

KM Process and CRM to manage Customer Knowledge Relationship Management

Amine Nehari Talet¹⁺

¹Department of Accounting & MIS King Fahd University of Petroleum & Minerals

Abstract. Placement of knowledge management and customer relationship management must appear as a strategic change program consists of various execution projects in given timeframe. It is a new research area, due to limited scientific research and literature. In addition, the effect of KM process on customer acquisition, retention, and expansion to improve customer satisfaction remains under review and report while addressing this issue, this paper try to explore the role of KM process in CRM process to ascertain how an organization deals with its customers currently, attracting new customer by collecting knowledge customer, retaining existing customer through customer knowledge, expanding the relationship with customer by growth customer knowledge, and describing how organization exchange with the customer in the future.

Keywords: Knowledge Management (KM), Customer Relationship Management (CRM) , KM process, CRM process and Customer knowledge

1. Introduction

In the past, organizations passed over to KM, since it was thought that knowledge was easily managed internally and was an easy process. They have started to realize the importance of knowing their customers better by providing online information services due the increasing importance of using the Internet to conduct business and the swift in the business environment. They are required to link their database to the Web this motive organizations to consider Information Technology (IT)-based CRM systems and it has been employed in many industry sectors.

Due to the rapid evolution of the customer knowledge revolution, Knowledge Management (KM) process has become very crucial to build an efficient and effective relationship with customers. The function of KM in Customer Relationship Management (CRM) is important for achieving customer satisfaction. The endeavor of integration of KM process and CRM process is a new research area and, therefore; scientific research and literature around it remain limited. Yet the impact of KM process on CRM process remains under exploration and report.

In addressing this issue, the research investigates the relationship between KM process and CRM process. The purpose of the paper is to explore how Business software companies attend to attain Customer Knowledge Relationship Management (CKRM) process to improve customer satisfaction.

⁺ Corresponding author.
E-mail address: nehari@kfupm.edu.sa.

The research investigates the role of KM process in enhancing CRM process within the organizations. For the purpose of brevity it is not possible to go in for a detailed discussion here.

2. Literature Review

2.1. Knowledge Management

An established discipline since 1991, (Nonaka, 1991), KM includes courses taught in the fields of business administration, information systems, management, and library and information sciences (Alavi, M., and Leidner, D., 1999). More recently, other fields have started contributing to KM research; these include information and media, computer science, public health, and public policy.

The term knowledge management is often problematic as there is little consensus regarding its definition (Bhatt, 2001). Many authors avoid the term completely, rather preferring to focus on specific aspects of the topic such as knowledge, innovation or learning (Costello, 1996)

Furthermore others argue that knowledge management is closely related to concepts such as organizational learning, organizational memory. KM is described as a set of management activities that aim at designing and influencing processes of knowledge creation and integration. It includes the processes of sharing knowledge that has emerged as one of the most influential new organizational practices (Kautz, K., & Mahnke, V., 2003). KM comprises a range of strategies and practices used in an organization to identify, create, represent, distribute, and enable adoption of insights and experiences. Such insights and experiences comprise knowledge, either embodied in individuals or embedded in organizational processes or practice

Since its establishment, the KM discipline has been gradually moving towards academic maturity. First, there is a trend towards higher cooperation among academics; particularly, there has been a drop in single-authored publications. Second, the role of practitioners has changed. Their contribution to academic research has been dramatically declining from 30% of overall contributions up to 2002, to only 10% by 2009 (Serenko, Alexander; Bontis, Nick; Booker, Lorne; Sadeddin, Khaled; Hardie, Timothy , 2010)

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). Innovation management includes the management of processes to strive for novel assignments through the combination and integration of different knowledge components. The ever increasing importance of knowledge in contemporary society calls for a shift in our thinking concerning innovation in business organizations and its technical innovation, product or process innovation, or strategic or organizational innovation. Consequently, it raises some questions on how organizations process knowledge and, most importantly, how they create new knowledge (Alwis, R. S., Hartmann, E., & Gemünden, H, G., 2004).

