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Creating Knowledge within a C-Business Context: A Customer Knowledge Management View

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Abstract. Recent advances of virtual networking technologies are gradually forcing companies to focus their knowledge management efforts to external knowledge resources, in order to complement their existing knowledge bases, find expertise, but also harness collective intelligence that is dynamically produced in the virtual environment. Access, exchange and co-creation of customer knowledge is of central importance for companies in this context, as customers who take advantage of Web 2.0 connectivity and social networking tools are gaining importance as competitive and cooperative knowledge actors in companies' C-Business value networks. In this paper the authors attempt to cover important issues concerning customer knowledge flows between companies and customers through virtual interaction and the important factors that determine value-adding relationships of cooperation with customers for effective knowledge co-creation. They emphasize the need for the formation of a strategic co-opetition perspective for managing these relationships. In this direction, the authors present a theoretical framework that describes Customer Knowledge Management within a C-Business context.

Keywords: Knowledge Creation, C-Business, Co-opetition, Customer Knowledge Management.

1. Introduction

Nowadays, the unsteady and fragile economic and business environment strongly imposes new approaches for firms in order to achieve their strategic goals and ensure their long-term survival. Many of them try to develop and establish better relationships with their suppliers or customers, and in general with their stakeholders, in order to combine some of their resources and capabilities to create competitive advantages over their competitors (Najmaei & Sadeghinejad, 2009; Katsanakis & Kossyva, 2012). The development of co-opetitive (cooperative and simultaneously competitive) relationships between firms and stakeholders could help them create competitive advantages (Afuah, 2000; Bengtsson & Kock, 2000; Dagnino & Padula, 2002; Gnyawali & Park, 2009; Ritala & Hurmelinna-Laukkanen, 2009; Wagner et al., 2010). These co-opetitive relationships could be developed with the support of Information and Communication Technology (ICT) infrastructure and the use of virtual networks within a C-Business context (Katsanakis & Kossyva, 2012).

C-Business is the integration of E-Business, knowledge management and collaboration technologies. It is a form of collaboration between firms and their stakeholders in which they form an alliance with the use of Information and Communication Technologies (ICT) in order to share and create knowledge (Katsanakis & Kossyva, 2012). C-Business creates dynamic collaborations and transforms firms' information and knowledge base into a computer-based framework to support individualized access to potentially all participants within the alliance (Holsapple & Singh, 2000; Kim et al, 2006). This computer-based framework is primarily based on web-based technologies and services which enable firms to collaborate and share knowledge (Zhang & Deng, 2008).

The purpose of this paper is to examine how external knowledge, and especially customer-generated knowledge, can be used and managed by firms within a C-Business context. Therefore, in this paper the authors attempt to cover important issues concerning customer

knowledge flows between companies and customers through virtual interaction and the important factors that determine value-adding relationships of cooperation with customers for effective knowledge co-creation. Moreover, the authors present a theoretical framework on how customer-generated knowledge can be managed within a C-Business context and how customer and firms can collaborate to create knowledge.

2. Knowledge creation within a C-Business context

According to Katsanakis & Kossyva (2012), firms within and beyond the value chain, create a virtual network in which, with the support of collaborative technologies, are cooperating in order to create value. This virtual value network includes different kinds of collaborating actors within a certain industry; direct and indirect competitors, suppliers and buyers, and highlights the interaction and interdependence among them. Within this virtual network a common knowledge base is created, where each actor will be able to use and exploit this knowledge for individual purposes. The value is created via knowledge exchange, creation and transfer from the collaboration established within this virtual network. This collaboration is originated from the firms' co-opetition strategy, enhanced with the value creation process (Katsanakis et al, 2011; Kossyva et al, 2011).

