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The Analysis of Model for Mobile CRM

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ABSTRACT

Nowadays mobile users love to check e-mails and many other applications in their mobile devices. E-commerce will soon become mobile commerce because mobile devices; in some respect are more convenient than computer. However, how business can nurture customer relationship as well as business can acquiring or maintain customer? That’s why this study wants to develop and analyze a model to assist business setup mobile customer relationship management. This paper present three respects in mobile customer relationship management which includes inside business, outside business and user’s view. Furthermore this paper is also present the relationship between them. Moreover we discuss the enterprise mobile security requirements. By surveying papers on mobile customer relationship management for models to be integrated, the research develops and analyzes a feasible model for mobile customer relationship management.

Keywords: Mobile customer relationship management, mobile commerce, pricing, regulator, campaign logic
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Chapter 1 Introduction

1.1. What is CRM (Customer Relationship Management)?

CRM can be defined as a ‘process that utilizes technology as an enabler to capture, analyze and disseminate current and prospective customer data to identify customer needs more precisely and to develop insightful relationships’ (Paulissen et al. 2007). One of the main success factors is the appropriate and cost-efficient maximized satisfaction of customer needs (Rigby et al. 2001, Paulissen et al. 2007). It entails all aspects of relationships a company has with its customers from initial contact, pre-sales and sales to after-sales, service and support (Makatsoris and Chang 2008). Prerequisites are an extensive knowledge about the customer needs as well as the appropriate positioning of product and service offerings within the customer lifecycle (Ives and Learmonth 1984).

In general CRM is information and its utilization. Detailed information about customers, previous interactions, experiences and future expectations is essential for the delivery of satisfying offers in cost-efficient ways. The acquisition and usage of this knowledge in customer interactions is a key element in CRM concepts.
Figure 1. Customer Relationship Management Model

Source: Russell S Winer (2001)

Figure 1 shows the basic model, which contains a set of seven basic components: a database of customer activity, analyses of the database, given the analyses, decisions about which customers to target, tools for targeting the customer, how to build the...
relationships with the targeted customers, privacy issue and metrics for measuring the success of CRM program.

1.2. What is mCRM?

Mobile CRM is changing the way organizations deploy CRM for the better. Finally, there’s an approach to CRM systems that has users in mind. Being able to access and update customer data at any time, from anywhere, increases system adoption and improves the timeliness of customer data captured within CRM software (Paul Greenberg, 2006). On the other hand, Mobile CRM is something that is necessary for your business at this time – not some indeterminate future era. The sooner you realize that, the sooner you’ll begin your initiative. The benefits are clear, the deployment a bit smoother than in the past, the stresses on IT less than they have ever been and the adoption rates are higher than ever. In fact, adoption isn’t really the issue anymore. Mobile professionals are asking for a new toolset and that toolset is mobile CRM.

Now a day, customer and the business models necessary to meet the customer’s requirements, has become an increasingly significant strategy and technology for CRM execution. It can support improvements in sales effectiveness or even support sales alignment. It can handle customer intelligence provision or customer intelligence
gathering. It can provide the optimized resources that a field service technician needs to both maintain the customer’s machinery and to enhance the customer’s relationships with him as the representative of your company. That means that an application that is developed to carry out functions necessary to improve the interactions with the customer so that the business objectives of the company aimed at that customer are met is CRM. With the evolution of IT infrastructures such as service oriented architectures, web services, and the on-demand model, there have been a proliferation of mobile CRM applications that are available at a reasonable price, scalable, and easily distributed that can operate in real time. Products and services those things you provide are easy to get from someone other than you if you don’t garner the attention of your customers. Mobile CRM is a really valuable asset when it comes to capturing that attention.

In its traditional form, CRM is a business strategy and systematic approach issued from relationship and one-to-one marketing which is based on the integrated and active management of personalized individualized with customers (R. Kalakota and M. Robinson, 2001).

According to Giovanni Camponovo, Yves Pigneur and Andrea Rangone (2005) mobile CRM services as those that 1) aim at nurturing customer relationships, acquiring
or maintaining customers, 2) support marketing, sales or service processes, and 3) use wireless networks as the medium of delivery to the customer. Moreover, notice that in this paper we focus on CRM services which are offered to consumers (as opposed to businesses).

According to Peelen (2005) mobile customer relationship management is a process that addresses all aspects of identifying customers, creating customer knowledge, building customer relationships and shaping their perceptions of the organization and its products.

Nowadays companies try to create and maintain relations with their customer and mobile customer relationship management is the best way to archive CRM goals. Mobile customer relationship management focusing on the customer’s needs providing them satisfaction, therefore creating long term relationship with them.

From Relationship Management to mCRM, CRM is the outcome of the continuing evolution and integration of marketing ideas and novel available data, technologies, and organizational forms with the goal of engaging in a meaningful dialogue with individual customers (Arksey, H., Knight, P., 1999). In existing literature, there is a consensus that CRM requires the company to manage and coordinate communication with customers
across different media (Bagozzi, R.P., Yi, Y., Philips, L.W., 1991). This is because different customers have different needs and thus, the company should treat them differently. However, with the growing number of channels through which the company can communicate with its customers, getting their time and attention has turned into a major challenge (Davenport and Beck, 2000). Accordingly, it has become more difficult for companies to find the appropriate media and strategies to use in order to communicate with their customers. Especially, promising for CRM purposes is the potential for creating unique and personalized communication with individual customers. As stated, this potential has been gradually put into practice by several industries. CRM’s origins can be traced to the relationship marketing (RM) management concept, which is an integrated effort to identify, build up and maintain a network with individual customers for the mutual benefit of both sides (Boulding, W., Staelin, R., Ehret, M., Johnston, W.J., 2005). Strategically, we consider CRM as viewing customer relationships as an investment that will contribute to the enterprise’s bottom line. Customer relationships’ design and management are aimed at strengthening an enterprise’s competitive position by increasing customers’ loyalty (Ali Sanayei and Abas Mirzaei, 2008).
Chapter 2 Literature of Review

2.1. Customer Relationship Management (CRM)

Customer relationship management is a combination of business processes and technology that seeks to understand a company’s customers from multiple perspectives to competitively differentiate a company’s product and services (Barnes J G, 2001).