Various definitions of KM used by KM researchers have been summarized (Jennex, 2007) to propose that KM success be defined as reusing knowledge to improve organizational effectiveness by providing the appropriate knowledge to those that need it when it is needed. KM is expected to have a positive impact on the organization that improves organizational effectiveness.

Literature on KM/KMS has been reviewed and synthesized the critical success factors, CSFs, into a structured set of 12 KM CSFs. CSFs were ordered based on the number of studies identifying the CSF (Jennex, M.E. & Olfman, L., 2005). The following CSFs were identified from 31 studies looking at 78 KM projects:

- A knowledge strategy that identifies users, sources, processes, storage strategy, knowledge, and links to knowledge for the KMS;
- Motivation and commitment of users including incentives and training;
- Integrated technical infrastructure including networks, databases/repositories, and computers, software, and KMS experts;
- An organizational culture and structure that supports learning and the sharing and use of knowledge;
- A common enterprise wide knowledge structure that is clearly articulated and easily understood;

- Senior management support including allocation of resources, leadership, and providing training;
- Learning organization;
- There is a clear goal and purpose for the KMS;
- Measures are established to assess the impacts of the KMS and the use of knowledge as well as verifying that the right knowledge is being captured;
- The search, retrieval, and visualization functions of the KMS support easy knowledge use;
- Work processes are designed that incorporate knowledge capture and use; and
- Security/protection of knowledge

Knowledge Management efforts typically focus on organizational objectives such as improved performance, competitive advantage, innovation, the sharing of lessons learned, integration and continuous improvement of the organization. KM efforts overlap with organizational learning, and may be distinguished from that by a greater focus on the management of knowledge as a strategic asset and a focus on encouraging the sharing of knowledge. KM efforts can help individuals and groups to share valuable organizational insights, to reduce redundant work, to avoid reinventing the wheel per se, to reduce training time for new employees, to retain intellectual capital as employees' turnover in an organization, and to adapt to changing environments and markets (McAdam, R. & S. McCreedy, 2000), (Thompson, Mark P. A.; Walsham, Geoff, 2004).

The objectives of knowledge management (Andriessen, 2004a), (Andriessen, 2004b) are:

- To avoid re-inventing of the wheel in organizations or reduce duplication of knowledge-based activities. Basically the intent is full knowledge utilization;
- To facilitate continuous innovation that can be capitalized; and
- To increase people competencies and thus organizational competencies that would eventually lead to greater competitiveness

2.2. Customer Relationship Management

CRM is a generally recognized, widely-implemented strategy for managing and development a company's interactions with customers. It is a process designed to collect data associated with customers to enhance the relationship between an organization and its customers. This is can be achieved through developing process customer acquisition, customer retention, and customer expansion. Furthermore, CRM has been defined as the strategy and the infrastructure for creating customer loyalty (Azani, C., & Khorramshahgol, R., 2005). Additionally, CRM has been considered as a complete strategy and procedure of acquiring, retaining, and partnering with selective customers to create superior value for the company and the customer (Parvatiyar, A., & Sheth, N. J., 2001). The CRM is viewed 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 (Choy, K. L., Lee, W. B., & Lo, V. , 2003).

For the consideration of this paper, we can assume that customer relationship management is identified as the core competency and a major competitive advantage of a particular enterprise. And, we are attempting to introduce knowledge management concepts, systems, and tools into the organization to turbo charger their customer relationship management competency, as well as supercharging the secondary or supporting processes or competencies in order to substantially improve corporate competitiveness.

There are two major areas to consider in terms of strengthening the customer relationship management competencies i.e. customer relationship management function or competency upgrade, and supporting process competency development. The three phases in which CRM can help to support the relationship between a business and its customers are, to:

Acquire: a CRM can help a business in acquiring new customers through excellent contact management, direct marketing, selling and fulfillment.

