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A Theoretical Perspective on the Relationship between Knowledge Management Systems, Customer Knowledge Management, and Firm Competitive Advantage

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Abstract

The hierarchical construct, from data to information to knowledge, is well known in the IT field. While data is seen as text in a database, knowledge is considered a renewable and re-usable asset, which is valuable to a firm, and is enhanced with an employee's experience. In addition, the role of IT in applying knowledge varies from providing access to sources of knowledge, and gathering, storing, and transferring knowledge, to supporting the development of individual and organizational competencies. Explicit knowledge tends to be considered anything that can be documented, archived, or codified; It can be contained within artefacts like paper or technology. Tacit knowledge is more difficult to qualify, and is retained by people in their minds. Hence, it is the product of their experiences and

learning. Yet in some cases it can be shared (e.g. by the use of email, chat rooms, or instant messaging as individuals tend to use such technologies informally). However, it is mostly shared in the course of story-telling and conversations. Moreover, knowledge is created in a firm by conversion between tacit and explicit knowledge, and in turn, four different modes of knowledge conversion are proposed. Additionally, firms need to manage their knowledge resources more efficiently to enhance performance and to attain a competitive advantage. The goal of knowledge management (KM), in part, is to capture the tacit knowledge that business processes require. Therefore, KM enables a firm to position its tacit knowledge to be able to respond quickly to customers, create new markets, develop new products, and dominate emerging technologies.

Keywords: Knowledge Management, Explicit Knowledge, Tacit Knowledge, Role of IT, Knowledge Conversion

1. Introduction

Knowledge management is defined as a set of business processes developed in a firm in order to create, store, transfer, and apply knowledge (Laudon and Laudon, 2012). Butler (1999) states that knowledge management is a discipline that promotes an integrated approach to identifying, managing, and sharing information assets, in which information assets contain databases, documents, policies and procedures in addition to unarticulated expertise and the experience held by individual workers. Murray (1998) emphasizes that KM is a strategy that utilises a firm's intellectual assets and the talents of its members to produce new products, values, and to enhance competitiveness. Some scholars (e.g. Alavi and Leidner, 2001) emphasize the need for large firms to integrate their IT with their KM strategies and processes in order to survive in their highly competitive business environments. Therefore, some researchers argue that KM capability could be a vital mediator between IT and firm performance (Tanriverdi, 2005; Chan and Reich, 2007; Oduwole and Olatundun, 2010; Mladkova, 2012). In addition, Customer Knowledge (CK) has recently become a frequently discussed topic, yet its importance has been underestimated by both academics and practitioners (Salojärvii et al. 2010). The essential role of CK remains underestimated by organizations, especially the applicability of knowledge that stems from consumers' attitudes and skills (Buckler, 1998). The majority of scholars pay more attention to organization learning without giving suitable approaches lead organizations how to learn from customers' knowledge and use such knowledge as a solid platform for gaining a competitive advantage and being customer-oriented rather than being market or technology-oriented.

This paper is is organized as follows. It begins by elaborating the differences between data, information, and knowledge categorisations. This is to distinguish and highlight the role of IT in each field. We then discuss the ways in which researchers classify knowledge in order to consider its relation to the study of knowledge management. Next, the report shows how knowledge is managed in firms. Since IT managers lack a clear vision of how to improve organizational performance, the next section addresses the link between customer knowledge management and firm performance.

2. The View of Data, Information and Knowledge

Some researchers (e.g. Fahey and Prusak, 1998) argue that if knowledge is not a term that is different from data or information, then what is new regarding knowledge management? Vance (1997) defines data as a raw numbers and facts, whereas information is processed data, and knowledge is considered authenticated information. In addition, Davenport (1997) states that data is not endowed with any meaning, while information is made when data is taken by someone and given some kind of meaning. Also, when someone gives the information a particular meaning and interpretation, knowledge is being created. Furthermore, the hierarchical view (from data to information to knowledge) is considered in

the IT field. While data is seen a text in a database (Davenport, 1997), Ginsburg and Kambil (1999) consider knowledge a renewable and re-usable asset that is valuable to a firm, and is enhanced with a firm's employee experience. Moreover, Alavi and Leidner (2001) argue that information is translated into knowledge once it is processed in the minds of individuals, and knowledge become information when it is articulated and presented to others in the form of text, graphics, spoken, and written words. As a result, while information can be seen in a firm's records and databases, knowledge is only held in a person's mind.

