DEVELOPING AN E-CRM PROTOTYPE FOR MEDIUM-SIZED COMPANIES

By

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Dissertation submitted in partial fulfilment
of the requirement for the
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CERTIFICATION OF APPROVAL

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A project dissertation submitted to the
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(INFORMATION SYSTEMS)

Approved by,

_____

(Miss Michelle Beh Ooi Ching)

UNIVERSITI TEKNOLOGI PETRONAS
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December 20

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein has not been undertaken or done by unspecified sources or persons.

FAIRUL RIZAL BIN FAHRURAZI

ABSTRACT

This report is a final year project involving a research of Customer Relationship Management (CRM) System focusing on a medium-sized company and using a computer supplier company as a testing platform for the E-CRM prototypical. CRM is a strategy used to learn more about customer needs and behaviors in order to develop a stronger relationship with them.

The problems such as the use of manual activity in generating quotation, no centralized database of customer and no proper channel for communication process in medium sized company can lead to customer dissatisfactions. The E-CRM system hopefully can give the solution. The main question now is what kind of E-CRM system best suited for a medium-sized company? Thus, the author has been using the data from the computer supplier company as a way for testing the effectiveness of E-CRM in a medium-sized company.

This project basically concentrates on the study of E-CRM system in order to support the salesperson of the medium-sized company to automate their work in maintaining a healthy relationship with all contacts and prospective customers. This report also gives further information about the system in the literature review section, which is mainly supporting information that comes from the website, journal and research by an expert in this field. Methodology plays a vital role in completing any project. Waterfall model is used as the methodology, which consists of planning, analysis, design, implementation and operation. The final result of this study is a discussion, conclusion and prototypical E-CRM system which are strengthening relationship between an organization and their customers.

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The author would like to thank his family members, who have consistently given spiritual support throughout the process of completing this project.

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ABBREVIATIONS AND NOMENCLATURES

CRM	: Customer Relationship Management
E-CRM	: Electronic Customer Relationship Management
E-Business	: Electronic Business
FYP	: Final Year Project
GUI	: Graphical User Interface
HTML	: Hypertext Markup Language
SDLC	: System Development Life Cycle
SQL	: Standard Query Language
WWW	: World Wide Web
XML	: eXtensible Markup Language

CHAPTER 1

INTRODUCTION

1.1 Background of Study

The concept of Customer Relationship Management (CRM) has been in the air for a long time ago, but CRM gained well known popularity in the mid of 1990. CRM is a business strategy to select and manage the most valuable customer relationships. CRM requires a customer centric business philosophy to support effective marketing, sales and service processes. Moreover, CRM system can enable effective customer relationship management. Before people realized what the Internet was all about, the computer supplier company was the primary user of application designated CRM. Then E-Business had come in and E-CRM applications were introduced to allow organizations to interact directly with customers via corporate websites-commerce storefronts, and self service applications. Randy Harris (2003) in his journal highlighted that starting from 1999 a partner relationship management applications hit the market, designed to support channel partners and other intermediaries between an enterprise and its end customers.

From the above statement we can understand that E-CRM gradually became a very important element in a company that wants to strengthen a relationship with its valuable customers. Maybe, for years ahead the E-CRM system will become a compulsory application in a company all around the world.

1.2 Problem Statement

1.2.1 Problem identification

Many medium-sized companies are using a manual activity in generating a quotation, sales order and reporting. Customers are also having problems getting information on their orders, invoices, and status of their sales. This manual activity is really tedious and time consuming. Moreover, based on Amundson (1999) the human error rate in generating sales order and quotation in 1998 was about 0.23 percent, this problem for sure can lead into low processing level of sales order and quotation.

No centralized storage of customer data is one of the problems in medium-sized companies. All sales activity data are stored on the personal computer of each salesperson and for sure the other members do not know what the salesperson is doing. This will lead into miscommunication and redundancy of work among team members. Information on service and support cases is saved on individual computers and is not visible to team members or management. As a result, some cases are not taken care of on a timely basis. This leads into customer frustration and, possibly, loss of customers.

On the other hand, salesperson does not have a clear idea on what products cause most problems and in what area. There are no reports on customer service cases for specific items, for individual customers or for customer service representatives. Customer service cases submitted via e-mail and web site are not organized and do not always reach technical support representatives. All the e-mail always might get mixed up or lost.

Customers think that the salespersons should be able to answer more technical questions or customers want faster answers to technical questions. If companies are

not really taken care of that problem, this will decrease the confidence level of customer to do businesses with those companies. Customers will always think that they are not valued enough and turn into the company's competitor which has more capability in handling customer's communication problem. Whoever can provides a fastest anticipation to customer will has competitive advantage in doing business.

On the other hand, orders are coming in various means such as fax, telephone and e-mail and these giving salespersons having a hard time to keep track of the total sales order. Moreover, orders are stored on individual computer or on paper. Thus it is hard for salespersons to keep track of backorders and unshipped items.

Salespersons do not have capability to access to customer data beside their own sales activity information is one of the problems in medium-sized companies. Without this information, the salesperson will have a problem to define correct strategy in dealing with each individual customer. The problem becomes bigger when salespersons have to call the office each time they need about a specific purchase or previous service. This situation is really time consuming for salespersons and will lead them to discourage in work.

1.3 Significance of Project

Nowadays, customers are too comfortable with easy-to-use system. Web pages, sites, applications, and program will be placed behind and rejected by users if the easy-to-use principal was not designed according to the standards. This project aims to research and produce the E-CRM prototype that will best suited for the medium-sized companies in order to gain and maintain customer's satisfaction. The author will use the data from computer's supplier company as a way for E-CRM prototypical design.

With the existence of E-CRM, centralized customer information is available for all company departments. It can be imported, exported and the data can be synchronized across all the company departments. It also allows coordinated work by all members of customer service and technical support teams.

With E-CRM, each salesperson can review and run reports on each aspect of customer-related activity:- sales, service cases, ordering patterns, projects in pipeline, quotes that were given. This information helps each salesperson to define correct strategy in dealing with each individual customer.

E-CRM provides a centralized storage for all orders. Salesperson can enter all orders received over the phone or by fax and they will become immediately available to fulfillment. E-CRM also allows customers to receive this information online in real time. These features can increase customer' satisfaction and attract new customers to trade with those company.

1.4 Objectives and Scope of Study

The general objective of this E-CRM system is helping the medium-sized companies to automate their work in maintaining a healthy customer relationship with all contacts and prospective customers. Specifically, the E-CRM system will be used by salespersons in a company and should be able to:

- Deal with customers more efficiently by building a Workplace Module which contains the customer's activity such as places a sales order.
- Provide better customer services by building a Service Module which is provided after sales service to the customers.
- Determine the status of sales order in the system.
- Create a report on a customer's activity. Thus the salespersons can review and handle the report that already created by the program.

This project will conduct thorough research on what kind of E-CRM system will be best suited for a medium-sized company. It also involves the development of E-CRM system prototype.

CHAPTER 2

LITERATURE REVIEW AND THEORY

2.1 Facts on CRM Researches

Gerd Amundson (1998) had managed to support the author's research work by quoting the following statement when referring to his work entitled "CRM definition and information";-

> "Customer Relationship Management (CRM) is defined as finding, getting, and retaining customers. CRM is also defined as tracking customer behavior in order to develop marketing and relationship-building programs that bond consumers to a brand often by development of software systems to provide one-on-one contact between the marketing business and their customer."

