

## An Integrated Model for Knowledge Management and Electronic Customer Relationship Management

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**Abstract:** It is generally accepted that due to globalization, competition is becoming more intense and organizations are now able to or forced to open newer markets with different paradigms. As a result, Knowledge Management (KM) has been increasingly recognized as the most important and valuable asset in organizations and as a key differentiating factor in Electronic Customer Relationship Management (ECRM). The aim of this paper is to present a conceptual framework of KM integrated with ECRM called Electronic Customer Knowledge Relationship Management (ECKRM) process, based on investigation of various models presented in KM and Customer Knowledge. The main emphasis was focused on the concept of Electronic customer knowledge (electronic knowledge about customer, electronic knowledge for customer, electronic knowledge from customer). Therefore, the paper will describe a more valid process to acquire new electronic customer, retain existing electronic customer, and finally expand the relationship with Electronic customer.

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**Key words:** Knowledge Management (KM), Electronic Customer Relationship Management (ECRM), Customer Knowledge, and Customer satisfaction.

### 1. Introduction

Organizations are facing a rapidly changing environment and there is a greater requires recognizing customers' demands and competitors' strategies for the improvement of product innovation (Lin et al., 2012). Also, Due to the fast development of the electronic customer knowledge revolution, Knowledge Management (KM) process has become very necessary for building an efficient and effective relationship with electronic customers. The role of KM in electronic Customer Relationship Management (eCRM) is important for achieving customer satisfaction. Additionally, as a result of strong competition, the prevailing economic crisis and hasty changes in business environment organizations are seeking improvement to their business processes, with goal to reduce cost, improve efficiency and reduce the impact of the economic crisis on their functionality. In this regard, knowledge is becoming increasingly important for improvement to business processes based on several studies and research (Alhawari et al., 2008).

Moreover, Lin et al., (2006) indicates that both KM and CRM are of prime significance for every business decision maker and Information Technology (IT) professionals. Consequently, the availability of large data on customers due to new technology tools has created opportunities as well as challenges for businesses to leverage the data and gain a competitive advantage. Fan and Edward (2010) noted that CRM is more than simply providing an information technology

solution and building the customer information database, it is an organization process that enables a firm to measure its customer equity and manage customer relationships so as to improve the firm's profitability.

Additionally, it is needed from organizations to respond successfully to competitive environments which can be attained through examining how they can improve leverage and enhanced the relationship with electronic customer. Additionally, Xu, et al. (2002) categorized four factors between automation and CRM that assist companies in gaining knowledge of customers' behaviors. Furthermore, Romano and Fjermestad (2002) suggest that successful eCRM requires attracting and keeping economically valuable customers while repelling and eliminating economically invaluable ones.

Additionally, Ing-Long Wu and Ching-Yi Hung, (2009) noted that the goals of ECRM over the Internet form unique chances for structure trades and growing profits streams by increasing geographical range, enhancing channel harmonization, and improving provide sequence competence. Therefore confronting fierce global competition, organizations have implemented KM to enhance competitive advantages and growing investments in resources for KM implementation in field of ECRM. Therefore, it is demanded from organizations to focus on developing interaction with the customers to maximize electronic customers' satisfaction which, in turn, helps in verifying competitive advantage, supporting the electronic

customer acquisition, electronic customer retention and electronic customer expansion.

The rest of this paper is structured as follow. Section two introduces review of related studies KM and ECRM. Section three, present a conceptual framework for ECKRM. Finally, conclusion is given.

## 2. Literature Review

This section will give the reader an over view of different contribution in literature associated to the KM, KM Process concept of CRM and ECRM, thereafter, customer knowledge flow, and finally, Electronic Customer Knowledge.

### 2.1 Knowledge Management

It is now an indisputable fact that globalization is a reality that has become an integral part of everyday operations and transactions for most organizations in a multiplicity of fields and domains (Alhawari et al., 2008). Technological advances together with political changes over the last twenty years has truly meant that the flow of resources, goods and technologies across the world is almost unrestricted, thus presenting international organizations with many new realities and challenges and specifically with regards to competition (Alhawari et al., 2010).