Godbout (1999) argues that data consists of recordings of transactions and events that will be used for exchange between humans or even with machines. Hence, data does not carry meaning unless an individual understands the context in which the data was gathered. Information includes data, and also all the information a person comes in contact with as a member of a social organization. It comes in a variety of forms such as writings, statements, statistics, diagrams or charts. Also, information becomes individual knowledge when it is accepted and retained by an individual. Equally, organizational knowledge exists when it is accepted by an agreement of a group of persons. However, common knowledge does not need to be shared by all members to exist; for example, if it is accepted among a group of informed people, then this can be considered sufficient.

3. Categories of Knowledge

Two dimensions of knowledge in firms have been identified: explicit and tacit (Nonaka, 1994; Nonaka et al., 2000). According to Nonaka (1994), explicit or codified knowledge refers to knowledge that is transmittable in formal and systematic language, whereas tacit knowledge refers to knowledge that is hard to formalize, since it is linked to a personal quality.

Nonaka et al. (2000) assert that explicit knowledge can be expressed in formal and systematic language, and shared in the form of data, scientific formulae, specifications, manuals and the like. It can be processed, transmitted and stored relatively easily. In contrast, tacit knowledge is highly personal and is hard to formalize. Subjective insights, institutions, and hunches fall into this category of knowledge. Furthermore, Nonaka (1994) and Nonaka et al. (2000) assumed that knowledge is created in a firm by conversion between tacit and explicit knowledge, and in turn proposed four different modes of knowledge conversion: Socialization, from tacit knowledge to tacit knowledge (e.g. exchanging experience while drinking coffee); Externalization, from tacit knowledge to explicit knowledge (e.g. capturing personal knowledge in transmittable form, such as emailing a colleague); Combination, from explicit knowledge to explicit knowledge (e.g. adding new knowledge in a firm's database); and Internalisation, from explicit knowledge to tacit knowledge (e.g. implementing knowledge acquired in training course).

Nonaka et al. (2000, p.9-10) elaborated the four modes of knowledge conversion as follows: Socialisation is the process of converting new tacit knowledge through shared experiences. Since tacit knowledge is difficult to formalize and often time- and space-specific, tacit knowledge can be acquired only through shared experience, such as spending time together or living in the same environment. Socialization typically occurs in a traditional apprenticeship, wherein apprentices learn the tacit knowledge needed in their craft through hands-on experience, rather than from written manuals or textbooks. Socialization may also occur in informal social meetings outside of the workplace, where tacit knowledge such as world views, mental models and mutual trust can be created and shared. Socialization also occurs beyond organizational boundaries. Firms often acquire and take advantage of the tacit knowledge embedded in customers or suppliers by interacting with them.

Externalization is the process of articulating tacit knowledge into explicit knowledge. When tacit knowledge is made explicit, knowledge is crystallized, thus allowing it to be shared by others, and it becomes the basis of new knowledge. Concept creation in new product development is an example of this conversion process. Another example is a quality control circle, which allows employees to make improvements on the manufacturing process by articulating the tacit knowledge accumulated on

the shop floor over years on the job. The successful conversion of tacit knowledge into explicit knowledge depends on the sequential use of metaphor, analogy and model.

Combination is the process of converting explicit knowledge into more complex and systematic sets of explicit knowledge. Explicit knowledge is collected from inside or outside the organization and then combined, edited, or processed to form new knowledge. The new explicit knowledge is then disseminated among the members of the organization. Creative use of computerized communication networks and large-scale databases can facilitate this mode of knowledge conversion. When the comptroller of a company collects information from throughout the organization and puts it together in a context to make a financial report, that report is new knowledge in the sense that it synthesizes knowledge from many different sources in one context. The combination mode of knowledge conversion can also include the "breakdown" of concepts. Breaking down a concept such as a corporate vision into operationalized business or product concepts also creates systemic explicit knowledge.