From Amundson quotation we could understand the importance and relevancy of CRM to any company in the world. As computer get faster and the evolvement of new technologies happens almost everyday, it is important for a company to understand how they could manipulate CRM in order to find, get and retain customers.

2.2 Tools and Knowledge Management

Dan Yost (2003) produces a sample program named "BrowserCRM" that has capability to support completed and integrated business solution. The sample program includes intuitive interface, logging in and out against customer history that

will really help the author in online CRM system development. There are several tools can be used such as VB.NET, PHP, and Coldfussion.

Knowledge management means the technologies involved in creating, disseminating and utilizing knowledge data. The used of knowledge management will add value to online CRM system by handling customers data such as after sales service operation. According to Tata Consulting Services (2002), Managing a knowledge data and using them across operations is the only way for a company to sustain competitive advantage.

2.2 The Call Centre Solution

The usage of internet has increased tremendously and we can now witness is advantages resulting from its advancement in all industries including business and even entertainment. According to Vinton G. Cerf (2003);-

> "The internet has revolutionized the computer and communications world like nothing before. The internet is at once a world-wide broadcasting capability, a mechanism for information dissemination and a medium for collaboration and interaction between individuals and their computers without regard for geographic location."

Integrating call center with the webpage is a new concept that many companies are beginning to take advantage of. Today, customers expect more from a business. According to Kelechi Oghaebu and Santiderpaul S.Devgan (2002);-

> "CRM isn't just the transaction, it is the customer service, it is about building the infrastructure that will duplicate the store shopping experience on the internet and links all customer

service interactions to a central point. However it continues to lack the quality of personal contact with the customers, which is essential in building and sustaining customer's relationship on the internet. "

Based on author's opinion the call center solution will eliminate the lack of quality personal contact that occurs with the customers. Customers want to complete the transaction quickly without having so many problems. Customers expect the companies to offer expert assistance anytime, anywhere and anyhow. When a customer is browsing the author web site, it would be ideal if they could merely click on a button to talk to a live agent to receive further information. This is essentially behind this technology that allows the company to personalize its relationship with their web site visitor at a critical moment.

2.4 The principles of E-CRM

Any work will need principles in order to make it done successfully, so does with E-CRM. According to Nicholas c Romano and Jerry Fjermestad (2004), there are six critical success factors for CRM project; Stepwise evolution, straightforward implementation and long term project, organizational redesign, integrated system architecture of standard, change management and top management support. For the author, there is one relevant critical success factor which is 'integrated system architecture of standard' that needed to take into account.

2.5 Customer Relationship Management for Web Access Challenged

Companies employ World Wide Web (WWW) or the web to gather and disseminate information to and from actual and potential customers and increasingly for end consumer business transaction through Electronic Customer Relationship Management (E-CRM). Online barriers limit or eliminate web accessibility for many

potential customers with access challenges. It is difficult to establish develop and manage with potential customers if they cannot access the company's website for information, to place orders or request services. According to Nicholas c. Romano (2003):-

> "Company website and their CRM had accessibility problems and that many of these problems severe enough those firms should consider it a high priority to correct them. Additionally, many errors and problems should be fixed as a matter of programming styles as well as general interface and usability principles."

Thus, the author should design CRM applications that have the characteristics of easy to access.

2.6 A Process Model for Successful CRM system Development

According to medium-sized industry analyst, almost two-thirds of CRM system development projects fail. The author ultimately wants to lower these failure rates and support successful development. The author had managed to compare and analyze the E-CRM prototypical with the following attributes highlighted by Hee Woong Kin (2004) for all general CRM system design and rule:-

a. Invest adequate resources (both in financial and human).
b. Influence management level stakeholders.
c. Encourage user participation, both by showing top level support and by selecting and assigning skilled personnel to the project.
d. A high level and variety of skills among team members.
e. User participation.
f. Management Support.
g. Project team skills.

h. Management requirement regarding CRM goals and direction influence CRM strategy.
i. CRM strategy guides CRM process development.
j. Requirement from users also influence CRM process development.
k. System design is influenced by and will reflect the CRM process.
l. System design also needs to reflect technological requirements.
m. System integration, including source systems integration, channel integrations, and the integration between new and legacy systems.
n. System functionality influences IS quality.

For the author, there is one relevant attribute which is 'System functionality influences IS quality' that needed to take into account. The author believes a system with high performance and system quality leads to high customer's satisfactions which in turn determine the CRM's positive impact on the organization.

2.7 Web Services Electronic CRM

The newest model for providing Electronic CRM is called web services. These services are Internet applications that perform a specific task, or a set of tasks that work with other Web services in order to carry out their business transaction. Sajal Kabiraj (2001) explained that:-

> "Web service applications exchange data using eXtensible Markup Language (XML).This language provide a framework for creating HTML like languages that can be used for applications other than web pages. XML allows data to be marked by 'tags' so that a computer program can read and identify specific data in file or document."

The XML language maybe is an alternative for the author to develop E-CRM prototypical instead of Perl language.

2.8 Important CRM Ingredient in Medium-Sized Company

Liam Neil (2000) had managed to support the author's research work by quoting the following statement when referring to his work entitled "Important CRM ingredient in Medium-Seized Company":-

> "I explore midsize businesses' drive to integrate their business applications. This initiative has a two-fold purpose: first, to enhance operational efficiency through information sharing, improved business flows, better decision making, and greater responsiveness; second, to improve the customer relationship by accessing one unified and accurate view of the customer and decreasing response time to customer issues."

Addressing the needs of medium-sized company, E-CRM should be the application that integrates front- and back-office operations in one robust application. Thus the author should emphasize on customer and salesperson need respectively.

2.9 Strategies for Success with Online Customer Support

According to Vividence Corporation (2002) there are six problems did salesperson encounter while how to contact customer support:-

a. Difficult to find the contact information.
b. Difficult to understand the contact information.
c. No contact hour listed (for telephone support).
d. Had to view too many pages.
e. No contact hours listed (for online support)

f. Had to download an application to contact customer support.

Thus the author should minimize the risks of customer support by trying to eliminate those six problems as stated by Vividence Corporation (2002).

Vividence Corporation (2002) points out that there are 3 main ways in delivering support to customer comprises of online forms for sending e-mail messages, live online chat and interactive tutorials. Thus the author has decided to go for live online chat as the way to support customer in his E-CRM prototypical. In the case of customer connecting to the web via dial-up modem, live chat or instant messaging is preferred over the telephone so that customers can stay online while solving their problem. Vividence Corporation (2002) also stated the advantages of live online chat such as buffering the interaction from emotional reactions and fastest way to resolve customer's issues.

On the other hand, delivering or communicating commitment to customer need to be emphasized by the author in order to maintain an efficient online customer support. Vividence Corporation (2002) shares the same point of view that delivering commitment is crucial in online customer support by redefining the concerns of:-

a. Present support information early in process.
b. Provide services with a smile. Uses of a tiny font for help link can convey a feeling that the company provides these services begrudgingly.
c. Provide access to support from all the likely places.
d. Keep the customer perspective.

For author, to present support information early in process can be done by placing support links and tabs boldly and frequently insures users will see them when they need support and will serve to communicate the message in that the company cares. Vividence Corporation (2002) had managed to support author's research work by quoting the following statement:-

"With appropriate support links company seems easy to reach. If there is actually a pleasant, responsive person with half a brain at the other end, then the company is in good shape."

