Guest editorial

New ICTs for Knowledge Management in Organizations

Pedro Soto-Acosta and Juan-Gabriel Cegarra-Navarro

Pedro Soto-Acosta is Professor at the Department of Management and Finance, University of Murcia, Murcia, Spain. Juan-Gabriel Cegarra-Navarro is based at the Department of Business Management, Universidad Politécnica de Cartagena, Cartagena, Spain.

Received 8 February 2016
Revised 8 February 2016
Accepted 9 February 2016

We are grateful to Mr Rory Chase, Editor-in-Chief of the *Journal of Knowledge Management*, for this opportunity to report and disseminate research on new ICTs for KM in organizations. We also would like to thank the anonymous reviewers for their thorough reviews, which allowed improving the collection of papers included in this special issue. Finally, we also value and unreservedly acknowledge the essential role performed by the executive and program committees of the ECIC 2015 in respect of the initial double-blind review process.

Abstract

Purpose – *The purpose of this special issue is to point out the possibilities of new information and communication technologies (ICTs) for knowledge management (KM) in organizations, offering different perspectives on and approaches for the role of new ICTs for KM, as well as measuring the impact and diffusion of new ICTs for KM within organizations.*

Design/methodology/approach – *The selection of the papers included in this special issue is largely based on the work of the conference "7th European Conference on Intellectual Capital - ECIC" (April 2015, Cartagena, Spain), where the special issue editors organized a track on "New ICTs for Knowledge Management in Organizations". The conference gathered leading scholars in the fields of intellectual capital and KM, dealing with the acquisition, creation and sharing of collective intelligence and how to utilize increased academic knowledge and networking in promoting economic and organizational innovations and changes.*

Findings – *The collection of papers covered in this special issue identifies challenging problems on the role of new ICTs for KM and their role in the design and implementation of innovative products, services or processes in organizations.*

Research limitations/implications – *The special issue tries to offer some new relevant advances for the academic and practice communities in the growing body of research analyzing new ICTs for KM. However, the theoretical and empirical advances showed represent only a partial view, which corresponds to the impact of new ICTs for KM at the organizational level of analysis.*

Practical implications – *The nature of new ICTs, such as social networking tools, wikis, internal blogging and the way they are used, suggest that nowadays they may differ from traditional organizational systems in two critical ways: the voluntary (typically not mandatory) use and their lack of activity or process orientation.*

Originality/value – *The special issue explores the phenomena by integrating different perspectives and approaches, including qualitative and quantitative empirical. This integration overcomes some limitations about the understanding of the issues under investigation.*

Keywords *Organizational innovation, Collective intelligence, Organizational learning, Knowledge management, Information and communication technologies*

Paper type *General review*

There is consensus in the literature about considering knowledge management (KM) as a set of practices related to the use of knowledge as a crucial factor to add and generate value (Cardoso *et al.*, 2012; Cegarra-Navarro *et al.*, 2015b). KM practices are supported by information and communication technologies (ICTs) that help facilitate knowledge acquisition/creation, knowledge dissemination, knowledge conversion and knowledge utilization (Martelo-Landroguez and Cegarra-Navarro, 2014; Palacios-Marqués *et al.*, 2015b). The main role of new ICTs (Web 2.0/3.0, collaborative technologies 2.0, social networking tools, wikis, internal blogging, etc.) is to help people share knowledge through common platforms and electronic storage. With appropriate training and education, new ICTs can make it easier for organizations to acquire, store or disseminate knowledge.

The social web can be defined as the second generation of community-driven web services (social networking sites, blogs, wikis, etc.) where everyone can communicate, participate, collaborate and refine the information space (Colomo-Palacios, 2010; Palacios-Marqués *et al.*, 2015a; Paroutis and Al Saleh, 2009). In other words, the social web encompasses the design of websites and software to support and foster social interaction. Firms are deploying social networking tools, such as wikis and internal blogging, to improve collaboration and knowledge sharing within their boundaries (Paroutis and Al Saleh, 2009; Soto-Acosta *et al.*, 2014b). The nature of social web systems and the way they are used suggest that they may differ from traditional organizational systems in two critical ways: the voluntary (typically not mandatory) use and their lack of activity or process orientation. Social web technologies differ significantly from traditional large-scale organizational systems, such as enterprise resource planning or customer relationship management, which are of mandatory use and accompanied by disruptive changes in business activities and processes (Gonzálvez-Gallego *et al.*, 2010). The main role of social web systems is to help individuals share information and knowledge through common platforms and electronic storage (Paroutis and Al Saleh, 2009; Soto-Acosta *et al.*, 2014b). Therefore, the term KM 2.0 has been coined to summarize new trends in KM. KM 2.0 refers to the acquisition, creation and sharing of collective intelligence through social networks and communities of knowledge (Sigala and Chalkiti, 2014). One of the main characteristics of Internet technologies is that they are founded on the democratization of knowledge, so they facilitate the appearance of natural flows of collaboration and knowledge sharing, which, in turn, may favor creativity and innovation within organizations (Popa *et al.*, 2016; Soto-Acosta *et al.*, 2014a).