Internalization is the process of embodying explicit knowledge in tacit knowledge. Through internalization, explicit knowledge is shared throughout an organization and converted into tacit knowledge by individuals. Internalization is closely related to "learning by doing". Explicit knowledge, such as the product concepts or the manufacturing procedures, has to be actualized through action and practice. For example, training programs can help trainees to understand an organization and themselves. By reading documents or manuals about their jobs and the organization, and by reflecting upon them, trainees can internalize the explicit knowledge in order to enrich their tacit knowledge base. Explicit knowledge can also be embodied through simulations or experiments that trigger learning by doing. When knowledge is internalized to become part of individuals' tacit knowledge bases in the form of shared mental models or technical know-how, it becomes a valuable asset. This tacit knowledge accumulated at the individual level can then set off a spiral of knowledge creation when it is shared with others through socialization. Moreover, Hansen et al. (1999) introduce the concepts of the codification and personalization of knowledge management strategies, which can be referred to as explicit and tacit knowledge strategies. An example of explicit knowledge management strategy (i.e. codification) is the interaction between people and documents. This is by developing an electronic document system which codifies, stores, disseminates, and allows re-use of knowledge. An example of a tactic knowledge management strategy (i.e. personalization) is the interaction shared between people. This is by developing networks for linking people in which tacit knowledge can be shared.

Furthermore, some researchers (e.g. Linde, 2001) use tacit knowledge, in the field of knowledge management, to describe any form of non-quantifiable knowledge, mostly the knowledge about social interactions, social practices, and generally how a group or an institution gets things done. An early study conducted by Linde (2001) tested if tacit knowledge can be considered in the knowledge management area because of its difficulties to represent as propositions and rules. The author proposes various classifications of "taxonomy" of types of tacit knowledge, with particular regard to the tacit social knowledge perspective. The taxonomy distinguishes between two types of social knowledge: knowledge about social groups held by an individual; and knowledge held by the group it self.

According to Linde (2001, p. 161) "of individual tacit knowledge, language is perhaps the most tacit form of tacit knowledge: one knows how to speak, but cannot articulate how one does it, or the rules which govern language use. Part of the knowledge of language includes knowledge of discourse forms: how and when to tell a story. Knowledge about identity, which one is and what one's history has been, is a very important part of an individual's tacit knowledge. Linde (1993) describes the ways in which people use narrative to construct these identities. Knowledge about one's identity as a group member, and the practice of acting as a member of the groups one belongs to is also easily expressed in narrative. Knowledge about work practice, how one does one's job is also tacit, and can, under certain circumstances be conveyed by narrative". The second type of social knowledge is knowledge which is held by the group or institution itself. Linde (2001, p. 161-162) stated "some social knowledge is

explicit knowledge, for example, the knowledge expressed in forms, formal procedures, file cabinets, and databases. However, in addition to procedures, there is also tacit knowledge which manifests as work practices, as well as the knowledge about how and when to use these knowledge resources. This kind of knowledge is held by an institution as a whole rather than by the individuals who comprise it. Other types of group tacit social knowledge include the ways that teams and groups work together, how decisions are made, how communications flow. Knowledge about the identity of an institution and the proper ways to be a member are very easily conveyed to new members by narrative, although it is almost impossible to represent such knowledge explicitly." Therefore, based on the above discussion, tacit social knowledge could occur in firms at the individual and/or group level.

Moreover, some scholars (e.g. Zack, 1999) focus on knowledge strategy and its alignment to business strategy. Zack (1999) classified knowledge into three levels: core, advanced, and innovative. Core knowledge refers to the minimum level of knowledge required by a firm to start competition with others. Advanced knowledge relates to the level of knowledge that guarantees a firm to be competitively viable. Innovative knowledge refers to the knowledge that enables a firm to lead its competitors and industry. However, knowledge is dynamic in nature (i.e. what is innovative knowledge today will be the core knowledge of tomorrow); hence, defining a competitive position is essential and needs continuous learning and knowledge acquisition.

4. Managing Knowledge in Firms

Knowledge is what a knower knows and there is no knowledge without someone knowing it (Fahey and Prusak, 1998). Zack (1999) emphasizes that firms consider knowledge to be their most valuable and strategic resource, and confirmed that the more a firm knows about its customers, products, technologies, markets, and their linkages, the better it will perform. Therefore, since knowledge is involved in most activities in firms, it has become a primary factor in their success. In addition, firms need to manage their knowledge resources more efficiently to enhance performance and produce the biggest payoffs, and to obtain a competitive advantage (Meso and Smith, 2000).

