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COOPERATION OR COMPETITION: KNOWLEDGE SHARING PROCESSES IN INTER-ORGANIZATIONAL NETWORKS

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This paper examines an inter-organizational network, composed of direct competitors, where each organization has much to gain, or lose, from sharing knowledge with its competitors. The specific management problem being examined is the knowledge transfer issue. The dilemma is whether an organization should indeed share its knowledge, especially with its competitors, or should it choose to hold it privately. More specifically, how can organizations balance between cooperating and competing in terms of their knowledge assets? We employed a substantive case study to consider rich issues relative to the exchange of knowledge between competitors who were in cooperating engagements via participation in inter-organizational networks. It is believed that the paper presents useful empirical insights into decisions relating to knowledge transfer cooperation or competition.

1. Introduction

Information and Communication Technologies (ICTs) have helped bridge temporal and spatial barriers by enabling for distributed and virtual communication and coordination of work. An outcome of the proliferation of ICTs is the enablement of knowledge sharing between entities. These entities can be individuals, teams, intra-organizational units, organizations, and even inter-organizational networks. While there has been a plethora of work on knowledge transfer issues in the field (Inkpen and Dinur, 1998; Szulanski, 1996; 2000; Desouza and Evaristo, 2003), one aspect has been under-studied the use of ICTs for knowledge sharing between competitors. This issue is addressed by exploring how competitors, who are part of inter-organizational networks, balance between knowledge sharing and knowledge hoarding. In inter-organizational networks, cooperating stakeholders often compete at the same time and inter-organizational collaboration may also confront them with similar business dilemmas. While reciprocal knowledge sharing may enhance the summed and individual added value, inter-firm knowledge sharing may also affect, possibly adversely, the uniqueness and contribution of a firm's knowledge

repository. Opportunistic behaviors of counterparts may erode anticipated benefits of cooperation and result in unevenly distributed value (Hackney and Little, 1999).

At the heart of the knowledge management problem is the knowledge transfer issue. Knowledge possessed by an entity, whether it is an individual, group, organization, or an inter-organizational network, is a source of power. This power comes from its scarcity in its environment which is a critical determinant of its value (Smith, 1910[1776]). Unless a piece of knowledge is scare, an organization will not be able to use it as a differentiating element when competing in the marketplace. Knowledge should hence be held privately from other entities, and should only be used to generate products and services that can be consumed by other entities (Desouza and Vanapalli, 2005). However, knowledge is also a social good (Cohen and Prusak, 2001). Entities must share their knowledge if they are to enrich their own knowledge collection, and also contribute towards the achievement of collective objectives. Employees, who are entities within the organization, must share knowledge to achieve project goals. Similarly, business partners must exchange knowledge so that they can achieve overall objectives (e.g. maximizing performance of supply chains). Here in lies the dilemma – should an entity share its knowledge with other entities, especially its competitors, or should they choose to hold it privately. More specifically, how can organizations balance between cooperating and competing in terms of its knowledge assets?

A substantive case-study was employed to investigate an inter-organizational network of car-dealers, consisting of direct competitors. This methodology enabled an exploratory approach for gathering rich data and also to avoid restrictions imposed by having an a priori theoretical frame of reference. This paper makes several contributions to the literature on knowledge management: (1) it is one of a very few papers to examine knowledge sharing behavior in an ICT facilitated inter-organizational network comprised of competitors, who must collaborate, (2) in addition to the organizational unit of analysis, the findings have implications for understanding knowledge sharing and hoarding behavior of individuals, teams, and even intra-organizational units (e.g. geographic office locations), and (3) the research proposes guidelines on how to build and sustain inter-organizational knowledge sharing networks.

2. Research Foundations

Implications of the knowledge-based and resource-based theory of the firm then lead to the area of inter-organizational collaboration, which broadly refers to a variety of inter-organizational relationships such as joint development agreements, equity joint ventures, licensing agreements, cross-licensing and technology sharing, customer-supplier partnerships, R&D contracts, and some others less dominant forms (Mowery et al., 1996).

