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Foresight and Knowledge Management.

New developments in theory and practice

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Abstract

In this paper, we introduce the themes addressed and approaches used by contributors to this special issue. Firstly, we underline that KM is approaching a stage of maturity that requires continuing efforts to use theoretical and empirical investigation to question its future evolution, through a foresight reflection. In parallel, we show that the link between knowledge management and foresight is of long-standing concern. In the context of a knowledge-based economy, this connection has taken on a structuring dimension. Thus, the purpose of this TFSC special issue is two-fold. On the one hand, we seek to explore the impacts of foresight on knowledge management and to understand its cognitive dimensions. And, on the other hand, we cast a future-oriented eye on knowledge management both as a set of practices and a research field. Finally, we present an overview of the topics covered by the selected papers.

Keywords: Foresight, Organizational Learning, Knowledge Management.

KM: an emerging field that requires a foresight reflection

A great deal of research has indicated the rise of a new economic context since the 1990s. This context can be viewed as a system of intensive and permanent innovation (Eisenhardt and Brown, 1998; Hatchuel and Weil, 1999; Amin and Cohendet, 2003; Foray, 2009).

In this context, intensive knowledge activities are necessitated by the imperatives of innovation. For companies, this means being able to generate technological innovation at a fast pace in order to continuously deliver new products and services, while overcoming crushing waves of technological and knowledge obsolescence (Powell and Snellman, 2004).

In this way, innovation is demanded in all sectors of activity, and in some of them even becomes "a question of life and death" (Baumol, 2002).

The knowledge-based economy requires increased levels of training and specific skills, emphasizing adaptability, mobility and flexibility in addition to complex coordination procedures (Lundvall and Nielsen, 1999). This has resulted in efforts to develop strong Knowledge Management (KM) approaches. Practices aimed at creating, capitalizing and transferring knowledge within companies are being developed intensively, since they are now considered to be a driving force of innovation and sustainable competitive advantage (Garvin et al., 2008).

Simultaneous with the intensive development of KM practices, there has been a rise in recent academic work in this area, resulting in exponential growth of the number of publications on the subject (Ragab and Arisha, 2013), which now boasts almost thirty specialized international journals (Serenko, 2013) in addition to a proliferation of special issues (Strategic Management Journal, 1996; Journal of Management Studies, 2001; Organization, 2007; International Journal of Knowledge Management Studies; 2009, ...) (Sargis-Roussel, 2011).

However, KM remains an emerging discipline (Heisig, 2009; Serenko et al., 2009; Lambe, 2011; Ragab and Arisha, 2013; Ribière and Walter, 2013; Serenko, 2013; Walter and Ribière, 2013; Serenko and Dumay, 2015) whose conceptual framework has not yet been stabilized (Easterby-smith and Lyles, 2003; Jashapara, 2010; Schwartz and Te'eni, 2011). In analyzing 100 articles of reference in the field, Serenko and Dumay (2015) emphasize that KM is a young discipline that is still at a pre-science or paradigm stage (Pfeffer, 1993), not yet having a clear direction or solid theoretical base, often using questionable methods (such as normative speculation) and lacking overall consensus.

Nevertheless, Serenko and Dumay (2015a) point out that KM is gradually moving towards greater maturity. This is particularly reflected in its growing attractiveness to leading authors from other disciplines, the rise in the standards for publication in its key journals, and the gradual tendency to develop empirical approaches rather than normative ones.

KM is thus approaching a level of maturity that requires continuing theoretical and empirical investigation efforts (Marques and Simon, 2006) to position the field from an epistemological

and methodological point of view (Ermine et al., 2014), as well as to question its future evolution, through a foresight reflection.

Foresight and KM: an increasingly strong link

Since its original formulation, foresight has focused on the cognitive dimensions of anticipation. It allows groups of people "*to see far and wide*" in order to improve the way they consider their decisions (Berger, 1959). Specialists in the Cognitive Sciences (such as Sutter or Ingvar) consider anticipation to be a major cognitive process consisting of a *mental creation's act of self in the future*. It adjusts our perceptions and interpretations, thereby enabling the creation of new possibilities of action. Thus, foresight attitude consists of modifying individual representations by building new frames for analysis (Bootz, 2010).

As a collective activity, foresight has over the course of a number of years changed from a field of pure anticipation to a field of decision-making and action (Godet and Durance, 2011). In this context, its objective is essentially to achieve better integration between foresight and strategy (Lesourne and Stoffaës, 2001) by preparing minds to change. This investigation of the possibilities of integrating thinking and action suggests a need for increasing consideration of the cognitive dimensions at work in foresight thinking processes.