Several researchers in the KM field emphasize the importance of knowledge. For instance, Prusak (1999) in Myers (1996) offered numerous reasons to explain such values. First of all, firms are under huge pressure to stay ahead of competitors because of increased adaptability and process speed, as a result of the globalization of the economy. Also, there is increasing awareness of the value of specialized knowledge, as embodied in organizational processes and routines, in coping with the pressure of economic globalization. In addition, people are now better able to work with and learn from each other as a result of the falling cost of networked computing. Alavi and Leidner (2001, p. 113) stated that a recent survey of European firms by KPMG Peat Marwick (1998b) found that almost half of the companies reported having suffered a significant setback from losing key staff, with 43% experiencing impaired client or supplier relations, and 13% facing a loss of income because of the departure of a single employee. In another survey, the majority of organizations believed that much of the knowledge they needed existed inside the organization, but identifying its existence, finding it, and leveraging it remained problematic (Cranfield University, 1998). Such problems maintaining, locating, and applying knowledge have led to systematic attempts to manage knowledge. Also, according to a recent industry survey, 90% of the 811 largest firms in North America and Europe were aware of knowledge management, and most had some activity relating to it underway in the period of 1999-2000 (Harris and Kathy, 1999).

On the other hand, there is no single definition of KM, but generally speaking the idea relates to unlocking and leveraging the knowledge of individuals so that this knowledge becomes available as an organizational resource that is not dependent on those same individuals. According to Lehaney et al. (2004, p. 3), knowledge management refers to the systematic organization, planning, scheduling, monitoring, and deployment of people, processes, technology, and environment to facilitate the

creation, retention, sharing, identification, acquisition, utilisation, and measurement of information and new ideas, in order to achieve strategic aims.

KM is also increasingly becoming an integral business function for lots of firms, as they recognize that competitiveness depends upon the effective management of intellectual resources (Zack, 1999). By applying such resources, KM can demonstrate a number of benefits for firms (Kalpana and Premkumar, 2008). They emphasised that the goal of KM, in part, is to capture the tacit knowledge required by a business process, and to encourage knowledge workers to share and communicate knowledge with peers. Subsequently, it is easier to determine which processes are more or less effective than others. Therefore, KM enables a firm to utilize it for responding quickly to customers, creating new markets, developing new products, and mastering emerging technologies. In addition, the goal of KM, in part, is to capture the explicit knowledge required by firms. This is achieved by applying organizational knowledge management systems (OKMS), which are considered to be information systems developed to boost the effectiveness of the organization's knowledge management. This includes technical OKMS perception and socio-technical OKMS perception (Meso and Smith, 2000).

Meso and Smith (2000) argued that technical OKMS could be considered an advanced assembly of software, and its associated hardware infrastructure, for supporting knowledge work and/or organizational learning through the free access to, and increased sharing of knowledge. Furthermore, Hibbard (1997) emphasized that OKMS are employing one technology or a combination of ten key technologies: groupware, messaging, web browsers, document management, search and retrieval, data mining, visualization, push technology, group decision support, and intelligent agents. Groupware and web browser technologies are the most prominent. While groupware software packages are advanced decision support systems developed to enhance collaborative group work, between geographically dispersed professionals, web-based technologies entail employing a web browser to access knowledge resources on the internet or on intranets that link geographically dispersed professionals.