According to Bose (2002) the customer relationship management (CRM), essential and vital functions of customer oriented marketing is to gather and accumulate related information about customers in order to provide effective services. CRM involves attainment analysis and use of customer’s knowledge in order to sell goods and services. Reasons for CRM coming into existence are the changes and developments in marketing environment and web technology. Relationship with customers is a newly distinguished as a key point to set competitive power of an organization. Companies gather data related to their customers, in order to perform customer relationship management more effectively. Web has disclosed a new medium for business and marketing scope to enhance data analysis of customers’ behaviors, and environments for one to one marketing have been enhanced. CRM lies in the heart of every business transaction.
According to Chien Bocheng and Liang Bing (2006). People usually classify CRM software products by their main functionalities to three types: operational CRM, analytical CRM, and collaborate CRM. The operational CRM is a customer oriented application, which is similar to the ERP’s (enterprise resource planning) function. It not only strengthens the relatively weak part of the sales function in the ERP, but also integrates the marketing and customer service function as a whole. The analytical CRM captures, stores, extracts, processes, and analyzes the customer data using data warehouse and data mining technology to discover customer patterns and behaviors.

The collaborative CRM provides a collaborative working environment across all the customer interfaces.

2.2. Electronic Customer relationship management system (e-CRM)

E-CRM is combination of software, hardware, application and management commitment. e-CRM can be different types like operational, analytical. Operational e-CRM is given importance to customer touch up points, which can have contacts with customers through telephones or letters or e-mails. Thus customer touch up points is something web based e-mails, telephone, direct sales, fax etc. Analytical CRM is a collection of data and is viewed as a continuous process. It requires technology to
process customer’s data. The main intention here would be to identify and understand customers demographics pattern of purchasing etc in order to create new business opportunities giving importance to customers (Dyche, 2001).

The aim of e-CRM systems is to improve customer service, develop a relationship and retain valuable customers. Furthermore added advantage would be that it enhances delineation in customer’s value. Means to motivate valuable customers remain loyal with the enhanced features of e-CRM, where e makes the huge difference (Dyche, 2001).

Traditional definition of e-CRM is to include attitude for entire business. Like identifying and defining the prime goal to everyone in the organization and creating a sustainable competitive advantage. Their study explores how e-CRM enhances the traditional definition of marketing concepts and enabling the organizations to meet their internal marketing objectives (Stanton, W.J., Miller, K.E., Layton, R.A., 1994, 1994).

**2.3. From CRM to mCRM**

Several authors have clearly pointed towards a high level of association between CRM and relationship marketing. There are three main issues that can enable (or hinder) the development of Customer Relationship Management in the service sector; the
organizational issues of culture and communication, management metrics and cross-functional integration – especially between marketing and information technology (Ryals, L., Payne, A., 2001) , and some authors do not even make any distinction between the terms (Jain and Singh, 2002). The term relationship marketing (RM) was initially coined by Berry who defined it as attracting, maintaining and – in multiservice organizations – enhancing customer relationships. This emphasis on relationships is redefining how companies are interacting with their customers (Gummesson, 1999). On the other hand, elements common to all definitions of CRM include leveraging technology to engage individual customers in a meaningful dialogue so that firms can customize their products and services to attract new customers, develop relationships, and retain existing customers (Campbell, A.J, 2003). While RM does not acknowledge the technology underlying the management of customers, CRM is described in this study as using information technology (IT) in implementing relationship marketing strategies (Ryals, L. and Payne, A., 2001). As such, CRM unites the potential new technologies and RM thinking to deliver profitable, long-term relationships (Payne, A. and Frow, P., 2004). The main reason underlying the adoption of CRM among most of the companies is an attempt to achieve a competitive advantage by offering more value
to customers. The customer value is striven by an approach to differentiating the management of individual customer relationships. But implementing a software tool alone to manage customer relationships does not guarantee such results (Campbell, A.J, 2003). Although the role of IT is seen crucial in accomplishing this objective, CRM is much more than a pure technology. So, basically CRM enables a company to become familiar with its customers. Acquiring a better understanding of customers allows companies to interact, respond, and communicate more effectively with them (Chen, I.J. and Popovich, K., 2003). Enabled by advanced technologies, companies can gather up an unprecedented amount of data about their customers; demographics, psychographics, buying behavior and history. The existence of customer data does not merely lead to understanding of customers. To be useful, the companies have to turn this data into customer information and, subsequently, know how to utilize this information for CRM purposes. In other words, CRM is about how customer information is used to create more personal interaction with the customers by taking advantage of technology.

