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Scuotto, Veronica; Del Giudice, Manlio; Omeihe, Kingsley Obi

Published in:
Information Systems Management

DOI:
[10.1080/10580530.2017.1330006](https://doi.org/10.1080/10580530.2017.1330006)

E-pub ahead of print: 16/05/2017

Document Version
Peer reviewed version

[Link to publication on the UWS Academic Portal](#)

Citation for published version (APA):

Scuotto, V., Del Giudice, M., & Omeihe, K. O. (2017). SMEs and mass collaborative knowledge management: towards understanding the role of social media networks. *Information Systems Management*, 34(3), 280-290. <https://doi.org/10.1080/10580530.2017.1330006>

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SMEs and Mass Collaborative Knowledge Management: Towards understanding the role of social media networks

^a Veronica Scuotto, ^{b,c} Manlio Del Giudice, ^a Kingsley Obi Omeihe

^a School of Business and Enterprise, University of the West of Scotland

^b University of Rome “Link Campus”, Rome, Italy

^c National Research University, Higher School of Economics, Moscow, Russia

CONTACT: Veronica Scuotto. Email: veronica.scuotto@uws.ac.uk. Address: School of Business and Enterprise, University of the West of Scotland, Paisley Campus, Scotland, United Kingdom.

Dr Veronica Scuotto is Lecturer in Entrepreneurship and Innovation and Project Manager (on a secondment basis) at the University of the West of Scotland. Her research interests are focused on entrepreneurship and innovation, including ICT (e.g. social networking sites, smart cities, and IoTs) and her work has been featured in the International Marketing Review, the Journal of Technology Transfer, the Business Process Management Journal, the Journal of Knowledge Economy, Information Systems Management Journal, and the Journal of Knowledge Management. She is also a reviewer for the Journal of Knowledge Economy and the Journal of Knowledge Management and guest editor for a special issue aimed at the JKE, BJM, and IJSM.

Prof. Manlio Del Giudice is Associate Professor of Management at the University of Rome "Link Campus". He holds a PhD in Marketing and Management at the University of Milano-

Bicocca and he is affiliated as Professor of Management and Entrepreneurship at the Paris School of Business, in Paris (France). He serves as Director for Research and Scholarly Relations within the Euromed Business Research Institute, where he is Senior Fellow as well. He is the author of about 100 international scientific publications; his researches have been published on flagship peer-reviewed journals like MIS Quarterly, Journal of Knowledge Management, Journal of Technology Transfer, Technological Forecasting and Social Change, and International Journal of Technology Management.

Kingsley Obi Omeihe is an associate lecturer and a doctoral student at the University of the West of Scotland. His research interests include small business and entrepreneurship, social media networks and inter-organisational trust. Prior to joining the University of the West of Scotland, Kingsley was instrumental in growing the Commercial Banking proposition of Standard Bank and Access Bank. He also served as a financial adviser representing Zenith Bank in various Government fund initiatives. He earned his Masters of Business Administration (MBA) from the University of Aberdeen and studied Economics at the Lagos State University.

SMEs and Mass Collaborative Knowledge Management: Towards understanding the role of social media networks.

Abstract: This paper proposes that mass collaborative knowledge management (MCKM) and social media networks (SMNs) tend to enhance productivity in small and medium-sized enterprises (SMEs). A case study methodology was employed to highlight the complementary advantages of MCKM related to the use of SMNs in a small business operating in southern Italy. The research aims to contribute to the ongoing discussion on MCKM. This paper offers a fresh perspective by discussing the relevance of this construct for SMEs.

Keywords: Mass collaborative knowledge management; SMEs; social media networks; case study

1. Introduction

Knowledge management (KM) has become fashionable as one of the most discussed concepts in academic literature and the business world. This is a result of the interest it has generated across a range of disciplines, while for businesses it has become a corporate asset applied to solve organizational problems (Kianto et al., 2016; Nunes et al., 2006). KM leverages the collective knowledge within organizations in encouraging pathways to competitiveness. Thus, it has been viewed by management scholars as a lubricant for organizational growth and productivity.