Enhance: a web-enabled CRM combined with customer service tools offers customers excellent service from a team of trained and skilled sales and service specialists, which offers customers the convenience of one-stop shopping. (James A. O'Brien & George M. Marakas, 2009)

Retain: CRM software and databases enable a business to identify and reward its loyal customers and further develop its targeted marketing and relationship marketing initiatives.

The fundamentals of customer relationship management grew from demand on after-sales customer service. In addition, it is based on sales transactions and intensive data processing. With further influence of marketing and customer orientation principles, customer relationship management advances to adoption of value-added problem solving and customized services. However, the ultimate customer relationship management principle is to build customer loyalty and lifetime patronization.

2.3. The Relationship between Knowledge Management and Customer Relationship Management

KM is an approach that is used to capture, create, and apply knowledge to make the CRM process successful. Concerning this notion, KM has been considered as an expertise that is widely recognized as having a significant impact on business performance (Goh, 2005). Furthermore, CRM and KM have been recently gaining wide interest in business environment (Gebert, H., Geib, M., Kolbe, L., & Riempp, G. , 2002). Both approaches focus on allocating resources to supportive business activities in order to gain competitive advantages despite the fact that both concepts are currently treating mostly as separate research areas. Moreover, 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 (Lin, Y., Su, H. Y., & Chien, S. , 2006)

In addition, KM is essential for CRM because it can help the organizations enhance their services, and respond rapidly to their customers' need Organizations need to enhance the processes with customers to identify relevant activity fields for KM to improve these processes. Additionally, customer knowledge and customer satisfaction are being very important for tracking the success of CRM applications (Mithas, S., Krishnan, M. S., & Fornell, C., 2005) From a theoretical perspective, it is important to determine whether the association of CRM applications with the improvement in customer satisfaction is mediated by an improvement in customer knowledge (Belbaly, N., Benbya, H., & Meissonier, R., 2007).

The new product development projects require efficient strategies that are needed for creating a quick and better response to customers' needs (Rowley, 2005). Moreover, the value of KM and CRM is recognized by many leading companies. KM is important for all kinds of business because it can help the companies improve their services and respond to their customers which, in turn, lead to customer satisfaction (Lin, Y., Su, H. Y., & Chien, S. , 2006).

For the consideration of this paper, we can assume that customer relationship management is identified as the core competency and a major competitive advantage of a particular enterprise. We are also attempting to introduce knowledge management concepts, systems, and tools into the organization to augment their customer relationship management competency, as well as supporting processes or competencies in order to substantially improve corporate competitiveness. And Customer Knowledge Management (CKM) as the optimization of the organizational and business processes that facilitates the creation, dissemination and utilization of customer knowledge in pursuit of organizational objectives (Bueren, A., Schierholz, R., Kolbe, L., & Brenner, W. , 2005). Concerning this notion, it has been indicated that organizations need to focus on three sorts of knowledge in CRM processes (Bueren, A., Schierholz, R., Kolbe, L., & Brenner, W. , 2005): Firstly, organizations need to understand the requirements of customers in order to address them. This is referred to as knowledge about customers. Secondly, they need to collect information about the customers in their interaction with the enterprise which also requires knowledge for customers. Thirdly, customers possess knowledge about the products and services they use as well as about how they perceive the offerings they purchase. This knowledge from customers is valuable as it feeds the measures to improve products and services table 1 represents Customer Knowledge Management versus KM & CRM.