CHAPTER 3

METHODOLOGY AND PROJECT WORK

3. METHODOLOGY AND PROJECT WORK

Chapter 3 features the detailed description of methodology and procedure of completing this project. This methodology is implemented in order to ensure that the project is running as required. An overview of system development methodology is also described in this chapter. The methodology used for this project is the waterfall model.

3.1 System Development Methodology

An information system development methodology is defined as a collection of procedures, techniques, tools, and documentation aids which will help the systems developers in their efforts to implement new information system. A methodology will consist of phases, themselves consisting of sub-phases, which will guide the systems developers in their choice of techniques that might be appropriate at each stage of the project and also help them plan, manage, control and evaluate information systems projects. In this project, the methodology chosen was waterfall model.

3.2 Waterfall Model

Methodology plays a vital role in completing any project. Waterfall model is used as the reference to plan and manage the system development process for this project as shown in Figure 3.1. All the phases in the System Development Life Cycle (SDLC) apply to this model in order to develop the project. This model consists of 5 important phases that are:

a. Planning
b. Analysis
c. Design
d. Implementation
e. Testing

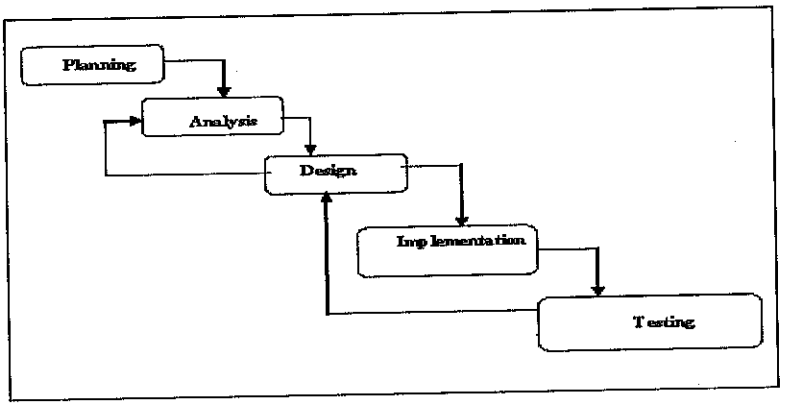

Figure 3.1 shows the System Development Life Cycle (SDLC) for the project

3.2.1 Planning

System planning begins with a formal proposal or request for the project. In this phase, the purpose is to identify clearly the nature and scope of the business opportunity or problem by performing preliminary investigation or also called as feasibility study. The outcome from this study is project scope. This preliminary investigation is a critical step since the outcome will affect the entire of our development process.

At this phase, the project started with the request from the lecturers to submit the project proposal. As discussed with the supervisor, this topic was selected since it is an interesting topic to discover. During this stage, proposal was sent to the FYP committee for approval. Scope of study was also established during this period.

3.2.2 Analysis

The purpose of this phase is to understand the requirements and build a logical model for the system. As implement in this project, this is the phase of doing research and analysis. Facts, information, data, and findings were collected as much as possible during this stage.

Researches on E-CRM were done during this stage. The popularity between both CRM, online and offline were identified and their pro and cons were discussed. Several projects regarding the topic also were analyzed in order to come out with a good product analysis. At this stage, the preliminary report was sent to the supervisor as required. The end product of this system analysis phase

is the system requirement, which identify the design requirements for the project.

3.2.2 Design

In this phase, all necessary outputs, inputs, interfaces, and processes were identified. The tools needed for the design phase were downloaded and installed. Beside, in the system design phase, the system specifications are translated into prototypical or software representation. The author at this stage is concerned with data structure, software architecture and interface representations.

3.2.3 Implementation and Testing

During system implementation, the system is constructed. The website documents are written, tested, and documented, and the system is installed. Then, the system is delivered as required by the committee. At this phase, the system will be presented to the examiners in order to check whether it meets the objectives and user expectations. The objective of this phase is to deliver a completely functioning and documented information system. If the system does not meet the requirement and expectation, the system will be enhanced again. During this phase, the system evaluation also will be conducted to determine whether the system operates properly and if costs and benefits are within expectations. Testing at this stage focuses on making sure that any errors are identified and that the prototypical design meets its required specification.

3.3 Tools and Hardware Required

These tools can significantly improve productive development and increase the project performance. These are the best tools selected for the project:

- PHP

  PHP is a popular scripting language used to create powerful dynamic website. PHP is open source which means it is available for free of charge. Hypertext Markup Language (HTML) is the markup language for used to create web page. PHP can be used to dynamically generate the HTML code for a webpage. PHP does support object-oriented programming that allows the author to write code in an object oriented fashion.

- Apache Web Server

  Before the author can publish PHP pages, the author must install a web server that can interpret and process PHP code. Apache web server is extremely reliable and robust web server that can be used for serving a small intranet or a large commercial website.

- MySQL

  The Structured Query Language (SQL) is a very popular database language, and its standardization makes it quite easy to store, update and access data. One of the most powerful SQL servers is called MySQL.

CHAPTER 4

RESULT AND DISCUSSION

RESULT AND DISCUSSION

Chapter 4 compiles the current finding of project work. There have been several interesting and informative information coming from journal, online resources and questionnaires result.

4.1 Analysis Result on Questionnaires

In the following section, the author would like to analyze in detailed the results of questionnaires being circulated a group of test subjects. The survey was done by the author to gather responses from 35 peoples from Sales, Human Resource and Software design departments in Formis Network Services Sdn. Bhd, Kuala Lumpur.

Choice Number	Type of CRM system
01	Online
02	Offline

Table 4.1 Type of CRM System Indicated by Code Number

Table 4.1 was first question for test subjects. In Formis, there's no such CRM system and they are still considering the implementation of a CRM system. According to the survey, 74.3 percent from test subjects opted the choice number 01 which is Online is the most appropriate for Formis CRM system. The 24 hours 7 days services at low cost

to customer are the main reason been identified why they choose online CRM. The following table is able to provide a clearer view of the ranking based on CRM system preferences.

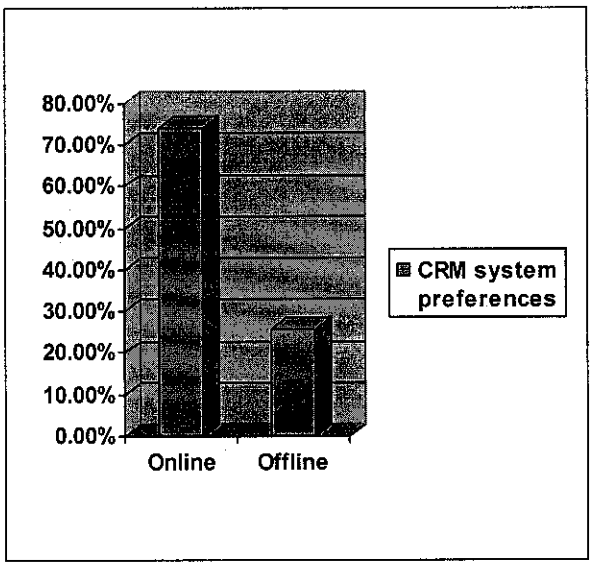

Figure 4.1 CRM System preferences according to Formis Network Services

Next, the author would like to analyze the characteristics of CRM applications that critically needed by the supplier in the medium sized company. Still using the same test subjects but different choices of answer as illustrated in Table 4.2.