Recently, the enthusiasm generated by KM has diminished. In this vein, Pollard (2003) has highlighted that businesses no longer perceive KM as a strategic asset. Nunes et al. (2006) suggest that SMEs have failed to see the advantages of KM processes for growth and innovative purposes. Nevertheless, a growing transformation in SMEs has seen the emergence of mass collaborative knowledge management (MCKM; Borjigin, 2014; Malhotra, 2000). This novel paradigm addresses the gaps in emerging KM practices by highlighting the benefits of knowledge creation and sharing. These benefits lie in encouraging consumers, employees, suppliers, and competition to share ideas and information (Tapscott & William, 2006).

In this paper, we draw on the individual contributions of Borjigin's (2014) seminal work to highlight the benefits of MCKM for SMEs. First, MCKM provides a new direction in KM theory for SMEs by necessitating the building of frameworks. Second, as MCKM activities are built on the relationship between man and machine, with each playing a distinct role, machines complement the shortcomings of humans in processing information and vice versa.

Thus, it addresses one of the defects of KM. Third, KM fails to take into consideration the diversity of motivations for employees, with performance appraisals being employed to enhance productivity and efficiency; in contrast, within MCKM personal interests are recognized as alternative drivers and motivation is a tool for driving organizational strategy (Borjigin, 2014).

Furthermore, while most organizations have turned to mass collaboration for the creation, exchange, and transformation of knowledge, MCKM has been largely overlooked by SMEs. Changes in competitive behavior among enterprises have seen proactive SMEs leaning toward competitive scenarios in which next generation KM provides a competitive edge (Wiig, 1999). We assume that the consequences of overlooking MCKM will make SMEs less innovative and unproductive. Much still remains to be achieved as MCKM using social media technology will not only enhance innovation, but will also contribute to the long-term sustainability of SMEs.

Mass collaboration involves more than building technology and telling people to participate; rather, it necessitates a strategic approach for SMEs. Based on the discussion thus far, a case study methodology was applied to investigate the role of MCKM and social media networks (SMNs) in SMEs. According to Borjigin (2015), there are six defined principles in mass collaboration: (i) opening up internal knowledge; (ii) cultivating long tails; (iii) harnessing professional amateurs (Pro-Ams), i.e. professionals who perform to a professional standard; (iv) fostering knowledge emergence; (v) implementing self-organization; (vi) fostering employee man-machine collaboration. The MCKM framework comprises two distinct groups of players. The first set of players is made up of Pro-Am actors, while the second group concerns professional actors. The former comprises humans or machines, including customers, suppliers, and volunteers, located at the long tails. The professional actors are made up of internal employees, i.e., professionals and/or knowledge agents.

By opening up internal knowledge, MCKM encourages enterprises to share this knowledge. The sharing of knowledge provides enterprises with mass collaboration to enhance productivity and innovation. By cultivating long tails, in response to conventional KM theories, MCKM adjusts perceptions by transforming key employees' core knowledge to organizational knowledge. Moreover, MCKM focuses on harnessing Pro-Ams as an alternative source of knowledge. To produce emerging knowledge, MCKM calls for a focus on knowledge intervention. The idea of collaboration is hinged on the need to produce knowledge which will in turn create value for the enterprise. By implementing self-organizations, MCKM is linked to all self-organized knowledge activities in the enterprise eco-system. Finally, through employee man-machine collaboration, MCKM focuses on internal collaboration, that is among professionals and Pro-Ams situated at the long tail of the enterprise knowledge chain.

By linking these principles to the use of SMNs for SMEs, this paper sets out to explore MCKM and its implications for SMEs. We aim to examine the following components of mass collaboration. First, we consider the role of SMNs as these provide the channels for knowledge sharing. Second, we aim to gain an understanding of the purpose of MCKM as it is necessary to comprehend why people would wish to contribute ideas and share their experiences. Third, we address the importance of self-forming communities as they play a pivotal role in MCKM.

The rest of our paper is structured as follows. In the next section, we draw on extant literature to provide the theoretical framework for the study. In the following section, we define MCKM in relation to SMNs. We then present and discuss a case study with a view to providing valuable insights into MCKM. The final section considers the limitations of this study and proposes suggestions for future research.