Table1. Customer Knowledge Management versus KM & CRM

	KM	CRM	CKM
Knowledge	Employee, team, company, network	Customer Database	Customer experience and creativity

required			
Axioms	'if only we know what we knew'	'retention is cheaper than acquisition'	'if we only knew what our customers know'
Objectives	Sharing knowledge about customers among employees	Mining knowledge about the customer	Gaining, sharing and expanding knowledge of (inside) the customer. Individual or group experiences in applications, competitor behavior, possible future solutions, etc
Role of customer	Passive, recipient of product	Captive, attached to product by loyalty schemes	Active, knowledge partner.
Incentives' Recipient	Employee	Customer	Customer
Corporate role	promoting knowledge hoarding employees	Captivate customers	Emancipate customers
Business objectives	Efficiency and speed gains, avoidance of re-inventing the wheel	Customer base look after, maintaining our customers	Collaboration with customers, joint value creation
Conceptual base	Customer retention	Customer satisfaction	Customer success, innovation, organizational learning
Business metrics	Performance against budget; Customer retention rate	Performance in terms of customer satisfaction and loyalty	Performance against competitors in innovation and growth; Contribution to customer success

2.4. Integration of km system and crm system

In this regard, KM is important for CRM, helping organizations provide better service, enhance quality of product, reduce cost and respond faster to their customers. However, the most important challenge of managing knowledge in organizations is capturing, developing and integrating knowledge to share among all organizational members.

Organizations are forced to compete on the basis of knowledge. In this knowledge-based era, organizations can expand and sustain competitive advantage through initiation of accurately developed KM processes (Alryalat H., & Alhawari S., 2008). There are four phases involved in the KM process model in order to employ the knowledge in the organization. These are the phases that begin with acquiring and storing the knowledge into the KM system, followed by disseminating and using of knowledge among the communities. Table 2

Acquiring Knowledge: Acquisition of knowledge in a collaboration environment uses elements adopted from Arthur Andersen and APQC (1996), which involve sequential steps that should be taken in order to make sure that the knowledge could be acquired from the right people, time and place. It is suggested as follows:

- a. Identify Knowledge (Determine sources and type of knowledge).
- b. Collect Knowledge (Gather and transform knowledge according to the specifications)
- c. Adapt Knowledge (Categorize the knowledge)
- d. Organize Knowledge (Prepare and map knowledge into the specific requirements.)
- e. Store Knowledge (Keep and index the knowledge dynamically)

Store Knowledge: This is a process where the knowledge will be kept in repositories. These can be documents that are organized and categorized to enable browsing or fast access of knowledge.

Disseminating Knowledge: The KMS can disseminate knowledge in a collaboration environment essentially into four ways, depending on whether the communication method is synchronous or asynchronous or combination of both.

Use Knowledge: In the process of use, knowledge of how to use the KMS in a collaboration environment will be increased by the communities of practice (CoP) for their specific purposes such as for problem solving, decision making and learning. Customer Knowledge Relationship Management process includes three phases: 1 Customer Knowledge Acquisition, 2 Customer Knowledge Retention, and Customer Knowledge Expansion which can lead to Customer satisfaction as shown in figure 1.

Table 2. Taxonomy of Knowledge Process

Main dimension/ CKRM process	Sub dimension/Parts of process	
Customer Knowledge acquisition process	Organization mission	
	Knowledge Process about Customer	Need for Customer knowledge
		Identify source of Customer knowledge
		Verify source of Customer knowledge
		Customer Knowledge capture
	Analysis	
Knowledge about Customer		
Customer Knowledge Retention process	Verification	
	Knowledge Process about Customer	Rationalize Customer Knowledge
		Comprehension Customer Knowledge
		Scrutinize Customer Knowledge
		Develop Confidence Customer Knowledge
		Experimentation Customer Knowledge
	Validation Customer Knowledge	
	Planning	
Knowledge for Customer		
Customer Knowledge Expansion process	Knowledge Process about Customer	Customer Knowledge Codification
		Customer Knowledge Representation
		Customer Knowledge Sharing
		Customer Knowledge Application
		Design
		Knowledge from Customer
		Verification
		Implementation
		Organization Vision