Accordingly, CRM requires information from all relevant departments to be centralized to customer database so that customer information can be used intelligently to develop relationships with customers. In addition, the central database in which the
customers’ information is stored should be available for responsible for the CRM activities company widely. By accessing the central customer database, responsible personnel have an opportunity to “know” each individual customer (Xu, Y., Yen, D.C., Lin, B., and Chou, D.C., 2002). Moreover, customer databases enable companies to provide more satisfying and consistent relationship with customers, regardless of the channel the customer chooses to interact with. By utilizing the CRM in the right manner, companies can move closer to their customers, and use more effort in finding new ways to create value for their customers. By the aid of CRM solutions, companies can have up-to-date information of customers gained directly from customer interaction. Based on the understanding of customers, CRM allows for more targeted campaigns and tracking of campaign effectiveness (Scullin, S., Allora, J., Lloyd, G.O., and Fjermestad, J., 2002). In the long-term, it produces a method of continuous analysis and refinement in order to enhance customers’ lifetime value with the company (Bose, R., 2002).

For customers, CRM offers better value based on customization, simplicity, and convenience for completing transactions (Gulati, R. and Garino, J., 2000). In other words, customers may benefit from the belief that they are saving time and money as well as receiving better information and special treatment. In addition the customer
support is strengthened, because all customer contact from sales, support, field service and marketing are centralized increasing customer satisfaction and retention (Xu, Y., Yen, D.C., Lin, B., and Chou, D.C., 2002). CRM requires that the company manages and coordinates the customer interactions across different customer touch-points. For a relatively long time, customers have expected to interact with companies for example via phone, fax, e-mail, and Internet. As the uppermost purpose of CRM is the ability to communicate with customers on an individual basis, mobile medium represent an appealing additional channel that can complement the existing channels (Giovanni Camponovo, G., Pigneur, Y., Rangone, A., and Renga, F., 2005).

Since mobile technologies have become ubiquitous, customers have begun to expect to interact with companies via mobile medium on anytime and anywhere basis as well. Several industries have attracted to the potential of utilizing mobile medium and used it to activities which can be classified as being part of mCRM.

2.4. CRM and Multiple Media

CRM into multiple media means integrating the front office and aspects of the back office with different communication channels, Figure 1.
This has to be done in a methodical way and organizations that get this part right will have thought carefully about the technical infrastructure they need. Standards are rapidly developing in this area and many vendors are building media portals that allow the organizations using them to deal consistently with customers across multiple media. Just because organizations can deal with customers across multiple media does not mean that they should offer the same facilities on each medium, or the same level of service. Doing so would be a disaster. The media are different and demand being handled differently. For example, people are generally willing to wait on hold for a reasonable time to speak to a call center agent. However, they are certainly not prepared to wait to do the same transaction with an interactive voice response (IVR) machine. Some interactions are far more costly than others, and there is an especially steep differential between interactions involving humans and those that are automated.
Business models built on automated transactions cannot sustain large volumes of transactions switching to human-based interactions. Organizations must therefore decide two main issues: 1) for which customers and on what occasions they want to use specific media. 2) How they are going to direct customers to the companies chosen medium.

The latter point tends to be the most problematic – directing customers to the chosen medium. The most problematic part is directing customers away from the live agents to the automated media. A way of doing this is price – live interactions cost more or discounts are available only via automated media. But this is not the only way. As already pointed out, one way to do this is with level of service – customers have to wait to speak to an agent, but can connect immediately with the IVR. Other choices are the levels of facilities, offered over the different media. For example, the Web is very good for conveying large amounts of data and graphics. If a company offers its customers all the data or graphical information they require from the Web, customers who can will use the Web as their chosen medium (Bradshaw & Brash, 2001).

2.5. An Example of a CRM System for Financial Service
The system captures customer information from all customers “touch” points as well as other data sources, merges the data, and aggregates it into a single customer data repository or data warehouse where it can be use to provide better service, as well as to construct customer profiles for marketing purpose.

2.6. Overview of Mobile CRM

In this model shown in figure 3 mobile services refers to the use of a mobile terminal such as mobile phones or a personal digital assistant (PDA) and a mobile telecommunication network for delivering an electronic service for the customer. The term mobile service is often used together with the term mobile application, which
refers to program code executed in a mobile terminal. New mobile phones have been devised with color display, several megabits of memory, a long-life battery, wireless data connections and multimedia support. Almost all new mobile terminals are Internet enabled and supporting packet-switching communication network, such as GPRS. Mobile terminal technology has been summarized more extensively. Mobile networks are providing different communication channels accordingly to the needs of their subscribers. In the context of this paper GPRS-network was considered as a main network technology.

The purpose of the mobile services is to transform the information in the IT-systems to suit to purposes of a person using the system when mobile.

Figure 4. Overview of Mobile CRM

Source: Petteri Alahuhta (2005)
The customer database is utilized in order to provide personalized service for the end user. The existing customer databases will be advantaged as a basis information source for customer related information. Besides the basic personal information (Name, Address), the database consists information about special interest of a customer. This information can be utilized in providing better, personalized services or offering to the customers.

In case of mobile marketing and in customer relationships, the service provider needs permission from the customer before approaching him. Therefore, acquisition and management of permissions are critical issues from service provider’s point of view. The approach of using mobile application has several benefits both for the customer and service provider. Main advantages of the mobile application are: Service provider can create a fully branded Mobile CRM-concept unlike in SMS-based solutions. It provides an interaction channel for certain kinds of content and/or service provider. It is unobtrusive and convenient to use, avoiding spam effect (The customer can control his own privacy). One drawback for using Java or Symbian based solutions may be the amount of the effort which it requires from the user in the beginning.