2. Theoretical framework

Examining the extant literature, it is difficult to identify a definition of knowledge on which there is consensus as various authors have provided different epistemological definitions. For example, Hunt (2003) defines knowledge as a belief that is true and justified, while Nunes et al. (2006) define it as not just a simple reflection of what exists, but a reflection of what we understand is out there. Leveraging these concepts of knowledge, KM is considered a systematic approach towards capturing, managing, and disseminating knowledge (Del Giudice & Maggioni, 2014; Ruggles & Holtshouse, 1999). Consistent with this view, Dalkir (2013) states that KM is the deliberate and systematic coordination of people, technology, and processes to create value within an organizational setting. The objective of KM is therefore to improve business performance by ensuring that individuals apply collective knowledge to make optimal decisions (Del Giudice et al., 2014; Smith & Farquhar, 2000).

However, Kontzer (2001) provides a compelling case that knowledge cannot be managed as individuals hold tacit knowledge, which forms a part of their innate culture. Tacit knowledge concerns individual experiences and memories nurtured through social interactions. This suggests that knowledge can neither be stored nor managed. On the other hand, Wilson (2002) argues that extracted knowledge becomes information that can be known and used by everyone. This is achieved through a combination of knowledge sharing and acquisition, for example, through the application, codification, and distribution of stored information within enterprises (Dalkir, 2013; Nunes et al., 2006; Srikantaiah & Koenig, 2000; Varajão, Martinho, & Soto-Acosta, 2014). In this vein, Thomas et al. (2001) highlights a limitation of KM by suggesting it should consider not just management information, but also human and social factors.

Based on the above limitations, we provide insights by considering the revolutionary shifting trends in building knowledge ecosystems for SMEs. We build on the work of Borjigin (2011,

2014) to explore what we refer to as a seismic shift toward a new paradigm in KM, referred to as MCKM.

2.1. Toward MCKM in SMEs

Emerging trends have now resulted in a shift from KM processing practices toward a new paradigm of mass collaboration. This shift, as highlighted above, can be attributed to the limitations of KM, which includes falling behind in terms of emergent practices. With the rise of new technologies, collaborative hierarchies used by enterprises to govern employees, managers, and customers have become extinct (Zaffar & Ghazawneh, 2012). New forms of collaboration, fueled by communities and self-organizing groups, have changed the ways in which enterprises manage, distribute, and create value (Tapscott & Williams, 2006). MCKM has emerged as a new paradigm that addresses the gaps in KM and helps enterprises build an open knowledge ecosystem for SMEs. It has proven to be instrumental in decision-making processes while ensuring the expansion of knowledge chains (Tapscott, 2006). KM theory disregards mass collaborative activities, which include the roles of humans and machines. Conversely, MCKM makes use of these collaborative features. For instance, humans are good at implicit knowledge processing and poor at processing explicit knowledge, while the reverse occurs at the machine level (Borjigin, 2011, p. 15). Thus, MCKM takes into consideration the deficiencies of participants in knowledge processing.

An underlying principle of MCKM revolves around the following six stages of mass collaborative interactions between people and machines:

Stage 1: An enterprise makes its knowledge processing tasks known to the Pro-Ams located at the long tail of its knowledge chain.

Stage 2: The Pro-Ams evaluate and modify the knowledge or data shared by the enterprise. The Pro-Ams are facilitated and encouraged by employees, and are supported by the action logs stored in the enterprise knowledge base in accumulating more knowledge.

Stage 3: The shared knowledge is updated after modification. The metadata are also updated if there are no changes to the content. MCKM views metadata as a key component of organizational knowledge and semantic web technologies are used to formalize the meaning of the metadata.

Stage 4: Pro-Ams are encouraged to participate in mass collaborative knowledge interventions and also to attend workshops. The Pro-Ams are allowed to design the running of these workshops and select a chair for each workshop. This is to foster mass collaborative knowledge processing.

Stage 5: The Pro-Ams are motivated by employees and professionals who share their knowledge or data so as to coordinate mass collaborative knowledge processing. The shared knowledge/data will be stored in an enterprise data base via semantic web technologies. Pro-Ams thus become potential employees for the human resources department due to their new knowledge, and this might encourage employees to share knowledge and participate in the knowledge intervention process to a greater extent.