Choices number	Characteristics of CRM
01	Opportunity and lead management applications
02	Analytical applications
03	Content Management applications
04	Personalization applications
05	Call Centre applications
06	Interactive selling applications

Table 4.2 Characteristics of CRM

The analysis has begun with the questionnaires being formulated. Users were asked to fill up the questionnaires by ticking which one of the characteristics in the Table 4.2 they want to have or really considered as critical to them. Eventually when the data were summarized, and is clearly illustrated according to the ranks as shown in Table 4.3. The ranks are sorted from the most popular to the least popular applications.

Rank	Choice Number	Characteristics of CRM
1	05	Call Centre applications
2	06	Interactive Selling applications
3	03	Content Management applications
4	02	Analytical Applications
5	04	Personalization applications
6	01	Opportunity and management applications

Table 4.3 CRM Application Characteristics Ranked From the Most Popular To the Least Popular

Referring to Table 4.3, it was found that the most critical in CRM applications development is the call centre applications. It can be represented all aspects of call management from the initial logging of calls to the close of transaction or query. Thus the author has made the initiative to build a Workplace Module which containing the schedule and customer activity such as sales order. Beside, the interactive selling and content management applications are also popular which is in rank second and third respectively. Thus the author should give more concern in involving customer-facing and enable customers to proactively conduct transactions often without a salesperson being present. On the other hand, enabling the dynamic presentation of organizational content is also identified as critical criteria to the test subjects.

According to the survey, the level of understanding of the business objectives behind investment in CRM applications was very high. 95 percent of the test subjects were agreed that CRM applications can improve their understanding of customer wants and needs, improve customer confidence, reduce operating costs and improve the ability to sell products and services interactively. For the author, it means that the E-CRM has strong possibility to succeed in the medium sized company and the salespersons are looking forward to have an E-CRM system and really have confidence to use it.

4.2 Analysis Phase Results

In this section, results will be discussed here based on the tasks that are accomplished during the Analysis Phase. If referred to the methodology framework in the Methodology section, it shows that the first part of gathering data is completed during this phase. For instance, the tasks are; observation, preliminary data gathering and problem definition. Since this project is also towards research instead of developing E-CRM prototype, therefore collecting facts from existing documents is very valuable. This is basically based on the previous researcher's journal or documentation.

In order to complete this research, data need to be gathered to assist in term of the content of the issue arises. The issue arises here is the most appropriate characteristics of CRM system for medium-sized company. Initially, the research tittle needs to be defined before proceed to further explanation. This is to support understanding on the scope of research, and to give brief idea what is the topic all about. All the terms are defined in the Literature Review Section in Chapter 3. Basically the CRM system for the medium-sized company should have these features;

1. The centre and call centre applications. All the customer data must be placed in one location but can be accessed from any places.
2. After sales service applications which can help customers to ask or report if have doubt and problem with the product.
3. Offer status of sales order to customer.

These three CRM features are the most significant for medium-sized companies based on facts from journal or documentation. All the data collected is important to provide a good E-CRM prototype. The author has realized how important those features are and its implementation on a E-CRM prototype.

4.3 System Functionality

- **Salesperson**

  Salespersons have a complete control over E-CRM. They are allowed to add/edit/delete all information within the database including customers and products information and making the system completely flexible. On the other hand, the salesperson is responsible in determining status of sales order.

- **Customers**

Customers are allowed to make an order through E-CRM and ask questions if they have any doubts about products or anything related to the company's services by chatting or joining forum in the system.

Human Engineering

Good user interface design is critical to the success of a particular system. An interface that is hard to understand will result in a high level of user errors. For a worst case, the users will refuse to use the software system, regardless of its functionalities and usages. Thus, this prototype has served to provide a set of Graphical User Interface (GUI) that can be acceptable by users of system.

4.3.1 Target user groups

The E-CRM prototypical has been produced, as to show how a CRM can work and function. The user group for this prototype is intended for the salespersons working with companies and customers for that medium-sized company. It is assumed that these groups of users possess minimal knowledge as to how to use a computer, but not having any technical knowledge on CRM terms.

4.3.2 Prototype User Interface

The user interfaces for this E-CRM prototypical have been kept on simple and intuitive concept. This is to let users have an impression that this system is easy to user, and can provide the information that they need.

Referring to Figure 4.2, it displays the main user interface for the system. Six sidebars have been created at the left top part of the screen, as to lead the users on where to navigate and to carry out their job. The instructions and the descriptions of system are displayed as well. The objective to include the instructions in main page is to make customer can easily handle and using the program especially in sales order's part. Thus with those information, hopefully the customer will find easier for them to navigate and order a products through the system. Figure 4.5 shows the first step must be taken by a customer or a salesperson before using the system that is logged in. The system won't let any users to place a sales order but unauthorized user can still use the Service Module which consists of chat and forum. It's because to attract new customers and persuade them to close with the company by joining forum or asking any question in chat room.