The first field trials will be based on an existing electronic market place, called
puntari. Information stored in Puntari-databases will be provided to the customers mobile applications based on their preferences. Main components of the CRM-concept (Petteri Alahuhta, 2005) are: Mobile application installed on a mobile phone, Mobile Service (server application) Database for user data.

2.7. Issues Underlying the Initiation of mCRM

Figure 5. Issues Underlying the Initiation of mCRM

Source: Jaakko Sinisalo (2007)

According to Jaakko Sinisalo, Jari Salo, Heikki Karjaluoto and Matti Leppa “niemi (2007), technology based issues of initiation of mCRM were:

- Acquiring server, being capable of handle, i.e. send, receive and store unprecedented amount of SMS and MMS messages
• Setting up a short number, the number which directs SMS messages from mobile phones to mCRM server

• Building gateways to service operators to connections opened to operator’s messaging network

• Development of campaign logic that customers are supposed to answer the details that are asked from the customers during the campaign

• Setting the message price charged from customers

The price collected from the service user is determined on the basis of the premium rate price categories provided by the operator in question. The marketing based issues were: gathering the customer database. It is to identify the target audience, determine communication objectives, design the message, choose the medium to lure customers’ attention, and finally collect feedback to measure the promotion’s results. Choosing the right media mix.

2.8. Theoretical framework of initiation of mCRM

In the figure 5 contributes to the knowledge of this nascent phenomenon by outlining the critical issues affecting the initiation of mCRM. When a company is moving towards mCRM it has to take some endogenous and exogenous issues into
account. In light of this study, we propose that the initiation of mCRM is based on several technological and marketing related issues. Because mCRM is becoming a topic of major importance across different lines of business, this paper provides significant insights for marketing managers as well.

![Diagram of Theoretical Framework of Initiation of mCRM](image)

Figure 6. Theoretical Framework of Initiation of mCRM

Source: Jaakko Sinisalo (2007)

Based on this study, we argue that as customers increasingly expect to be able to choose which channel they use for interacting with a company, companies should take advantage of these emerging channels as well. As stated, approaching the mobile medium as a separate project may result in an inconsistent and unsatisfactory customer experience. Therefore, the greatest challenge for companies is to combine the mobile
medium with traditional media effectively. When planning to initiate mCRM, the framework illustrated in this study includes all the vital issues that should be (Jaakko Sinisalo, Jari Salo, Heikki Karjaluoto and Matti Leppäniemi, 2007).
Chapter 3 Research Methodology

3.1. Research background

Today’s workforce is more mobile than ever. For these fast-paced workers, CRM offers several options for mobile devices and smart phones to access the information that keeps business moving forward while on the road. After the e-commerce bubble had burst, m-commerce, too, failed to meet those expectations, a prominent example being the Wireless Application Protocol (WAP) (Ramsay, 2001). Recently, mobile business (MB) and MC have begun to re-emerge as a promising field (Urbaczewski, 2003). Businesses now question the effectiveness of their (mobile) activities and investments more stringently than before. A common approach to managing problems’ complexity is the division of the problem space into multiple subspaces with limited, manageable interdependencies (Ferstl and Sinz, 1998).

An important aspect of designing business models is the interaction between businesses and their customers, which includes the management of customer-related information and business activities. This field of business is often referred to as customer relationship management (CRM). Customer relationship management (CRM) has recently gained widespread popularity in many disciplines and industries. The
essence of CRM for a company is the ability to provide differentiated relationship value and to communicate continuously with customers on an individual basis. It is also increasingly imperative to provide CRM activities through media that customers are interested in interacting with the company. In practice, the development of digital channels and their consideration to create unique and positive experiences for customers by mixing aspects of product, service, brand and communication has led to a situation where several companies and industries have started utilizing the mobile medium to promote CRM activities (Osterle, 1995).

The addition of the mobile medium as a channel through which to manage customer relationships not only creates possibilities, but also poses challenges. The lack of security provision has created a barrier against the adoption of mobile commerce among users. Therefore, it is believed that failing to provide a secure system will significantly dampen consumer adoption rates of mobile commerce.

In year 1990, many companies were focusing on how to perform their transactions with the customers, and how they are going to address their strategies for sales promotions effectively. But after 1990 they attention towards how organizations can maintain positive and long lasting relationship with customers. At the same time how to
raise loyalty of customers. Thus strategies of organization have shifted towards
customer-oriented strategies. Important factors like providing added services,
recognizing the needs of the customers are termed as factors to decide the fate of
companies. (Wayland & Cole, 1997) Organizations investigations have put light on
importance of retaining customers is not a great deal than that of attracting new ones.
Relationship marketing has turned out to become important factor in financial services
(Zineldin, 1995).

3.2. Research purpose

Customer relationship management (CRM) has recently gained widespread
popularity in many disciplines and industries. The essence of CRM for a company is the
ability to provide differentiated relationship value and to communicate continuously
with customers on an individual basis (Park and Kim, 2003). It is also increasingly
imperative to provide CRM activities through media that customers are interested in
interacting with the company. In principle, this thinking is well founded, while in
practice it can be excessively difficult to implement. The proliferation of
technology-based systems and their rapid advancement are bringing about fundamental
changes in how companies interact with customers and challenges facing companies
when moving towards mCRM. The existing theories do not explain the phenomenon adequately. Furthermore according to the papers we mention above just give specific situation in the individual company or figure out the overview of mCRM. The purpose of this study is to gain a better understanding of mCRM and to help business get to know how to setup mobile customer relationship management.