Stage 6: Making changes in KM is a significant move as costs will be reduced. This can be attributed to the fact that it is easier to find a suitable candidate or an employee who can convert external knowledge into business value. By this means, a new knowledge ecosystem will be established that addresses the bottlenecks of conventional KM, based on the ability to transform core employee knowledge into enterprise knowledge (Borjigin, 2011, 2014).

2.2. Toward understanding MCKM and SMNs

To contextualize the shift from KM processes to MCKM, it has been demonstrated that it is relevant to examine the virtual environment (Borjigin, 2014; Carayannis, Depeige, & Sindakis, 2014; Chalkit & Sigala, 2008; Scuotto, Del Giudice, & Carayannis, 2016a; Tapscott & William, 2007). This is premised on the intensive interactions between people and mass collaborative technologies identified as SMNs (Culnan et al., 2010). These technologies have enabled SMEs to create additional value, and rethink methods of distributing and managing information (Zaffar & Ghazawneh, 2012). The emergence of mass collaboration has encouraged enterprises to adopt Web 2.0 technologies in creating unique knowledge environments (Levy, 2009; Libert & Specter, 2008), and thus become more efficient and productive (Tapscott & Williams, 2006). MCKM is underpinned by a decentralized collaborative model, which leads to efficiency gains in comparison to centralized collaborative models (Brafman & Beckstrom, 2006). In this regard, SMNs represent a collaborative working platform between an enterprise and its customers. Examples include Facebook, which was founded on a social networking technology, and Wikipedia, founded on wiki technology (Bradley & McDonald, 2011; Dholakia & Durham, 2010).

Mass collaborative enterprises have come to realize that these digital platforms can be instrumental in forming extensive networks throughout their entrepreneurial journey (Borjigin, 2014; Tapscott & William, 2007). Employees are increasingly eager to drive performance while adopting a collaborative approach. In terms of the capability to apply this approach with external players, the embeddedness of social media platforms has further revolutionized conventional KM systems. Users are allowed to alter entries in Wikipedia, post videos on YouTube and pictures on Facebook and Flickr, and be involved in developing new advances in Linux software. Millions of people can now share and exchange their views, arrange self-organized networks with huge numbers of followers through audio blogs, podcasts, and information streaming to create a wide array of goods and services that can be

modified by anyone (Fisher & Reuber, 2011; Hanna et al., 2011 Schmallegger & Carson, 2008). Powered by an array of mass collaborative technologies, such as wikis, blogs, social feedback, marketplaces, and virtual worlds, inter alia, social media provides enterprises with a more collaborative eco-system (Palacios-Marqués, Merigó, & Soto-Acosta, 2015a).

Accordingly, enterprises that cultivate collaborative relationships are set to become responsive enterprise ecosystems, creating additional value for their customers (Bradley & McDonald, 2011; Soto-Acosta & Meroño-Cerdan, 2008; Soto-Acosta, Popa, & Palacios-Marqués, 2016b, 2017). Indeed, Tapscott and William (2006) and Palacios-Marqués, Soto-Acosta and Merigó (2015b) argue that enterprises can acquire higher growth rates if they continue to participate and co-create with their SMNs. Therefore, the spread of knowledge circulation calls for mass collaborative knowledge management. In particular, users are eager to exchange information and to collaborate with others regarding two main points. First, such individuals are passionate and motivated about what they do; second, they comprise the best hands in which to place mass collaboration. The enterprise, for its part, provides much needed leadership by signaling that the collaborative work being carried out is of the utmost importance. One of the key benefits of these knowledge communities is that they provide an alternate pool of external talent (Borjigin, 2014; Scuotto & Morellato, 2013; Tapscott, 2008; Tapscott & Williams; 2007). This ensures that enterprises have a pool of complementary production communities at their disposal, offering cost-efficient resources and opportunities for creating value (Popa, Soto-Acosta, & Loukis, 2016a). Smart enterprises will leverage the potential of social media to bring their customers into their business networks, giving them roles in developing products that will address the needs and demands of the market. Authors (e.g. Bradley & McDonald, 2011; Palacios-Marqués et al., 2015b) have argued that altering existing business models to accommodate “newness” through better collaboration will lead to a more dynamic customer-centric eco-system, which will in turn create added value.