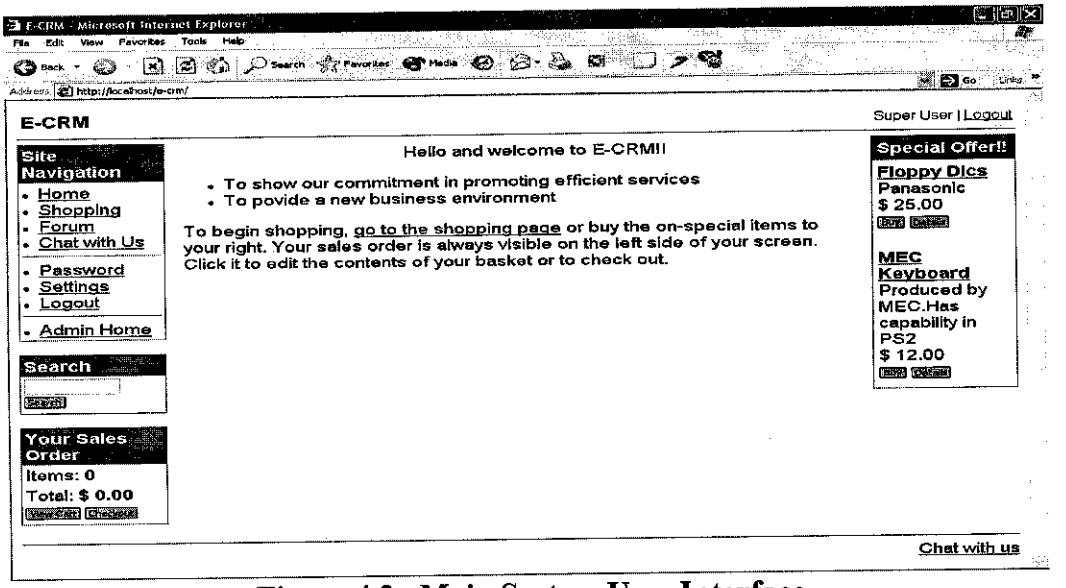

Figure 4.2 Main System User Interface

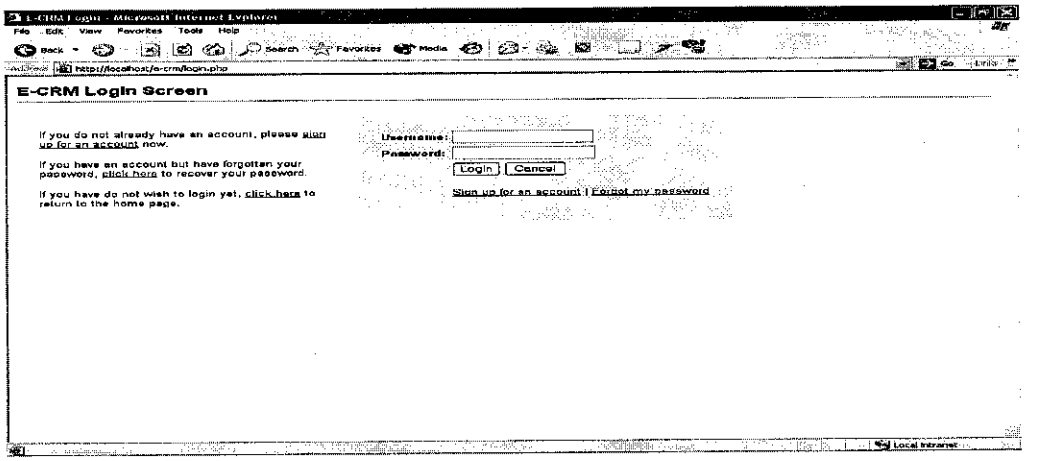

Figure 4.3 User Login Interface

4.3.2.1 Workplace Module

The Workplace module is specifically designed for salespersons in the medium-sized company. The author has identified that Workplace Module is the core feature in the E-CRM prototype and will help salesperson to automate their wok.

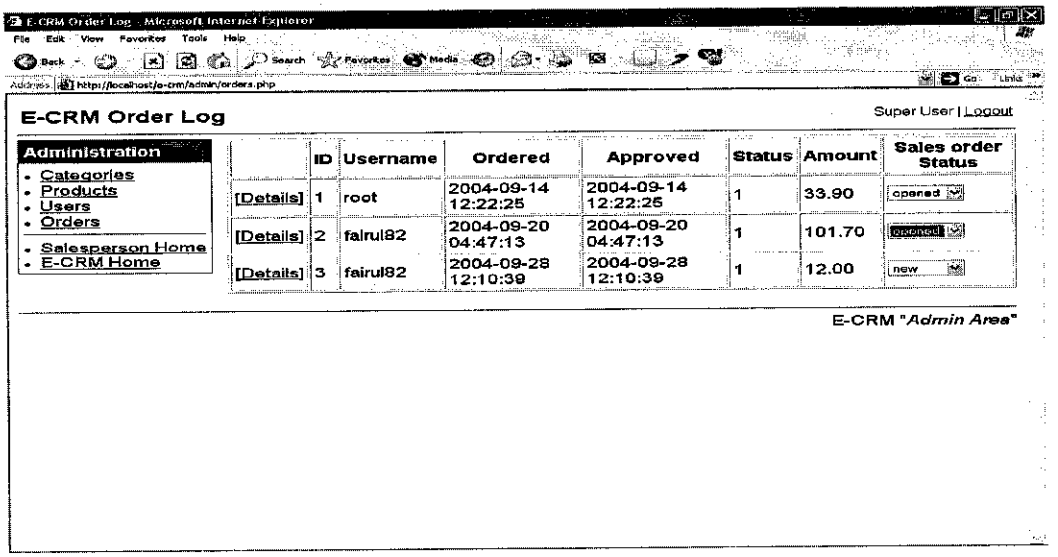

Figure 4.4 Workplace-Order Module User Interface

Referring to Figure 4.4, it displays the order log that has all the customer order information such as customer name and amount. This module allows salesperson to determine status of sales order by choosing indication in the list box that comprises of opened, closed or rejected. Thus all the customers order has been centralized here in Workplace Module and it is really helping salesperson in term of effectiveness in handling customer data.

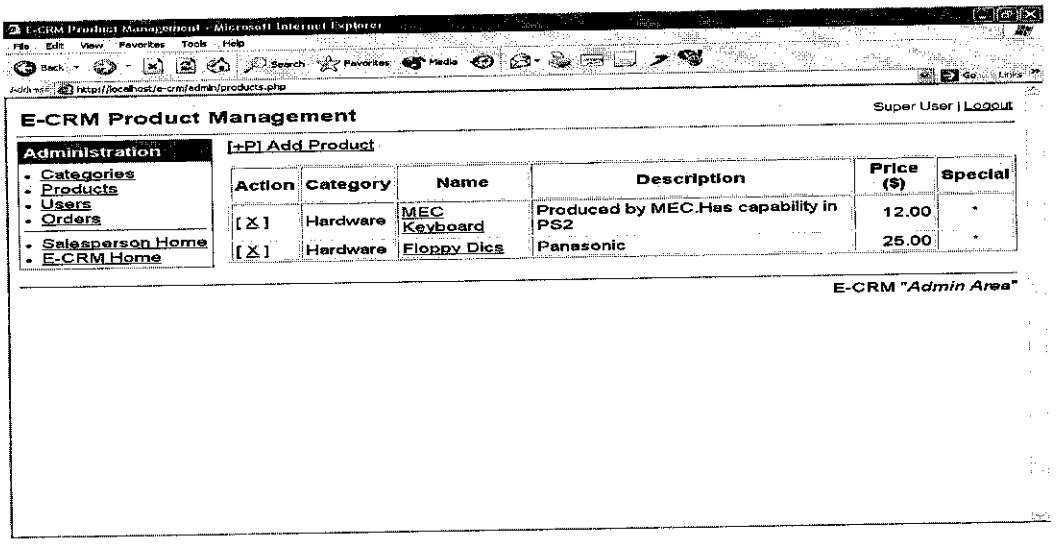

Figure 4.5 Workplace-Product (1) Module User Interface

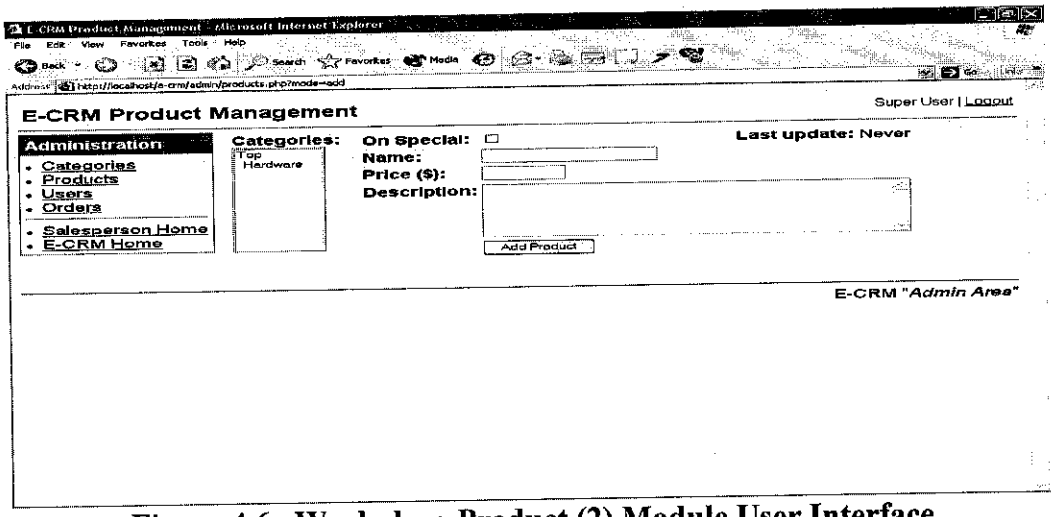

Figure 4.6 Workplace-Product (2) Module User Interface

Referring to Figure 4.5, it displays the list of products that offered by the company to customer. Salespersons will manage, update or delete the products being offered through the Workplace-Product Module. The 'X' icon at action row in Figure 4.5 is the symbol for deleting product. On the other hand, Figure 4.6 shows how salesperson can add new product through Workplace-Product Module. If the company would like to offer new products, they can do so by adding and editing data in Workplace-Product Module. Figure 4.7 shows the users of the system information. A salesperson has capability to modify any user in this module.