As shown in Figure 1, firms and their stakeholders are able to create new knowledge through the sequence of the processes of identification, acquisition, dissemination, transfer, application and creation, which will lead to value creation. The aim of these collaborative relationships is the development of win-win situations for all collaborating actors and the creation of value for customers. The knowledge created is collective, and essentially represents the overall value created from the collaboration of the participating in the virtual network firms. After the creation of the collective knowledge, originated from the collaboration between the participating in the virtual network firms, collaborating actors can utilize the generated value for the creation of individualized value. This depends on each actor's knowledge absorption capacity and knowledge base, which varies from firm to firm (Katsanakis & Kossyva, 2012; Kossyva et al, 2011).

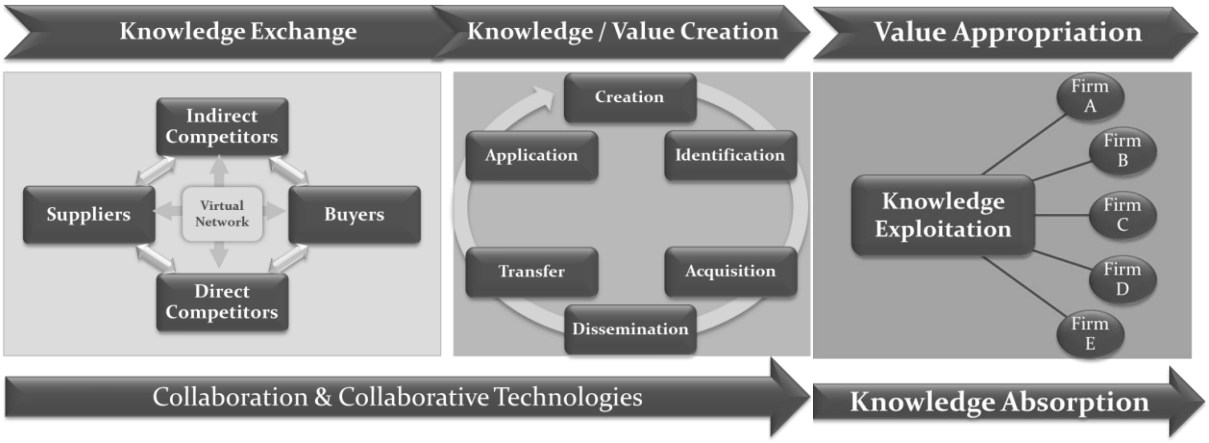

Fig. 1. Knowledge and Value Creation within a C-Business context (Katsanakis & Kossyva, 2012)

3. The growing importance of external knowledge resources

Externally generated knowledge is considered to be an important source of competitive advantage for a firm, provided that the latter has the potential capacity to acquire, assimilate and exploit it (Zahra & George, 2002). Modern firms which are able to develop systems that increase external knowledge flows, can dramatically improve their ability to innovate, cope with turbulent market conditions and introduce novel ideas, experiencing advantages in terms of speed, cost and quality (Rigby & Zook, 2002). The governing structures a company uses in

order to mix, re-combine and find complementarities between internal and external knowledge define processes of knowledge creation and growth and radically affect a company`s knowledge creating competences (Patrucco, 2009).

In this extended knowledge context, organizations face the challenge of widening the range as well as the efficiency of access to distributed external capabilities and knowledge sources. Therefore, established information technology and knowledge infrastructures should provide, among others, solutions for better monitoring and integration of external knowledge resources as well as properly coordinated interaction platforms, promoting integration of complementary internal and external competences, or, more broadly, access to new information, idea exchange, and expertise through electronic networks and in social interaction virtual spaces (Maier, 2005; Consoli & Patrucco, 2010; Wasko & Faraj, 2005).

Following the introduction and rapid growth of the internet and virtual networking technologies, firms have been able to facilitate significantly the productive use of external knowledge and learning resources, as well as knowledge creation and dissemination processes (Eng, 2004), while the more recently advanced Web 2.0 networking and collaboration technologies have paved the way for a shift from traditional knowledge-push to more dynamic, social, people driven learning models. Providing a wide range of virtual networking and collaborative tools, these technologies have greatly enhanced knowledge creation capabilities, driven by the need of connecting different and remote knowledge sources and of harnessing collective intelligence as it is produced in virtual interaction spaces (Chatti et al., 2007).