In enabling mass collaboration, SMNs also offer a venue for sharing knowledge and engaging talented people who are recognized as part of a virtual collaborative community. Bradley and McDonald (2011) argue that social media alone will not be sufficient to solve problems and create value for enterprises. To attain advantages from SMNs, enterprises need to be highly active in their one-to-one communication with users. SMNs are defined as web-based technologies designed to transform communication into dialogue (Kaplan & Haenlein, 2010; Scuotto et al., 2016a). These platforms are also identified as a host of internet-based applications that build on ideological and technological foundations to allow the exchange and creation of user-generated content within a community. In turn, by employing SMNs, SMEs tend to form their own virtual communities to achieve a common purpose. Bradley and McDonald (2011) argue that a strong and common purpose fosters users' motivation to create value for an enterprise.

[Please insert Figure 1 around here]

Figure 1 highlights the three key components of MCKM. The community represents the people who participate in the collaboration. Social media is the platform on which collaboration takes place. The purpose provides the reason for people coming together and measures the effectiveness of the community. The community comprises the individuals who come together to pursue a common purpose. The inter-relation of the three components leads to mass collaboration, i.e., social media plus the community plus purpose leads to mass collaboration (Bradley & McDonald, 2011). By using SMNs, the process of MCKM can be defined as a problem-solving system. Fundamentally, SMNs are seen as communities in which users articulate their needs and ideas, which are then processed into business value (Borjigin, 2014; Tapscott & Williams, 2007).

3. Method

To analyze the six principles of MCKM in the context of SMNs, an empirical case study methodology was applied. This was considered appropriate and suitable for our research because it allowed us to explore “how” and “why” social media are important for the MCKM process within an enterprise (Johnson, 2008). Furthermore, a case study enables in-depth conceptual analysis, discovering new contexts and processes, and proposing hypotheses to be measured using a quantitative approach (Denzin & Lincoln, 1994; Yin, 2013). In addition, the data are more detailed than those provided by other means (Denzin & Lincoln, 1994; Punch, 1998; Sekaran & Bougie, 2013), although they are based on a single or few business units (Sekaran & Bougie, 2013). The results are based on the interpretation of a researcher who seeks to provide a sophisticated view of a specific situation. In this case, a holistic and interpretative approach was adopted (Yin, 2013).

Specifically, in-depth semi-structured interviews were conducted for around one and a half hours with the owner of the SME as the main decision maker. The interview was longer than expected because some topics stimulated considerable discussion between the interviewee and the interviewer. For instance, the pros and cons of the use of SMNs were a topic of great debate. The questions were posed in Italian as this was the native language of the owner. The entire interview was recorded and then transcribed and translated into English by a professional translator (Brislin, 1970). Moreover, all questions were pre-tested by bilingual scholars to eliminate bias and avoid misunderstanding. The interview comprised 12 questions developed according to Bryman’s (2006) funneling technique. Therefore, the interview started with broad questions, followed by more specific questions, with a view to uncovering and understanding the owner’s thoughts. The whole interview was structured using Borjigin’s (2011) six principles of MCKM (see Table 1).

[Please insert Table 1 around here]

4. Case study

OASI PC Ltd, founded in 1998, is a small business with fewer than 50 employees operating in the high-tech sector in Avellino, a small city in Campania, a region in southern Italy. The business offers advanced, high-tech products to public institutions and private companies, together with installation and maintenance services.

In the beginning, the core business was focused only in the local area, but after three years it was extended to other cities, such as Naples and Caserta; thus, it became one of the favored and main suppliers for several public institutions (e.g., universities, hospitals, government departments, and other public administrative bodies), as well as private companies. For the last five years, the business has increased the volume of its turnover, while remaining a small business in terms of the number of employees as defined by European Commission Regulation (2003). However, due the growing amount of sales, the business started to suffer from a lack of technical human resources. Therefore, the need to adopt a more collaborative and open approach was embraced. OASI PC created relationships with different stakeholders, such as suppliers, other businesses, and clients, inter alia. The aim was to acquire and share knowledge, and guarantee the survival of the business.

