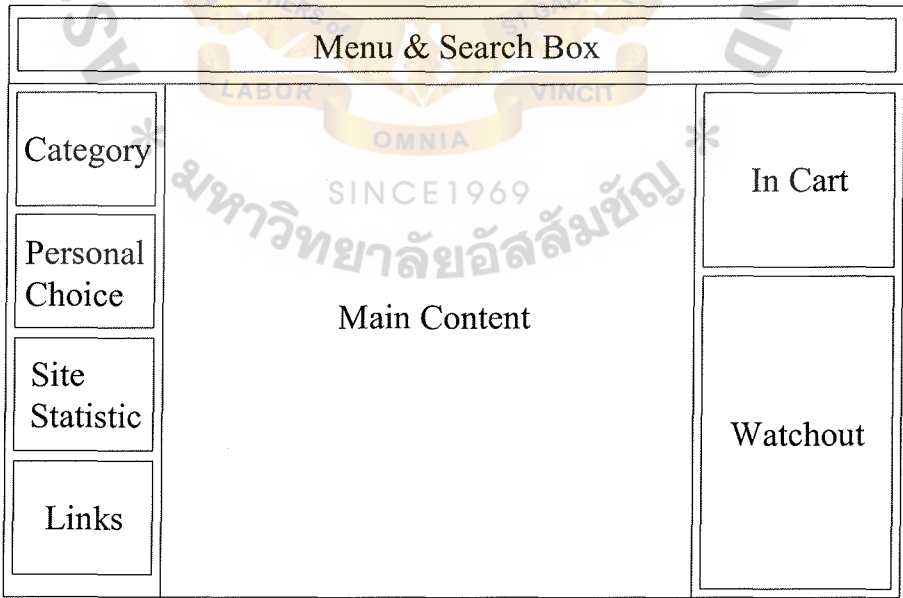
Figure 4.5.   Web Layout.

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4.2.5 Front-End User Interface

be'CUBE!' shopping storefront welcomes a customer by simple design and greeting message. The shop requires the customer to identify him/herself before continuing to a start-up page. Reasons behind this requirement are user data profiling and activities tracking, the first two resources that lead to CRM data analysis.

There are 2 login options. New user can enter a site by free subscription service. The returning customer can enter his/her username and password before continuing to a main shopping page.
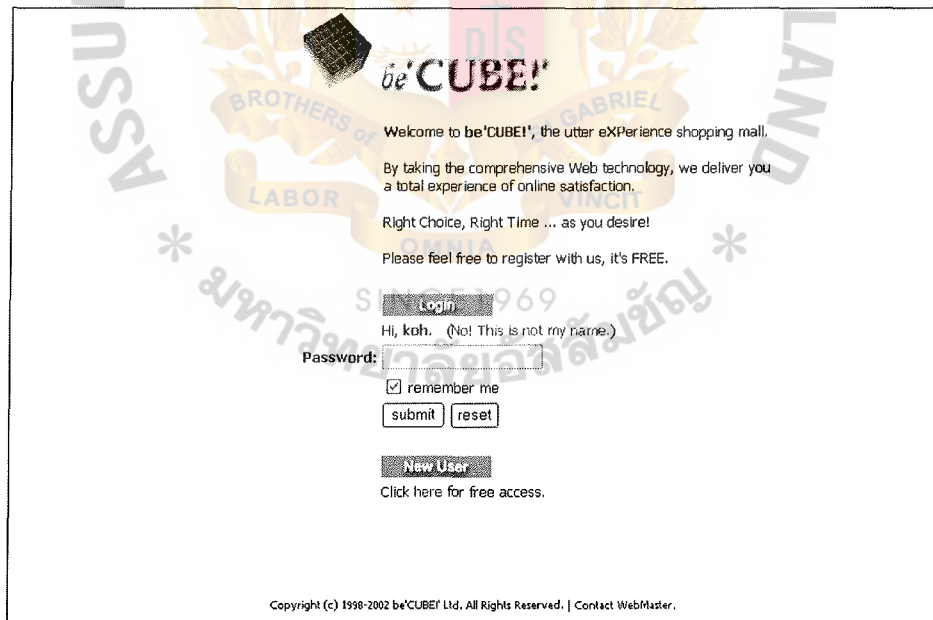
Figure 4.6.   Login Page.

The login process offers 'remember me' option to enable an automatic username recognition technique. The process writes username cookie in a browser cache with an expiration date of 90 days from the enabled date. This technique helps to facilitate login process by 2 ways. First, the customer can save time by entering only a password to

access be'CUBE!' service. Second, the customer may sense a warm welcome and self-importance when his/her name appears automatically on the page he/she browses to. This sense attaches a concern sentiment of be'CUBE!' towards its customer.

The login process will lead to different start-up pages. Depending on username access right, an admin privileged username will be granted an 'admin' access right and lead to an administrative page that supplied Web management and analysis tools. This privilege enables the user to switch interchangeably between administrative page and shopping page. On the contrary, a 'normal' access right will lead the customer to customized shopping page that supplied feature-rich user interface.

In a multi-user environment, the displayed username when 'remember me' option is enabled might not correspond to the current customer login. Simply click the 'No! This is not my name' link to switch to a normal login page.

Figure 4.7.   Start-up Page for 2nd Visit.

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New User

New user is encouraged to subscribe by concise data entry form. Three fields of personal data are required, which are username, password, and e-mail address. Then the subscription page will encourage the customer to select favorite topic (i.e. personal choice) selection page. Personal choice is a method to customize shopping page of each customer. The selected choices will appear on a lower left pane of each page. After submitting selected choice(s), a main shopping page will be displayed.

Figure 4.8.   New User – step 1 – Subscribe.

The new customer subscription method is built under the concept of simplicity. Most customers may be puzzled and annoyed other Webs' requirement to enter detailed personal information at the first visit. Moreover, lengthy list of questionnaire and data entry form timid the browsing attention of customers. Regarding this concern, be'CUBE!' asks simply 3 entries and 1 checkbox.

Figure 4.9.   New User – step 2 – Select Favourite Topics.

Main Shopping Page

Several enhanced user interfaces are built in the main shopping page. These interfaces help the customer to navigate be'CUBE!' Web page at a breeze. The animated turning-cube logo on the top left corner implies an all-in-one Web shopping experience that evolves around customer satisfaction continuously.

See Figure 4.10.

(1)   Navigation Menu & Product Selection Tab

be'CUBE!' uses hidden navigation menu that will be displayed when the customer points cursor to the menu areas: product, account, talk, and support. It applies Javascript technique to show/hide menu items. Menu helps to optimize the cleanliness of display and categorize submenu items. Moreover, the 4 tabs display on top of the screen help to streamline access products line: Book, Music CD, Movie DVD, and Computer Software.

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Figure 4.10. Main Shopping Page.

(2) Search Box & Date

Located on the top right of the screen. Search box provides 2 options of searching capability: search by title and search by author. Beneath a search box, a corresponding greeting message will be shown together with current date and time.

(3) Promotion Headline

A promotion campaign can be easily recognized by the eye-catching location on top of the screen.

(4) Collapsible Product Category Navigation Pane

4 Major products line can be furthered subcategorized. Javascript technique is used to create category pane that will expand/contract to show/hide subcategory items when the customer click on the category name.

(5) In Your Cart Pane

Not only shows the current in-cart items and total price that being updated automatically, but the pane also provides convenient access to the in-cart page from any other pages the customer is browsing.

(6) Banner

Provides link to a partner Web site.

(7) Swappable Heading

The in-line swappable heading will refresh every 3 seconds. This technique uses <IFRAME> tag of HTML programming language to swap catching topics. Four headings are configured to display together with links.

(8) New Releases

Show selected new release items. The link provided will lead to the detail of each item. However, the New Releases feature can also be selected

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from the top of category pane. By selecting from that pane, the list shown will be updated automatically from an inventory database and then displays result of latest products added query.

(9) Personal Choices Pane

Displays customized personal choice items the customer selected from subscription process. Choices can be changed by selection of account menu.

(10) Watchout Pane

This pane provides 2 functions. First, it provides random selection of 3 promoted items located on watchout database. Second, it displays 3 random corresponding items of each product that the customer selects to see detail or when the personal choice is selected.

(11) Site Statistic Pane

A summary of site statistic shows current on-line users, today hits, yesterday hits, and total hits of the Web. The number on-line user derives from counting the variable – application ("onlineuser") - in global.asa file.

(12) Links Pane

Product Selection

The customer has many choices for product selection. See Figure 4.11.