3.3. Research Structure

This study is divided into five chapters. Chapter one include research background, research purpose and thesis structure. Chapter two provides the reader with an overview of the literature, related to the three research questions of the study, on previous research within the area of CRM and mCRM. Chapter three presents all the methodology those are followed by this study. Chapter three presents the research model. Finally, chapter seven contains all the findings of this study.

3.4. Research Approach: Qualitative

According to Zikmund (2000) Research, is conducted initially in order to clarify and define nature of the problem. They are conducted to define ambiguous problems. A better understanding of the problem is required to do the research. According to Dane (1990) sometimes exploratory research might be very complex and the purpose of the
exploratory research is to conduct the research process itself. Zikmund (2000) further states that exploratory research is usually conducted with the aim that subsequent research will be needed to provide with conclusive evidence.

According to Yin (2003), documentation can be reviewed repeatedly, more over it contains exact name, references and details of an event. Documentation will be used as data collection method in this study to gain a deeper understanding about mobile customer relationship management.

According to Yin (1994), qualitative methods of research emphasis is given to description and discovery based on data in the form of words rather than number. Qualitative methods are normally focused on case studies and the object is to identify the research problem and Yin (1994) also argues that the appropriate selection of a research depends on the research purpose and the research question. Furthermore, according to Holm and Solvang (1997) a Qualitative method help the research to gain a deeper and more clear understanding of a particular area of research. By surveying papers on mCRM for models to be integrated the research method used is qualitative method to develop a feasible model of mCRM for business.
Chapter 4 Development of Model

According to Jaakko Sinisalo, Jari Salo, Heikki Karjaluoto and Matti Leppäniemi (2007) the underlying issues and challenges which deserve closer attention can be roughly divided into three categories: endogenous, exogenous and mCRM specific issue. Both the exogenous and endogenous issues affect mCRM specific issues.

Endogenous issues and challenges stem from inside the company. In order for the mobile medium to be an additional channel for companies’ CRM activities, the mCRM system has to be integrated into the companies’ overall CRM system. In addition, the mCRM solution chosen must have the ability to integrate fully into the existing CRM system. This system integration is a necessary stage for achieving effective different customer communication contacts (e.g. internet, direct mail, sales calls, mobile medium) (Peppers and Rogers, 2004). Accordingly, the existing CRM system has to support the mobile medium as a channel to function appropriately. Therefore, the CRM system adopted has an effect on technological choices made during the initiation of mCRM.

Nowadays, extending CRM to include the mobile medium is not as complicated as it used to be, and many CRM systems already support the extension of CRM to the mobile medium. However, in some cases, the mCRM system has to be built separately
for technological reasons. A customer database is prerequisite for any interaction conducted through the mobile medium. Naturally, integration is a necessary prerequisite for mCRM in that it relies upon the existing CRM database. As will be shown in the case study, a permission database can also be gathered purely for mCRM purposes. In order for a company to communicate with its customers, the database must at the very least consist of customers’ mobile phone numbers. However, there are major problems with this kind of simple customer database since it is impossible to communicate with the customer individually, and thus avoiding irritating them is challenging. Therefore, gathering information on a larger scale is recommended. Customers are usually profiled using demographics, psychographics, behavioral and social behavioral data.

While demographics, psychographics, and behavioral data are traditionally used in categorizing customers, social behavioral data are being used increasingly within the mobile context. Basically, it refers to the similar sets of behavior within a group of people. In general, the profiles in the customer database are used to segment the companies’ customer base into individuals or groups, in order for communication to meet the needs and requirements of customers.

There are two exogenous issues affecting mCRM-specific issues during initiation.
First, while intelligent mobile marketing involves the utilization of customers’ personal information, regulatory constraints are the most important issue that should be considered when developing mCRM. For instance, mobile marketing in the EU area is regulated by law and involves asking end-users’ permission to send unsolicited marketing messages via all electronic media for marketing purposes. Second, a significant element contributing to technology-related issues in mCRM is the mobile infrastructure. The mobile infrastructure concerns the mobile networks as well as the mobile devices in use. Because the mobile infrastructure is in the middle of an era of transformation, business based on mobile technology will be profoundly different in the near future. Furthermore, the introduction of 3G and 4G technologies in wireless networks provides a foundation for evolving activities, which can be implemented through the mobile medium.

While these developments offer various opportunities for planning and implementing more advanced campaigns through the mobile medium, they also make mCRM activities far more challenging since the technological diversity is likely to increase. Accordingly, communication through the mobile medium is becoming more complex as the content has to be optimized for a myriad of different devices.
Above mention mean that in mCRM the endogenous issue mean outside business, exogenous mean inside business.

Figure 7. The Analyst of a Feasible Model for Mobile CRM

4.1. Outside Business

4.1.1. Technology

Mobile technology enables people to access digital information located in the Internet or get entertained also beyond the reach of stationary Internet access. The
The mainstream focus of mobile service researchers is called the anytime-anywhere principle: request for services by mobile users should be always satisfied in an unchanged and transparent way, regardless of the time at which the service is requested and of the place from which is requested.

4.1.2. Customer database

The first step in interpreting (the number of huge…. huge transaction streams is to store the information systematically. A database is a software application that stores records and attributes. A database management system (DBMS) is a software application use by organizations to create, maintain and access database.

