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Social networks and Web 3.0: their impact on the management and marketing of organizations

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Abstract

Purpose – Innovations, coupled with the advancement of new information and communication technologies (ICTs) and the evolution of the internet, have had a profound impact on the structure of firms and have altered the decision-making process. In the new economic and social environment, the understanding of the developments and transformations undergone by ICTs with the advancement of social networks and Web 3.0 technology is vital because of the influence of recent innovations in the competitiveness of organizations. The aim of this paper is to achieve an in-depth understanding of the new environment that has emerged with these developments.

Design/methodology/approach – The study focuses on the use of social networks and the conception of the corresponding new business models, highlighting the importance of community managers and crowdsourcing processes.

Findings – The paper explores the possible sources of competitive advantages open to organizations in the light of recent innovations, and highlights the developments that they should implement to improve the decision management process and exploit new situations.

Practical implications – The paper analyzes the impact of social networks and Web 3.0 technology in the management and marketing of organizations, highlighting certain mechanisms to improve competitive advantages for organizations.

Originality/value – The impact of social networks and Web 3.0 technology on organizations has not been analyzed in the literature. The paper also highlights the importance of community managers and crowdsourcing processes in coping with the new environment.

Keywords Social networks, Community manager, Crowdsourcing, Innovation, Organizations, Communication technologies, Competitive strategy

Paper type Conceptual paper

1. Introduction

Progress in information, communication and multimedia technologies and the increasing expansion and use of the internet, intranets, extranets, web sites, etc., are

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generating gradual innovation in diverse areas, leading to the proliferation of new business styles based on information and knowledge (Garrigos, 2010), where the importance of networks, partnerships and alliances between firms and other agents is crucial. New networks and the advances in so-called Web 3.0 technologies are changing firm structures and value chains or value networks, and the configuration of decision-making processes for managers. Their efficient use is therefore crucial in the modern social and business environment in order to create and consolidate the competitive advantages of modern-day businesses.

This paper analyzes the importance of social networks in the new context, the effect of Web 3.0 on the management and marketing of organizations, and the way organizations can exploit these changes. Specifically, the paper concentrates on exploring the importance of community managers and the relevance of crowdsourcing processes in order to cope with new changes.

2. The importance of social networks and virtual communities

The significance of social networks is emphasized in the modern environment because of their proliferation, together with virtual communities, and their joint effect on organizational behavior. Although social networks can mean different things in different contexts and for different users (Boyd and Ellison, 2007; Van Zyl, 2009), Boyd and Ellison (2007, p. 211) define them as:

> Web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system.

Meanwhile, a virtual community could be defined as a "group of people who may or may not meet one another face-to-face, and who exchange words and ideas through the mediation of computer bulletin boards and networks" (Rheingold, 1993, p. 58), or as technology-supported cyberspace, focusing on the communication and interaction of its participants and the building-up of relationships among members, to generate specific domain knowledge that enables participants to perform common functions, and to learn from, contribute to, and collectively build on that knowledge (Hsu *et al.*, 2007; Lin *et al.*, 2008).

Social networks and virtual communities are essential for understanding current changes in the business environment. The networking potential promoted by the new innovations, "drives all of society and corporations to work faster, create and manage more interdependencies, and operate on global markets" (Kalpic and Bernus, 2006, p. 41). Obviously, these new trends are facilitating the construction of strong social networks and virtual communities, affecting the design of web sites, and, in general, increasing the competitiveness of organizations, while also leading to the transformation of business models in all sectors (Garrigos *et al.*, 2011). In particular, the growth of virtual social networks such as LinkedIn, Facebook, Twitter or Youtube, and, in general, all kinds of virtual communities, has been significant over the last few years. However, their impact is very broad and "is increasingly pervasive, with activities ranging from economic and marketing to the social and educational" (Chiu *et al.*, 2006, p. 1872). In this vein, we might talk about enterprise networks, professional communities, e-business platforms, research networks, education networks, networks with clients, suppliers, friends, etc.