With the spread of Web 2.0, the management of OASI PC was eager to be more efficient and effective in creating unique, intangible assets through mass collaboration. Thus, in 2013, SMNs were embedded in the annual strategy. Starting from the Facebook platform, OASI PC set up four other digital platforms: Twitter, LinkedIn, Snapchat, and Live chat. These

platforms not only enhanced the firm's relationship with external actors, but also with internal ones, building up an intensive and continuous exchange of information and knowledge. By using the power of these mass collaborative technologies, the business progressively became more responsive to customers' needs and wants. One of the benefits was the co-creation service stemming from clients' inputs. Users were motivated and passionate about harnessing their energy in coming up with new ideas because they were driven by a common purpose. In this way, OASI PC was able to exploit an external pool of talent, thus operating efficiently and effectively. However, the dynamic flow of knowledge cannot be circulated without strong leadership. The leader and owner of OASI PC is Rossana Cadoni, who has been able to drive the business toward a more dynamic customer-centric eco-system. Rossana was the first person to engage in daily communication with her clients via SMNs, thus having a constructive dialogue with them.

5. Results

The exploratory, semi-structured interview made it possible to reveal how a small business is generating knowledge by using SMNs. We addressed this aspect in line with the six defined principles of MCKM: (i) opening up internal knowledge; (ii) cultivating long tails; (iii) harnessing Pro-Ams; (iv) producing knowledge emergence; (v) implementing self-organization; (vi) engaging in employee man-machine collaboration.

Opening up internal knowledge

As stated above, enterprises involve their eco-systems in their business to create value. SMNs have been recognized as an efficient and effective venue for achieving this scope. To the questions "Have you embedded SMNs within your business strategy? If so, when did you

start to use a social media strategy? What are the benefits?” Rossana, the founder, owner, and leader of OASI PC gave the following response:

I started to set up a Facebook account for my business in 2014. I remember that one of my sons said that one of the key values for a business is always being updated on the realm. Actually, digital platforms are the new reality. Therefore, I recognized that a change should be made to keep up the relationship with my clients. Indeed, after one year the communication with my clients, as well as with my employees, is more effective and faster. For instance, last month we filmed one of our installations and shared it via YouTube. So, after one hour, we received a call from one of our current clients. However, in the beginning I was a bit skeptical about the kind of benefits I might get from social media networks because my core business is more focused on a business-to-business basis rather than business to consumer.

Cultivating long tails

Having a common long-term aim is one of the key fundamental aspects in using SMNs to engage customers. In terms of the business environment, users need to be stimulated and motivated to create a strong relationship with an enterprise. Therefore, to the questions “How do you use SMNs to engage your customers? What is the main factor that encourages them to collaborate with you via SMNs? Did they support you in your innovation process?” Rossana’s response was as follows:

In my daily life, I used to share all relevant news via social media networks. I have also segmented users in reference to their interests. That allows me to offer a tailored service to each client and use my resources effectively.

Harnessing Pro-Ams

The fact that SMNs allow users to participate in and contribute to any content without restrictions or pre-existing relationships is also one of the key elements in the KM system. Top-down communication no longer functions and information can come from anywhere. Users share their problems to arrive at a collective solution. This stimulates a collegial and open relationship in which new knowledge can be generated. Hence, to the questions “How do you approach your clients via SMNs? How do you collaborate with them?” Rossana expressed her opinion as follows:

So, I have an example: A few months ago, we organized a workshop with my employees streamed via YouTube. The workshop was organized to explore a new service or product to be offered to our clients. After the workshop, I received various messages via Facebook where some clients left their idea. Honestly, I was very surprised and thus I decided to invite some of them to my office to run the same workshop. I have never received such good outcomes. My employees worked closely with the clients and both sides were very keen to share their ideas and opinions.