The customer database utilized in order to provide personalized service for customer. Organizations are increasingly using databases to manage customer relationships to increase both sales and customer satisfaction. A database can help business identify key trends and important information such as your most and least profitable customers. A customer database can form part of the coherent management of relationships with customers. The customer database not only consist the basic personal information but also consist information about special interest of a customer. This information can be utilized in providing better,
personalized services or offering to the customer.

4.1.3. Permission Database

According to Rettie et al. (2001) said that the approval, the trust and the two-way exchange of information help to develop the relationship between the consumer and the brand. 90% of respondents found it unacceptable to receive SMS ads from unknown businesses, while 49% of respondents found it acceptable to receive SMS ads from Internet service providers they had subscribed to, and 44% found it acceptable as well if they could have discount calls in return.

According to Petteri Alahuhta, Heli Helaakoski and Alexander Smirnov (2005) the mobile marketing and in customer relationships the service provider needs permission from the customer before approaching them. The collection of the database was organized around a marketing campaign, where the company was asking customers to send their personal information, such as mobile phone numbers, as well as names and addresses, preferences and a permission to send messages to end user’s mobile phone via SMS to the retailer. When consumers agree to receive promotional messages, they are opting-in, when they decide they do not want to receive messages, they opt-out. By signing in for the loyalty program, the
customers could sign up to the loyalty program customers automatically opt in to the company’s permission based mCRM database.

In this study permission from the consumer is a key prerequisite for successful and building long-term relationships with consumers.

4.1.4. CRM System

Customer Relationship management system is a repository of customer information that records all of the contact that a customer has with a firm and generates a customer profile available to everyone in the firm with a need to “know the customer” (Kenneth C. Laudon, Carol Guercio Traver, 2008).

CRM system is a technology-based business management tool for developing and leveraging customer knowledge to nurture, maintain, and strengthen profitable table relationships with customers (Yuksel Ekinci, 2008)

Base on the definition of CRM system and figure2 the CRM systems of mCRM include 3 elements:

- Gateways
- Media mix
- Server
4.1.5. Gateways

According to Jaakko Sinisalo, Jari Salo, Heikki Karjaluoto and Matti Leppäniemi (2007) the technological level concerns the total number of service operators needed to reach the target audience, i.e. the number of connections established with the operator’s messaging network. Basically, the target audience for every campaign will span all the major networks of a given country. Consequently, the campaign must connect to all networks.

4.1.6. Media Mix

According to Jaakko Sinisalo, Jari Salo, Heikki Karjaluoto and Matti Leppäniemi (2007) when considering mCRM after initiation, a concept should be incorporated into the overall marketing strategy. A new series of campaigns can be based on the mobile medium alone or on the integration of the mobile medium with the existing marketing channels. The latter option, where the mobile medium is integrated into existing marketing campaigns on other media has proven to be the most effective and efficient method (First Partner, 2003). In other words, mCRM campaigns complement other media, such as television, newspaper, print and internet, and vice versa.
Although it’s a simplification of the typical consumer media experience, this example highlights many of the ways customers may be exposed to your message throughout the day. How can you ensure that your marketing will be a memorable part of their media experience? Create an integrated marketing campaign for 2007 using the media that affect your customers’ decisions to buy what you market. Just look at some of the dramatic ways integrated marketing can benefit your business.

A successful integrated marketing campaign capitalizes on the strengths of individual media. Look at the media your customers are exposed to that affect their decisions to buy what you market, and select a mix of the best forms. For example, web pages can carry deeper content and more complex communication than many media forms, while outdoor ads give a quick punch of information. Some media, such as direct mail, e-mail and article placements, will help you tell your full marketing story, while others, such as online or out-of-home ads, can generate leads and drive prospects to seek more information.

An integrated marketing campaign can follow your prospects all day long, taking advantage of multiple touch points. In the earlier example, you saw how a
typical prospect might be exposed to media throughout the day. If this were your customer, you could choose from his favorite newspaper, magazine, cable TV channel, radio station and website to create an integrated mix. By choosing just print, out-of-home and online marketing, you could be part of his life morning, noon and night.

4.1.7. Server

According to Jaakko Sinisalo, Jari Salo, Heikki Karjaluoto and Matti Leppäniemi (2007) the company had to acquire an mCRM server capable of handling, i.e. sending, receiving and storing, an unprecedented number of SMS and MMS messages. In other words, the server is in charge of what content is delivered to whom under what circumstances. The company has to decide either to build in-house expertise or rely on a partner, and whether to use a managed or a hosted solution.

In information technology, a server is a computer program that provides services to other computer programs (and their users) in the same or other computers. The computer that a server program runs in is also frequently referred to as a server (though it may be used for other purposes as well). In the client/server
programming model, a server is a program that awaits and fulfills requests from client programs in the same or other computers. A given application in a computer may function as a client with requests for services from other programs and also as a server of requests from other programs. Specific to the Web, a Web server is the computer program (housed in a computer) that serves requested pages or files. A Web client is the requesting program associated with the user. The Web browser in your computer is a client that requests HTML files from Web servers.

4.2 Inside Business

4.2.1. Marketing

Marketing play important role in mobile service there for we have really understood what is marketing?

Marketing is the strategies and actions firms take to establish a relationship with a consumer and encourage purchases of products and services.

Enterprises operate mCRM server to access of handling such as sending, receiving and toring of SMS or MMS messages for targeted customers. To implement mCRM well, enterprises must consider that build an in-house system for using a managed or cooperate with a partner for a hosted solution. Therefore, a stable
technology condition on a hosted mobile marketing platform provides enterprises more competitive advantages in mCRM applications market (Cheng Fang Hsu, 2008).