Social Web technologies have not only become a key tool for information and KM within firms (Soto-Acosta *et al.*, 2014b) but also a required tool for competition and interaction with customers across many industries. These websites allow knowledge creation and sharing by the interaction of employees and other stakeholders through blogs, wikis, forums and online social networks. At the same time, the potential of the social Web has allowed firms not only to promote their products and services but also to interact with customers. In this sense, although firms are more frequently adopting these new channels and technologies to improve their reputation, brand image and increase their market share, these technologies present opportunities for customer KM as the acquisition of intelligence from customers (Xin *et al.*, 2014).

Despite all the above-mentioned benefits of the social Web, traditional, interactive and dynamic websites are designed to be read by people, not machines. In this sense, the advent of the Semantic Web has emerged in the form of new promising tools for information and data engineering (Vossen *et al.*, 2007). The term "Semantic Web" was coined by Berners-Lee *et al.* (2001) to describe the evolution from a document-based Web toward a new paradigm that includes data and information for computers to manipulate. The Semantic Web facilitates computers' interpretation of information, so they can perform more of the tedious work involved in finding, combining and acting upon information on the Web (Soto-Acosta *et al.*, 2010). In this sense, the Semantic Web is driving the evolution of the current web by enabling users to find, share and combine information more easily. Thus, the Semantic Web presents high potential for advanced KM, as it permits to automatically organize knowledge according to its meaning. However, there is a need for further research on how humans and computers interact in the Semantic Web for effective KM (Colomo-Palacios *et al.*, 2013).

Furthermore, new ICTs can pose risks regarding KM, such as creating counter-knowledge, that is, when employees create and disseminate inappropriate or incorrect interpretations of certain events or sequences of facts (Cegarra-Navarro *et al.*, 2012). Rumors, gossip, unsupported explanations and justifications, as well as inappropriate or false beliefs, are just several examples that illustrate employees' capacity to create and share counter-knowledge within the organization (Cegarra-Navarro *et al.*, 2014). However, recent research acknowledges that counter-knowledge is not necessarily bad and, thus, it may be controlled and handled to foster unlearning and knowledge creation (Cegarra-Navarro

et al., 2015a). Moreover, the easy access to these systems, and the often organizations' organizational lack of control over the shared information and knowledge, raises security and privacy issues, which relate to operations, such as in adding and sharing information and knowledge and the need for protecting sensitive data. Yet another issue that requires attention to carry successful KM and team work collaboration in virtual environments is trust. Although there are efforts in the literature that cover building of trust in virtual teams from a theoretical and practical standpoint (Coppola *et al.*, 2004; Duarte and Snyder, 2006; Hernández-López *et al.*, 2010), these mentioned issues required further research, as new ICTs may indeed pose risks and challenges for successful KM.

This special issue presents original research findings aiming at contributing, at an empirical level, new knowledge for both researchers and practitioners interested in the potential of new ICTs for KM in organizations. The papers presented here include contributions from several countries, including Finland, Italy, The Netherlands, Norway, Romania and Spain. The selection of the papers is largely based on the work of the conference "7th European Conference on Intellectual Capital – ECIC" (April 2015, Cartagena, Spain), where the special issue editors organized a track on "New ICTs for Knowledge Management in Organizations". On this occasion, the conference was located in the southeastern region of Murcia (Spain) at the Universidad Politécnica de Cartagena.

The authors of selected best papers presented at the ECIC 2015 were invited to submit extended versions of their papers for possible publication in this special issue of the *Journal of Knowledge Management*. Only participant authors who provided thorough literature reviews of KM literature were asked to submit an extended version of their manuscript for the special issue. In addition, submissions from authors not attending the conference were also welcomed and considered for potential publication. The primary aim of this special issue is to contribute to the further advancement of new ICTs for KM in organizations, offering different perspectives and approaches on the role of new ICTs for KM and measuring the impact and diffusion of new ICTs for KM within organizations. The special issue has provided a platform for presenting findings and ideas for the KM and associated fields. The range of people and the mix of approaches followed made this a good special issue.