Foresight activity promotes collective forms of learning that rely heavily on the cognitive attributes of foresight attitude, in particular through questioning the individual representations that it provokes (Bootz, 2010). These individual perceptions may be those of either decision-makers (Coates, 2000, 2003) through the educational role of scenarios (De Geus, 1988, Van der Heijden, 1993), or those held more widely by all actors of the organization in cases where widespread reflection is being mobilized (Godet, 2010). Learning phenomena then express themselves through notions like collective change, mobilization and appropriation.

Thus, the link between knowledge management and foresight is of long standing interest and has taken on a structuring role in a context of knowledge-based economy. This link was explored for the first time in 2002 at a conference organized by Tsoukas and Shepherd entitled "Probing the Future: Developing Organizational Foresight in the Knowledge Economy". Since then, this subject has become a growing concern of the field, as evidenced by recent TFSC special issues (Von der Gracht et al., 2015; Rohrbeck et al., 2015). Individual and collective cognition has now become one of the four major themes of the discipline (Rohrbeck et al., 2015). This fundamental evolution has brought with it the multiplication of

works seeking to grasp the impacts of foresight on knowledge creation and participants' representations, based on the classical model of Nonaka and Takeuchi (Uotila et al., 2005; Dufva and Ahlqvist, 2015) as well as the cognitive approach to learning (Bootz, 2005). Some works are also interested in the impact of scenarios or foresight technologies on cognitive processes (Boe-Lillegraven and Monterde, 2015; Glick et al., 2012; Haeffner et al., 2012; Rhisiart et al., 2015).

Foresight thinking processes have thus sustained important changes in terms of methods, devices and tools in order to consider the creation, distribution and sharing of knowledge within foresight processes. These changes have occurred in strategic foresight (Bootz and Monti, 2009), as well as in regional foresight (Durance et al., 2007), HR foresight (Monti, 2014), environmental foresight (Mermet, 2005) and technological foresight (Durance et al., 2008). Today, the existence of a strong linkage between foresight and knowledge management has become a consensus view, allowing it to become an integrated field of research (Bootz, 2010).

Overview of contributions

The purpose of this TFSC special issue is two-fold. On the one hand, we seek to explore the impacts of foresight on knowledge management and to understand its cognitive dimensions: *To what extent does foresight create knowledge and innovation? What is the impact of future reflections on individual and/or collective representations? How can tools and devices suitable for the creation of knowledge be designed? What are the possible future evolutions of foresight practices in the context of a knowledge economy?*

Additionally, we cast a future-oriented eye on knowledge management both as a set of practices and a research field. We are therefore also interested in future technological and social changes related to the advent of the knowledge economy: *What will sharing, codification and distribution of knowledge look like in future organizations? What are the new knowledge management tools of today, and what kind of tools can be expected to be developed tomorrow? What kinds of organizational structures will be able to drive knowledge and promote social and technological changes in the future? What kind of new collaboration both within and between firms will promote technological and social innovation? What are the consequences of the knowledge economy for industrial changes? For social changes? What possibilities exist for the evolution of the knowledge management field?*

Pouru et al. (2018) focus on how organizations create knowledge about futures and how these practices could be improved. The paper is based on empirical data on 110 Finnish companies, as well as conceptual work on the nature and uses of future knowledge. The main findings indicate that the practices treat future knowledge as a separate domain, have a narrow and singular scope, and are not based on best practices in foresight. They propose ways to improve the current knowledge creation practices by engaging the knowledge of a broad network in the knowledge creation process, by reforming the network of concepts used when talking about futures, and by understanding foresight as a continuous dynamic capability.

Bootz et al. (2018) provide an analysis of the current French school of foresight practices and their impact on organizational learning, highlighting recent developments. Their analysis is based on around forty foresight projects conducted by CNAM in the last ten years. They underline how the impact of foresight practices on organizational learning has been extended in recent years. There has been an overall trend towards broader mobilization that is more open to all categories of stakeholders (customers, suppliers, users, competitors...). In parallel, the links between reflection and action have become stronger thanks to more flexible approaches and tools.

Building on the Ricoeurian notion of “distentio-“, ‘the stretching of consciousness through simultaneous attention to memory and expectation’, Sarpong and al. (2018) develop the concept of distentive capability as a spatio-temporal process of ‘way-finding’ that sustains the creative emergence of strategic foresight across multiple time horizons. Through three of the most popular speeches delivered by Steve Jobs, they illustrate the means by which distentive capability is able to weave together past, present and future and contribute to the identification of potentialities and limits for strategic action.