Through marketing activities, Businesses should attract existing interested customers and the potential customers. Once they are interested, they will feedback by the mobile medium in communication while they are touched by the promoted mCRM activities. Enterprises target customers to establish the purpose of communication and design the context of message by taking an applicable medium to delivery. Thus, mCRM is integrated not only concept but also activities into whole marketing strategy

- Feature set of marketing concept

According to Kenneth C. Laudon, Carol Guercio Traver (2008). The central task of marketing is to identify and then communicate to the customer the unique, differentiated capabilities and services of a product or service’s feature set.
Figure 8. Feature Set of Marketing

Source: Kenneth C. Laudon, Carol Guercio Traver (2008)

Figure 8 illustrates the three levels of a product or services: Core, actual, and augmented. The core product is at the center of the feature set. Core product is the core benefit the customer receives from the product. The actual product is the set of characteristics designed to deliver the product core benefits. The augmented product is a product with additional benefits to customers beyond the core benefits embodied in the actual product.

- Marketing activities from products to brands

Marketers identify the differentiating features of the actual and augmented
product. They engage in a variety of marketing communications activities to transmit the feature set to the consumer. Based on the consumer’s experiences and the promises made by marketers in their communications, consumers develop expectations about product.

![Marketing Activities from Products to Brands](image)

**Figure 9. Marketing Activities from Products to Brands**

Source: Kenneth C. Laudon, Carol Guercio Traver (2008)

Marketers directly influence the design of products to ensure the products have desirable features, high quality, correct pricing, product support, and reliability. When marketers are able to directly influence the design of a core product based on market research and feedback, this is called closed loop marketing. Based on the theories we mention above the marketing is include regulatory,
infrastructure and campaign logic, pricing as well as number in side.

4.2.2. Regulatory

In the marketing regulatory constraints is the most important element that should be considered when developing mCRM. Business need to think carefully about where they obtained the details of the target group and whether they are in fact lawfully able to send mobile marketing to this group. Basically, there are three ways to obtain a database of opt-in mobile numbers, namely purchasing, renting or developing the database on your own. The company in question decided to develop or collect the database individually, in order to get a prior permission to start mobile dialogue with its customers. The collection of the database was organized around the marketing campaign, where the company was asking customers to send their personal information, such as mobile phone numbers, names and addresses, preferences and a permission to send marketing messages to end user’s mobile phone via SMS to the retailer.

4.2.3. Campaign Logic

The campaign logic built into mCRM server, because mCRM campaign cannot be run before that. Campaign logic refers the details that customers are
supposed to answer i.e. the details that are asked from the customers during the campaign consists of keyword, age, gender, and interest areas. Without the campaign logic, the server cannot receive and store messages sent by the service users. In addition, the data received from customers is almost impossible to turn into customer information without the logic. To be sure that relevant information will be saved to the database, accurate plan have to be made. All these logic related issues has to be implemented to the server before a launch of a mCRM campaign. By the aid of the keyword, mobile marketing server can identify received messages to be belonged to the particular campaign. Age, gender and interest areas were asked, and will be used in the future to send personalized communication to customers.

4.2.4. Pricing

In a competitive market, firms compete for customers through price as well as product feature, scope of operations, and focus. According to e-commerce pricing (putting a value on goods and services) is an integral part of marketing strategy.

In this study Pricing is the price collected from the subscriber has to be decided. There are three options for setting up the price per message sent by
service user. The first is a normal SMS price, which is a price according to the pricelist of the operator in question charged from the service user. The second is a free SMS message, which means that the service is free of charge for the service user. The last is a premium rate SMS message, which means that the price collected from the service user is determined on the basis of the premium rate price categories provided by the operator in question.

4.2.5. Mobile Infrastructure

The mobile infrastructure includes the mobile networks as well as the mobile devices in use. Nowadays many telecommunication company want to combine together to build and develop the infrastructure as well as provide better service. For instance, Chunghwa Telecom Co Ltd (CHT) has established a joint venture with Viettel Corp of Vietnam to provide Internet Data Center (IDC) services in Vietnam. Because the mobile infrastructure is in the middle of an era of transformation, business based on mobile technology will be profoundly different in the near future. Moreover, the technologies advance in wireless networks provides a foundation for evolving activities, which can be implemented through the mobile medium. While these developments offer various opportunities for
planning and implementing more advanced campaigns through the mobile medium, they also make mCRM activities far more challenging since the technological diversity is likely increase.

4.2.6. Number

The number which directs SMS messages from mobile phones to mCRM server. The company can rent a short message service number from some mobile marketing service provider to avoid the application procedure. Basically, all of customer have short message service numbers which can be used when company do not have the short message service number on their own or have no interest to apply the number at the very beginning of the mCRM process.

4.3. Use’s View

According to Kenneth C. Laudon and Carol Guercio Traver (2008) customers come to firms not just over the web but also through telephone call center, customer service representative, sales representative, automated voice respond system, ATMs and kiosks, in-store point-of-sale terminals, and mobile devices (m-commerce).

In this study we mention about mobile devices and web server, web application as well as content database.
4.3.1 Content Database and Content Creation

The approach of using mobile application has several benefits both for the customer and service provider. Main advantages of the mobile application are:

• Service provider can create a fully branded Mobile CRM-concept unlike in SMS-based solutions.

• It provides an interaction channel for certain kinds of content and/or service provider.

• It is unobtrusive and convenient to use, avoiding spam effect (The customer can control his own privacy).