About the articles

The guest editors have considered empirical research using qualitative, quantitative or mixed methods and conceptual papers that draw on the existing literature and develop innovative contributions that improve the understanding of the topic as well. Thus, the guest editors have been looking for a wide variety of papers that may contribute to the creation of a solid evidence base concerning the use of new ICTs for KM in organizations. The research methodologies used for gathering empirical data vary from quantitative surveys to exploratory case studies. Several rounds of blind peer review have been necessary, and they resulted in the final form of this volume on February 2016 for publication here. All articles selected demonstrated relevance to the understanding of new ICTs and its implications for KM. Readers of this special issue should be technically savvy, scientifically demanding and drawn to practically relevant phenomena.

The paper entitled "Factors Affecting the Use of Wiki to Manage Knowledge in a Small Company", by Scarso and Bolisani, analyzes the adoption and use of wikis as KM systems. Based on a case study in a small ICT company located in the Northeast of Italy, they confirm that wikis can be useful for supporting KM processes of small organizations, due to their flexibility, user-friendliness and capability to manage both explicit and tacit aspects of knowledge exchange.

The study entitled "IT and Relationship Learning in Networks as Drivers of Green Innovation and Customer Capital: Evidence from the Automobile Sector", by Leal-Millán, Roldan and Leal-Rodríguez, examines the complexity of relationship learning as a knowledge creation and transfer process. Grounded in the knowledge-based view, the authors develop a research

model that highlights the essential role of information technology in revitalizing relationship learning, which acts like a path to improve green innovation performance and customer capital.

The study entitled "Group Dynamics and the Role of ICT in the Life Cycle Analysis of Community of Practice-based Product Development: A Case Study", by Pohjola and Puusa, examines the critical factors that influence the change in group dynamics and the vitality of a community of practice. Based on a qualitative case study of "eCars – Now!", the paper analyzes the community of practice whole life cycle, from the motives for its establishment, through its active performance, to the current stage. The results show that ICT, especially social media, are particularly relevant at the early and late stages of the community of practice's life cycle.

The paper entitled "The impact of IT-based Knowledge Management Systems on Internal Venturing and Innovation: a Structural Equation Modeling Approach to Corporate Performance", by Del Giudice and Della Peruta, assesses the perceived importance of information technology as a core factor enabling innovation in KM. In this sense, the authors propose an approach for using the IT Tools for KM involved in the design of effective learning applications to help firms in guiding internal venturing development. Empirical findings show that 72 per cent of the surveyed companies agree on the ability of KM systems for supporting internal venturing, in terms of encouraging the individual to become "intrapreneur" and supporting employees to improve their performance within business processes.

The article entitled "The Effect of Online Social Networks and Competency-based Management on Innovation Capability", by Palacios-Marqués, Popa and Alguacil-Mari, assesses the effect of online social networks and competency-based management on innovation capability. Using a sample of 289 Spanish firms from two knowledge-intensive industries (i.e. biotechnology and telecommunications), they test and corroborate the existence of a positive effect of the use of the online social network for internal and external cognitive processes on knowledge transfer, which helps firms to stimulate creativity and innovation.

The article entitled "IT Innovation Strategy: Managing the implementation communication and its generated knowledge through the use of an ICT Tool", by Colomo-Palacios, Landaeta-Olivo, García-Guzmán and Stantchev, develops a framework called SPIDER to effectively implement organizational learning models based on big data management principles. This frameworks result from a case study conducted to monitor and report the current status of information technology innovation strategies. In addition, employing the technology roadmapping technique, the authors develop an ICT tool to facilitate the integration and institutionalization of organizational learning models by defining what, when and how the information technology strategy is going to be implemented.

The study entitled "Towards Building Internal Social Network Architecture that Drives Innovation: A Social Exchange Theory Perspective", by Oparaocha, examines the role of strategic international human resource management in internal social networking within geographically dispersed organizations. Building on the social exchange theory and previous literature, the author highlights that strategic international human resource management processes and investments in the organizational social network architecture have a significant impact on innovative capabilities and organizational performance.