(1) Navigation Menu & Product Selection Tab

(2) Promotion Headline

(3) New Releases

(4) Category Pane

(5) Personal Choices Pane

(6) Watchout Pane
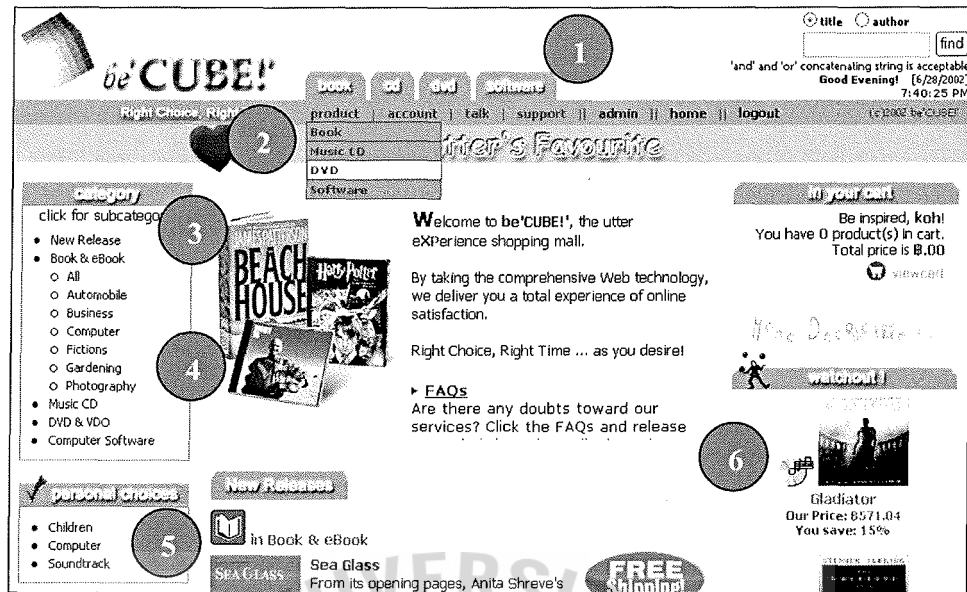
Figure 4.11.   Various Ways for Product Selection.

Product Display Page

A product display page will show 5 related items of category selected by the customer. The list will be sorted in alphabetical order. Each product is shown with picture together with summary and price quotation. The customer can order product by simply click an 'order' button while entering desiring number of quantity.

See Figure 4.12.

(1)   Category header shows current type of product and its subcategory. Clicking directly to the type provided will lead the customer to corresponding page.

(2)   Current and total page number of each browsing category is displayed on an upper right. The customer can click 'next' link to open the following page.

(3)   'Order' button provides a convenient way to put product in shopping cart.

(4)   On the bottom of the page, a page navigation bar is displayed. The customer can jump directly to desired page or simply click 'next' / 'back' link.

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Figure 4.12.   Main Product Display Page.

Personal Choice

Personal choice offers customization capability to be'CUBE!' customers. This technique gives a fast and convenient way for the customer to reach favorable products of choice. Personal choice is an aggregate domain for several product categories. For example, product listed under 'Gardening' personal choice may range from CD Music – Joy of Gardening, Computer Software – 3D Home Landscape Designer, and Book – Vegetable in the Backyard.
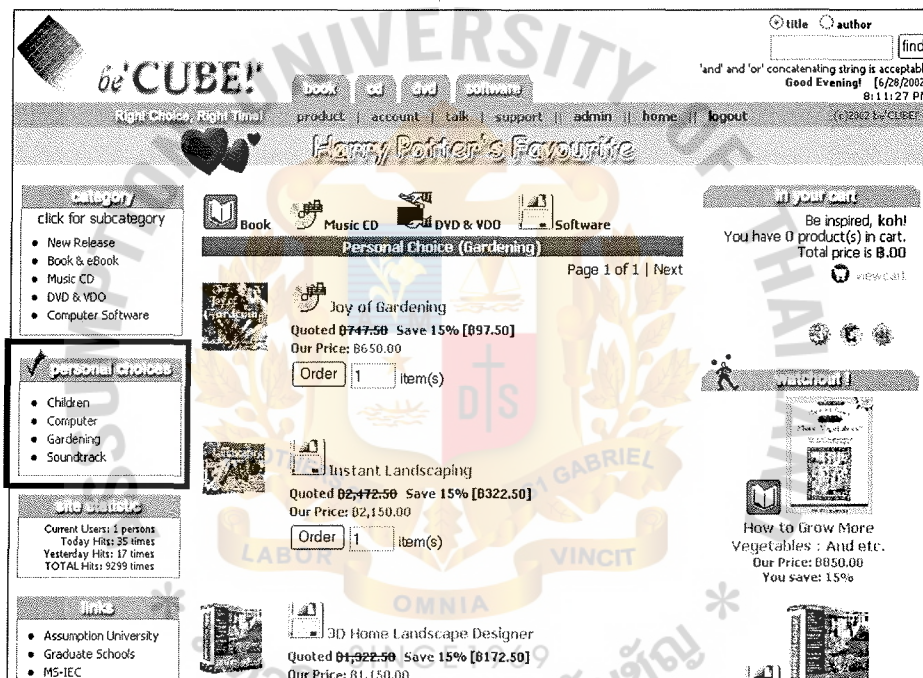
Figure 4.13.   Browse by Personal Choice.

Each type of product is displayed clearly by graphical icon. The page navigation bar is provided on both top and bottom of the page. Product detail is deducted from the display page thus enabling a display of 10 items on each page. However, the customer can see a description by clicking the product image or name.

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Watchout

Every time the customer browse to a main shopping page or other non-product pages, 3 promotion items stored in watchout database are selected randomly and displayed on the watchout pane. The same trick goes for a selection in collapsible category pane. On the contrary, when the customer selects product picture or name in order to see product description, the pane will randomly display other 3 related products
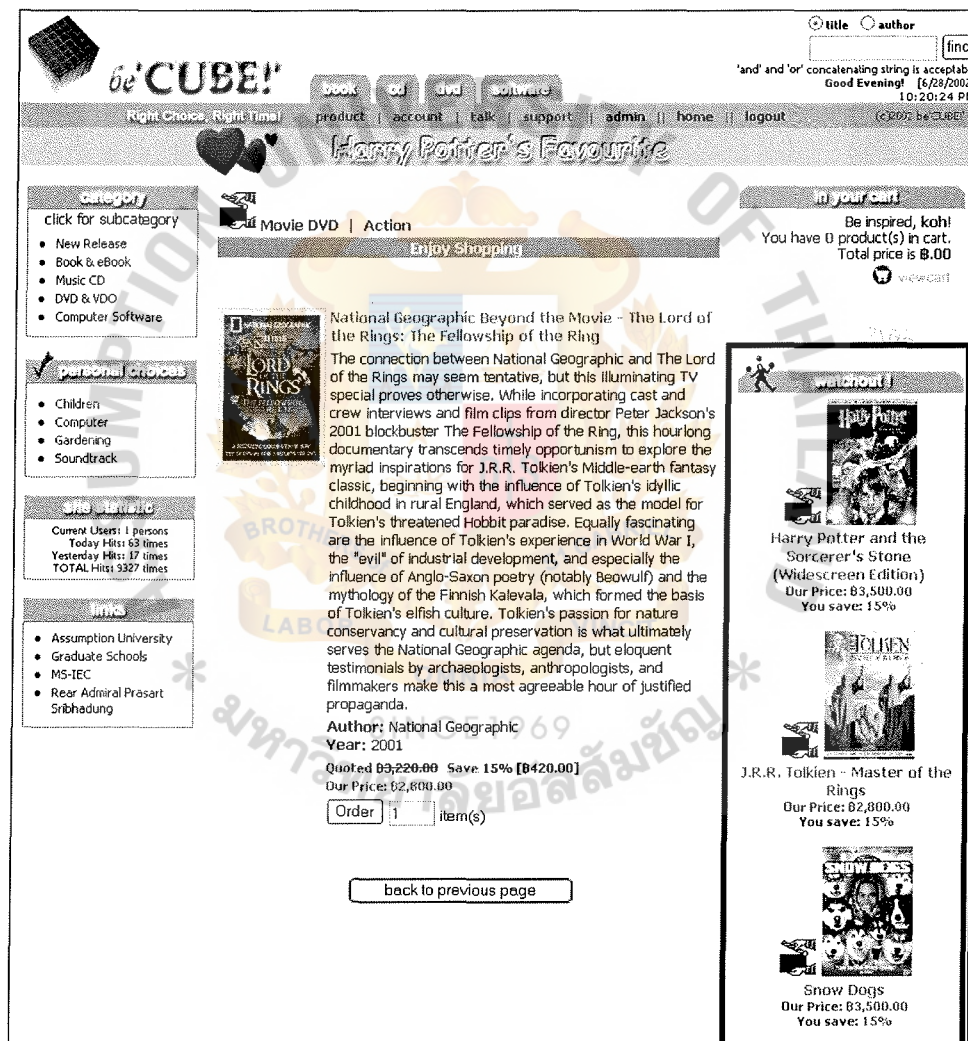
Figure 4.14. Watchout Pane.

to the one chosen. Similar result can be achieved when the personal choice pane is selected. This pane helps be'CUBE!' to boost sale by an eye-catching product item and price. Moreover, it encourages the customer to make buying decision and shop more.

Technology behind this scene is a trick in database designing. Three more fields were added to the inventory database for keeping product characteristic codes. For example, the 3D Home Landscape computer software may keep the code of: 'computer' and 'garden' as criteria for random selection.