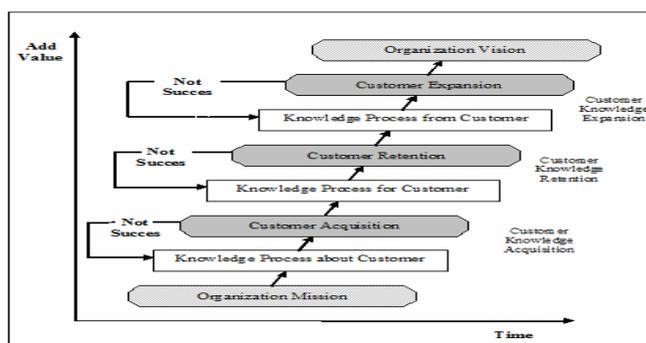


Figure.2: Phases of Customer Knowledge Relationship Management Process

Based on figure 2, time and value factors are considered to carry out the steps of customer knowledge. The relationship between these two factors is that when the time that is needed to carry out the steps of customer knowledge increases, the value of customer knowledge will become higher.

The integration of knowledge management and customer relationship management must be looked at in several crucial areas. One, the review exercise of the strategic planning process must include knowledge audit and knowledge map that would act as a reference in development of knowledge management to support customer relationship management. This includes people (individual competency), process (structural capital and intangible assets), technology (IT), and content (explicit knowledge). Two, the various knowledge management sub-systems must be evaluated and then applied when appropriate to the customer relationship management system in the effort to upgrade to level three of customer relationship management. Three, as part of the support for the integration of knowledge management system and customer relationship management system, the supporting processes of customer relationship management must also be strengthened or upgraded in order for the entire system to be effective. Four, knowledge-based customer relationship management is knowledge intensive and highly dependent on talented human resource. Hence

one of the crucial supporting functions of the integration is competency development, and this function is usually charged to the responsibility of human resource management. Five, enterprise must be monitored for performance against expectation or goal for any newly implemented system. Hence, the enterprise must also redesign the performance management system that includes various metrics to fit the new strategic implementation. The integration takes the form of a strategic change program comprising of various execution projects in given timeframe.

3. Conclusion

Like all strategic changes, it requires the buy-in and support of top management. Corporate leaders must understand the implications of KM and CRM and the strategic impact of their integration. Second, corporate culture may change (i.e. knowledge sharing behaviors, collaborative activities) that requires mindful and active planning and management. Third, the change agent or program champion is also required and he/she is usually designated as. Chief Knowledge Officer (CKO). The CKO must understand the issues of corporate strategy, human resource management, information technology, corporate culture development, change management, leadership, team dynamics, as well as KM and CRM, and must have the persistence to carry the program through. The task is formidable, but nonetheless, achievable.

4. Acknowledgment

The author is grateful to King Fahd university of Petroleum & Minerals for its constant support.