Hence, inter-organizational knowledge sharing processes revolve around a formidable balancing act between borrowing knowledge assets from partners, while

protecting one's own assets (Loebbecke et al., 1999). The challenge is to share enough skills to learn and create advantage vis-à-vis companies outside the network, while preventing an unwanted transfer of core competencies to a partner (Hamel et al., 1989). This challenge is exacerbated when some members in the network are competitors. In such constellations, the danger of becoming 'hollowed out' by 'predatory' partners (Hamel et al., 1989; Kogut and Zander, 1996) seems particularly evident, suggesting that appropriate steps be taken to ensure mutually beneficial sharing. Nevertheless, many of the skills that migrate between companies are not covered in the formal terms of a knowledge exchange (Loebbecke and van Fenema, 2000). Often, what gets traded - i.e. what is learned - is determined by day-to-day interactions of engineers, marketers, and product developers (Hamel et al., 1989).

With a significant number of inter-organizational networks failing in some sense (Inkpen and Beamish, 1997; Lam, 1997), there is an established body of literature investigating factors causing such failures together with steps for improvement (Cohen and Levinthal, 1990; Mowery et al., 1996; Inkpen and Beamish, 1997; Lam, 1997; Dyer and Singh, 1998). These factors are worthy of further study as they depict possible management levers for dealing with the paradox of simultaneous cooperation and competition: Main factors for discussion are (1) factors influencing the extent of learning and knowledge sharing, (2) factors influencing the stability of the relationship, and (3) factors influencing the ability of partners to collaborate.

As factors influencing the extent of learning and knowledge sharing, Kogut (1988) and Mowery et al. (1996) name alliance contracts and governance structures. For instance, equity joint ventures lead to a higher degree of knowledge sharing than contract-based alliances. Cohen and Levinthal (1990), Dyer and Singh (1998), Kumar and Nti (1998), and Larsson et al. (1998) point to partners' internal capabilities. According to Kumar and Nti (1998), or Larsson et al. (1998), the amount of learning that takes place in the relationship depends on each partner's collaborative strategy.

As main factor influencing the stability of the relationship, Pfeffer and Salancik (1978) relate to bargaining power. If collaboration provides access to the other partners' resources (e.g. knowledge and skills) dependencies resulting from resource specificity change or disappear, and the alliance may be terminated (Inkpen and Beamish, 1997). Hence, partners who want to ensure alliance stability should prevent outsiders from learning 'all there is to learn', create new knowledge, and consider the track record of their partners.

A useful approach to the perceived dilemma of sharing knowledge is proposed by Loebbecke and Angehrn (2003) through their CoLKENs (Cooperative Learning and Knowledge Exchange Networks) framework. They construct a CoLKENs pyramid, as shown in Figure 1, which identifies seven facets of the knowledge environment and the conceptual view of balancing between cooperation and competition in this respect.

Loebbecke and Angehrn (2003) present a valuable starting point for further in-depth empirical investigations. However, CoLKENs does not appear to capture the true nature of the knowledge sharing ***process*** and is essentially a static representation of fundamentally dynamic systems. The research questions posed in this paper extend this

'factor' analysis in an attempt to provide more qualitative insights into knowledge networks and how organizations may approach subsequent ongoing sharing dilemmas