From the socio-technical perspective, OKMS are seen as being complex combinations of technology infrastructure, organizational infrastructure, people, and corporate culture. First of all, technology infrastructure is constituted by the hardware, software, middle-ware, and protocol that allow for the electronic exchange of knowledge. Secondly, organizational infrastructure refers to both roles and organizational teams, whose members have skills to serve as resources for individual projects. Also, the organizational infrastructure defines the organization's management style, i.e. how the employees of the firm are organized into formal and informal teams of departments, how these teams interact formally and informally, the role and goals of each team, and how these relate to the overall corporate strategy (Davenport and Prusak, 1998). Chan (2002), in 'Why Haven't We Mastered Alignment? The Importance of the Informal Organization Structure', conducted a case study, researching eight top-performing firms in Canada and the USA to examine the links between strategic and structural alignments with firm performance. While strategic alignment focused on the fit between the activities of the IS functions of the firms, structural alignment related to the structural fit level of the firm's IS formal (i.e. centralization) and informal (i.e. decentralization) decision-making. The study found that the informal structure was more important to IS alignment influenced firm performance than formal organization structure. Thirdly, the heart of the OKMS is the people. This component includes all of the organization's stakeholders - employees, owners, customers, suppliers, regulators, and legislators. Employees are the most significant participants, hence they are considered as the key source of the intellectual capital acquired and managed by the OKMS. Fourthly, culture refers to the shared beliefs, norms, ethics, and practices in an organization. A knowledge-friendly culture is one in which the employees value learning highly, and reveal a positive orientation towards knowledge.

Skyrme and Amindo (1997) reported several challenges a firm could face when implementing knowledge management systems. These include lack of senior management commitment, lack of ownership, lack of rewards and recognition, and focus on individuals rather than teamwork. Rastogi

(2000, p. 43) identified further difficulties when implementing a KM system, such as: motivating employees to search, accept, and adopt best industry practices; developing metrics toward appraising the effectiveness of a KM program, and measuring its results; motivating employees to share knowledge; making knowledge useable, i.e., storing it in any easy way to understand and access, and enabling the employees to relate it to their work; identifying suitable people for staffing and implementing the KM program; changing people's perceptions and behavior; identifying and representing the organization's existing knowledge; and changing bureaucratic culture and organization structure.

On the other hand, in order to resolve the above problems and difficulties, Rastogi (2000, p. 44) suggested several actions a firm should undertake, such as: creating and stressing continuous learning opportunities for employees; providing opportunities for people to engage in dialogue and inquiry; encouraging and rewarding collaboration and team learning in a sustained manner.; establishing systems to capture and share learning; involving people in developing and sharing a collective vision; identifying and developing leaders who model and support learning at the individual, team, and organizational levels; developing shared understanding (first at local levels, since that is the focus of learning, and the use of knowledge resides largely at local levels), and then gradually moving toward the level of a company as a whole; and providing individuals frequent occasions for discussing, debating, and clarifying for themselves what constitutes knowledge in their areas of work.

Davenport and Prusak (1998) studied 31 projects in 24 firms. Eighteen projects were considered successful, five were determined failures, and eight were too new to be rated. The study found eight factors that were common in successful KM projects. These factors include linkages to economic performance or industry value, a solid technical and organizational infrastructure, a flexible knowledge structure, a knowledge-friendly culture, clearly-communicated KM systems purposes and goals, motivational incentives for KM users, multiple channels for knowledge transfer, and senior management support. Meso and Smith (2000) argued that knowledge management could be considered as the creation of sustainable competitive advantage via continued organizational learning. This is by arguing that new knowledge is created from the process of organizational learning (explicit and tacit knowledge), and it in turn generates continuous innovation (see figure 1).

Figure 1: Knowledge and Competitive Advantages
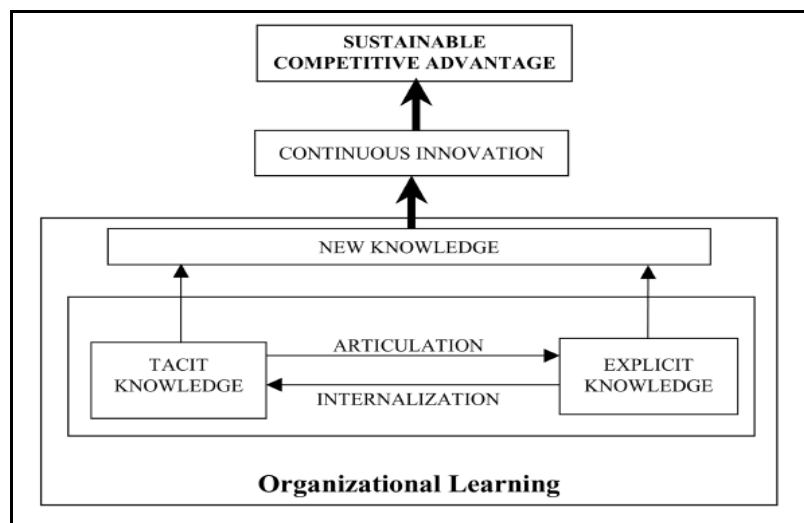
Source: Meso and Smith (2000)