4. Customer Knowledge

Recent Knowledge Management (KM) literature makes clearly evident that emphasis shifts from the interior, mainly concerning mobilization and access to organizational knowledge, to the exterior of the organization, as the importance of external knowledge sources is increasing. In this manner, a new stage of knowledge management evolution, or, in other words, of KM maturity has been introduced, representing all aspects of external knowledge resources and corresponding knowledge processes and activities (Koenig, 2008). This shift of knowledge locus to outside corporate boundaries demands new views and considerations for accessing customer knowledge, supporting customer integration (Gurgul et al., 2002). Organizations, in their effort to access customer insight, can develop strategies that support extended dialogues with customers, creation of customer knowledge communities and other customer knowledge activities.

Customer knowledge can create value for organizations by contributing to the formation and improvement of planning and operation activities, while it also supports the organization in understanding latent customer needs and expectations. So, access to customer knowledge resources helps a company to form marketing and sales strategies, predict future needs, identify customer decision making crucial factors, and even enhance new product and service development (Lesser et al., 2000).

A significant part of customer knowledge streams emerges from the use of new technologies of social networking or, more generally, virtual interaction technologies that have the ability to deal with various aspects of customer knowledge and experience, even those that are of more tacit nature (Liberona et al., 2012) which are considered to be valuable as a genuine source of innovation and knowledge creation (Polanyi, 1966; Nonaka & Takeuchi, 1995). In this context, customer is now seen as a knowledgeable entity, rather as a passive recipient of products and services. He is an active co-creator of value. Corporate efforts to deal with acquiring, sharing and expanding knowledge residing in customers, to both company and consumer benefit, has brought significant attention to Customer Knowledge Management (CKM). Its main objective is joint value creation by interacting with customers (Gibbert et al., 2002).

5. Customer Knowledge Management

The introduction of Customer Knowledge Management (CKM) came from the need to acquire knowledge created during social interactions that take place between employees and customers, that traditional Customer Relationship Management (CRM) could not identify and acquire, viewing the customer as an agent who seeks but also holds knowledge valuable to the company, thereby establishing a two-way knowledge flow relationship (Murillo & Annabi 2002). CKM is usually portrayed as the integration between CRM and KM, in the sense that KM tools and processes provide the necessary means to support customer knowledge exchange for improving customer service and ongoing relationships (Rollins et al, 2005).

However, a universally accepted definition of CKM does not exist, but it could be generally defined as a continuous process of generation, dissemination and usage of customer knowledge, both inside a company and between a company and its customers (Buchnowska, 2011), but also between customers (C2C) (Zanjani et al., 2008). Gibbert et al. (2002) have identified different styles of CKM, varying by the intensity of interaction, main objectives and knowledge types exchanged. They indicate that knowledge co-production taking place in joint innovation development initiatives as well as communities of creation can facilitate the identification and exchange of tacit knowledge, using strategies such as developing close relationships with lead customers that carry expert knowledge or putting together customer groups that interact with both the company and each other.

A number of different CKM taxonomies have been introduced, but the prevailing distinction is between the following four CK types (Gebert et al., 2003), (Smith and Mc Keen, 2005):

- **Knowledge About Customers**: Considered to be a type of knowledge useful for knowing the customer better, accumulated to identify motivations and by analyzing purchasing activity, connections, history, requirements and expectations (Gebert et al., 2003), future desires and financial capability (Salomann et al., 2005). Acquisition is achieved in a passive way, meaning that it is not the product of active interaction with customers (Buchnowska, 2011).
- **Knowledge From Customers**: Represents knowledge of customers about products, suppliers and market trends. If used through appropriate mechanisms, it can can be a valuable source that can lead to new idea generation, product and service continuous improvements as well as new product and service development (Gebert et al., 2003), (Salomann et al., 2005).
- **Knowledge For Customers**: The type of knowledge regarding customers` specific knowledge needs concerning products, suppliers and markets. It can be acquired not only by company resources, but also from other customers, information consulting institutes and competitors. Also, it has been proposed that it represents the integration of the two aforementioned customer knowledge types (Gebert et al., 2003), (Buchnowska, 2011).
- **Knowledge With Customers (Co-Creation)**: Derived from productive dialogue and cooperation of a company with its customers, by using KM procedures and tools to facilitate interaction and knowledge creation (Smith and McKeen, 2005).