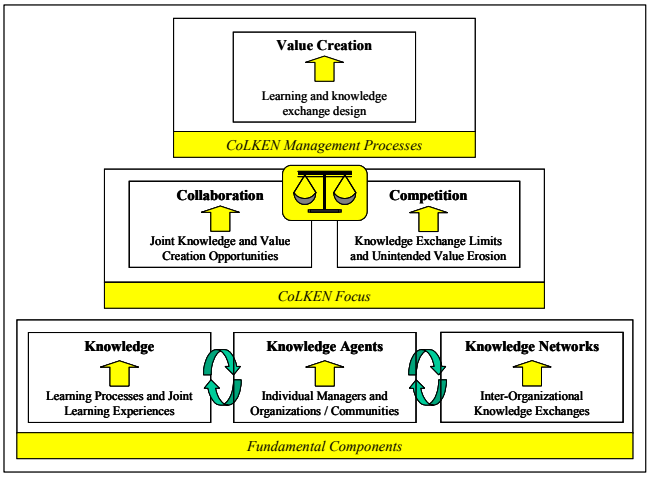

Fig. 1. CoLKENs framework

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Finally, the literature discusses factors influencing the ability of network partners to achieve a competitive advantage from their relationships. For Dyer and Singh (1998) appropriate management processes and governance structures are crucial for turning inter-organizational membership into a source of competitive advantage. They even suggest protection against (a) opportunistic behavior in the network, (b) high volume of information exchange, (c) knowledge sharing routines, and (d) the development of self-enforcing safeguards (trust and incentives) for sharing. The ability to have influence on the network structure and to occupy an information rich position shall provide network members with promising entrepreneurial opportunities (Powell et al., 1996).

3. Research Objectives

For the purposes of this paper, we have chosen to investigate inter-organizational networks where there is exchange of knowledge about core competencies of the organization. Prahalad and Hamel (1990) define core competencies as being suitable for application in many different markets, creating a significant contribution to customer value, and being difficult to imitate by customers. We define knowledge as the collection of insights about the process, underlying mechanisms, and operations of the core competencies. As an example, for a sales organization this would involve sharing knowledge about how clients are approached, how they are targeted, how is the sales pitch made, and how is the deal closed. Sharing knowledge on core competencies is more risky than doing so on none-core competencies. This is because an erosion of one's core competencies by knowledge spillovers could restrict an organizations' competitive

advantage. Hence, the pressure to balance between collaboration and competition becomes even more critical in such networks.

Based on the developed common understanding of inter-organizational knowledge sharing networks, we investigate in our empirical work the (1) Motivation to participate, (2) Collaboration and its management, (3) Competition and its management. The three dimensions are translated into the following research questions:

- Why do knowledge agents **cooperate** and how sustainable is their participation in inter-organizational knowledge sharing network?
- How do organizations **compete** and actively manage knowledge exchange in inter-organizational knowledge sharing network to create value (competitive advantage / above normal rents)?
- What **processes** are engaged in order to actively manage knowledge sharing in the light of coopetition?

4. Methodology

Due to lack of adequate prior theorizing in the area of inter-organizational knowledge networks, we chose to conduct an inductive case study. This follows an exploratory and descriptive approach where novel phenomenon and question of interest is of a "what" nature without exerting any control over behavioral variables. A qualitative method, the multiple case study (Yin 1994), was chosen to arrive at an in-depth understanding of how to initiate, manage, and sustain economic knowledge exchange in inter-organizational networks.

The data was collected through the use of semi-structured interviews. Interviews have been defined as a conversation with a purpose (Kahn and Cannell, 1958). Among the wide array of interview types possible, we employed a semi-structured interview protocol.

Interviews were undertaken with eight senior executives who were their organization's representatives to the co-opetition network. Data collection was discontinued when it was found that new information was not adding to our understanding of the phenomena (Eisenhardt, 1989). Each interview lasted approximately 45 minutes and interestingly we were not allowed to record the interviews. We took notes to record key points during the interviews.

5. Case Study: Automobile Dealer Inter-Organizational Knowledge Network

We gathered from one inter-organizational network, comprised of direct competitors, in the Chicago (USA) area. A group of automobile dealers decided to form a collaborative network in order to share cost and resources, and also improve the car sales of the individual dealers. Car dealers for a particular car manufacture, for e.g. Ford, GM, decided to pool their resources together and create an Internet website – a co-opetition portal. The network consisted of 12 local car dealers who sold a particular brand of cars. The goals of the co-opetition network were: (1) create a joint internet presence for the car

dealers, (2) provide a space for each individual car dealer to advertise their products and services, and (3) to help each car dealer engage in dialogue with other dealers to share ideas, tips, strategies, concerns, and other information and knowledge.