Essentially, KM in organizations is believed to be an integrated process that can help to enhance and expand the innovation process. Successful KM can be defined as the creation of management processes and infrastructure to bring together both knowledge and communities in a common ecology that will sustain the creation, utilization and retention of knowledge (Alryalat and Alhawari., 2008).

Moreover, organizations need to understand and connect knowledge and be aware of the crucial issue of creating a work environment that adopts KM within and across organizations (Bechina, 2006). Thus, organizations need to enhance competitive advantages for managing knowledge. Additionally, it is needed from organizations to respond successfully to competitive environments which can be attained through examining how they can improve leverage knowledge assets and create an additional value (Lin et al., 2006).

KM is a critical step to organizations for the following reasons: Firstly, it helps to address the issues related to developing, managing and maintaining the technical infrastructure that are required to hold and share knowledge. Secondly, it enhances business performance by maximizing the use of information and knowledge as well as maintaining its learning capacity to remain innovative and competitive (Mau, 2005). Therefore, organizations need to develop knowledge capture, knowledge creation, and knowledge application which, in return, lead to verifying the competitive

advantage and enhance the customer satisfaction (Alryalat and Alhawari (2008).

### 2.2 Knowledge Management Process

KM process is important in modern and successful organizations which look at knowledge as a major factor in organization to increase the competitive advantage (Alhawari et al., 2008). Therefore, KM has been seen as a fast response to weaknesses and threats that affect the way of organization business (Nehari-Talet et al., 2010). This section describes various KM processes reported in the literature.

Alavi and Leidner (2001) propose that the knowledge process can be divided into four stages: knowledge creation, Storage and Retrieval, Transfer, and applications. Knowledge creation process concerned with combining new sources of Knowledge Just in time learning. Knowledge Storage and Retrieval is used Support of individual and organizational memory Inter group knowledge access. Knowledge storage involves obtaining the knowledge from organizational members and or external sources, coding and indexing the knowledge for later recovery, and capturing it. Knowledge Transfer which is concerned more communication channels available and make faster access to knowledge sources. Finally, knowledge application process is used to apply Knowledge in many locations more rapid application of new knowledge through workflow automation.

KM Process model proposed by Bouthillier and Shearer (2002) is divided into six steps: Knowledge Discovery, Acquisition, Creation, storage and organization of the Knowledge, sharing and finally use and application. Discovery involves locating internal knowledge within the organization, this phase especially useful as one part of the organization may not be aware of the knowledge existing in its other parts. Acquisition process makes the process of bringing the knowledge into an organization from external sources possible. Creation process contains creating of new knowledge may be accomplished in several ways. First, internal knowledge may be combined with other internal knowledge to create new knowledge. And secondly, information may be analyzed to create new knowledge. After knowledge has been crated it must be stored and organize to get better understanding the Knowledge. In the Knowledge sharing phase involve the transfer of knowledge from one person to another on or more. In the end, the cycle of knowledge management is not successful if no efforts are ready to ensure the use and application.

Alryalat and Alhawari (2008) suggest that KM process includes the three main processes. Starting with the Process about Knowledge to capture knowledge, Process for Knowledge to create Knowledge need, and Process from Knowledge to apply knowledge. The first

KM process deals with the idiom knowledge which refers to understanding how to capture the needed knowledge to solve specific problems that have occurred. The second process of KM focuses on process for knowledge. This process refers to Knowledge Creation which considers creating new knowledge in the organization as its major priority. The third process called Process from Knowledge to be applied through organizations' products, services and processes that yield in attaining high standards of improvement and progress.