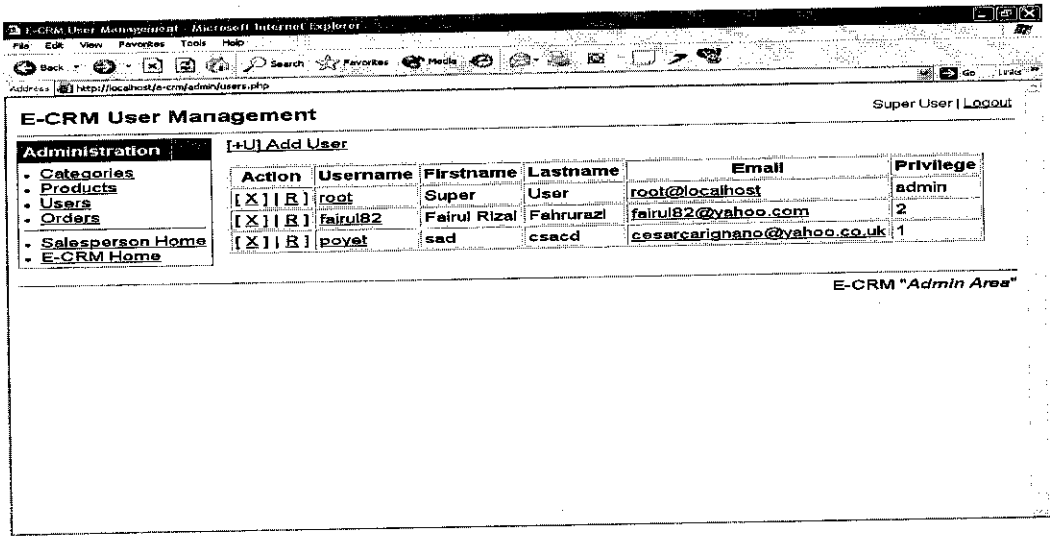

Figure 4.7 Workplace-User Management Module User Interface

4.3.2.2 Sales Module

Sales Module is one of the important features that offers to customer as it will be in charge of all the sales activity. In this part of the module, customers can place

and see their current status of sales order. Sales Module comprises of two main sub systems that are shopping catalog and sales order.

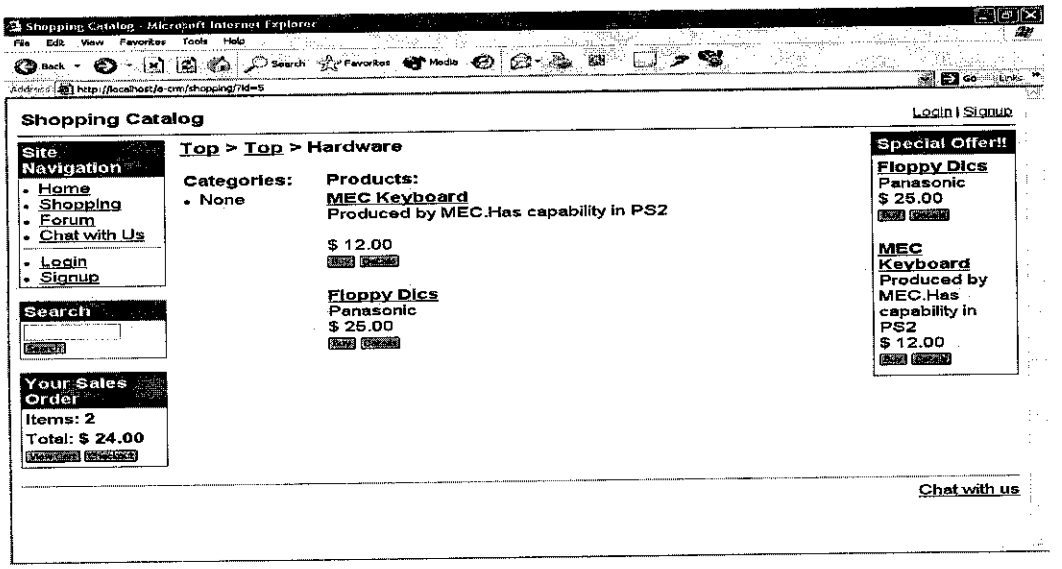

Figure 4.8 Sales-Shopping Catalog Module User Interface

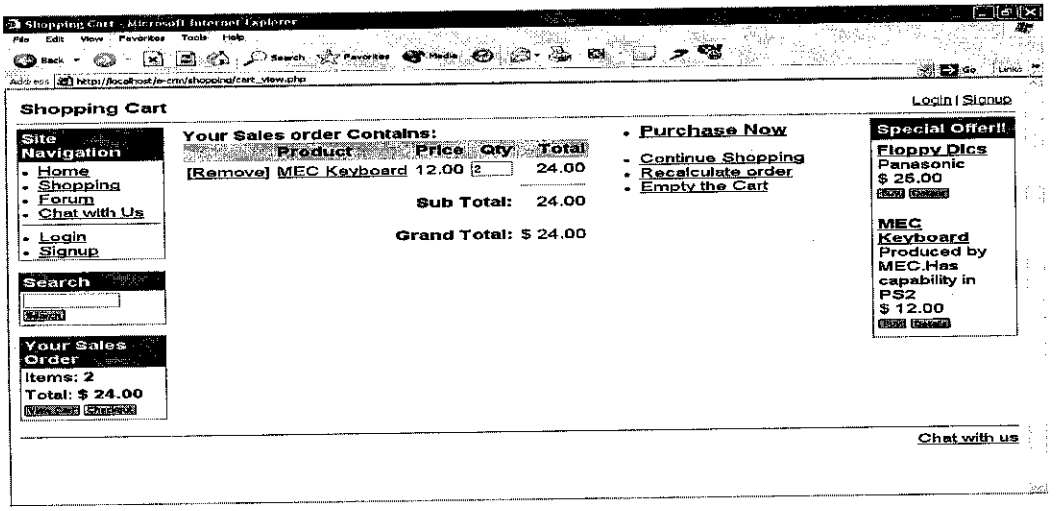

Figure 4.9 Sales-Sales Order Module User Interface

Referring to Figure 4.8, it displays the list of products that offered to customer. In this case, the products offered are Keyboard and Floppy Disc under the

category of hardware. Customers can list their interested products in Sales Order by clicking the Buy Button. As show in Figure 4.9, the sales order comprises of price, product, quantity and total column which indicate the products that been chosen by customers. Customers are given the ability to delete any orders by clicking Remove function. Customers can also change the quantity of orders in quantity column.

4.3.2.3 Service Module

Service Module is basically designed for after sales purpose in order to fulfill customer enquiries and doubts about products or anything related to the service.