Darroch's (2005) research was one of the first empirical studies to test the role of KM in firms. Mail surveys of 443 CEO's in large New Zealand firms were used to examine the link between KM, innovation, and firm performance. KM was measured by looking at three main constructs: knowledge acquisition, knowledge dissemination, and responsiveness to knowledge. Seven factors characterized

knowledge acquisition: valuing employees' attitudes and opinions and encouraging employees to up-skill; having a well-developed financial reporting system; being market-focused by actively obtaining customer and industry information; being sensitive to information about changes in the marketplace; employing and retaining a large number of people trained in science, engineering, or maths; working in partnership with international customers; and getting information from market surveys. Knowledge dissemination was achieved by two factors: readily disseminating market information around the organization, and using technology such as teleconferencing and videoconferencing to facilitate communication. Moreover, responsiveness to knowledge was measured by five factors: responding to knowledge about customers, competitors, and strategies; being flexible with readily-changeable products; using innovation to create new products for the firm; improvements to existing product lines; and cost reduction of existing products. In addition, innovation was measured by asking firms the extent to which they add new products to the world and to the firm, how they add to existing product lines, how they improve or revise to existing product lines, how they achieve cost reductions on existing products, and how they reposition existing products. Firm performance was evaluated by accounting measures like profits, and non-accounting measures such as market share and sales growth. Darroch's study found firms with KM capability that used resources much more efficiently, and in more innovative ways, were achieving higher returns than others.

Moreover, Tanriverdi (2005) incorporated explicit and tacit elements of KM into a single construct of KM capability, defined as the firm's ability to create, transfer, integrate, and leverage related knowledge through its business units. He used the KM capability as a reflective second-order construct containing three first-order dimensions of strategic knowledge resources: product, customer, and managerial KM capability (see figure 2).

Product KM capability not only cuts costs, but can also boost the speed of new product and service development. In addition, firms that are capable of managing their customer knowledge (customer needs, purchase behaviours, and preferences) and managerial knowledge (knowing how to manage their employees, suppliers, and partners) can enhance their performance. All three resources are said to complement each other, and so implementing only some of them could affect improvements in performance.

Tanriverdi (2005) tested 250 large multi-business firms by using a mail survey for both business and IT executives, in which 50 different industries in both the service and manufacturing sectors were represented. He found that IT-relatedness improved firm-level KM capability, which itself enhanced corporate financial performance. Therefore, it was shown that IT relatedness had significant indirect effects on firm performance through the mediation of KM capability.

Figure 2: Tanriverdi Model
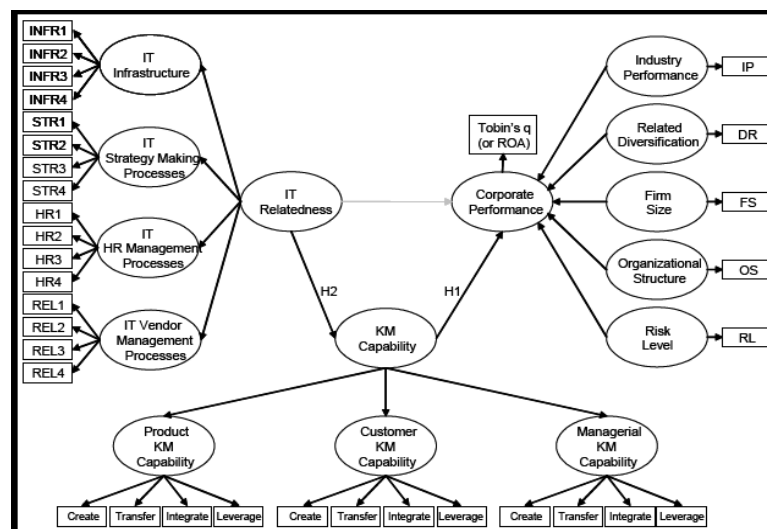
Source: Tanriverdi (2005)

However, there has been little academic research utilizing customer-specific knowledge. Thus, as discussed in the next section, this study adds value to our understanding in focusing on the relationships between various intra-organizational factors and customer knowledge utilization in the context of management knowledge and customer knowledge. The study suggests that the use of teams, top management involvement, KAM formalization and CRM technology could enhance the utilization of customer knowledge in the management of large industrial key account customers.