Djuricic and Bootz (2018) propose to analyze the implicit links between effectuation and foresight. Through a review of the literature and a series of semi-structured interviews with entrepreneurs and leading foresight figures, they underline that both foresight and effectuation activities spur the creation of networks. These networks serve as learning spaces where participants are able to explore possible alternative actions, acquiring new ideas and knowledge. Thus, they open up a number of new perspectives on building foresight approaches more adapted to entrepreneurs, especially in the initial stages of the development of their projects.

Ramboarison-Lalao and Gannouni (2018) propose to explore a new concept which has begun to take on increasing importance and represents a weak signal or germ of change: the liberated firm. The paper explores the benefits of the liberated firm for well-being and technological change through a qualitative study targeting a sample of 34 assistant managers working in non-liberated firms. According to the data collected, some contingency factors such as size, the culture, or the sector of activity moderate the positive input of liberation management on well-being and technological change under favorable conditions.

Pauget and Dammak (2018) analyze the impact of a set of new technologies, the Internet of Things (IoT), on the senior care sector. Through a model that confronts organizational perspective with anthropology, they seek to understand how the diversity of technological tools present in an organization can give meaning to their implementation. Based on analysis of weak signals and experts' statements, they suggest three trends: 1) the IoT strengthens patients' autonomy, combating the negative image of senior care and ensuring continuity between home care services and institutionalization; 2) The IoT expands the bureaucratic aspect of senior care, modifying the patient professional relationship in favour of data management and control; and 3) The IoT increases the horizontality of organizations, which become sets of social networks binding different stakeholders inside and outside the organization.

Ferray (2018) proposes an exploratory predictive model that contributes to enriching stakeholder theory (ST) with two new frameworks: Social Network Analysis and Complex Network Theory. This novel approach allows the model to bypass previous limits of ST, which has ignored the multilateral interactions between CEO and stakeholders and has not analysed stakeholder networks from a dynamic perspective. To varying degrees, corporate leaders are indeed embedded in clusters of stakeholders, and such clusters are subject to systemic shocks that can be random or intentionally provoked by the CEO. Ferray shows that in the case of industrial restructuring, the political strategy of the CEO is determined by the degree of their embeddedness (low or high) and the nature of the systemic shock (random or intentional).

Coulet (2018) looks at the evolution of the notion of knowledge in management science, including its dynamic and relation with other concepts like activity and resource. In this context, he shows how theories of activity (in particular the work of Vygotski, Vergnaud,

Rabardel and Piaget) offer new perspectives for questioning some significant concepts in management science (e.g. “competence-based management”, “knowledge-based view”, and “dynamic capabilities”). In particular, these theories are used in two directions. On the one hand, they are used as an analysis grid of the most striking evolutions in the field of management science during the last decades, and on the other as a forecasting tool to imagine future evolutions.

Nissen (2018) proposes a system for visualizing and measuring dynamic knowledge by applying Knowledge Flow Theory. Through a multidimensional model, he delineates and analyzes the diversity of knowledge as it flows through an organization. He also develops a system of dynamic knowledge equations that enable measurement. This novel approach offers practical applications as well. It enables leaders and managers to analyze, visualize and measure the relative power, speed and proliferation of both tacit and explicit knowledge through organizations.

Azan and al. (2018) focus their reflection on modular path customization and its role in knowledge transfer. In order to assess the role of modular path customization, they carried out a study of a population of 205 business school students who were required to acquire a body of knowledge. Findings show that students with high cognitive capabilities do not need customized knowledge transfer, while students with medium cognitive abilities make good use of such customized knowledge transfer. On the other hand, users with low cognitive ability showed weak knowledge transfer.

Gaviria-Marin et al. (2018) propose a bibliometric overview of the academic research on KM in the business and management areas. By using various bibliometric methods (performance analysis and science mapping) and indicators (h-index, productivity and citations), they classify the most relevant research in the field by journal, article, author, institution and country. The results show that research in KM has increased significantly in the last ten years, with the USA being the most influential country in this field, and that most of the fundamental research is in business and management areas.

This special issue is partly based on contributions from workshops that we organized at the AGECSO conferences in 2016 (Paris, France) and 2017 (Montréal, Canada) on the theme of knowledge management and foresight.

The AGECSO (Association for Knowledge Management in Society and Organizations) has since 2008 brought together an increasing number of researchers and practitioners in KM, thus allowing for the creation of a French-speaking research community. The association aims to promote multidisciplinary exchanges (between computer sciences, psychology, economy, management, sociology, communication and cognitive sciences) to explore the means by which all users (practitioners or academics) deploy KM approaches, methods and tools. AGECSO has also been conducting a fundamental reflection aimed at structuring this field-under-construction for several years (Ermine et al., 2014).

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