Search

Search box on top right of screen enables the customer to find products of concern. Default search string will be queried in title field of inventory database, the result of matching title name then will be displayed. However, the customer also given
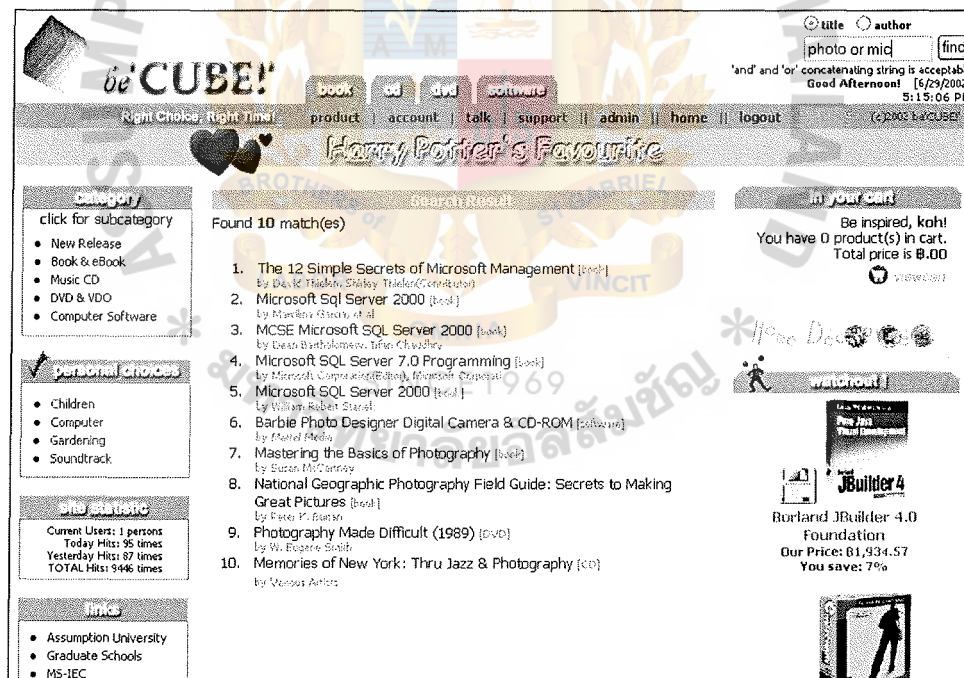
Figure 4.15.   Search Result Display.

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more power to search in author field together with the use of concatenating string 'and' and 'or' to refine the result.

Buying Process

'In your cart' page will be displayed after the customer pushes an 'order' button. This page summarizes a current status of shopping cart. It allows the customer to change quantity item, renew selection, and price of each item together with total price.

Figure 4.16.   Shopping Cart.

After changing quantity ordered or drop some products from the cart, the 'recalculate' button will generate an updated page for further decision. Then, the 'payment' button shall be pushed to enter ordering process.

If this occurrence is the first time buying decision, the customer will be prompted to enter contact information or mailing address. The process ensures the existence of the customer. Past-experienced buyers will be skipped to credit card information page promptly.

Figure 4.17.   Mailing Address Entry for the First Time Buyer.

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Ordering process will not be furthered until the requirement has been fulfilled. The submitted data will be processed and flush ordering transaction in temporary table. Then, the customer identification number will be generated and e-mail to the customer via a given address. The customer must confirm the received mail by simply clicking a provided link that will open another browser window with a postponed order together with credit card information entry for completing a buying process. Underlying this step, the customer identification number will be confirmed and ordering entry will be deleted from temporary table and posted as a new order. Once again, the 'confirm' button must be clicked to make purchase decision and launch purchase summary page.
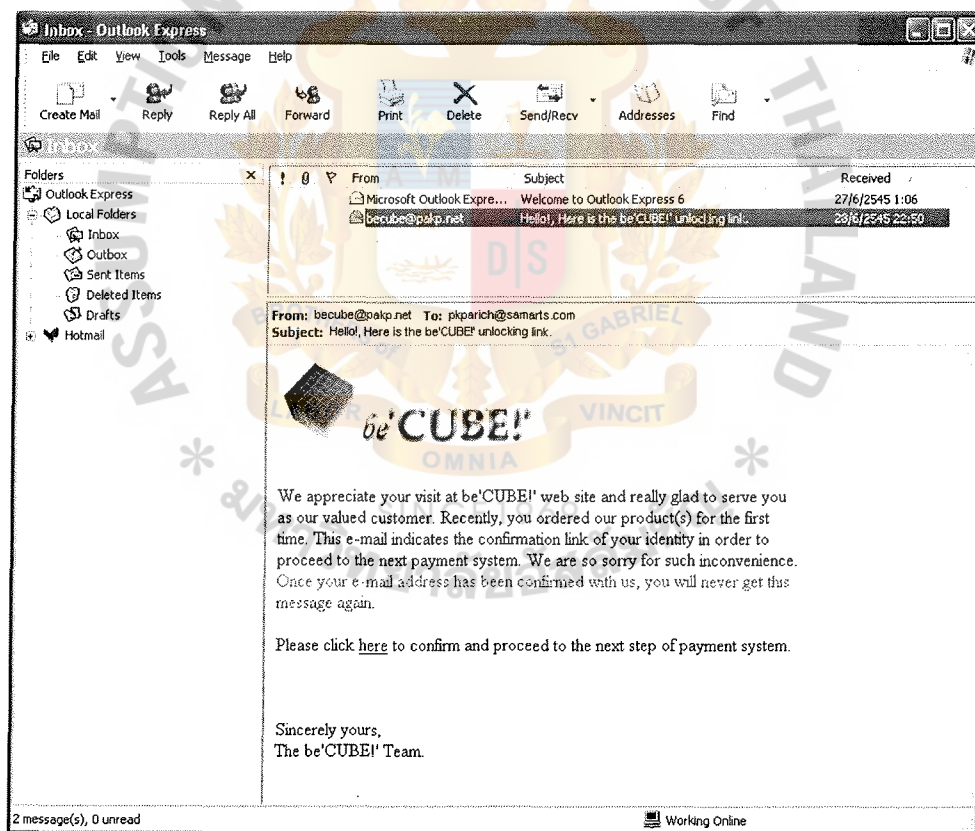
Figure 4.18.   Validated E-Mail Shown in Customer Mailbox.

Figure 4.19.   Credit Card Information Entry.

Figure 4.20.   Purchase Summary.

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Account Management

Account management menu empowers the customer to update profile and collaborate with be'CUBE!' team member. Each tool requires another login session to ensure the identity of the current user.
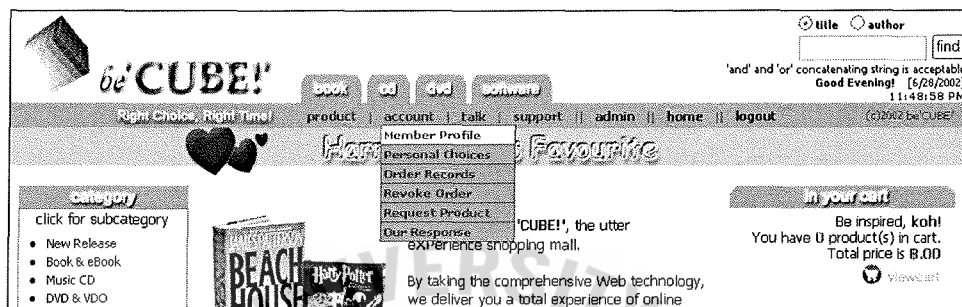
Figure 4.21. Account Management Menu.
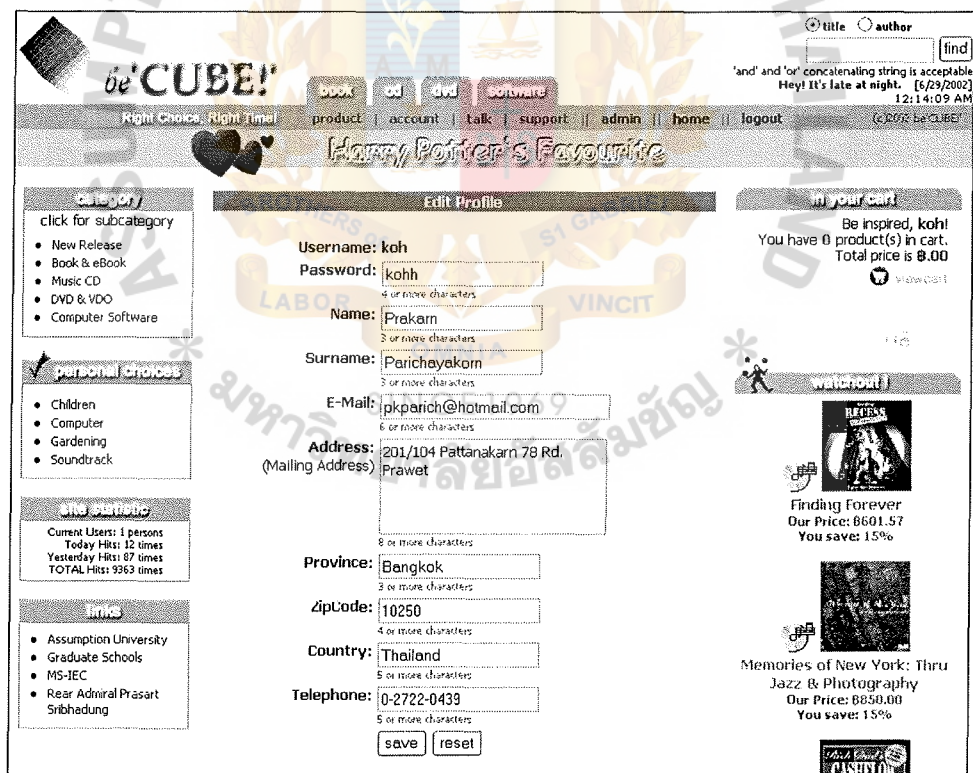
Figure 4.22. Member Profile for Updating Personal Information.

Figure 4.23.   Updating Personal Choice Selection.

Figure 4.24.   Review Past Purchasing Orders.

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Order Records enables the customer to view past purchasing record. It shows date of purchase, order identification number, total price, items purchased, quantity, price per unit and a current status of that item. The customer can keep track of the ordering item by checking its status that is divided into 4 stages:

(1) 'New Order' status indicates new order received by the system. This status will be labeled for a while until be'CUBE!' officer verifies the creditability and past payment performance of that customer.