Bearing in mind that formal networks and communities are not the only kind established in organizations, informal and diverse virtual social networks are crucial for organizations in the modern environment, because, as the literature suggests, social interactions are a source of creativity and innovation (Chiu *et al.*, 2006; Hsu *et al.*, 2007). In particular, social networks and virtual communities are essential for managers to improve the decision-making process. For instance, as Burt *et al.* (2000) point out, managers with links in separate groups are rich in the social capital of information and control the benefits associated with relationships that overcome the "structural gaps" in their information. Moreover, social networks facilitate and enhance learning, creativity, collaboration, the creation and sharing of knowledge, and development of virtual communities, and thus access to knowledge at a lower cost in terms of time and money (Garrigos *et al.*, 2011). They also increase innovation at all steps of the value chain, and facilitate management tasks and decision-making processes in all type of organizations.

Specifically, social networks are essential for knowledge creation and sharing, and for learning. As Lin and Hsueh (2006) point out:

> [. . .] in the Internet era, . . . in order to shorten the learning cycle, an individual can exploit the experience of others to enlarge his or her experiences, which can be carried out by sharing explicit knowledge on the Internet.

In addition, in the new environment, "when the knowledge base of an industry is both complex and expanding, and the sources of expertise are broadly dispersed, the locus of innovation will be found in networks of inter-organizational learning rather than in individual organizations", as the rigidities of formal organizations make them a "poor vehicle for learning" (Kodama, 2005, p. 896). Subsequently, the development and management of social networks is crucial for managing knowledge, increasing learning and promoting innovation.

However, their function goes beyond the knowledge management of organizations, as they can allow significant changes in the value chain and the structure of all kinds of firms. According to the resources and capabilities view and the literature on learning, the effort required to effectively learn and develop the resources and capabilities to engage in certain value chain activities may be difficult, time-consuming, and inefficient for firms that would perform better by focusing more intensively on their own areas of competence (Prahalad and Hamel, 1990). Thus, the search for external and complementary resources and competencies through diverse networks is vital. Moreover, in the contemporary context it is essential to design organizations in the new economy from a strategic network perspective, where relatively autonomous and independent units can and must operate together (Jarillo, 1988). In the new arena, "as products and services become dematerialized, and the value chain itself no longer having a physical dimension", . . . "the value chain concept becomes an inappropriate device with which to analyze many industries today and uncover sources of value". It is therefore necessary to move from the value chain to the value network concept, where "value is co-created by a combination of players in the network" (Peppard and Rylander, 2006, p. 131).

This aspect is vital for every firm, "in an increasingly networked society, and with the advent of more user-friendly and powerful Web applications" (Moor and Weigand, 2007), when the new platforms can create multiple and diverse communication

channels, for instance between enterprises and customers, experts, and other firms or stakeholders. They can also enhance channels between the same customers and eventually affect various decisions. In addition, the new platforms are leading to new ways of assessing customer need and psychology in terms of products and prices, and changing managers' and employees' ways of determining new advances and obtaining information (Garrigos *et al.*, 2011). In this way, recent innovations are provoking a change in working practices and processes both inside and outside organizations, strongly affecting the competitiveness of organizations by transforming the techniques for producing, promoting and selling products, and for improving customer loyalty.

In this arena, knowledge of the possibilities and uses of new technologies, but mainly the key elements of the new changes, is crucial. This is essential as organizations have to cope with the new developments, and even transform their own businesses in accordance with the new innovations (Teo and Piang, 2004; Wirt *et al.*, 2010), if they want to exploit new situations and undertake effective organizational management. It is therefore essential to explain the development of these new technological platforms up to the conception of the so-called Web 3.0.

3. Web 3.0 technologies and the use of social networks

In recent years, new advances in internet technology can be summarized by the transformation of the so-called Web 1.0 into Web 2.0, the emergence of semantic web technologies and their integration into Web 3.0 (Berners-Lee *et al.*, 2001), and, principally, the development of social networks, which have created new forms of competition between businesses.

