
Editorial

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1 Introduction

Over the past few years, both academic literature and practice have put growing emphasis on the importance of *knowledge* as a key factor in establishing a durable competitive advantage; *knowledge*, in a broad sense, is nowadays perceived as a resource whose generation, transfer and utilisation should be paid attention to and managed in relation to all the major business processes. In a word, *Knowledge Management* (KM) has become one of the most common concerns in managerial practice as well as in academic literature. The interest in this topic is considerable and firms' executives often declare that KM activities and projects are considered as a priority. Reportedly, the quest for process improvements nowadays often relies upon the development of projects of KM.

In spite of the great attention paid to KM as a new field of management that someone consider as "an intellectual shift, if not a new paradigm" (Harris, 2001, p.37), there might be elements to induce a reasonable scepticism about an issue that someone else refers to as "a strategy of consultancy companies" or "management fad and fashion" (Wilson, 2002).

Of course, no one would argue against the major role of knowledge in all aspects related to production management. This is especially true in the automotive industry, as this industry is the flagship of industrial sectors in relation to the complexity of management topics. With the advent of Taylor's *Principles of Scientific Management* and of the production model known as *Fordism*, an embedded (and well-known) conception takes place on how individual knowledge should be addressed to improve productivity. An implicit and simplistic theory of knowledge use in production is asserted, both for workers and for managers and even for those in charge of the design and the arrangement of the production line, who are committed to achieve optimal results through the *ex-ante* project of the whole process.

From the point of view of a present-day scholar doing research on knowledge-based economy, the Fordist conception on how knowledge should be managed may look rudimentary and/or not involving knowledge at all. On the other hand, all the world-leading industrial sectors have been almost totally oriented towards Fordist principles for decades, although with several modifications along time. It is only in the late 1980s that the *lean production* put into practice – as outcome of an explicit idea – the systematic exploitation of knowledge and skills spread within the organisation. Many of the organisational and technical tools developed for quality management (e.g., cause-effect diagrams, control charts, Pareto charts, quality groups, systems to collect suggestions and so on) are actually tools for information and knowledge diffusion aimed at coordinating organisational behaviours. Both lean production and Fordism propose a concept on how to manage knowledge within the firm: the former through tools for using spread knowledge devoted to the systematic and continuous improvement of the processes (*kaizen*) and the latter by entrusting such a role to specific positions.

In the mid-1990s, the idea that an increase in competitiveness could derive from the exploitation of spread knowledge is widely accepted both in theory and in practice (Alavi and Leidner, 2001). The quest for knowledge-based advantages trespasses the borders of the firm and look at the supply chain; coherently, carmakers started to involve suppliers into their plans and strategies, with the aim of taking advantage of the interaction with the supply chain, expressly from suppliers' know-how, attaining the concept of an extended value chain through information-based networks. The most significant steps towards efficiency and effectiveness that took place in recent years are ultimately due to a new approach to 'task partitioning' in the value chain (Becker and Zirpoli, 2005), in actual fact deriving from a more intense specialisation of OEM and first-tier supplier and from the development of modular systems and platforms approach (Gershenson et al., 2003; Marinin and Davis, 2002). Such innovations would have been impossible without tools (both organisational and technical) devoted to the strict coordination and integration of information and knowledge among the actors of the chain (Volpato, 2004; Volpato and Stocchetti, 2002).

Here lie the reasons to be sceptical about KM as a 'new' anything: one could say that all the most important production models implemented within the automotive industry from the beginning of the past century assume KM as the key management capability to improve competitiveness. Therefore, a reasonable question arising is: "Are we just reinventing the wheel?"

2 Knowledge Management (KM): improving the wheel

The wheel metaphor and the related question are deceptive: here we claim that KM is a topic of undeniable importance and it is in the spotlight nowadays for the obvious reason that, in the present economic environment, knowledge appears to be the most productive, dynamic, flexible and economies-generating resource likely to be managed (e.g., luck is important too but can not be managed; plants can be managed, but they are much less flexible).