(2) 'Processed' status indicates that the order was accepted and now being prepared for delivery. This is the last status that the customer can revoke a liability inherited in that ordering transaction.

(3) 'Revoked' status appeared after each transaction that is being revoked.

(4) 'Delivered' status indicates that the stated order had been shipped already.

Figure 4.25.   Revoke Order.

Figure 4.26.   Request Product.

When the desired product is not available in be'CUBE!' shopping inventory, the customer can request that specific product through the request page. Data received then is being profiled for new inventory admission. When a request note was acknowledged, the customer will see a lively animated pop-up box appearing on the main shopping page. The pop-up box will remain in view until the customer browses to the acknowledged note in 'Our Response' link provided therein.

The new acknowledged request then being prefixed with a red arrow, simply clicking that link will open an answer page where the customer can get an acknowledged note from be'CUBE!' team member.

This lively pop-up box concept has also been applied to an acknowledged note from the 'Ask Us' section in the support menu.
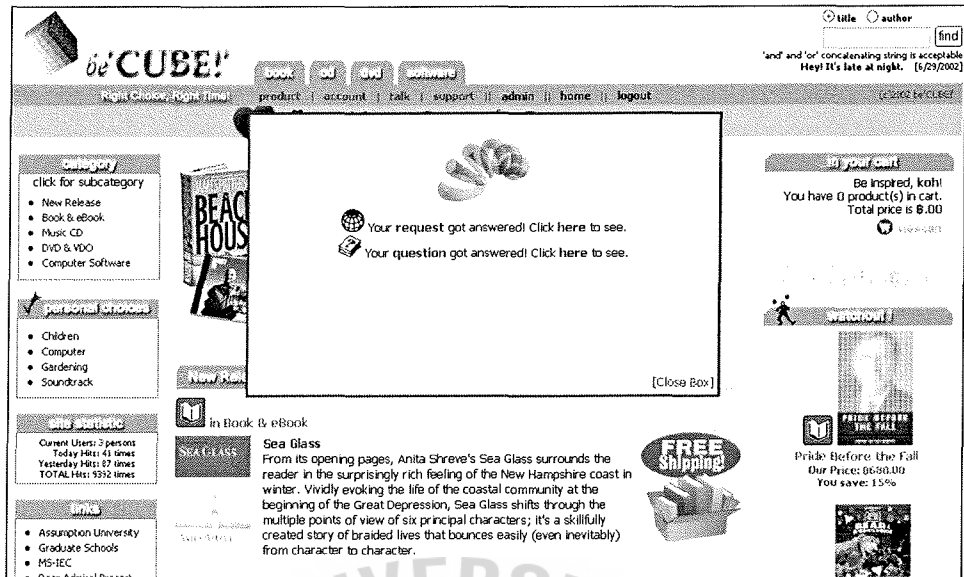
Figure 4.27.   A Lively Pop-up Box Shows Acknowledged Note Indication.
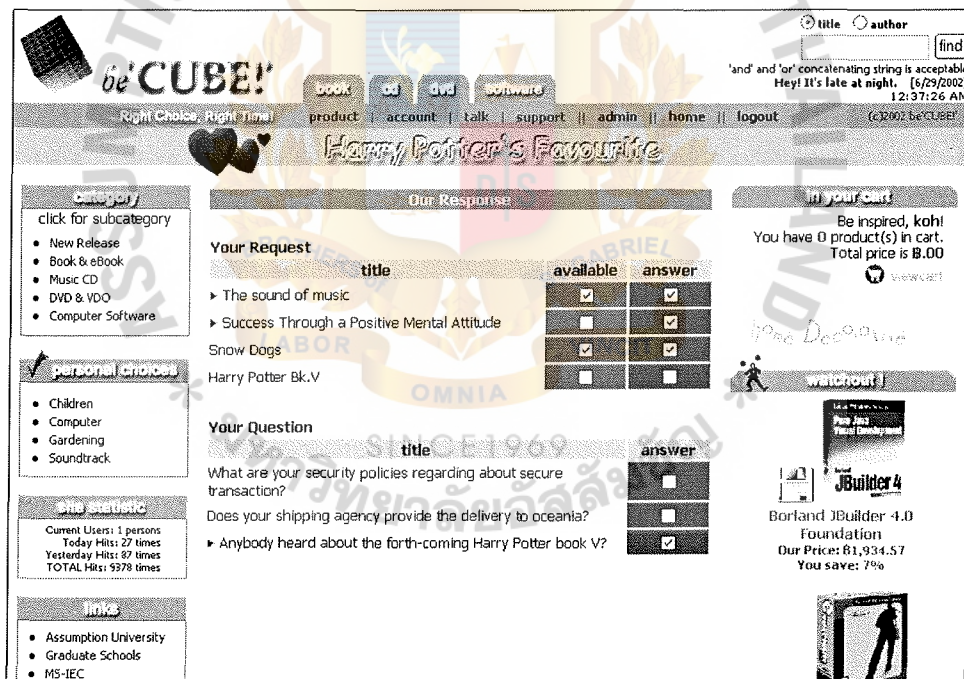
Figure 4.28.   Our Response Page.

Collaborative Tools

Under the 'talk' menu, the customer can share his/her viewpoint towards specific product or other talk-of-the-town topics in 2 ways:

(1)   Web Board

Archive of topics is provided for convenient access to past questions and answers. The list will be sorted by posting date together with a number of follow-up answers. The customer can set up a new discussion topic by clicking on 'New Topic' link on top of the question page or read a displayed
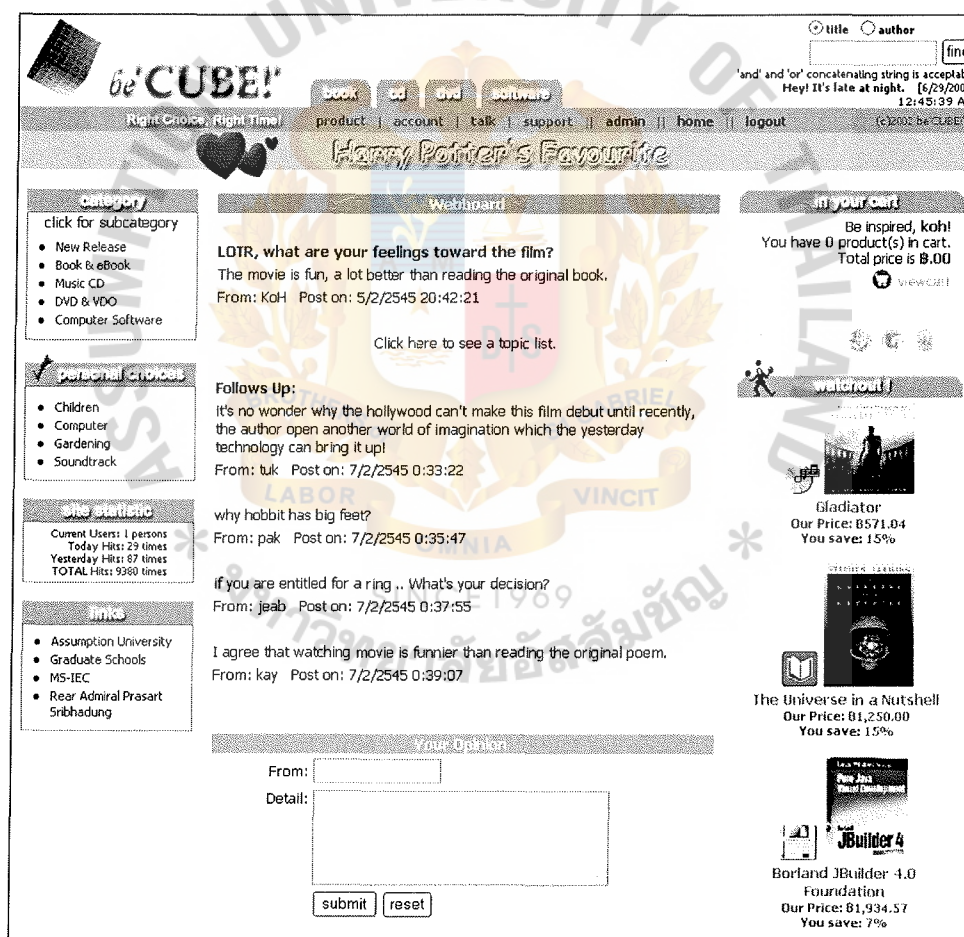
Figure 4.29.   Detail of Question in Web Board.

question to share an experience in 'Your Opinion' section under each detailed question page.

(2)   Chat Room

The real time chat room is available for the customer who wants interactive communication with others. One of be'CUBE!' team members will be on-line 24 hours a day to provide support for customer satisfaction. The entered message will be displayed on the screen by an automatic 3 seconds refresh. This technique encourages the customer to ensure support function of be'CUBE!' and helps to shorten buying decision.

Figure 4.30.   Chat Room.

Support

Support menu provides access to be'CUBE!' most concerned topics in making a buying decision. The privacy policy states an issue in secrecy of data collection while the user is surfing be'CUBE!' Web pages. Typical tracking data is stored in user activities database. It keeps pages that the customer visits and items selected whereas the personal information will be kept in a separate confidential table.