Producing knowledge emergence

The knowledge emerging from SMNs cannot be controlled. It is based on the learning-by-doing process, whereby people can come up with an idea without specific and restrictive rules. This is the nature of MCKM, a process in which people collaborate to exchange knowledge and generate new knowledge. Therefore, to the questions “How do you cope with the current dynamic market? Have your customers helped you resolve problems via SMNs? How creative do you think you are in working with them via SMNs?” Rossana responded as follows:

Well, it is not very easy to cope within the current market. Every day there is a new challenge to face. For instance, in the beginning I struggled to use digital platforms and I refused to

embed them within my business. However, thanks to my young son, who taught me how to use them, I discovered how I could get benefits from them and how powerful digital communication can be. Since I have been using the social media networks, I have improved the communication with my employees as well as with customers. Having a daily conversation with both of them helps to stimulate the creativity internally and get a better understanding of customers' needs. Indeed, dealing with their needs, I feel more creative and I also feel more encouraged to be more creative.

Implementing self-organization

By using SMNs, SMEs have completely revolutionized their knowledge management systems. Users have become part of the supply chain, contributing to the innovation of products and services. Hence, to the questions “How do you approach your clients via SMNs? How do you feel about not being able to control the development of an innovation entirely with your customers via SMNs?” Rossana Cadoni stated that the sharing of ideas and information is natural:

I consider them a pool of experts from which you can pick up creativity and innovation. However, users are not completely without control; I seek to address their conversation to find out what I really need.

Employee man-machine collaboration

The relationship between users and an enterprise via SMN is based on daily interaction. The persistence of the interaction depends on how long information can be held and captured. Therefore, to the questions “How long do you take in stimulating a discussion with customers? Do you talk to each customer? If so, how long do you continue conversations with your customers via SMNs?” Rossana pointed out that there are some topics on which communication continues for more than a week:

I found it very useful to set up an FAQs section, where users can gather relevant information. That also saves my time. Our communication strategy has improved massively in the past few years. We moved from a 63% satisfaction rate to 82%, engaging more clients. For instance, from last year to the present, we have seen an increase of 15% in our clients, which is a huge achievement for us considering the turbulence in the economy of the country.

6. Discussion and conclusion

Analyzing the above case study, the value of using SMNs has been examined, highlighting some key points, such as the effectiveness of a daily, digital communication strategy aimed at employees and customers, the co-customer-centered approach in the innovation process, and entrepreneurial challenges. In all of these aspects, MCKM generates a vivid flow of knowledge in line with Bradley and McDonald's study (2011).

To derive advantages from SMNs, enterprises need to be intensively and daily active in their one-to-one communication with users. Indeed, SMNs are defined as web-based technologies that transform communication into a dialogue (Kaplan & Haenlein, 2010). These platforms are also identified as hosting internet-based applications that build the ideological and technological foundations to allow the exchange and creation of user-generated content with a community. In turn, by employing SMNs, SMEs tend to form their own virtual communities to achieve a common purpose. Bradley and McDonald (2011) posit that a stronger and common purpose drives users' motivation in creating value for an enterprise. Consequently, the boost in collaboration has increasingly motivated entrepreneurs to embed Web 2.0 technologies in their businesses to develop unique knowledge (Libert & Specter, 2008; Tapscott & Williams, 2006). In particular, SMNs are intensively used as a space in which creative ideas are generated in collaboration with customers and also to facilitate the entrepreneurial journey (Borjigin, 2014; Tapscott & William, 2007). In this study, Rosanna

Cadoni from Oasi PC pointed out the significance of SMNs in her business life. The effective and efficient flow of knowledge between the internal and external environment has supported her small business in surviving in the highly competitive market of today.

Powered by an array of mass collaborative technologies such as wikis, blogs, social feedback, marketplaces, and virtual worlds, SMNs provide a more collaborative eco-system for enterprises. Accordingly, enterprises that cultivate collaborative relationships are set to become responsive enterprise ecosystems, creating additional value for their customers (Bradley & McDonald, 2011). Indeed, Tapscott and William (2006) argue that enterprises can acquire higher growth rates if they participate and co-create with their SMNs. Thus, customers are recognized a pool of expert talent through which new ideas can be selected (Borjigin, 2014; Tapscott, 2008; Tapscott & Williams, 2007).