The contribution entitled "ERP as an Organizational Innovation: Key Users and Cross-Boundary Knowledge Management", by Maas, van Fenema and Soeters, discusses the role of key users who act as knowledge managers and boundary spanners during the enterprise resource planning system usage phase. This study contributes by applying the theoretical perspective of cross-boundary knowledge transfer. Based on this theory and a qualitative research, they identify six boundary-spanning mechanisms, which may act as best practices for organizations using enterprise resource planning systems. The study shows that key users apply these boundary-crossing mechanisms to bridge the gaps between knowledge about software, organizational processes and different functional areas. The six mechanisms are aimed at increasing knowledge transfer and overcoming

knowledge barriers, thus indicating the brokerage position of key users during the enterprise resource planning post-implementation phase.

The contribution entitled "Web GIS to Enhance Relational Capital: The Case of General Merchandise Retailers", by Baños, Wandosell and Parra, assesses the impact of ICTs on organizations to capture and manage intellectual capital. More specifically, the paper focuses on the use of web-based geographical information systems to increase relational capital. The results obtained show that the use of web-based geographical information systems depends on the company size, being used in most companies to provide information about location and other characteristics of stores.

The manuscript entitled "Harnessing Network-based Intellectual Capital in Online Academic Networks. From the Organizational Policies and Practices Towards Competitiveness", by Vătămănescu, Andrei, Dumitriu and Leovaridis, investigates the standpoints and practices of university members from European developing countries regarding intellectual capital harnessing within online academic social networks. In this sense, the study develops a research model that focuses on network-based intellectual capital as a competitive advantage. Also, the authors contribute to existing literature by coining a new concept – network-based intellectual capital – in the context of the online academic social networks.

References

Berners-Lee, T., Hendler, J. and Lassila, O. (2001), "The semantic web", *Scientific American*, Vol. 284 No. 5, pp. 34-43

Cardoso, L., Meireles, A. and Peralta, C.F. (2012), "Knowledge management and its critical factors in social economy organizations", *Journal of Knowledge Management*, Vol. 16 No. 2, pp. 267-284.

Cegarra-Navarro, J.G., Eldridge, S. and Sánchez, A.L.G. (2012), "How an unlearning context can help managers overcome the negative effects of counter-knowledge", *Journal of Management and Organization*, Vol. 18 No. 2, pp. 231-246.

Cegarra-Navarro, J.G., Eldridge, S. and Wensley, A.K. (2014), "Counter-knowledge and realised absorptive capacity", *European Management Journal*, Vol. 32 No. 2, pp. 165-176.

Cegarra-Navarro, J.-G., Soto-Acosta, P. and Martinez-Caro, E. (2015a), "Linking counter-knowledge to goal orientation through an unlearning context – a study from a Spanish university", *Learning and Individual Differences*, Vol. 45. doi: 10.1016/j.lindif.2015.11.005.

Cegarra-Navarro, J-G., Soto-Acosta, P. and Wensley, A.K.P. (2015b), "Structured knowledge processes and firm performance: the role of organizational agility", *Journal of Business Research*, Vol. 69 No. 5, pp. 1544-1549. doi: 10.1016/j.jbusres.2015.10.014.

Colomo-Palacios, R. (2010), "Web 2.0: new and challenging practical issues", *The Learning Organization*, Vol. 17 No. 6, pp. 476-477.

Colomo-Palacios, R., Soto-Acosta, P., Ramayah, T. and Russ, M. (2013), "Electronic markets and the future internet: from clouds to semantics", *Electronic Markets*, Vol. 23 No. 2, pp. 89-91.

Coppola, N.W., Hiltz, S.R. and Rotter, N.G. (2004), "Building trust in virtual teams", *IEEE Transactions on Professional Communication*, Vol. 47 No. 2, pp. 95-104.

Duarte, D.L. and Snyder, N.T. (2006), *Mastering Virtual Teams: Strategies, Tools, and Techniques That Succeed*, Jossey-Bass (Wiley), San Francisco, CA.

Gonzálvez-Gallego, N., Soto-Acosta, P., Trigo, A., Molina-Castillo, F.J. and Varajão, J. (2010), "El papel de las TIC en el rendimiento de las cadenas de suministro: el caso de las grandes empresas de España y Portugal", *Universia Business Review*, Vol. 28 No. 4, pp. 102-114.

Hernández-López, A., Colomo-Palacios, R., García-Crespo, Á. and Soto-Acosta, P. (2010), "Trust building process for global software development teams: a review from the literature", *International Journal of Knowledge Society Research*, Vol. 1 No. 1, pp. 65-82.

Martelo-Landroguez, S. and Cegarra-Navarro, J.G. (2014), "Linking knowledge corridors to customer value through knowledge processes", *Journal of Knowledge Management*, Vol. 18 No. 2, pp. 342-365.