Customer knowledge co-creation perspective demands the development of collaboration with customers for joint value creation. It also views customers as members of a wider network, able to extract business value and playing a much more active, multiple role as collaborators, co-developers and competitors (Lawer, 2005).

We use the taxonomy of knowledge about, for, from and with customers to describe the knowledge flows that take place between the company and its customers, either individually or collectively through the use of virtual networks and especially Web 2.0 collaboration technologies. Customers, as knowledge holders or seekers are strengthening their position as

players in the virtual environment, taking advantage of the mass usage of these dominant new technologies by users - consumers. Companies are obligated to view customers` position in the coopetitive value network as more active, energetic and value adding of higher potential. In terms of competitive or cooperation ability, customers are gradually equaling companies` competitors, only with a different set of costs and benefits guiding their motives. Next, we draw several concepts from relevant literature in order to support this position.

5. How new virtual network technologies affected customers` role and position

5.1. Virtual Network Technologies

The introduction of the Web 2.0 concept came as an attempt to describe a whole new range of new principles and techniques that link sites and users. Web 2.0 technologies have brought a new generation of services that evolved and grew along with users` massive interactions, cooperations and content contributions. The vast amount of new networking and connectivity tools along with the growing collective intelligence created by user generated content (UGC) allow for mass collaboration and online communities formation. This has allowed firms using Web 2.0 tools not only to rapidly learn more about their customers, but also to be able to provide personalized information support and, more importantly, incorporate them as active co-creators of knowledge and co-developers of new products and services (Boselli et al., 2008, Sigala, 2009). Customers now use all available media and communication channels to interact, create and share content, join and participate in social networks and build relationships with other customers (Hennig-Thurau, 2010). Virtual interactions supported by social software promote more efficient ways of bringing customers closer to companies, by facilitating CKM processes and conversions between tacit and explicit customer knowledge (Zhang, 2011). For example, online communities of practice can constantly support knowledge creation activities through technological tools, collective reflection and usage scenarios. Generally, virtual communication tools variety and diversity is crucial to enhancing user tacit knowledge explication, which is the essence of most knowledge creation efforts. (Hemetsberger & Reinhardt, 2004).

5.2. Customers` enhanced role and position

As the internet became the universal information gathering medium, it affected customers by making them more intelligent, in the sense that they could have broader and easier access to information as well as numerous communication channels to share that information (Greenberg 2009). Gradually, several types of “virtual” customers emerged. The “digital consumer”, is described as the consumer who searches for products and product information online. This has urged businesses to provide more in-depth information, comparison and search options and has forced them to consider new ways of understanding consumers` needs and preferences and forming valuable partnerships with consumers. The digital consumer is also an active creator of online content for brands and products. His activity covers a wide range of created digital content from product reviews and information creators to online designing of customized products (Fiore, 2008).

The growing importance of the customer who acts online is also highlighted by the emergence of the term electronic word-of-mouth (EWOM), all the articulations of customers` comments and reviews about products, services and firms which take place online and circulate through digital information and communication channels. In text or multimedia form, EWOM is rapidly forwarded to other users – customers and has forced firms to understand its determinants and effects on customer decision making. Given that online information access and exchange costs very low, EWOM can develop very large scalability and create new market dynamics. It has also urged companies to develop effective response strategies to manage negative EWOM. (Hennig-Thurau et al., 2010; Litvin et al., 2008). The term “social customer” was also recently introduced, depicting the customer who, as a