The frequently asked questions page (FAQs) is also provided to get the most talk-about topics. Questions such as 'Is it safe to use my credit card?' or 'How can I check my order?' are listed. Moreover, the 'Ask Us' page offers the customer a chance to ask a customized question tailored to his/her concern. When the question has been acknowledged, as mentioned before, a lively pop-up will be shown on an access to main shopping page to indicate an acknowledged status.

Figure 4.31.   Privacy Policy.
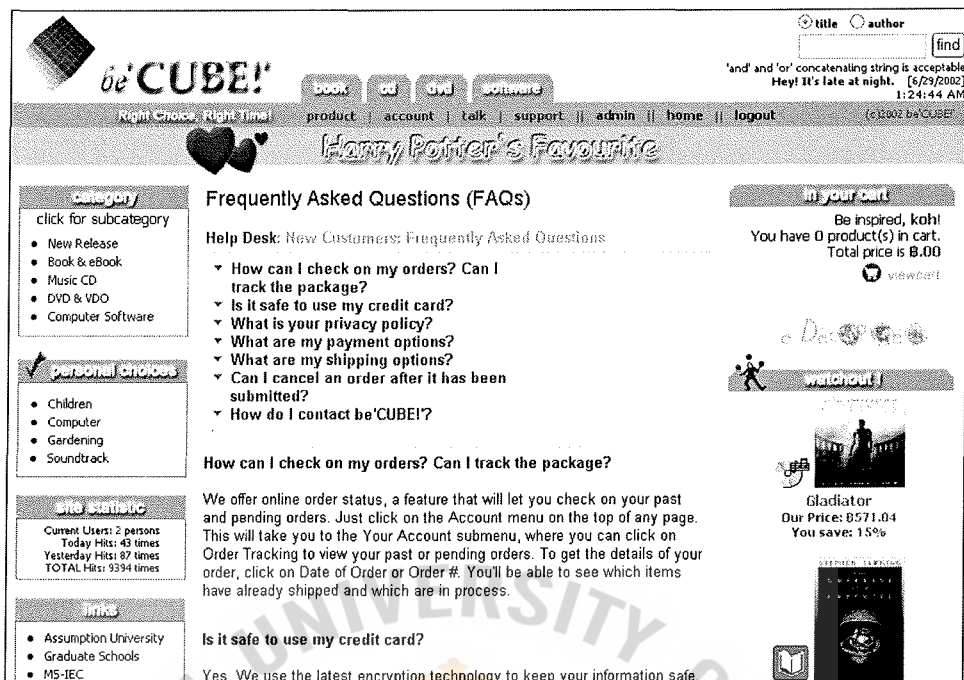
Figure 4.32.   Frequently Asked Questions (FAQs).
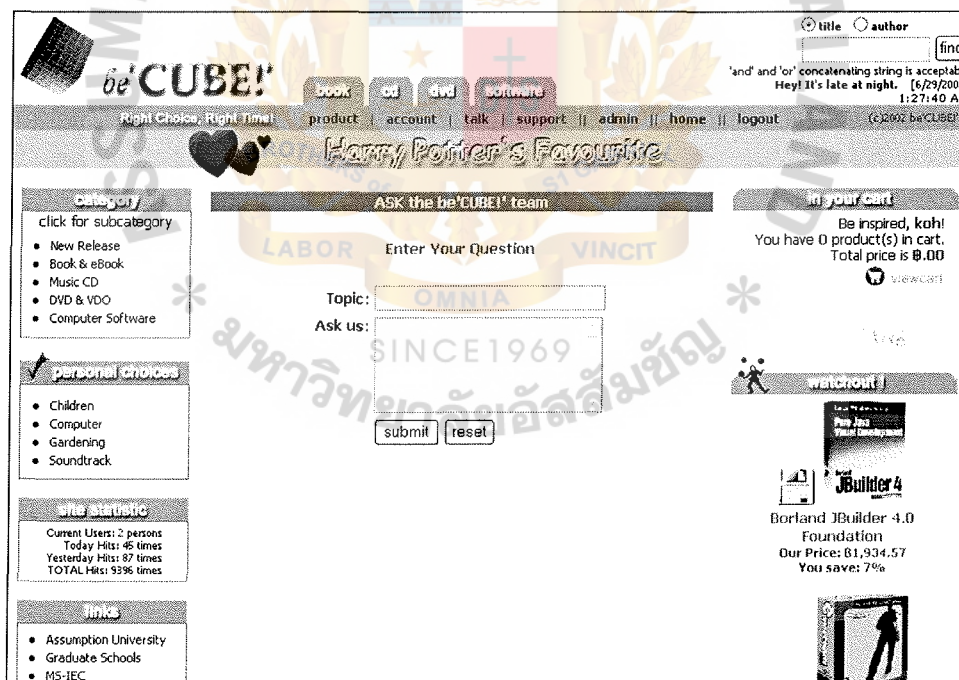
Figure 4.33.   On-demand Form to Ask be'CUBE!' Team Member.

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4.2.6. Back-End User Interface

The right to access administrative page depends on the privilege attached to each username. The granted 'admin' user will be directed to the administrative page after the validation of login process is accepted. The user can interchangeably switch to the main shopping page via the link located on the menu bar. The administrative page helps be'CUBE!' team member to organize the Web by offering tool to browse and manipulate entries in order, inventory, and customer database.

Located on the left side of the screen, 'At Glimpse' panel displays 5 different functions and provides short-cut links to those corresponding actions. Number of new orders, questions, and requests are displayed together with today and all subscription members. The panel is automatically refreshed every time the page has been loaded.

Order Management

Figure 4.34.   Order Management.

Adding new inventory or editing existing ones is straight-forward by selection of an appropriate choice from inventory menu. A drop-down list box will be used to select an inventory to be browsed or edited. Then, a detail of each selection will appear on a screen for browsing or updating.

To add a new inventory, the user must first select an appropriate product type from 4 available options: Book, Music CD, DVD, and Computer Software. A blank data entry form then is displayed with a continuous save button for inventory of the same type. This technique eliminates the need to select product type before making data entry. The user can speedy enter new inventory to a database.

Figure 4.36.   Add Inventory.

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Customer Management

Personal customer information and his/her order records can be browsed via a selection of appropriated menu items. An editing menu allows the user to manipulate customer's mailing address; however, the customer identification number and username fields cannot be changed.

Under 'Customer Order Records' menu, current status of orders for each customer is displayed with up-to-date total purchasing price. be'CUBE!' team member can verify past purchasing performance directly from this menu. Moreover, detail of each product item can be viewed by clicking on its name.

Figure 4.37.   Browse & Edit Customer Personal Information.
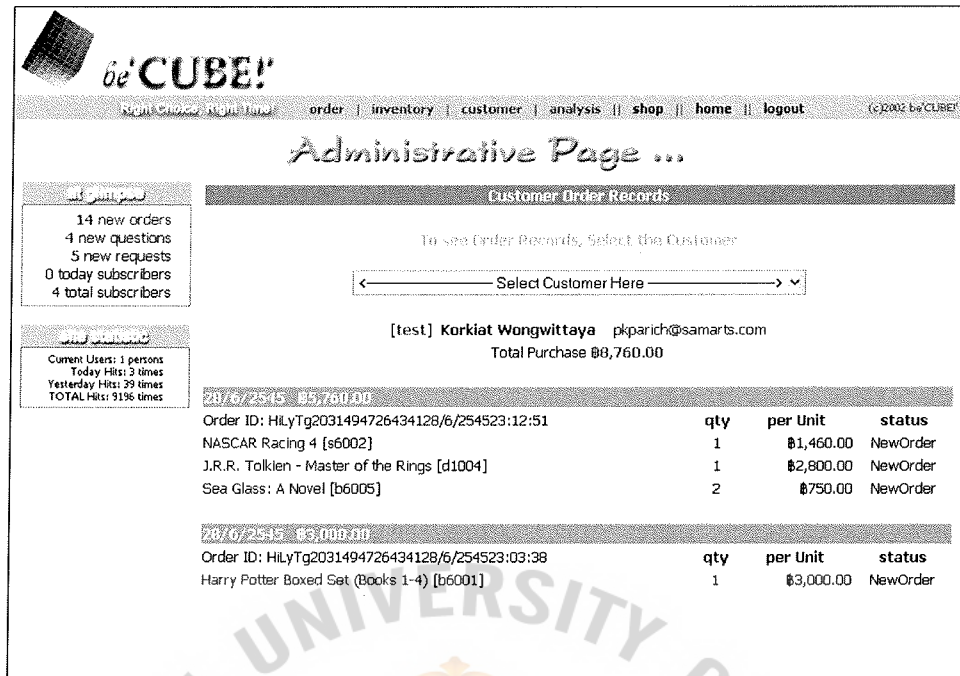
Figure 4.38.   Browse Customer Order Records.

Analysis

The analysis part is defined as a heart of CRM implementation method. The 4 principle concepts of business achievement: The Right Offer, To the Right Person, At the Right Time, and Through the Right Channel can be assessed by these set of analysis pages. be'CUBE!' team member will check these pages regularly and monitor changes attached therein as an information to improve the Web on a continual basis.

Simply select the desired customer from a drop-down list box, and then the customer activities page shows 4 different types of analysis that update itself every time the page has been loaded.

(1)   Login activities

A bar chart shows number of login sessions the customer accesses be'CUBE!' Web site in the last 6 months.

(2) Order frequencies

Total purchasing price and number of purchases are plotted as a bar chart.

(3) Top 10 categories of choice

Ranked by number of hits each personal choice item received during the customer visit to the Web, the ranking order may or may not reflect the customer's selected personal choices given during subscription process. On the contrary, it reflects a real personal choice that the customer inclines to shop.