5. Customer Knowledge Management

Customer Knowledge Management CKM refers to human knowledge that usually connected to consumers that mainly focuses on collecting data directly or indirectly from customers through a variety of aspects such as transactional data, products' data, customer data and customer-supplier relational data. CK refers mainly to the understanding of customers' wants and needs and also the ability to satisfy and fulfil these wants and needs by providing suitable products and/or services in order to build productive and real continuous relationships with mutual benefits. Firms can obtain customer knowledge by collecting a variety of information and insights about individuals using both direct and indirect interactions with them or through the firm's sales representatives in order to build long-term and stronger relationships (García-Murillo and Annabi, 2002).

Many scholars such as Zanjani et al. (2008) have mentioned clearly the importance of customer knowledge and how to incorporate it with organization knowledge. Such issue has been confirmed clearly by Stefanou et al., (2003) who mentioned that "Current competitive challenges induced by globalization and advances in information technology have forced companies to focus on managing customer relationships" (p. 617). According to Gibbert et al.(2002), Customer Knowledge Management (CKM) help organization in many issues which are:1) Creates a variety of new knowledge sharing platforms and processes between firms and their customers or clients, 2) It is part of a continuous strategic process by which firms enable their customers to move from passive information sources and recipients of products and/or services to empowered knowledge sharing among partners, 3) Its potentially one of the powerful competitive tools that usually contribute to improve success of both companies and customers, 4) It gives the chance to merge principles of knowledge management and customer relationship management, but moves decisively beyond it to a higher level of mutual value creation, exchange and performance.

Customer Knowledge management lead organizations mainly in incorporate systems such as customer relationship management (Kardani, 2010) which can help in different ways that can been mainly mentioned as: 1) creating customer profile that usually has the main personal and contact customers' details that have been collected from previous transactions which might be used for any future inquiry (Rollett, 2003), 2) help in shaping customer model that gives additional informational regarding consumer behaviour such as when he buys, where, what colour he prefers and how much he able to spend, 3) help organizations in developing a vriety of marketing activities such as promotional campaigns or sales incentives programs that targeted a group of customers (mass customization) or individual customer (one-to-one marketing) or design a mass marketing targeting the whole market by employing both marketing data warehousing and customer data mining (Shaw et al., 2001), 4) CKM help organization in enhancing and upgrading performance based not just on employing customer feedbacks but in making customers being as assets and partners (Bueren et al., 2004).

Many scholars highlight the benefits of CKM as: Customer knowledge can be seen as a critical source of competitive advantage in retail business (Mukherji, 2012); CKM enabled Customer Relationship Management (CRM) and demonstrates the way in which should be acted (Lin et al., 2006); the implementation of CKM supports a company in developing innovative products/services and making critical management strategic decisions (Su et al. 2006); help in understanding of how individual factors and technical factors interact in determining knowledge that should be employed to enhance the performance (Kankanhalli et al., 2011). Other scholars such as Rollett (2003) translate the

main mission for knowledge management by being able to transfer and exchange the deliberate and planned of knowledge between any mutual exchange process parties.

Mukherji (2012) explained the sources of CKM and clasified them into three branches which are: customer transactions, customer interactions and customer communities of practice. Also, CK has been classified into three elements as leaded by Bueren et al. (2004) which are: knowledge from customers which used to be called Customer Knowledge Management (CKM), knowledge about customers usually known as Customer Relationship Management (CRM) which focus on understanding customers' need in order to address and satisfy them, and knowledge for customers which tend to collect customers information that needed for organizations to serve them properly especially within the interaction process. This classification has been used in different previous studies and confirmed lately by Wilde (2011) who described the three main types of KM as:

1. Knowledge about the Customer: This is a type of customer-oriented knowledge that comprises a variety of information about the customers regarding their purchase and payment behavior, their motivation, and accumulated buying habits and demands which all collected and recorded in a passive way resulting from previous interaction analysis and observations.
2. Knowledge from the customer: Which related to that Knowledge usually comes from the customers mostly arrives at the company directly. In this type, the customer plays a pro-active role by informing the organization about his or her accumulated experiences with products and/or services, his expectations and consumption knowledge and skills.
3. Knowledge for the customer: This types of knowledge occurs when the customer bridges his or her knowledge with another company, this company is capable to identifies possible knowledge gaps and suggest further ways to develop a specific customer's 'on-knowledge'. Knowledge deficits should be revealed within this type in a variety of issues such as products quality standards and prices considerations.

This paper aims to give an idea of knowledge management targeting organization knowledge, customer knowledge and employee knowledge; provide a theoretical link between customer knowledge and organization knowledge; and lead firms in how they might use Customer Knowledge Management (CKM) as a powerful comparative tool to service two parties (customers and supplier) that are voluntarily involved in the mutual relationship exchange process.

6. Conclusion

The hierarchical construct, from data to information to knowledge, is well known in the IT field. While data is seen as text in a database, knowledge is considered as a renewable and re-usable asset, which is valuable to a firm, and is enhanced with an employee's experience. While information can be seen in a firm's records and databases, knowledge is in a person's mind. In addition, the role of IT in applying knowledge varies from providing access to sources of knowledge, and gathering, storing, and transferring knowledge, to supporting the development of individual and organizational competencies.

Moreover, Nonaka (1994) distinguished two types of knowledge: explicit and tacit knowledge. Since explicit knowledge tends to be considered as everything that can be documented, archived, or codified, it can be contained within artifacts like paper or technology. Therefore, it could be shared (e.g. books can be passed on, databases can be consulted). Tacit knowledge is more difficult to qualify, and is retained by people in their heads. Hence, it is the product of their minds' experiences and learning. Nevertheless, in some cases it could be shared (e.g. by the use of email, chat rooms, or instant messaging as individuals tend to use such technologies informally), however, it is mostly shared in the course of story-telling and in conversations. Nonetheless, explicit knowledge of knowledge management and tacit knowledge complete each other, and both are important elements approaches in firms. Nonaka (1994) and Nonaka et al. (2000) assume that knowledge is created in a firm by the

conversion of tacit and explicit knowledge, and in turn proposed four different modes of knowledge conversion: socialization, externalization, combination, and internalization.

In addition, firms need to manage their knowledge resources more efficiently to enhance performance and to attain a competitive advantage. Furthermore, the goal of KM, in part, is to capture the tacit knowledge required by a business process. Therefore, KM enables a firm to position its tacit knowledge for responding quickly to customers, creating new markets, developing new products, and dominating emerging technologies. Another goal of KM is to capture the explicit knowledge required by firms. This is by applying technical and socio-technical organizational knowledge management systems (OKMS). Consequently, scholars emphasize the need for firms to integrate their IT with their KM strategies, processes, and practices to achieve competitive advantages and greater financial performance.

As Salojärvii et al. (2010) claim, CK can be considered as one of the popular topics today, but its relevance is still underestimated by both scholars and practitioners. Thus, more attention should be paid on this side, especially measuring the effect of CK in a variety of specific business issues (e.g. customer knowledge of brand equity and brand personality) which addressed as Customer-Specific Knowledge (CSK). Salojärvii et al. (2010) mentioned that "there has been little academic research on the utilization of customer-specific knowledge" (p. 1395).

Also, a new model could be developed in matching between the three business dimensions which are; customer knowledge (CKM) – employee knowledge (EKM) - and organization knowledge (OKM) in order to find the relationship of causal effect upon each other as shown in the diagram above. The addition of such a study, which related to employee knowledge management, is playing a critical role in bridging and translated customers needs and wants into organizations. Such an issue has been confirmed by many scholars such as Lin et al. (2006) who mentioned that employees play an interesting role in using the best practice in delivering product/services/information to end consumers and receiving then manipulating customers' data to organizations, such as complaints information. Furthermore, focusing on a targeting the mutual effect of CKM and EKM will add value to such a topic, and knowledge besides testing such a model practically will add more value for practitioners and scholars.

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