To those who like to persist with the misleading metaphor of the wheel, we can say that the 'wheel' (knowledge) has always been present in economics, with different relative degrees of importance and complexity. The 'all-terrain' wheel of a Roman chariot of the 2nd century would not bring a modern car far away, although it was the

most effective wheel at that time. The actual issue at the moment is to be able to create a flexible and performing 'wheel' (knowledge) for a 'car' (firm), operating in a mutable, hazardous terrain (competitive environment). Both technology and terrain have changed dramatically over time, creating previously unavailable opportunities and new threats, so that improving the wheel is possible and is a necessary step. Just to mention some of the issues most cited in the last decade: The advance in Information and Communication Technology (ICT) wiped out almost any barrier to data and information handling; the process of deep restructuring that took place in the supply chain has reshaped the new trade-off between specialisation and outsourcing; the so called 'globalisation' has actually generated a proliferation of different markets rather than their unification. All these factors and the related consequences have an influence on the accuracy of 'traditional' theoretical schemes as well as the effectiveness of the 'empirically tested' managerial practices. In such a context of fluctuating coordinates, KM promises are drawing considerable expectations, as knowledge is accredited with extraordinary value and flexibility compared to any other assets (Harris, 2001; Alavi and Leidner, 2001); such expectations feed the idea that KM is not only a powerful competitive weapon, but it could indeed mark the pathway to the excellence of the whole value chain, through the generation of "knowledge-based competitive advantage" (Lado and Wilson, 1994; Porter, 1998).

On the other hand, once it is necessary to shift from the theoretical potential to the actual implementation, things become much more complicated. In this sense, literature does not often help. In business economics, the concept of knowledge itself has a variety of characterisations: input factor rather than general resource or organisational tool or other competitive advantages and so on. The boundary of KM, as well, often lingers undefined, being commonly related to generation, diffusion and elaboration of knowledge within the organisation and between the organisation and its stakeholders. In spite of the academics' efforts to establish a shared base of knowledge on knowledge (this is how it is, however ridiculous it may seem), several authors still think that:

"discussions of knowledge, its use, and management too easily devolve into highly abstract musings on the importance of knowledge, or on the emergence of knowledge-based economies and organisations."
(Davenport et al., 1997, p.1)

So, this issue was (unpretentiously) conceived with the idea to compile a list of KM concrete implementations suitable to answer (at least partially) to some basic but important questions:

- Is KM (or should it be) a priority in firms' strategies?
- Which are the main fields of application of KM activities taking place in automobile firms?
- Are KM activities and projects mainly related to internal process rather than to relationships towards customers and/or towards the supply chain?
- How do firms' processes change in order to better suit diffusion and utilisation of knowledge?
- Could KM activity results be quantified in 'traditional' performance indicator?
Can the direct relationship between KM and performance improving be established?

- Which organisational solutions are more appropriate to implement knowledge-based processes?
- Are best practices and case studies in this field suitable to generalisation?

3 Content of the special issue

The selection of contributes started in August 2006; the papers presented in this special issue invest several aspects of KM practical implementation.

The contribution of Ichijo and Kohlbacker, 'The Toyota way of global knowledge creation the 'learn local, act global' strategy' describes the process that has brought Toyota to globalise its capability of creating knowledge and innovation, moving from an approach of centralised know-how to a model of spread knowledge creation. The process analysed in this paper might seem mostly related to strategic and long-term implication, but, in fact, the local generation of knowledge for a global company can create medium- and short-term opportunities. Carmakers already present in mature markets are generally driven to operate in a new emerging country/market by cheaper labour cost and/or growing demand (at least for the target segment). At a very first stage, the low-cost strategy suggests that no specific advantage would come from decentralising but basic manufacturing phases, so that knowledge-based contents, including key decisions, are centralised (Clementi et al., 2005, p.12). But once the low-cost strategy is accomplished, the evolution of market and demand gives carmakers an opportunity to take advantages not only from the lower labour costs but, for instance, also from fulfilling the peculiar tastes and purchasing behaviour or to exploit a peculiar positioning on a local basis. At this stage, local knowledge assumes an important role, then contributing to merge local and global strategy. The reasons bringing Toyota to become what they call a 'metanational' company are discussed, and the operational conditions supposedly facilitating the process of knowledge creation are illustrated.