In relation to user engagement, SMEs can adopt a range of activities by conducting market research, and engaging to a large extent in an innovation process. Users are expected to play an important in the innovation process by generating new ideas (Alam, 2002; von Hippel, 1998). Bughin et al. (2011) highlight the importance of technology in the innovation process, while Alam (2002) contends that user visits and meetings, brainstorming, users' feedback, face-to-face interviews and phone calls, faxes and emails, , and focus group discussions are key aspects of customers' engagement modes. SMNs are categorized into blogs, microblogs, professional networking platforms, and social networks (Cortizo et al., 2011). By using SMNs, enterprises tend to improve their performance, achieving the following two objectives: First, they foster marketing, advertising, and branding activities to increase sales (Culnan et al., 2010), considered a measure to assess enterprises' performance (Love et al., 2011). Second, enterprises are increasingly conscious that SMNs can be used as strategic platforms to engage users in idea generation (Fuller & Matzler, 2007). For instance, LinkedIn, Facebook, and YouTube facilitate the development of the relationship between SMEs and

users thanks to their capacity to provide interactive communication with one to a million users (Dijkmans et al., 2015; Leung et al., 2015; Marchiori et al., 2013; Piller et al., 2012).

Extant research on SMEs suggests that although having a proper ICT infrastructure can facilitate knowledge creation, it does not guarantee that knowledge is created (Lopez-Nicolas & Soto-Acosta, 2010). Hence, to transfer or create knowledge, connections need to exist between the actors. In this regard, Valkokari et al. (2012) suggest that knowledge sharing is essential to the creation, utilization, and dissemination of knowledge. SMEs can use the Internet to integrate their organizational innovation processes within functional departments and supply chain members via e-collaboration tools. New ICTs offer a virtual space in which participants can share information and knowledge through common platforms and electronic storage, fostering interactions between employees, users, and partners in remote places to enhance the innovation process (Meroño-Cerdan et al., 2008; Scuotto, Ferraris, & Bresciani, 2016b). New ICTs effectively support the open innovation approach by bringing together partners and/or employees with diverse sets of expertise and experiences (Martinez-Conesa; Soto-Acosta, & Carayannis, 2017; Popa, Soto-Acosta, & Martinez-Conesa, 2017). In this context, knowledge sharing assumes a key role because it combines technical skills with creativity (Alavi & Leidner, 2001; Del Giudice et al., 2014).

New ICTs play a key role in supporting KM, which is based on the inflow and outflow of knowledge (Doll & Deng, 2001; Lopez-Nicolas & Soto-Acosta, 2010). For instance, Dodgson et al. (2006) highlight how the approach taken by Procter and Gamble (P&G) to open innovation was transformed by the impact of technology. They argue that investment in ICTs facilitated P&G's innovation process, and helped engage external actors such as suppliers and customers. Piller and Walcher (2006) reported on a specific Internet-based tool, the toolkit for idea competitions (TIC), which aims to implement user competition to facilitate customer integration in new product development.

Despite the effectiveness of SMNs in the process of MCKM, as shown through the case study, this research has certain limitations, which can be addressed as follows: For instance, a comparison between two sectors or two countries would improve the research and extend our results. Adopting a quantitative approach to collect and measure data from a larger sample would also lend such research greater strength. In this regard, digital platforms such as Facebook, Twitter, and YouTube, among others, could be investigated in depth to understand how the flow of MCKM is originated. By examining such platforms, data on a large sample could be gathered and wider implications could be offered to businesses to allow them to connect with their customers more organically. Moreover, another interesting approach might be to focus on differences between these new digital tools and traditional marketing methods, exploring their advantages and disadvantages. Finally, to provide the foundations for comparison with our study, case study methodology could be used to investigate MCKM in relation to the knowledge spiral (Nonaka & Takeuchi, 1995).

Acknowledgements

The article was prepared within the framework of the Basic Research Program at the National Research University Higher School of Economics (HSE) and supported within the framework of the subsidy granted to the HSE by the Government of the Russian Federation for the implementation of the Global Competitiveness Program.

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