Web 3.0 can be viewed as "semantic Web technologies integrated into, or powering, large-scale applications" (Hendler, 2009, p. 111), developed networked digital technologies that support human cooperation (Fuchs *et al.*, 2010), or "intelligent agents that can automatically manipulate Web services (read-write-execute) and help firms react to changes quickly" by integrating data and applications from different resources, providing "the ability to infer relationships between data in different applications or in different parts of the same applications" (Hendler, 2009, p. 112). The new conception is essential as it makes information more meaningful to people by making it more understandable to machines (Feigenbaum *et al.*, 2007), promising a world-wide web consisting of semantically linked data instead of a mere collection of HTML documents (Antezana *et al.*, 2009). It not only allows the use of semantics but also space, images, sounds and feelings in a concept where the traditional static web is transformed into another very interactive one. In the new context, intelligent machines read, understand, interrelate, and can manipulate data from cyberspace, allowing this process to be adapted by different users or firms according to their own needs. In addition, the new technology allows listening, learning and cooperation, so that each customer or stakeholder can be treated differently, according to their preferences, at all times.

With the new technologies in the Web 3.0 era, firms can use the information gathered by organizations before, during, or after contact with customers via techniques such as data warehousing, data mining or customer relationship management, as well as by using various pieces of information from diverse social networks or the net in general. This information is now essential for adapting and personalizing products, brands and services by and for different users or firms

according to their own needs (do what the user wants you to do, and behave as the user wants you to behave), whenever they want, allowing instant cross-marketing and other applications (Garrigos *et al.*, 2011). The concept means a radical transformation with critical changes in the technology itself, which is, again, revolutionizing today's business models (Rohrbeck, 2010; Garrigos *et al.*, 2011).

However, the new advances are strongly based on the creation and management of networks. Although we cannot ignore the automation process associated with the development of Web 3.0, the potential of new technologies cannot be conceived without the participation of people who live, interact, learn and create via the web. In this sense, the source of competitive advantage is still found in personal relationships with the environment as the simplistic, automated processes involved can lead firms to misunderstand the essential aspects of the new environment where knowledge is the principal feature. The consideration and importance of social networks as tools to improve both marketing and strategic management processes in general, and specifically decision-making processes, is therefore crucial. They are vital in strengthening the corporate image, promoting collaboration with experts, customers and suppliers, and represent a flexible source of information and knowledge on the latest innovations, and the tastes and preferences of consumers and other stakeholders.

Strategically, the most important change in Web 3.0 is the importance of meaning in the new environment. Networks are therefore essential tools for finding out what is happening at the moment, what the competition is doing, what customers are demanding, or even discovering technological trends, innovations and expert opinions. They are also vital for creating, influencing and participating in debates on new innovations and image promotion. The administration of social networks for knowledge management is also indispensable, as networks can enable knowledge creation, sharing and learning, and are also sources of creativity and innovation as many stakeholders can add value to firms' different products or processes.

The transformation of the customer from a passive client into a highly active one who wants to participate in all production processes (Shiffman, 2008) and the development of social networks are changing the view of production itself, forcing organizations to create an interactive link with the market, to be open and cooperative with customers and other stakeholders in the whole production process; from the definition of the product through to the development, production, and logistics or distribution process, to its positioning, communication, brand management or sales service.

As an initial example of these transformations, we could use the sophisticated information systems that have allowed the success of companies such as the Spanish-based retailer Zara, with its fast-fashion retail network or "rapid-fire fulfillment" (Ferdows *et al.*, 2004) as it gathers information on the products its customers purchase every day. The retailer is capable of designing, producing, delivering new products and putting them on display in its stores worldwide within a mere 15 days, according to specific store data and the latest customer preference trends (Ferdows *et al.*, 2004; Sull and Turconi, 2008). For instance, Zara is able to adapt to rapidly changing markets, and predict the sales of an item in a single store during a replenishment period depending on demand forecasts, the inventory of each size initially available, and the aforementioned store inventory management policy (Caro and Gallien, 2009). Another case concerns the revenue management policies of airlines,

which allow them to set prices according to demand and some production factors, or even the policy of Carrefour (Yoon and Zhou, 2011), which allows customers to manage their personal loyalty card account, (track purchase history, create shopping lists, share with friends or family, etc.) and enables interaction with customers on its web site. The firm can also use this information to automatically determine its customers' needs (by knowing the previous products they have consumed and their demographic and family situations) and offer them new promotions according to these needs and the characteristics of the products in stock in its stores.