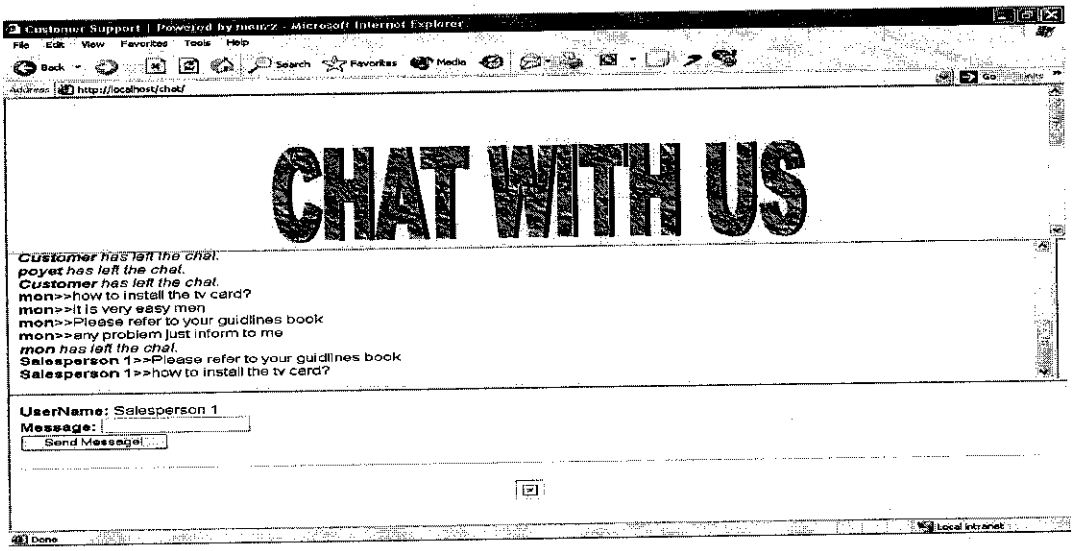

Figure 4.10 Service-Chat Service Module Interface

Referring to Figure 4.10, it displays the Chat Service Module that can be classified as a call center solution. This service will eliminate the lack of quality personal contact that occurs with the customers. Customers expect the companies to offer expert assistance anytime, anywhere and anyhow and this

module is trying to accommodate with that. Increasing the quality of personal contact with the customers will help the company to build and sustain customer's relationship on the Internet.

4.4 Discussion on Good CRM applications

Business is about managing relationships with prospects, customers, and partners. An organization's employees and management must understand what customers are doing and what information customers need. They must react quickly to customer requests and anticipate future needs.

CRM systems should enabling salespersons to:

- **Track customer information:** CRM systems empower business users to access, update, and monitor diverse information about customers, from simple contact information to purchasing preferences.
- **Respond to requests and anticipate needs:** CRM systems enable sales and customer support to quickly respond to requests and anticipate the needs of prospects and customers.
- **Provide targeted marketing campaigns to groups of prospects and customers:** Automated targeted campaigns provide repeatable and cost-effective activities. They also enable businesses to better measure the effectiveness and return-on-investment (ROI) of marketing campaigns.
- **Manage customer status and activities enterprise-wide.** A key difference between CRM systems and simple contact-tracking databases is the ability to manage all phases of customer activity from prospect to post-sales support. Understanding customer behavior and activities help to retain customers, and CRM systems can help to manage customer activities without increasing staff.

4.5 Discussion on CRM in E-Business Environment

Customer expectations are rising and a company must differentiate itself from the competitor in delivering a good customer centered experience.With E-CRM in place, customer segmentation is enhanced and high value customers are treated properly. In addition to technology, all aspects of a CRM transformation must be considered.

4.5.1 The needs for CRM

Customer Relationship Management (CRM) has been described in many ways but the author describing CRM as having the technology to provide an integrated view of customer interactions and changing the corporate culture .It can maximize the benefits to the customer and company. As companies offer more services on the Internet, the implementation of E-CRM will become easier. A survey of 200 E-businesses in the U.S.conducted by Critical Research and commissioned by Motive Communications found that 93% of companies regularly encounter problems while trying to conduct business online. Additionally, 95% abandoned websites during transactions. Conducted during January 2001, the study found that 85% of businesses had problems simply signing up for a service online. Only a small percentage of businesses had problems solved online in a satisfactory manner. Online assistance in the form of e-mail, telephone or chat instant messaging was helpful for less than 35% of businesses. The author sees these situations as the opportunity for E-CRM to be involved more in the companies operation.

4.5.2 CRM Transformation

1.Become Functional	2.Gain Operational Excellence	3.Mass Customization	4.Achieve Customer Intimacy

Figure 4.11 The CRM Transformation

The Figure 4.11 describes the level in CRM transformation which comprises the becoming functional, gaining operational excellence, mass customization and lastly achieving customer intimacy. Integrating the new E-CRM into existing or traditional systems is a challenge since not all systems will be replaced. The E-CRM will provide new customer facing support and will become customer database. Training and acceptance of the new processes and solutions is key to the success of CRM transformation. As CRM is implemented throughout the company, modifications to process will occur to raise the transformation to the Operational Excellence stage. With widespread knowledge of the power of CRM, effective processes, trained and energized employees will provide products and services that will meet and exceed customerexpectations. This leads to Mass Customization. The company effectively interacts with customers through the channel and offers what they want. Also, targeted marketing will let the customer knows that the company has his/her best interest in mind. The process of transformation may vary based on the overall company strategy and vision.

4.5.3 Utilization of Communication Channel

E-CRM initiative will enable a company to better utilize all their communication channels which include web, email and fax channel.

In the web, customers can verify service availability, browse the relevant product descriptions and offerings as well as initiate a trouble report via the web channel. The web channel will support a number of customer service. End-users will be able to view sales order on-line. Account management activities such as change contact information, which can be completed via the web channel.

In email utilization, customers can utilize the email channel to submit service requests, check status and update service requests. The e-mail server will be able to provide an automatic acknowledgement to all customer inquiries. The CRM platform will also be able to use email as an outbound channel to introduce new products and promotions to customers who have expressed an interest in receiving them.

4.6 Discussion on Online and Offline CRM

The author has found several reasons why he should go for Online CRM instead of Offline. Basically the Online CRM has:

- low entry cost.
- low total cost of ownership.
- rapid transmission of information across organizational lines and locations.

- customer can submit and access relevant data anytime and anywhere.
- easy integrated knowledge base.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

Over the years, CRM has increased the chances for a company to strengthen their relationship with customers from purely manual to an offline application system and then now to an online system. But still, the aims are to find, gain and retain customers. Basically different company or organization has different CRM strategy based on their needs. Developing a CRM system isn't an easy task. But bear in mind that the promises of CRM are worth the journey.

Since the Internet revolution for all technology, this project really suits for current situation that needs more advanced technologies. Too relying on old technology may give many disadvantages not only for user but also for the community.

This project is about analyzing, researching and developing a prototype of E-CRM system for a medium-sized company. Hopefully this project can benefit the salespersons and customers and overcome the drawback of manual activity in handling customer relationship such as generating quotations and sales orders.

Several future expansions have been identified. The first phase of suggested expansions is on implementing case management. Information on service and support cases are saved on the individual computers and invisible to team members or management. As a result, some cases are not taken care of on a timely basis. Others are serviced by more than one salesperson without full knowledge of the case history. This leads to customer frustration and, possibly, loss of customers. E-CRM should coordinated work by all members of customer service and technical support teams. Every support specialist has

centralized access to all cases. Every support specialist or manager can immediately see open cases, sort them by priority, review previous case history, see which case requires immediate attention and who is working on each case.

It is not immediately evident to the manager what ordering patterns are, what items are in greater demand, what items are being returned more often. Thus it is suggested that E-CRM provides comprehensive reports and statistics answering these questions.

The third suggestion phase is on implementing a reliable sales time management. On screen notifications alert salesperson about pending tasks while filter and sort options allow salesperson to manipulate onscreen data to meet their preferences for efficient delivery of information.