(4) Customer activities

Step-by-step lists of each customer activities during his/her visit to the Web. This long-list is restricted into fixed display area where the user can use supplied up and down button to scroll the page.

By dropping the customer activities analysis section, the 'Web Activities' analysis page offers the first 3 analysis criteria mentioned above. Another three analysis criteria are added for consideration.

(1) New subscribers

A bar chart shows number of new subscribers in the last 6 months

(2) 10 best selling products

Ranked by ordering quantities, most desirable products are shown. The user can click product identification number under each bar to see a full product description page.

(3) Top 10 media type

Similar to the top 10 categories of choice, this analysis graph shows the most favorable selected product category.
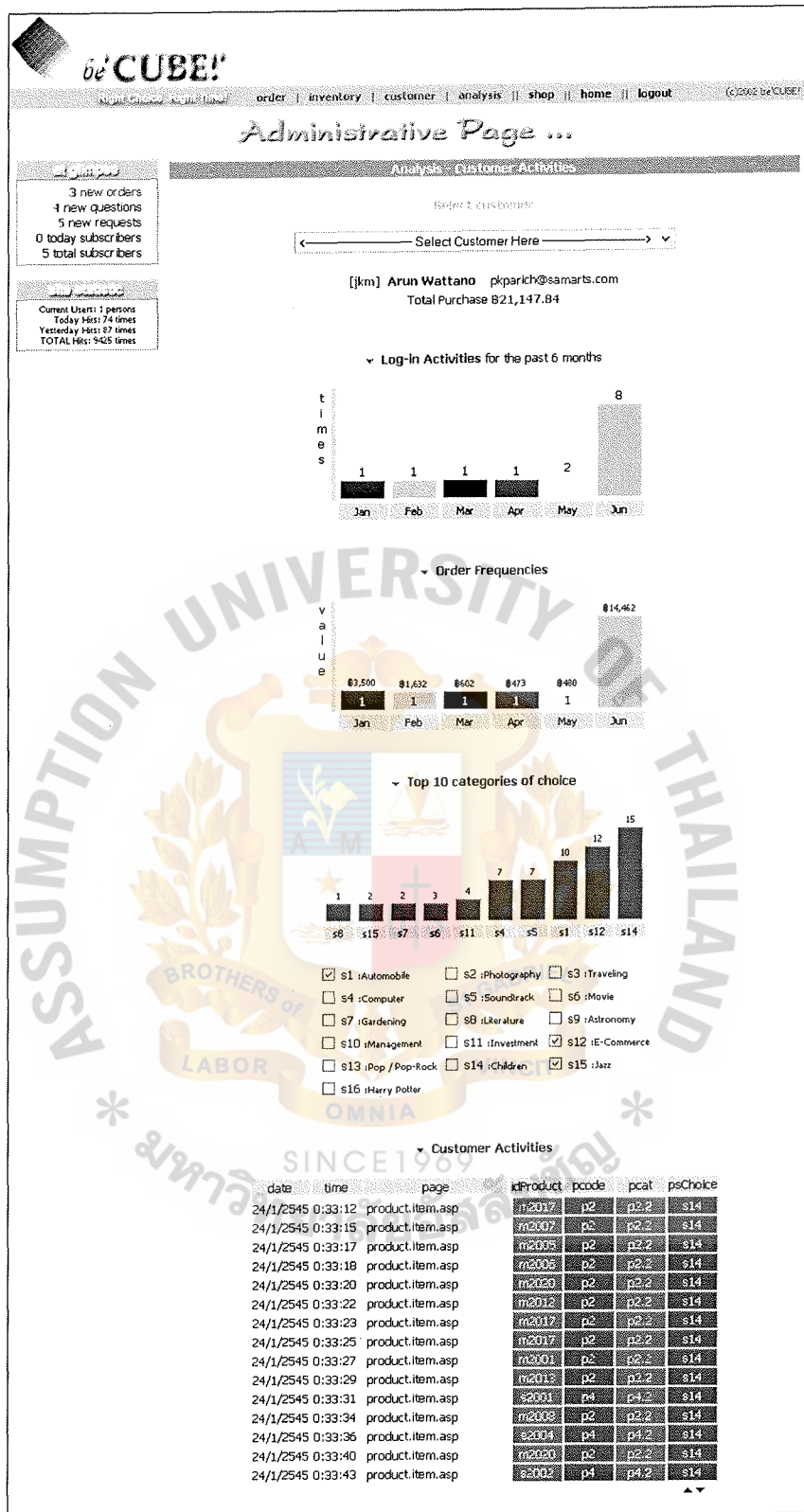
Figure 4.39.   Customer Activities.

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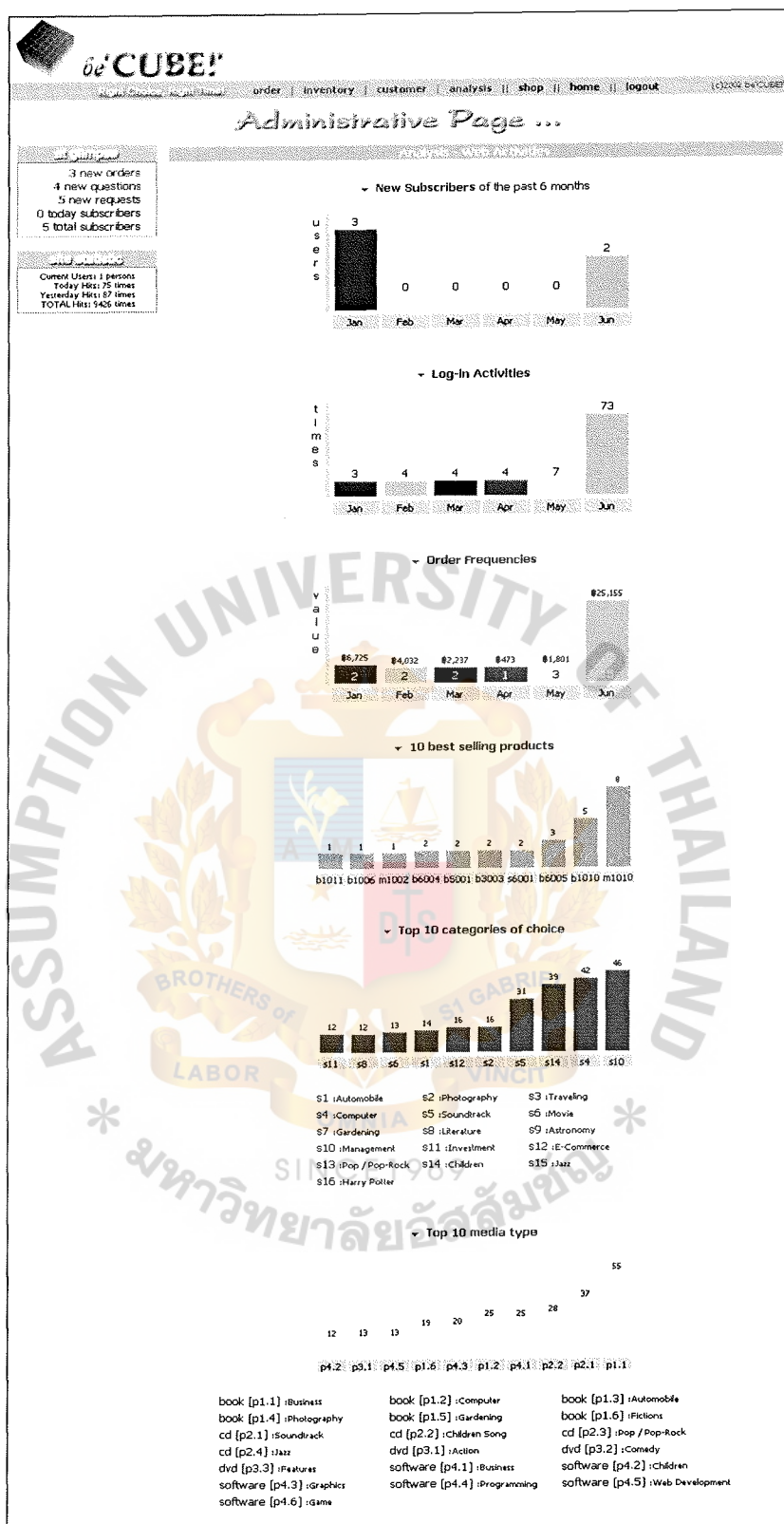
Figure 4.40.   Web Activities.

One of the most important analysis models is 'Buying Habits' analysis. This tool examines a relationship that happens between each product item during a buying process. Typical question that is clarified in this analysis is 'Are there any other products that the customer usually buy together with this one?'. First, the screen shows the 10 best selling products. By clicking the product identification number under each bar, picture and product summary will be brought in to view together with the other bar chart displaying 10 most frequent related buying items.