However, and apart from these examples, recent innovations tell us that the new marketing and management systems promoted by the evolution of Web 3.0 are ultimately based on enhancing participation and collaboration in the development of organizations, not only from employees but also from customers and other stakeholders, throughout different networks. Participation is essential, as it increases the involvement of customers and other stakeholders with organizations, thereby improving their reputation and marketing, and also enhancing very diverse innovations that allow the creation of new business models and the upgrading of those established in the different organizations. It is therefore paramount to concentrate on specific strategies in networks that could enhance participation and collaboration from employees, customers and other stakeholders, with the use of the appropriate community managers and the promotion of crowdsourcing techniques, a point we will go on to develop.

This perspective is fundamental, as it can allow the efficient outsourcing of different processes, allowing firms to be more competitive as they can free up resources and human capital to focus on customers and their needs. Subsequently, in the new environment, with a view to strengthening and consolidating these objectives, we can highlight the importance of attending to two of the key innovations for enterprises:

(1) improving customer trust and the reputation and image of organizations through the appropriate use of social networks and figures such as the "community manager"; and

(2) enhancing the participation of the people in the business through the personalization of web sites and the promotion by these community managers of so-called crowdsourcing, examined below.

4. Community managers

The specific task of the community manager in creating, managing, and enhancing participation and collaboration in virtual communities and social networks is of vital importance to firms. We define community managers as the managers of virtual communities. By operating through many types of virtual communities and social networks on the net, they are in charge of the daily operation of these communities (Arnone *et al.*, 2009), acting as the liaison between the companies and the communities online, ensuring a good relationship between the two (Michlmayr, 2009).

In general, their best-known tasks are to create, maintain, facilitate, make dynamic, increase and generally ensure and improve a firm's dialogue and relationships with customers and other stakeholders on the net, depending on the interest of the organizations and other agents. However, their function goes further to include important managerial and marketing aspects. In our view, they have three objectives enabled by carrying out several functions. First, they have to improve the

organization's marketing, promoting products and events, and improving the organization's reputation. In this sense, they must enhance the meeting, participation and collaboration of a variety of stakeholders related to the online communities, tending also to the needs and opinions of customers and other stakeholders, and attempting to monitor and control activity, and specifically "word of mouth", over the internet (distribution lists, newsgroups or web forums); implementing the organization's vision and relational marketing plan, while enhancing and ensuring good company reputation and image, and, with it, customer loyalty. Second, they have a managerial function as they have to communicate the state of the community to the company by preparing metrics and interpreting data and key success factors to help organizations to plan their product and process strategies. Finally, the community manager has to promote the participation and collaboration of stakeholders in order to improve some "crowdsourcing" processes at different points of the value chain, as we will describe later.

In this context, and although some pioneering organizations that are concentrating on using social networks and new technologies are still not entirely satisfied with the results (Chui *et al.*, 2009) (not because of the lack of contribution made, but more precisely because of the high expectations created), almost all of the larger innovative companies are using community managers in order to improve their tasks. In this way, most of them have incorporated their corporate page into the main social networks (Facebook, Twitter or LinkedIn), and some firms have even created their own social networks (Adidas, Dell, Ford, Ikea, Nike, Pepsi, Telefónica). However, it is essential for all kinds of business, even small and medium-sized firms, to be aware of the importance of "community managers" in improving, not only marketing, the general management of organizations.

5. Crowdsourcing

The importance of the participation of people, not only customers or employees, in the whole business process is shown to its greatest extent in "crowdsourcing", an important business model in the Web 3.0 era.