member of online communities, is a free provider of actionable knowledge; that is, knowledge being the result of actions that creates value for the company as it generates new insights into best practices. He is a participant in online conversations as a “word of mouth” influencer, member of customer feedback networks as well as discussion and problem solving communities. The social customer created the need for companies to see the development of strong relationships with customers as a collaborative effort. By engaging them in discussion and activity and by observing, redirecting and even participating in online conversations, customers are seen as partners from the beginning of development and improvement of products and services. Sentiment Analysis, Social Media Monitoring and similar techniques have been developed in order to help companies gain access to and learn about dominant customer insights (Greenberg, 2009). Through virtual communities and social media, customers have the ability to establish themselves as co-creators of value in innovation efforts, both in ideation and design stages as well as prototyping. Companies can actively use customer communities as idea generation sources and are gradually getting more and more familiar with practices of harnessing consumer intelligence from virtual communities for new product development. External consumer networks can be useful for the identification of problematic features and solution suggestions that very often turn to real new products. Also, examples of transparent online communities engaged in new product prototyping, testing and feedback processes already exist. Lead users, with high experience of product usage and willing risk takers play a significant part in this context (Sindhav, 2011).

6. Collaboration with Customers in the virtual landscape

6.1. Pre-requisites for collaboration and co-creation

Collaborations and knowledge exchange with customers demand fundamental cultural changes in order to view the customer as a potential knowledge source. Another closely related challenge is that of transforming existing intra-company KM and CRM systems to more open systems that facilitate access by customers and allow for extended interactivity. The usage of a wide range of communication and interaction technologies is necessary to this end (Gibbert et al., 2002). Also, senior management support in communicating and viewing of the customer as a valuable knowledge source and potential partner is considered to be crucial for a company to develop its CKM competence (Rollins et al., 2005).

Sawhney & Prandelli (2000) identify a number of important factors for knowledge co-creation between customers and firms. From the customers` point of view, the most inhibiting factors are the lack of absorptive capacity, lack of trust and lack of motivation. More specifically, absorptive capacity includes the need for customers to enrich their vocabulary for articulating experiences and improving their understanding but also the need to enhance customer connectivity. Trust refers to the avoidance of opportunistic behaviors to gain customer knowledge and the parallel improvement of firm`s reputation and image. Finally, motivation includes the identification of incentives and customer rights. From the company`s point of view, firms must develop the capacities to identify, absorb, share and deploy valuable customer knowledge.

Moreover, Kristensson et al. (2008), suggest that co-creation is a fundamental shift from traditional customization of products approach, and identify a number of key strategies for successful co-creation with customers in the field of new technology-based services development. These include the identification of users` needs depending on their own setting and situations as well as on the various roles they play, the provision of proper analytical tools to enhance the effectiveness of user involvement, the motivation of users by demonstrating the apparent benefits from their involvement and the formation of heterogeneous user groups to ensure idea complementarity and diversity.

6.2. Incentives for customers` participation and involvement

Game theories have been used to describe interactions between buyers and sellers. Relationships between companies and customers that extend in the long run as an ongoing process can be examined through a non-zero game framework, where both actors do better by collaborating than acting alone. While participating in these collaborative relationships, each participant provides something to the other at a lower acquisition or reproduction cost. As a result, value is created. The creation of appropriate and effective communication environments to nurture collaborations of this kind is essential (Gurgul et al., 2002). Also following a cost-benefit logic, user incentives for participating in user innovation communities have been linked to anticipated innovation benefits that exceed respective costs (von Hippel, 2001). Similarly, Nolan (2007), by decomposing the issue of trust development in online business communities, describes that favorable conditions for contribution and participation of the individual occur when information utility (quality information of high practical value) and power of influence exceed the amount of effort required to participate and acquire information. Sidhav (2011) have suggested that contribution of new ideas in online communities are achieved through processes of social validation, information and inspiration, representing strengthening one`s ties with the community and its goals and accessing bits of information that help in filling knowledge gaps and generating new ideas respectively.