This tool helps be'CUBE!' team member to calibrate a proper set of product suites to serve need of the customer.
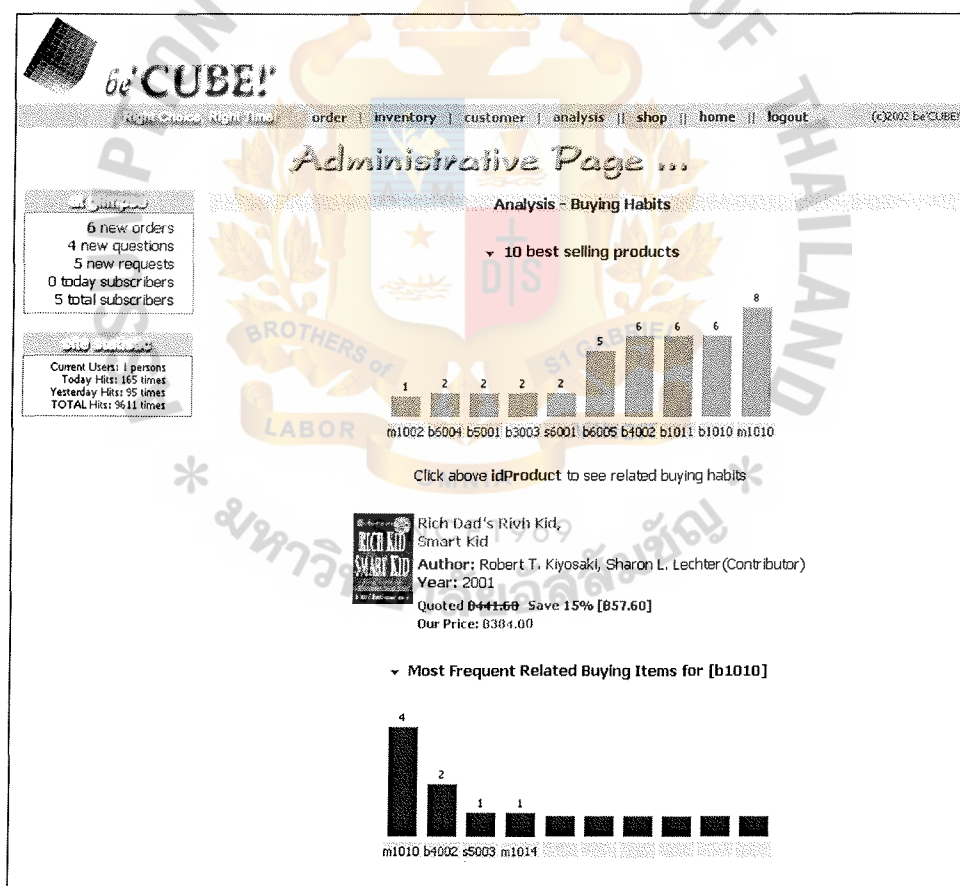
Figure 4.41.   Buying Habits Analysis.

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4.3   Customer Lifetime Value (CLV) Analysis

As the establishment of be'CUBE!' Web site is an alternative for traditional distribution channel that is already owned by the business, the return on investment is discussed for evaluation of project worthiness. The business uses Customer Lifetime Value model as a mean for analysis.

Customer Lifetime Value is defined as the profit the business earned from the customers over their lifetime. This is a calculation of Net Present Value (NPV) over years the customers remain a purchaser.

The following cost incurs from the deployment of be'CUBE!' Web site.

Variable costs

(a)	Domain name registration fee	499 Baht	per year
(b)	Web hosting service	299 Baht	per month
(c)	Broadband Internet connection	3,000 Baht	per month
(d)	Webmaster salary	38,000 Baht	per month
(e)	Clerk	12,000 Baht	per month

Fixed costs

(a)	Set up fee for broadband connection	3,000 Baht
(b)	Internet Server Gateway	70,000 Baht
(c)	Software	80,000 Baht

Table 4.2.   Detailed Breakdown of CLV Derivation.

	Traditional EC	be'CUBE!'
Number of transaction per month	10,000	10,000
Time frame	Average 1 days	Average 1 day
Customer e-mail process	No	Yes
On-line availability	No	Yes
Self-service support function	No	Yes
Required service personnel involvement	80%	50%
No. of transactions requiring human involvement	8,000	5,000
No. of transactions handled /clerk/month	900	900
No. of clerks required	9	6
Annual clerk salary	1,296,000 Baht	864,000 Baht
Annual Webmaster salary	300,000 Baht	456,000 Baht
Annual other variable costs	40,087 Baht	40,087 Baht
Total variable cost per year	1,636,087 Baht	1,360,087 Baht
Average variable cost per customer (Assume annual service of 6,000 customers)	818 Baht	680 Baht
CRM implementation – one time payment	-	153,000 Baht

This table breakdowns cost incurred by an implementation of new be'CUBE!' CRM Web application. An automated CRM Web application reduces number of clerks required from 9 to 6 persons and improves retention rate of returning customer from 50% to 70%. However, the business incurs an expense of Webmaster for 456,000 Baht that increases from traditional E-Commerce program by 156,000 Baht a year. An initial investment of 153,000 Baht is also required.

Table 4.3. CLV Calculation.

	Traditional EC	be'CUBE!'
Total Cost in a Year		
Required CRM program initial investment	-	153,000 Baht
Clerk salary	1,296,000 Baht	864,000 Baht
Webmaster salary	300,000 Baht	456,000 Baht
Other variable cost	40,087 Baht	40,087 Baht
Total cost	**1,636,087 Baht**	**1,513,087 Baht**
Assume profit per customer per year	1000 Baht	1000 Bath
No. of Year 1 customers	2,000	2,000
Assume customer retention in Year 2	50%	70%
No. of Year 2 customers	1,000	1,400
Profits from customer in Year 1	2,000,000 Baht	2,000,000 Baht
Profits from customer in Year 2	1,000,000 Baht	1,400,000 Baht
NPV profits from customer in Year 2 (25% discount rate)	800,000 Baht	1,120,000 Baht
Gross profit from Year 1 customers	2,800,000 Baht	3,120,000 Bath
Less total cost in Year 1	(1,636,087) Baht	(1,513,087) Baht
Less NPV of variable cost for Year 2 of retained customers (25% discount rate)	(654,435) Baht	(761,649) Baht
Net profit from Year 1 customers over 2 years	**509,478 Baht**	**845,264 Baht**
Customer Lifetime Value over two years	**255 Baht**	**423 Baht**

Although both E-Commerce systems yield positive customer profit, the CLV indicates that the new system helps to optimize revenue from Year 1 retained customers from 255 Baht to 423 Baht or 65.9% of increasing profit. The implementation of CRM program shall be worth to invest.

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

The illustrated be'CUBE!' On-line Shopping Storefront is developed under the CRM concept. Web design and technology are evolved around the establishment of strong mutual relationship between the company and its customers by 2 main features: personalization and predictive content. Principle to these features is tracking engine that intercepts each customer's activities in a database and analyzes that information before sending personalized content to each user.

When browsing to the site, the Web will recognize the customer automatically by a help from 'cookies technique'. The login process then redirects the customer to the main shopping page or the administrative page in case that person has an admin privilege's account. The main shopping page displays product category in collapsible format, the customer can click on the category title to view corresponding sub-categories and re-click it to hide them. If it is the first time the customer visits the site, the subscription process will provide several topics of interest for he/she to customize his/her own contents under 'personal choices' pane. Of course, the customer can change the choices of interest at a later time in an 'account menu'.

Primary content shows the promotion items and recently added items. A 'New Release' link in category pane will query the inventory database for the latest added items and group it to display by categories. The top right screen is a location of search box; the customer can query the keyword both in product's title and author. Furthermore, the concatenation strings – 'and', 'or' – are applicable to use in search function. The next lower right part is located an 'in your cart' pane. All of pre-ordered items are kept temporarily in array variables and calculated to show number of current

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items together with total price. The customer can easily click a 'viewcart' icon at any pages while he/she is cruising the be'CUBE!' Web site to display the shopping cart. The lower part is a location of 'watchout' pane, the featured CRM capability. Every time the customer browse to a main shopping page or other non-product pages, 3 promotion items stored in watchout database are selected randomly and displayed. The same trick goes for a selection in 'category' pane. On the contrary, when the customer selects product picture or name in order to see product description, the pane will randomly display other 3 related products to the one chosen. Similar result can be achieved when the 'personal choice' pane is selected.

Then, the shopping process continues. When the customer makes a decision to buy for the first time, the system will prompt to enter the contact information or mailing address together with an email. Right afterward, the verification email will be sent to the provided address while the pre-ordered records will be kept in temporary table. The customer is required to insist its identity by clicking a 'confirm' link provided in the email. Unlocking code, then, be sent back to the be'CUBE!' and redirect the customer to previous pre-ordered records automatically. The customer can track a status/history of orders and revoke the order at any time before the actual delivery is taken. The 'Account Menu' groups the personal-related items that required password before accessing. This includes 'Member Profile', 'Personal Choices', 'Order Records', 'Revoke Order', 'Request Product', and 'Our Response' section.

The administrative page is a day-to-day operating center. The be'CUBE!' personnel can access links that provide add/update/delete functions to 'Inventory', 'Member', and 'Order' database. Nonetheless, the innovative function lies at the analysis capabilities – 'Customer Activities', 'Web Activities', and 'Buying Habits'. The analysis part is defined as a heart of CRM implementation method. The 4 principle

concepts of business achievement: The Right Offer, To the Right Person, At the Right Time, and Through the Right Channel can be assessed by these set of analysis pages.

In summary, the Web design is segregated into 3 broad categories. The collaborative technology features a centralized database that provides a better understanding of customers. Several communication media are provided for interactive responses such as e-mail, webboard, chat room, and asking box. The personalization and watchout techniques also help to facilitate overall business flow. The tracking engine lies as a heart of operational technology. The recorded data will be analyzed in graphical analysis modules for interpreting customer interactions.