Palacios-Marqués, D., Merigó, J.M. and Soto-Acosta, P. (2015a), "Online social networks as an enabler of innovation in organizations", *Management Decision*, Vol. 53 No. 9, pp. 1906-1920.

Palacios-Marqués, D., Soto-Acosta, P. and Merigó, J.M. (2015b), "Analyzing the effects of technological, organizational and competition factors on Web knowledge exchange in SMEs", *Telematics and Informatics*, Vol. 32 No. 1, pp. 23-32.

Paroutis, S. and Al Saleh, A. (2009), "Determinants of knowledge sharing using Web 2.0 technologies", *Journal of Knowledge Management*, Vol. 13 No. 4, pp. 52-63.

Popa, S., Soto-Acosta, P. and Loukis, E. (2016), "Analyzing the complementarity of web infrastructure and eInnovation for business value generation", *Program*, Vol. 50 No. 1, pp. 118-134.

Sigala, M. and Chalkiti, K. (2014), "Investigating the exploitation of Web 2.0 for knowledge management in the Greek tourism industry: an utilisation-importance analysis", *Computers in Human Behavior*, Vol. 30 No. 1, pp. 800-812.

Soto-Acosta, P., Casado-Lumbreras, C. and Cabezas-Isla, F. (2010), "Shaping human capital in software development teams: the case of mentoring enabled by semantics", *IET Software*, Vol. 4 No. 6, pp. 445-452.

Soto-Acosta, P., Colomo-Palacios, R. and Popa, S. (2014a), "Web knowledge sharing and its effect on innovation: an empirical investigation in SMEs", *Knowledge Management Research & Practice*, Vol. 12 No. 1, pp. 103-113.

Soto-Acosta, P., Perez-Gonzalez, D. and Popa, S. (2014b), "Determinants of Web 2.0 technologies for knowledge sharing in SMEs", *Service Business*, Vol. 8 No. 3, pp. 425-438.

Soto-Acosta, P., Popa, S. and Palacios-Marqués, D. (2015), "E-business, organizational innovation and firm performance in manufacturing SMEs: an empirical study in Spain", *Technological and Economic Development of Economy*, available at: www.tandfonline.com/doi/abs/10.3846/20294913.2015.1074126. doi: 10.3846/20294913.2015.1074126.

Vossen, G., Lytras, M. and Koudas, N. (2007), "Editorial: revisiting the (machine) semantic web: the missing layers for the human semantic web", *IEEE Transactions on Knowledge and Data Engineering*, Vol. 19 No. 2, pp. 145-148.

Xin, J.Y., Ramayah, T., Soto-Acosta, P., Popa, S. and Ping, T.A. (2014), "Analyzing the use of Web 2.0 for brand awareness and competitive advantage: an empirical study in the malaysian hospitability industry", *Information Systems Management*, Vol. 31 No. 2, pp. 96-103.

About the authors

Pedro Soto-Acosta is an Associate Professor of management at the University of Murcia (Spain). He attended postgraduate courses in management at Harvard University (USA) and received his PhD in MIS from University of Murcia. He serves as an Associate Editor and a Senior Editor for several journals, including *Decision Sciences*, *Electronic Commerce Research and Applications*, *Information Systems Management* and *Computational economics*. He has been a Visiting Professor in several universities in Europe, Asia and America. His work has been published in journals, such as *Computers in Human Behavior*, *Electronic Markets*, *European Journal of Information Systems*, *European Journal of Management*, *Information Systems Management*, *Journal of Business Research*, *Knowledge Management Research & Practice*, *Management Decision* and *Technological and Economic Development of Economy*. Pedro Soto-Acosta is the corresponding author and can be contacted at: psoto@um.es

Juan-Gabriel Cegarra-Navarro is an Associate Professor of the Business Administration Department of the Universidad Politécnica de Cartagena (Spain) and formerly a Visiting Professor at the Institute of Communications, Culture, Information and Technology in the University of Toronto. He has also been a Visiting Research Scholar at the Hull Business School and the Lancaster University Management School in the UK. He teaches in the area of strategic management, knowledge management and ICT; his research interests are on the use of knowledge management to help small and medium businesses to become more competitive. He serves as an Associate Editor for several journals, including *Knowledge and Process Management*, *International Journal of Business Research and Development*, etc. His work has been published in journals, such as *Journal of Knowledge Management*, *Knowledge Management Research & Practice*, *Knowledge and Process Management* and *Journal of Intellectual Capital*.