Abdullah et al., (2008) define Knowledge management (KM) processes comprise of knowledge creation, knowledge storage, knowledge distribution and knowledge application. The act of creating knowledge coincides with the act of working through the learning spiral of conceiving, acting and reflecting. Reflection is key to knowledge creation. Companies must develop the infrastructure to capture, store and disseminate the knowledge created from experience. KM allows organizations to leverage lessons learned to be more effective in the future. In addition, a KM system must help users to get their work done easier and more efficiently.

Theoretically, the objective of KM is to convey appropriate knowledge to right person by best method in the suitable time. In addition, KM can be used in different fields, ranging from education, project management, software engineering, ECRM, and more.

### 2.3 Concept of CRM and ECRM

Vella. And Caruana, (2012) noted that the managers need to find behavior of improving the operations of their various functions so that ultimately their customers will experience a better service. This can be completed with the support of an efficient CRM system. Also, CRM refers to a set of relational practices that organizations adopt to improve customer relationships (Padmavathy et al, 2012). In another study by, Choy et al., (2003) views the CRM as a process by which a company expands the customer information to improve loyalty and retain customers. Consequently, the objective of the CRM is to find, get, and retain customers. Nowadays, CRM has been addressed by many academic researchers in the field of Marketing and Information Systems.

CRM has emerged as one of the most demanded issues in business, because of the value expected for carrying out the CRM in organizations. CRM became an important business process, because it touches the most important assets of all organization, which is the customer (Alhawari et al., 2010). Additionally, Bhaskar and Zhang (2005) confirm that the most significant changes in the practice of marketing during the last decade is the shift in emphasis from a transaction orientation customer interaction to the CRM. Although

CRM is a relatively new concept, it is receiving wide attention for its promising future to increase customer satisfaction. For addressing this issue, Defining CRM could be connected to its technological perspectives as an IS approach that develop the capability of an organization to deal successfully with its customers to satisfy the customer satisfaction. Chan (2005) proposed a similar conceptualization of CRM that included business processes, organizational structures, analytical structures and technological representation to present a unified vision of a customer.

Obviously, there is a strong competition among organizations and fast changes in the business environment. In this way, customer retention has become the main interest of researchers and practitioners particularly in the domains of Marketing and Information Systems (Alhawari,2012) . In addressing this issue, many firms work hard to strengthen their relations with their customers. Firms have been using information technology (IT) to maintain professional and successful relations with their customers. From a marketing viewpoint, the eCRM software application is the perfect tool to control customer relations via internet. ECRM applications use profiling technique through gained knowledge of customers' requirements and behaviors to assist firms know their customers better and be able to build up their relation with them. There are many services integrated with eCRM like SMS alert service, a web site, a cell phone, a newsletter, an email system, a specific software solution, promotional campaigns, etc (Sophonthummapharn, 2009). Also, Romano and Fjermestad, 2003) noted that the objective of electronic customer relationship management (eCRM) systems is to develop customer service, keep valuable customers, and to support in providing analytical capabilities.

### 2.4 Customer Knowledge Flow

Based on the above discussion, to control the relationship with customers successfully, it is necessary to understand customer knowledge flows. Therefore, it is essential to clarify these flows in CRM. The model by Dous et al., (2005) presents the construct that knowledge flows in CRM processes can be classified into three categories: First the need to understand the requirements of customers in order to effectively addresses them. This is referred to as knowledge about customers. Second customer needs must be matched with the services and products available. All knowledge required here can then be summarized under the term knowledge of customers. Finally, customers 'many experiences and insights when utilizing a product or service become valuable resources for corporations. This knowledge is valuable as it can be used for service and product enhancement, as well as, channeled back into present and future enterprises.

Similarly, Gebert et al., (2002) explain that knowledge flows in CRM processes can also be divided into three categories: First, knowledge about customers is accumulated to understand motivations of customers and to address them in a personalized way. This includes customer histories, connections, requirements, expectations, and purchasing activity. Second, knowledge for customers is required in CRM processes to satisfy knowledge needs for customers. Third, knowledge from customers is the customers' knowledge about products, suppliers and markets. Knowledge gathered within interactions between companies and customers can feed continuous service and product enhancement.