E-Business intelligence enables businesses to make informed business decisions and remain competitive. The CRM initiative may have high-impact actions that range from modifying Web site design to changing product mix to more active content management. Then, the CRM project should be adjusted by continual basis. Though the CLV analysis indicates that the implementation of be'CUBE!' CRM concept contributes to a 66% higher profit margin, the successful implementation requires an overall strategic planning that being revised and updated over times.

At last, I hope that this study will encourage Thailand entrepreneurs to align their current E-Channels to captivate this distinguish CRM concept which will, in turn, enhance the overall nation economy to a more satisfactory level.

5.2   Recommendations

be'CUBE!' CRM program implementation has just finished phase 3 of developing process. The system is being developed for phase 4, vendors integration. However, some refinements for previously completed phases are needed.

(1)   Develop automated e-mail response.

(2)   Track search criteria the customer enquired for specific products.

(3)   Employ campaign program for customers who lost contact to be'CUBE!' during the past 3 months.

(4)   Provide editable field for be'CUBE!' team member to take a short note for each customer past performance.

APPENDIX A

DATABASE DESIGN

Provided below are database structure of some selected tables that pertain to a viable of CRM Implementation. Tables are designed around the relational database model. Each table will have a special key field to link between each other. Note that this field is indexed with unduplicated copy method.

Table A.1.   Database Structure of Member Table.

Field	Type	Size	Description
id	AutoNumber		Primary key
idCust	Text	50	Customer identification number
username	Text	50	Displayed username
password	Text	50	Password
email	Text	50	E-mail address
name	Text	50	Firstname
lastname	Text	50	Lastname
address	Text	255	Address
province	Text	50	Province
zipcode	Text	10	Zipcode
country	Text	50	Country
telephone	Text	20	Telephone
dateSignIn	Date/Time		Subscription date
admin	Yes/No		Administrative status
confirm	Yes/No		Personal identity confirmation

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Table A.2. Database Structure of Inventory Table.

Field	Type	Size	Description
id	AutoNumber		Primary key
idProduct	Text	10	Product identification number
name	Text	150	Product title
pcode	Text	5	Media type
pcat	Text	5	Category
psID1	Text	5	Personal choice #1
psID2	Text	5	Personal choice #2
psID3	Text	5	Personal choice #3
description	Memo		Product description
author	Text	150	Author
year	Text	4	Published year
price	Currency		Item price
priceDiscount	Number		Discount rate
itemSold	Number		Number of sold items
dateAdd	Text	50	Date added to inventory
picture	Date/Time		Product picture
discontinued	Yes/No		Discontinued option

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Table A.3.   Database Structure of Orders Table.

Field	Type	Size	Description
id	AutoNumber		Primary key
idOrder	Text	50	Order identification number
idCust	Text	50	Customer identification number
username	Text	50	Username
date	Date/Time		Date of transaction
idProduct	Text	50	Product identification number
quantity	Number		Quantity ordered
itemPrice	Currency		Item price of this product
totalPrice	Currency		Total price for that order
status	Text	50	Order status
revokedDate	Date/Time		Revoked date

Table A.4.   Database Structure of UserActivities Table.

Field	Type	Size	Description
id	AutoNumber		Primary key
tDate	Date/Time		Date
tTime	Date/Time		Time
username	Text	50	Username
pageName	Text	50	Visited filename
idProduct	Text	50	idProduct attribute
pcode	Text	50	pcode attribute
pcat	Text	50	pcat attribute
psID	Text	50	psID attribute

APPENDIX B

PSEUDOCODE

Main Shopping Page

- default.asp   - login.asp   - start.asp

- start.top.asp   - start.bottom.asp

1.   After the username has been validated, a normal user will be redirected to a main
     shopping page while an admin user will be redirected to an administrative page.

2.   Query answered question and requested product. If found, displays a pop-up box.

3.   Show the customer's selected personal choices.

4.   Display site statistic.

5.   Update incart array variable and display current status.

6.   Randomly select products to display in watchout pane.

Buying Process

- product.code.asp   - product.cat.asp   - product.item.asp

- product.newRelease.asp - product.psChoice.asp   - buy.inCart.asp

- buy.process.asp   - buy.checkout.asp   - subscribe.full.asp

- subscribe.add.asp   - subscribe.confirm.asp

1.   The customer browses to various product catalogs then make a decision to buy.

2.   Product identification number and ordered quantity are kept in array.

3.   If this purchase is the first visit of the customer, mailing address form are
     provided. Confirmation link is mailed to provided e-mail address. The customer
     must open his/her mailbox and follow the information attached therein.

4.   When a confirmed link is clicked, the validation of customer is complete.
     Generated customer identification number is recorded. Then, previous postponed
     order is shown by removing from temporary table. Credit card information form is
     provided to complete a transaction.

Account Management

- member.profile.asp   - member.psChoice.asp   - member.records.asp

- member.revoke.asp   - member.request.asp   - member.response.asp

1.   Prompt for password verification.

2.   idCust attribute is used to query member table according to criteria in each page.

3.   Shows resulted recordsets on the screen.

4.   If the customer manipulates data, update the corresponding table.

Administrative Page

- admin.top.asp   - admin.bottom.asp   - admin.order.asp

- admin.request.asp   - admin.ask.asp   - inventory.edit.asp

- customer.edit.asp   - customer.record.asp

1.   Provided drop-down list box of inventory or customer for selection.

2.   The user has 2 choices for browsing or editing.

3.   For an order management page, status attribute for each order record is changed according to the step of New Order, Processed, and Delivered.

Analysis Page

- analyze.customer.asp   - analyze.web.asp   - analyze.buyHabit.asp

1.   Select the customer name, then idCust attribute is used to query the userActivities table by 4 different criteria.

2.   Results are displayed in graphical bar chart.

3.   For Web analysis, additional 3 criteria are set.

4.   Buying habits analysis categorizes each idProduct attribute in orders table to find related buying items at the same idOrder attribute.

APPENDIX   C

NET PRESENT VALUE (NPV)

Net Present Value (NPV) gives explicit consideration to the time value of money; it is considered a sophisticated capital budgeting technique. It discounts the firm's cash flows at a specified rate. This rate – often called the *discount rate, opportunity cost,* or *cost of capital* – refers to the minimum return that must be earned on a project to leave the firm's market value unchanged. Using NPV, both inflows and outflows are measured in terms of present Baht. The initial investment is automatically stated in term of today's Baht.

NPV = Present Value of Cash Inflows – Initial Investment

$$NPV = \sum_{t=1}^{n} \frac{CF_t}{(1+k)^t} - II$$

II : Initial Investment

CF_t : The Present Value of cast inflows

k : Discount Rate

t : Time Period

<u>Decision Criterion</u>

If NPV is greater than 0, accept the project. If NPV is less than 0, reject the project. If NPV is greater than zero, the firm will earn a return greater than its cost of capital. Such action should enhance the market value of the firm and therefore the wealth of its owner.

APPENDIX   D

COMMON MYTHS ABOUT CUSTOMER LOYALTY

Myth No.1:

Businesses can 'build' customer loyalty.

The reality is: Businesses cannot 'build' customer loyalty. They can form economically justifiable relationships with is each customer based on an understanding of their internal loyalty intensity, which is each customer's inherent propensity to stick with the current situation. This internal loyalty intensity can be measured via the application of appropriate statistical and neural methods on carefully defined and compiled customer attribute data.

Myth No.2:

Customer satisfaction leads to retention and loyalty.

The reality is: Customer satisfaction beyond a threshold level is neither necessary nor sufficient for retention. It has been found that the more effective approach to gauge the likelihood of retaining a customer is to take into account the inherent loyalty intensity of the customer combined with the switching opportunities and competing incentives that customer is likely to encounter.

Myth No.3:

Technology is the magical answer for building customer loyalty.

The reality is: Technology is an enabler. Frequently, it is a crucial part of a solution, however, it is not the solution itself. Used properly and cost-effectively, technology is a critical enabler in building optimal relationships with the customer. If not, it can be very wasteful and yield undesirable results.

Myth No.4:

A series of good interactions or experiences with the customer results in a good relationship and loyalty.

The reality is: A series of good interactions or experiences does not guarantee a good relationship. They are necessary just to stay in the game. Providers have to apply their resources in a manner that maximizes the likelihood of finding those customers with whom they have the "fit".

Myth No.5:

Companies should to do the most for their most loyal customers.

The reality is: Companies have to do the least for their most loyal customers. They should determine the inherent loyalty propensity of each customer and allocate rewards to them on the basis of their "true worth" which is calculated from their loyalty intensity, lifetime revenue stream, and all direct and indirect costs incurred in serving them.

Myth No.6:

The most desirable customers are the ones that provide the most revenue i.e., bigger is better.

The reality is: Bigger is not always better. The true worth of a customer is dependent not just on revenue or even profitability as currently measured, but, on profitability that explicitly recognizes and attributes all costs, direct and indirect, including those associated with acquisition and retention, to each customer. Until practices and mechanisms are in place to capture and attribute acquisition and retention costs, the internal loyalty intensity discussed before can be used as a proxy for attributing those costs.

Myth No.7:

An effective way to achieve customer loyalty is to tie them up with multiple products/services, long-term contracts and frequent buyer programs (usually called "loyalty programs") that make it difficult for them to switch.

The reality is: Continued business from a customer results from the formation of a win-win relationship and not because of entanglements. It is important to mention again that providers should direct their resources to finding customers with whom they can have win-win relationships. If contractual and other barriers are erected, everyone loses.

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