Several researchers have addressed issues of motivation for customer participation in online firm-based communities. Brodie et al. (2011) have revealed three major aspects that define the intensity of customer engagement in online business communities, namely the emotional, cognitive and behavioral aspects. Emotions such as gratitude, trust and sense of belonging, the sharing of information and experiences and the amount of online experiences are examples of the specific aspects that characterize the level of complexity of customer engagement states. Hunter and Stockdale (2009) argued that members of business sponsored online communities become involved in them motivated by the mutual exchange of knowledge regarding products and services of their interest. Wiertz and Ruyter (2007) investigated the drivers of knowledge contribution by customers in firm-hosted online communities. Their findings suggest that factors such as online interaction propensity (users` tendency to virtually interact with strangers) plays a significant role on the amount of knowledge contribution. They also found out that customers who exhibit behaviors of commitment and build strong relationships with other community members as well as the collective of the community are more encouraged to share their knowledge.

6.3. A Company to Customer Virtual Interaction Framework

In this section, we propose a theoretical framework on how customer-generated knowledge can be managed and used within a C-Business context (Fig. 2). This framework depicts, in a simple way how customers and companies can collaborate to create knowledge.

According to Zhang (2011), a company`s customer knowledge system should be composed of two major components: A customer knowledge base providing “static” support for customers seeking knowledge and a social software platform, which gives the appropriate “dynamic” communication channels to customers to interact with the firm. Web 2.0 communication and interaction technologies provide the company with the ability to incorporate and use a wide range of applications and techniques such as harnessing collective intelligence, remixing and enhancing web-based data, developing personalization capabilities, exploiting user generated content, and most importantly, manage knowledge co-creation activities. This will allow the firm to maximize user involvement, cooperation, and value co-production (Boselli et al., 2008).

Along the horizontal axis we draw the proposition that customers through virtual networks can more vibrantly develop a mix of competitive and cooperative abilities and actions in

terms of knowledge acquisition, sharing and co-creation. In order to intensify knowledge co-creation and cooperation with customers the firm can more effectively use collaboration technologies and stimulate motivation to customers to participate in interactive procedures and share, exchange and create knowledge.

However, forming strategies to achieve more effective knowledge and value co-creating relationships with customers is becoming a less and less straightforward effort as customer usage of social media and the amount of relevant applications and techniques are becoming more massive. According to Zhang (2011) a firm should be able to assess the relative costs of adopting or adjusting social software as well as its effects on existing customer knowledge base index, eventually with the aim of reaching an optimal level of social software.

Also, to our opinion, businesses are also facing the challenge of converging marketing and knowledge management strategies as far as customer knowledge is concerned. Hanna et al. (2011) indicates that customers are gradually participating more actively in the media processes, and adopt a range of participating and value adding roles, such as content creators or critics. This urges businesses to combine traditional marketing promotion and communication activities with further engaging customers in rich interactive dialogues. Similarly, Brodie et al. (2011) suggest that in specific virtual brand communities control is shifting within them as customers are getting more powerful as co-creators of brand meanings, forcing marketers to promote tasks of knowledge sharing and product co-development with customers.

Moreover, firms are forced to consider the complex set of motives and drivers that define customer participation, knowledge contribution and interaction in virtual customer communities. Fuller et al. (2007), in their effort to explore joint innovation activities in online consumer communities, showed that the most active contributors were driven by excitement and pure interest in the innovation activity itself, rather than the plain need of improving a particular product. On the other hand, Wiertz and Ruyter (2007) showed that commitment towards the firm exhibited negative results in terms of quality of knowledge contribution compared to commitment towards the firm-hosted community, which had a positive effect in both quantity and quality of knowledge contribution.