Crowdsourcing, also known as "massive outsourcing" or "voluntary outsourcing", is conceived in this study as the act of taking a job or a specific task usually performed by an employee of the company or contractors, and outsourcing it to a large group of people or a community (crowd or mass) via the internet, through an open call. The expression was coined by Jeff Howe in the June 2006 issue of the computer magazine *Wired*, and is also defined as "the outsourcing of tasks to the general Internet public" (Kleemann *et al.*, 2008, p. 5). It "describes a new web-based business model that harnesses the creative solutions of a distributed network of individuals through what amounts to an open call for proposals" (Brabham, 2008, p. 75), with the aim of "animating individuals to make a contribution to the firm's production process for free or for significantly less than that contribution is worth to the firm" (Kleemann *et al.*, 2008, p. 5). The process includes customers, considered as "co-workers" (Rieder and Voß, 2010, p. 4), and various stakeholders who are not employees of the organization, in the production process. This has been developed mainly through the expansion of social networks, which has allowed labor to be outsourced to the public (Corney *et al.*, 2009), with very diverse kinds of remuneration and motivation mechanisms for contributions (Geiger *et al.*, 2011).

Brabham (2008, p. 79) points out that the public can help design products, produce memorable commercials and images, and that it outperforms the industry faster and cheaper than even the top minds in these fields. Geiger *et al.* (2011) used 46 crowdsourcing examples, with 19 distinct types of processes. By developing its use, Kleemann *et al.* (2008, pp. 12-14) described and gave examples of the main types of crowdsourcing: consumer participation in product development and configuration; product design; competitive bids on specifically defined tasks or problems; permanent open calls; community reporting; product rating by consumers and consumer profiling; and customer-to customer support. However, the process may be very broad and could include everything from the design of a product or process, product development and configuration, solving technical or other problems, creating content, corporate R&D, advertising, quality monitoring, etc. (Howe, 2006; Brabham, 2008; Kleemann *et al.*, 2008), to the inclusion of almost every step in an organization's value chain (examples of crowdsourcing can be seen in Brabham, 2008; Kleemann *et al.*, 2008; or at http://dailycrowdsource.com/companies/).

6. Conclusion

This paper has attempted to analyze the influence of the so-called Web 3.0, and the development of social networks on the marketing, management and, more specifically, decision-making processes of organizations. The study examines previous literature that focuses on the development of social networks and virtual communities and their importance.

The article also describes the transformation of technologies, and the new business models emerging in the new context of Web 3.0, and its influence on firm competitiveness. The manuscript has also stressed the importance not only of the technology, but of the essential use of networks and the management of cooperation and personal participation in the new context. It has also analyzed the importance of the fact that participation and collaboration come from very diverse kinds of stakeholders. In order to promote reputation, participation and collaboration, the study ends by highlighting the importance of community managers and crowdsourcing in improving the competitiveness of organizations.

As for community managers, the paper analyzes their functions by summarizing their role in three main points: improving the marketing of the organization, promoting events and products, and increasing the reputation of the organization; improving the management of the company by preparing metrics for communities and networks, interpreting the key success factors and helping organizations to plan their product and process strategies; and, finally, promoting stakeholder participation and collaboration in order to improve crowdsourcing processes at different points of the value chains or value networks of organizations.

The study also highlights the importance of crowdsourcing and how it can be used by organizations, and gives examples of the main types of crowdsourcing processes in the business literature. However, it goes further by including its possible use in almost every step of the value chain of organizations, from the marketing, design and development of products and processes, to R& D and solutions for all kinds of technical problems.

We are aware that this paper is merely a first step in analyzing the impact of these new technological innovations on organizations. We recognize the limits of this exploratory analysis and the fact that all of these transformations require further

analysis. For instance, future research should concentrate on the impact of community managers on organizations, their specific functions, or the most appropriate skills for developing their tasks. Further papers could also analyze the impact of social networks on firms and organizations, or how to use crowdsourcing at every step of the value chains or value networks of organizations by concentrating on diverse economic sectors.

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