Garcia-Murillo and Annabi (2002) define customer knowledge management as the acquisition of customer knowledge to develop firms' products, thereby creating exceptional value for customers through the sharing of customer knowledge. Finally and in parallel to the above studies, Bueren et al., (2005) note that organizations also need to focus on three sorts of knowledge regarding CRM processes. First, they need to understand the requirements of customers in order to address them. This is referred to as knowledge about customers. Second, the information needs of the customers in their interaction with the enterprise require knowledge for customers. Third, customers possess knowledge about the products and services they use as well as about how they perceive the offerings they purchased. This knowledge from customers is valuable as it feeds into measures to improve products and services. Efforts need to be made to channel this knowledge back into the organizations.

### 2.5 Electronic Customer Knowledge

Following the turmoil in worldwide economic activity resulting from the recent global financial crisis, businesses are seeking to head back on track (Vella. And Caruana, 2012). For this point, many are acknowledging that their activities must be focused on their electronic customers, rather than on traditional customer. The study by, Schoder and Madeja (2004) define ECRM is a concept of refers to the application of CRM in electronic commerce. Another definition by William et al (2004) ECRM is a strategy involves an interactive Web site and a comprehensive customer database that tracks all customer interactions. The value proposition involves service excellence through greater convenience, lower costs, and personalized customer service.

Romano and Fjermestad (2003) suggest that successful ECRM requires attracting and keeping economically valuable customers while repelling and eliminating economically invaluable ones. Additionally, Ing-Long Wu and Ching-Yi Hung,(2009) ECRM is a business and technology authority that helps companies attain and keep the most commercial customers while

meeting their needs.

As stated above most literature on ECRM is gaining the attention of e-business managers who are interested in increasing repeat business process. Therefore; ECRM has become the latest paradigm in the world of CRM And becoming more necessary as businesses take to the web to attain the customer satisfaction (Alhawari, 2012).

William et al (2004) The Internet has dramatically affected the conduct of business. Markets, industries, and businesses are being transformed. The new economy demands the exploitation of new models and paradigms. Therefore, IT now drives businesses and markets. In the new economy, the Internet has become a powerful and ubiquitous communication mechanism to facilitate the consummation and processing of business transactions. This has led to substantial changes in traditional industries and companies. Fjermestad and Romano (2003) eCRM system allows a company to predict the kind of products that a customer is likely to buy as well as the timing of purchases.

Nowadays, successful e-CRM requires adherence to a stable and consistent strategy that focuses on the goals of increase customer satisfaction. Additionally, ECRM system allows a company to predict the kind of products that a customer is likely to buy as well as the timing of purchases. Therefore, All organizations involved in on-line business to business and/or business to customer selling need to train themselves about the new phenomenon of electronic ECRM. Furthermore, Fjermestad and Romano (2003) are convinced that ECRM will continue to develop as an important area of study in MIS and such relevant referent disciplines as Computer Science, Marketing and Psychology.

### 3. Conceptual Framework for KM and ECRM

De Luca and Atuahene-Gima (2007) define market knowledge as a firm's possession of a great arrangement of information about market as well as customers' and competitors' conditions. Conceptually, KM process and electronic customer acquisition, electronic customer retention, electronic customer expansion has been widely embraced by businesses.

As mentioned, ECRM has become a number one focus within today's competitive markets. Therefore, the processes of acquiring electronic customers, retain existing electronic customer, and expand the relationship with electronic customer are of prime value for organizations. Many organizations fail because there is no clear strategy for dealing with electronic customers.

Based on the theoretical background and the literature review, a conceptual model was developed to examine the role of (Electronic Knowledge about Customer, Electronic Knowledge for Customer, and Electronic Knowledge from Customer) and on

electronic customer acquisition, electronic customer retention, and electronic customer expansion to improve research model.