5. References

- [1] Alavi, M., and Leidner, D. (1999). Knowledge management systems: issues, challenges, and benefits. *Communications of the AIS* , 1 (5).
- [2] Alryalat H ., & Alhawari S. (2008). Towards Customer Knowledge Relationship Management: Integrating Knowledge Management and Customer Relationship Management process . *Journal of Information and Knowledge Management* , 7 (3), 145-157.
- [3] Alwis, R. S., Hartmann, E., & Gemünden, H. G. (2004). the role of tacit knowledge in innovation management. 20th Annual IMP Conference,, (pp. 1-23). Copenhagen.
- [4] Andriessen, D. (2004a). IC valuation and measurement: classifying the state of the art. *Journal of Intellectual Capital* , 5 (2), 230-242.
- [5] Andriessen, D. (2004b). Making Sense of Intellectual Capital. Butterworth-Heinemann, Burlington, MA: PhD thesis, Nyenrode University, The Netherlands. .
- [6] Azani, C., & Khorramshahgol, R. (2005). A Methodology for Developing Viable and Cost Effective Customer Relationship Management Systems. *Journal of Knowledge Management Practice* , 1-11.
- [7] Belbaly, N., Benbya, H., & Meissonier, R. (2007). An empirical investigation of the customer Knowledge creation impact on NPD Performance. 40th Hawaii International Conference on System Sciences. IEEE.
- [8] Bhatt, C. (2001). Knowledge management in organizations: Examining the interaction between technologies, techniques, and people. *Journal of Knowledge Management* , 5 (1), 68-75.
- [9] Bueren, A., Schierholz, R., Kolbe, L.,& Brenner, W. . (2005). Improving performance of customer processes with knowledge management Business. *Process Management Journal* , 11 (5), 573-588.
- [10] Choy, K. L., Lee, W. B., & Lo, V. . (2003). Design of an intelligent supplier relationship management system: a hybrid case based neural network approach. *Expert Systems with Applications Journal*, 225-237.
- [11] Costello, G. E. (1996). Knowledge Management in Strategic alliances: The Role of Information Technology. Oxford: Templeton College. University of Oxford.
- [12] Gebert, H., Geib, M., Kolbe, L., & Riempp, G. . (2002). Towards Customer Knowledge Management: Integrating Customer Relationship Management and Knowledge Management Concepts. the 2nd International Conference on Electronic Business. Taipei, T.

- [13] Goh, A. L. (2005). Adoption of Customer Relationship Management (CRM) Solutions as an Effective Knowledge Management (KM) Tool: A Systems Value Diagnostic. *Journal of Knowledge Management Practice* .
- [14] James A. O'Brien & George M. Marakas. (2009). *Enterprise Business Systems Management Information Systems*. McGraw-Hill/Irwin.
- [15] Jennex, M. (2007). What is knowledge management. *Knowledge Management in Modern Organizations* , 1 (4), 1-9.
- [16] Jennex, M.E. & Olfman, L. (2005). Assessing knowledge management success. *International Journal of Knowledge Management* , 1 (2), 33-49.
- [17] Kautz, K., & Mahnke, V. (2003). Value Creation through IT-supported Knowledge Management? The Utilization of a Knowledge Management System in a Global Consulting Company. *Informing Science Journal* , 6, 75-88.
- [18] Lin, Y., Su, H. Y., & Chien, S. . (2006). A knowledge-enabled procedure for customer relationship management. *Industrial Marketing Management Journal* , 446-456.
- [19] Mau, M. (2005). Action Research: connecting knowledge in the Australian Public Sector organisation. 2, pp. 60-69. Canberra, Australia: actKM Forum.
- [20] McAdam, R. & S. McCreedy. (2000). A Critique of Knowledge Management: Using a Social Constructionist Model. *New Technology, Work and Employment* , 15 (2), 155-168.
- [21] Mithas, S., Krishnan, M. S., & Fornell, C. (2005). Why Do Customer Relationship Management Applications Affect Customer Satisfaction? *Journal of Marketing* , 69, 201-209.
- [22] Nonaka, I. (1991). The knowledge creating company. *Harvard Business Review* , 69 (6 Nov-Dec), 96–104.
- [23] Parvatiyar, A., & Sheth, N. J. (2001). Customer Relationship Management: Emerging Practice, Process, and Discipline. *Journal of Economic and Social Research* , 3 (2), 1-34.
- [24] Rowley, J. (2005). Customer knowledge management or consumer surveillance. *Global Business and Economics Review* , 7 (1), 100-110.
- [25] Serenko, Alexander; Bontis, Nick; Booker, Lorne; Sadeddin, Khaled; Hardie, Timothy . (2010). A scientometric analysis of knowledge management and intellectual capital academic literature (1994-2008). *Journal of Knowledge Management* , 14 (1), 13-23.
- [26] Thompson, Mark P. A.; Walsham, Geoff. (2004). Placing Knowledge Management in Context. *Journal of Management Studies* , 41 (5), 725-747.