The paper by Balcet and Consoni, 'Global technology and Knowledge Management: product development in Brazilian car industry' faces a similar issue from a different point of view. The authors have studied the product development process in four Brazilian affiliates of foreign carmakers (Volkswagen, General Motors, Ford and Fiat-Fasa), to evaluate the consistency of a theoretical framework regarding how multi-national companies develop their innovation strategies abroad. They argue the weakness of the dichotomy opposing adaptive vs. knowledge-seeking approach and claim the presence of a wide variety of fast-evolving situations. Authors' conclusions are that carmakers' innovation and knowledge creation policies are primarily shaped by four main country factors: market size and life-cycle stage, history, human resources and trade and industrial policies. In this sense, Brazil is recognised as a very interesting national case as far as innovation and KM are concerned, since it possesses those characteristics that facilitate the implementation of local innovation and knowledge creation.

A slightly different perspective about the role of local knowledge creation emerges from the paper by Miyake and Nakano, 'Implementation of Corporate Production Systems in the Brazilian auto industry: managing knowledge through practice'. They have studied the way in which four leading global companies of the automotive industry disseminate their production system in a prescriptive way, through the formalisation of a huge set of information and organisational tools. Such a method,

however, apparently goes beyond the replication of information, procedures and anything else included in the 'knowledge-as-object' part of the total knowledge incorporated in the production system. On the contrary, it is a method to achieve an actual KM approach capable of inducing actions and shape of mind. According to the authors, it is also apt to reproduce the cornerstone concepts embedded in the corporate production system, hence giving birth to a true reproduction of that system instead of a mere replication.

The general problem dealt with by Brandes, Brege, Brehmer and Lilliecreutz, 'Chambre séparée in product development: vertically mediated coopetition in the automotive supply chain' regards the trade-off between the need to protect a specific critical knowledge and the advantages (typically, scope economies) deriving from sharing that knowledge. When two or more competing carmakers buy a highly specialised and leading-technology product from the same supplier, these customers can benefit (in terms of quality and/or price) from the economies of scope generated by a common basis of knowledge: the knowledge that the supplier can apply to the various carmakers' requests, while obtaining differentiated products. On the other hand, the supplier must be able to guarantee each carmaker that the critical knowledge related to the supply is protected against other competitors. In such situations, carmakers are in competition with each other, but also cooperating at the same time, with the mediation of the supplier (hence, a 'vertical' mediation), performing the so-called 'coopetition'. Coopetition is here intended as the indirect cooperation that concretely takes place when competing carmakers 'invest' in the same supplier's R&D, financing both their own product development and a part of common knowledge that allow the supplier to take advantage of the related scope economies. A key role in this coopetition process is the capability of the supplier to guarantee the protection of knowledge related to each carmaker's competitive advantage, while sharing the knowledge that does not affect the carmakers' final product differentiation. The capability of suppliers to mediate such competitive/cooperative relationships might shift the focus of interest from the competition between supply chain to competition in managing non-exclusive relationship between carmakers and suppliers.