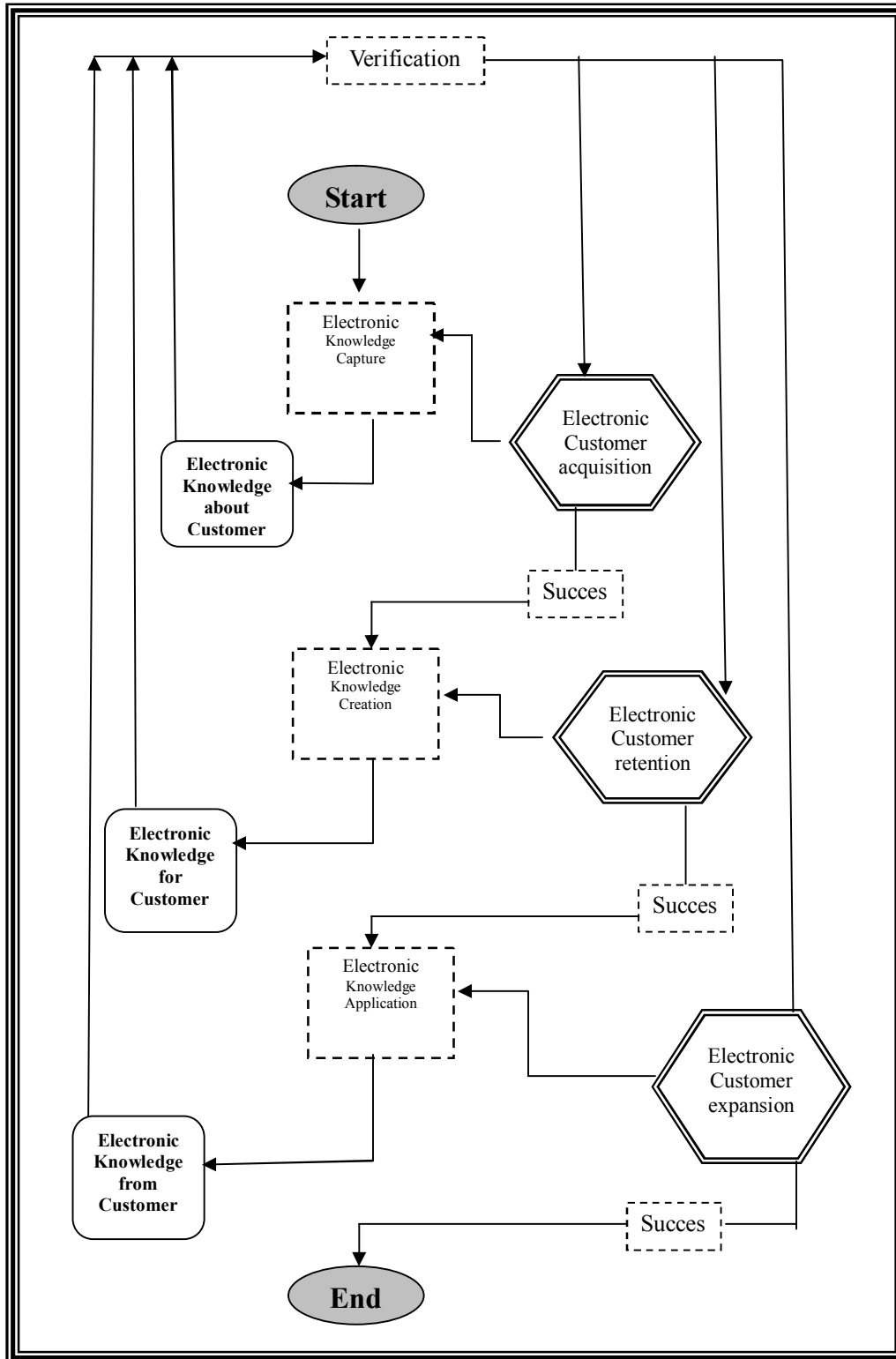


Figure 1: Electronic Customer Knowledge Relationship Management Model

The ECKRM Model describes how knowledge helps to acquire new electronic customer. Also, retain existing electronic customers within the organizations border, and to enhance electronic customer expansion to improved electronic customer satisfaction and keep organizations within competitive environment. There are six phases in an ECKRM model.