• One drawback for using Java or Symbian based solutions may be the amount of the effort which it requires from the user in the beginning. (Petteri Alahuhta, Heli Helaakoski and Alexander Smirnov, 2005)

4.3.2 Web Server

Rise of internet and broadband communication technology have boosted the use of web based services that combine and integrate information from geographically distributed information systems. As a consequence, popular web sites are expected to handle huge numbers of requests simultaneously without
noticeable degradation of the response time performance. Moreover, web servers must perform significant CPU- and disk I/O-intensive processing, caused by the emergence of server-side scripting technologies (e.g., Java servlets, Active Server Pages, PHP). Furthermore, web pages involving recent and personalized information (location information, headline news, hotel reservations) are created dynamically on-the-fly and hence are not cacheable. This limits the effectiveness of caching infrastructures that are usually implemented to boost the response-time performance of commercial web sites and limit bandwidth consumption. At the same time, as a result of the recent advances in wired networking technology, there is usually ample core network bandwidth available at reasonable prices. As a consequence of these developments, web servers tend to become performance bottlenecks in many cases. These observations raise the need for web-based service providers to control the performance of their web servers.

4.3.3 Application Server

Sometimes, you can figure out what something is or does just by puzzling over its name. The term application server fits that bill. Technically and non-technically speaking, an application server is a server that is designed for or
dedicated to running specific applications. At its most basic, an application server might be used to run one application. If that application is the one that keeps your company network going and is, therefore, a massive application, it might take up the entire RAM and ROM requirement of one server.

An application server is a server program in a computer in a distributed network that provides the business logic for an application program. The application server is frequently viewed as part of a three-tier application, consisting of a graphical user interface server, an application (business logic) server, and a database and transaction server.

In many usages, the application server combines or works with a Web (Hypertext Transfer Protocol) server and is called a Web application server. The Web browser supports an easy to create HTML-based front-end for the user. The Web server provides several different ways to forward a request to an application server and to forward back a modified or new Web page to the user.

4.4. Security Requirements

Business who wants to run mCRM, they need to concern security requirement first. All of three perspectives inside business, outside business and use’s view have to pass
4.4.1 User Security Requirements

According to (Ali Sanayei and Abas Mirzaei, 2008) several risk factors may be associated with the users. Users pose the largest security risk in a network, with the largest threat coming from users within the network. Therefore, it is extremely important for networks to be secured against internal attacks. For instance, a security policy should emphasize logging and account activity tracking, accountability of use, and misuse detection. Users may not follow appropriate procedures if they have lost a security device (i.e. not notifying the company in a timely manner) thus increasing the risk of stolen data, etc.
Follow figure 10 two of the key objectives in mobile security are to ensure that stored data will be encrypted automatically and transparently and that the user is automatically forced to log in each time. Equally important is to use recognized, proven encryption algorithms. Some options in new mobile devices, such as Pointsec for Symbian extends automatic, real-time encryption of important information, including email, text message, documents, worksheets and pictures that are stored on the device and memory cards. For enterprises pointsec for
symbian helps to ensure that encryption policies are easy to distribute and enforce
across each organization.

According to this study business must make sure that their customers have to
pass security requirement to avoid lost data.

4.4.2 Inside and Outside Business Security Requirements

According to (Ali Sanayei and Abas Mirzaei, 2008) Enterprise mobile
security involves several different areas. The most tangible element of mobile
security for the typical user is the mobile device and its user interface. From an
end-to-end perspective, mobile security can be divided into three key areas:
mobile device security, connection security and content security. Security within
the mobile device entails both hardware and platform security. Hardware security
enables the storing and execution of sensitive information, and helps ensure that
device will only run valid software. For example hardware can be used to detect
unauthorized change in the software. platform security involve the management of
services like the authorization and authentication of software, which helps ensure
that only verified applications can access protected resources. The platform also
typically provide security services for the user and upper level applications, such as
applications programming interfaces (APIs) that applications use to process
encrypted data or to access hardware-based security services. It can also address
usability issues related to security, such as how the user is prompted and what kind
of prompts he or she is shown.
Chapter 5 Conclusion and Future Research

In this study, we found that mCRM is becoming a major issue that can support across different lines of business, and also, it provides significant insights for marketing managers. After the study, we can answer the question how business can setup mobile customer relationship management. We present three respects in mobile customer relationship management which includes inside business, outside business and user’s view. Furthermore this study is also present the elements and the relationship between them to help business apply them and setup mCRM. Moreover we discuss the enterprise mobile security requirements. The research develops and analyzes a feasible model for mobile customer relationship management to help business setup mobile customer relationship management.

This model was developed from other frameworks and models, and is very useful for business who intents to effectively manage the relationships with customers through mobile device. However, these business needs to clearly understand the model and apply it into each specific business situations. Furthermore, business needs to know customers and their demands so that they can adjust this model.

For outside business aspect, the business needs to know how to choose the right
system to support activities such as management or CRM system DBMS to create, maintain and access databases from the providers.

Today the non-stop development of techniques, there are more and more threats of the virus, worm, Trojan horse, Bot and Botnet which brings the danger not only to business itself but also their clients. Companies may lost trust from their clients because of virus or Trojan horse; so the business who wants to setup mCRM should pay attention to security requirements.

The study was quite successful in analyzing and developing a feasible model for the management of mobile customer relationship. However, there still remain several drawbacks due to the limit of references. We suggest that future studies should survey more papers to enhance this model then it can be a very useful model which can serve well in mCM.
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