Volpato and Stocchetti's paper, 'Knowledge Management in the automotive supply chain: exploring suppliers' point of view' is an exploratory study on the operational and organisational methods applied in KM projects by five first-tier suppliers. The study is, in fact, an opportunity to evaluate the actual correspondence between some basic assumptions on KM and the point of view of managerial practice. The authors have chosen for this study five sector-leading firms that can count on a number of unique competencies and on peculiar relationships with industrial customers, on the assumption that such competitive position would create a most favourable environment for KM activities. Although limited to such specific situation, it is interesting to notice as an emerging result that firms seem to be comfortable with the idea of KM and they seem to be rather acquainted with the actual (and effective) implementation of KM projects. Very likely, firms' attitude towards KM activities will soon shift from early interest and pioneering trial to a managerial habit, involving organisational procedures as well as specific firm's areas and functions.

The paper by de Mello and Marx, 'Innovative capacity maintenance by automakers in a product development outsourcing scenario: the case of VW in Brazil' point of view' deals with a problem associated with the innovation driven by the value-chain organisation: Can a company that out sources the great part of activities related to new product development keep its innovative capacity in the long term? The topic involves several aspects of supplier-carmaker relationship, as well as the approach to innovation

and knowledge creation within the firm (Calabrese and Erbetta, 2005). According to the literature research, authors identify three general factors affecting the real capacity of the firm to maintain its innovative capability and all these factors are deeply affected by outsourcing policies. Authors have done a field research on Volkswagen new model development. The study analyses the approach adopted by the carmaker at the level of project management and of modules development as well; it compares the different policies towards suppliers adopted when decisions about such policies were centralised rather than taken by the local affiliate in Brazil.

da Silva and Rozenfeld, 'Model for mapping Knowledge Management in product development: a case study at a truck and bus manufacturer' analyse the process of new product development from the point of view of the knowledge conversion, the well-known concept by Nonaka and Takeuchi (1995), related to the transfer of tacit into explicit knowledge through four enablers (socialisation, externalisation, internalisation and combination). To this purpose, they present a taxonomy of the activities that constitute the linkage between the NPD process and the target market. Authors analyse the knowledge conversion process in a truck and bus manufacturer, with the aim of identifying best practices in those activities related to new product development previously categorised.

The paper written by Ana Paula Freitas Mundim, 'Knowledge Management projects valorisation in an automotive company' tries to give an answer to some of the most concrete (and sometime anxious) questions affecting managers: Do KM activities generate profits? Or does my company receive quantifiable advantages from KM projects? If no one would argue that KM, in general, is useful or necessary, how to measure the value-added deriving from KM activities is a much more disputable topic. In her paper, Mundim underlines the importance of knowledge value assessment as related to the increasing attention towards the information on this intangible asset from stakeholders. In this sense, developing metrics and indicators capable of actually evaluating and controlling the knowledge creation process is an emerging requirement. Part of the process of knowledge valorisation in Renault is described. Here methods of quantification of the intangible asset and of the actual profit expected from a KM project have been formalised; such a method is considered reliable enough to be used as a tool to decide whether to fulfil the project or not.

Finally, Vedhavalli and Annamalai, 'Knowledge management in auto ancillary industry: the case of grinding wheel manufacturing' remind readers, in a concise and pragmatic way, that many of the problems taking place on the shop floor, and that may be considered 'simple' in their logical essence, can instead be very difficult to solve in practice, yet critical at the same time, especially when the process has a crucial role in final product quality, as in the described situation (surface grinding). An important role is played by the capability to transmit to all workforce the tacit and/or uncodified knowledge of elder workers, who gained experience in solving, more or less unexpected and complex problems in the shop floor. The situation presented in this paper is somewhat very different from those presented in the other works, since authors exemplify their approach in what they call 'ancillary industry', implying cost-based competition albeit significant quality requirements, together with preponderance of customers' bargaining power (while, for instance, Volpato and Stocchetti talk about suppliers who have privileged relationships with their customers). Moreover, the specific case is characterised by numerous and various 'exceptions' taking place during the production process, so that an approach limited to information management would hardly be

effective in the transmission of the working knowledge of elder workers, at least not much more than the traditional learning-by-doing would do.

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