The first phase Electronic Knowledge Capture: it focuses on capturing both the explicit and tacit knowledge existing within the Electronic customer. Also, capture Electronic Knowledge from ideas, experience, documents, reports, books, artifacts and internet. The output from Electronic Knowledge Capture is called Electronic Knowledge about Customer, this knowledge moves to verify process to make the Electronic knowledge about customer succeeds.

The second phase refers to the Electronic Customer acquisition: which define the needs to gain the Electronic customers to the organization. The phase use different techniques available to establish a new relationship with prospect Electronic customers. It depends on different marketing communication tools for acquiring new Electronic customers to the organization. Additionally, include information content, customized product information, convenient after sales support, privacy issues, fast and accurate delivery, etc. If customer Electronic acquisitions phase is not a success, the organization needs to go back Electronic Knowledge Capture. If the Electronic customer acquisitions phase is a success, the organization goes to the Electronic Knowledge Creation.

The third phase refers to Electronic Knowledge Creation: A huge amount of information can be obtained, some are relevant and some are not. An Electronic Knowledge Creation phase can help create the relevant information for a specific subject, additionally, in this phase need to examining carefully with great care the content of knowledge against accuracy and correctness. The output from Electronic Knowledge Creation is called Electronic Knowledge for Customer, this knowledge move to verification process to success the Electronic knowledge for customer.

The fourth phase is the Electronic Customer retention: it emphasizes the process of preserving a relationship with the existing Electronic customers within the organization border. As well, Retention Electronic Customers can utilize online feedback systems to share their evaluations of product/service quality, including online transactions. In its most simple form, these systems result in increased sales when product or service quality is reported as satisfactory or better. If Electronic customer retentions phase not success the organizations need go back the Electronic Knowledge Creation. If the Electronic customers Retention phase success the organization go to the Electronic Knowledge Application.

The Fifth phase is Electronic Knowledge Application: in this phase focuses on applying Electronic knowledge to organization's products, services and processes with the aim of improving them. This phase helps individuals utilizing the Electronic knowledge possessed by other individuals without attaining the Electronic knowledge. In this phase needed to achieve an insightful affiliation between the organization and their Electronic customers. The output from Electronic Knowledge Application is called Electronic Knowledge from Customer, this knowledge move to verification process to success the Electronic knowledge from customer.

The final phase is called Electronic Customer expansion: It refers to deepening the relationship with them. This phase establishes a profound engagement between the organization and the Electronic customers. Also, to improve communication channels between buyers and sellers in general, and as a specific means of turning dissatisfied Electronic customers into loyal repeat Electronic customers. If Electronic customer expansions phase not success the organization need to go back the phase Electronic Knowledge Application. If the Electronic customers Expansion phase is a success, the organization delineate where the company wants to go or be in the future and provide a methodical path to manage the Electronic customer relationship and how the organization will deal with the any new events arise in the future.

#### 4. Conclusion

The aim of this paper is to present a conceptual framework of KM integrated with ECRM called ECKRM process. Based on the topic of this research, this paper concluded that ECKRM model would give the broadest analysis of the electronic customer knowledge. Consequently, the paper describes the role of electronic customer knowledge to accomplish customer knowledge retention. These processes help to acquire new electronic customer, retain existing electronic customers within the organizations border, and to enhance electronic customer expansion to improved electronic customer satisfaction by providing the members of the organization with real information to react and make the right decisions to gain the competitive advantage. To the best of the author knowledge, there has not been a KM and ECRM an integrated model of the literature to achieve electronic Customer acquisition, electronic customer Retention, and electronic Customer expansion. Therefore, this paper contributes by providing a clear model for employing ECKRM as a framework to keep organizations within competitive environment.

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