E-CRM in the future can provide point-and-click reporting and graphs that allow sales teams to access data for on-the-spot analysis and decision making. It can give the real-time information you need. Start by evaluating new leads, quoted clients, demographics and potential deals in the pipeline, then analyze company sales efforts and use that knowledge to refine company strategy.

Proper project management skill is an important element in carrying out this project. Taking the time management aspect, Gantt Chart is required for proper scheduling of the whole project. It is done at the initial stage of the project, in order to let the developer to track the project progress with respect to the time available. Necessary resources need to be known and acquired before officially starting on prototype development. This is to avoid the lack of needed materials and causing the shortening of development time. A combination of perseverance, endurance, persistence and carefulness is extremely important in designing, building and completing this project.

Getting proper online resources, documentations and books are needed, as to dealing with questions and problems as along the development goes further on, or even learn on how to enhance and optimize a particular task. Going through trial and error, which can be a healthy dose of experimentation, makes learning towards a more in-depth area, though it takes longer time to get things done.

Edwards (2001) mentioned that the need to be efficient seems to foster an environment that retards creativity by limiting exploration. Thus, out-of-the-box thinking and creativity are needed, together with good programming and project management skills. Thinking on alternative solutions and taking the time and effort to have a thorough design plan at the initial stage make a difference in the output. Nevertheless, with all these challenges and problems, it has sharpened one's thinking skill and improves one's system development skills.

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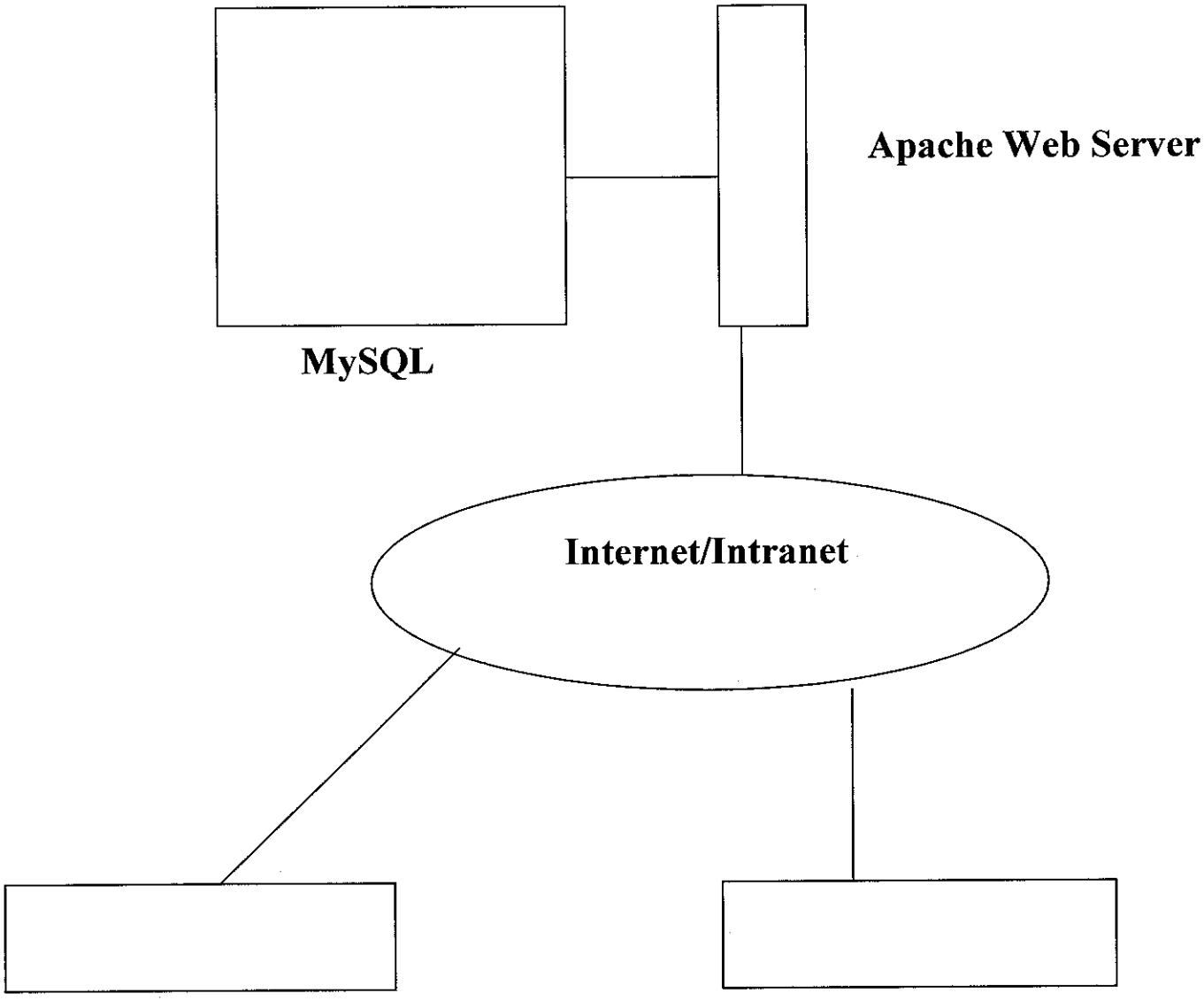
APPENDICES

Appendix 1 : E-CRM System Architecture

Appendix 2 : Questionnaires

E-CRM SYSTEM ARCHITECTURE



Customer Relationship Management (CRM) Questionnaires

Company's Name: _____

Please tick one

1. Do you use any applications that either you or the application vendor would regard as CRM?

Yes ☐ No ☐

2. What kind of CRM solution you prefer? Why?

Online ☐ Offline ☐

---

3. Consider the list below. *Please tick all the types of CRM applications* that your organization either has or is considering to purchase. Please ignore if you don't want to have it.

a) Opportunity and lead management applications
(Modeling the selling business process, and provide visibility of the steps outstanding in order to close deals)

Have ☐ Under consideration ☐

b) Analytical applications
(Technologies that support strategic decision-making - processes, ad hoc query, reporting and analysis)

Have ☐ Under consideration ☐

c) Content Management applications
(Enabling the dynamic presentation of organizational content)

Have ☐ Under consideration ☐

d) Personalization applications
(Dynamic adjustment of end-user profiles to match content or services to individuals. Enables the matching of preferences to products and services based on business rules)

Have ☐ Under consideration ☐

e) Call Centre applications
(All aspects of call management from the initial logging of calls to the close of transaction or query)

Have ☐ Under consideration ☐

f) Interactive selling applications
(Including self service. These technologies are customer-facing and enable customers to proactively conduct transactions often without a salesperson being present)

Have ☐ Under consideration ☐

4. We are interested in understanding the business objectives behind investments in your current or future CRM applications.
Please state your agreement with the following business objectives. *Please tick one* of the boxes for each objective.

a) A key business objective of our CRM investments is to improve the degree to which our customers feel confident in our capabilities

Agree ☐ Disagree ☐

b) A key business objective of our CRM investments is to improve our direct marketing and campaign management capabilities

Agree ☐ Disagree ☐

c) A key business objective of our CRM investments is to reduce our operating costs

Agree ☐ Disagree ☐

d) A key business objective of our CRM investments is to improve our understanding of customer wants and desires

Agree ☐ Disagree ☐

e) Improving our ability to sell products and services interactively is a key business objective of our CRM investments

Agree ☐ Disagree ☐