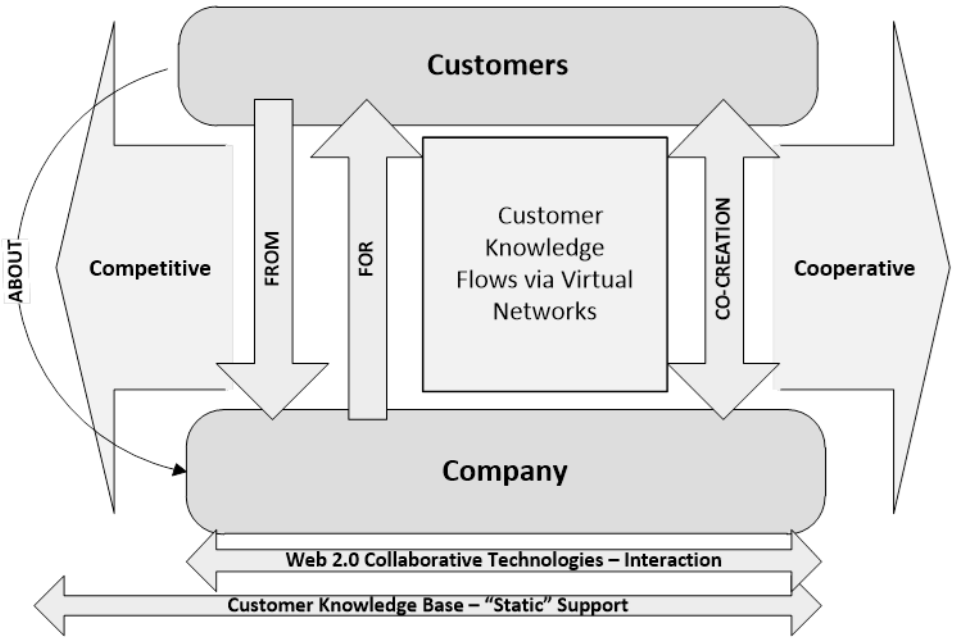

Figure 2: Company to Customer Virtual Interaction Framework

Conclusions

The unsteady and fragile economic and business environment has led firms to collaborate with their stakeholders over the internet in order to create collaborative networks, especially since the rise of Information and Communication Technologies (ICTs) and E-business. Stakeholders within and beyond the value chain cooperate in virtual value networks in order to create and exchange knowledge, and therefore create value for customers.

The growth of Web 2.0 network technologies and of social software is raising customers to a new more powerful level in a company`s virtual value network. In this context, customers` competitive and cooperative abilities have been enhanced. Customers as knowledge actors can be engaged, individually or collectively, in knowledge exchanging and co-creating ongoing relationships of various interaction intensities, depending on specific context, situation and needs. Our framework suggests that Customer Knowledge Management typologies and research can be valuable for companies to develop new strategies that integrate the online building of customer relationships with knowledge sharing and co-creation activities and puts emphasis on the advanced co-opetitive position of customers, that are becoming more active, creative and knowledgeable throughout the virtual landscape.

Additionally, our literature review leads to the conclusion that companies, in order to achieve both task-specific and long-term knowledge co-creative cooperation with customers, should take under consideration a number of mainly intrinsic motivations and drivers that seriously affect customer involvement and contribution. Therefore our further research should elaborate the aforementioned factors, and aim to address the need to strategically manage customers as powerful, co-opetitive virtual players. Zineldin (2004) has proposed that successful, mutually beneficial relationships in a business context have a series of necessary preconditions that include tasks dealing with attitudes, motives, needs, actions and interactions. We have shown that the latter concepts are extensively discussed in the relevant literature concerning knowledge-based relationships with customers, and they have to be further consolidated in a common strategic framework, supported by relevant case studies. Moreover, similar to Fuller et al. (2007) suggestions, our future perspective should also include the strategic challenge that emerges from the distinction between integrating customers for specific knowledge co-creation purposes and building continuous collaborative relationships as constant knowledge sources. This last case is becoming a very complex task as customers` social interactions in the virtual landscape intensify and the amount of unstructured collective knowledge increases (Gruber, 2008).

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