The first goal of creating a presence on the Internet for the car dealers was motivated by a simple premise – united we stand divided we fall. The car dealers, who all sold cars from the same manufacturer, were facing intense pressures from outsider dealers i.e. those who sold cars from other manufactures. They hence decided that it was in their best interest to join forces and collaborate with one other, in other to compete with dealers who sold other cars. As one manager replied, "I would rather have the general public purchase XYX (brand of the cars) then go and purchase ABC (a rival brand of cars…if enough customers feel the need to purchase an XYZ car, I can be confident that my business will increase". This goal of a collective interest was critical to get the buy-in from the individual dealers and was the single most important reason that fuelled the creation of the collaborative Internet space.

The second goal of providing a venue for each dealer to advertise was what one might consider a "local and individual benefit". Each dealer knew that they were facing competition from websites such as Autotrader.com or Carmax.com. These dealers realized that their very existence was being threatened, as other websites were providing the customer with a way to compare cars on multiple criteria such as prices, functionality, features, quality, etc. Moreover, websites such as Carmax.com quoted hassle-free prices i.e. the price you saw on the Internet was the one you purchased the car for. This feature was one that of keen interest to the car dealers. Under the current process, the car dealers would post the MSRP or the Manufacture Suggested Retail Price for each car. Then once the customer was interested in the car, through a process of negotiations and haggling, the two parties would agree on the actual price. If you were good at bargaining, you could pay less for the car than an individual who has less apt negotiating skills. With Carmax.com offering no-hassle prices and the ability to scan for used and news cars based on prices, the dealers we spoke with were very concerned about losing their business.

One respondent commented, "Carmax.com is becoming very popular…we have customers that come into our store and tell us that they found a car at a given price…if we do not meet their price or go lower than it…they will not buy…what is more interesting is at times we have lower prices than Carmax.com…we do however need to a better job getting the word out…A website where we can keep the prices updated will be a step in the right direction". Each car dealer also had an added benefit by advertising on the Internet portal, they could in fact monitor how their closest competitors, other dealers within the network were pricing their cars. Hence, if they wanted to under-cut all of the other dealers they could i.e. they could constantly price their cars a few hundred dollars lower than their competitors. However, this behavior did not occur, or at least was not perceived to occur on a frequent basis, one manager remarked, "Yes we could obviously price our cars lower…however this would be a labor intensive task or continuously

changing prices and playing the number game…in the end no one car dealer will be able to sustain car sales by moving prices up or down".

However, there was another reason for car dealers to constantly monitor the advertisements of their peers. Car dealers would routinely get customers that were comparison shoppers, many times who would play one car dealer against another. For example, a buyer may go to the first dealer and negotiate a price of $19,000 for the purchase of the car. The car dealer would then go to the second dealer and state that he had an offer from the other dealer at $18,000 ($19,000 was the offer but they lower it to get a low starting point for the negotiations). The second dealer, in the past, had not efficient way of verifying this information, as dealers did not share their quoted prices openly. Today, using the portal the dealers can share such information and avoid being taken for a ride by shoppers who want to a lower price. Each dealer can log onto the portal and check the validity of customer claims by looking at the current advertisements of their peers.

The third point of sharing of knowledge such as sales tips, strategies, etc was the slowest to grow. This is expected as sharing of such knowledge requires the greatest deal of trust when compared to the other two items. In both of the above items, the individual car dealer has much to gain compared to what one could lose. For example, in the use of the portal for advertisements, the car dealer has gained a space on the Internet, can advertise at low cost, and can keep advertisements current. These benefits are sizable compared to the any losses in terms of having customers compare their advertisements against those of their competitors. However, car dealers are in the sales business. Their sales strategies and their approaches such as how they design promotions, how they solicit customers, how they keep the customer interested, how they make the sales pitch, and how they close the deal are their core competencies. These items help them differentiate themselves from their competitors. As a result, they have the greatest deal for being exploited.

5.1. *Problems Faced by the Network in Knowledge Transfer*

The critical problem faced by the network in getting such knowledge shared was one of "initiation". The technology solution which involved a discussion list on the Internet, with daily digests being emailed to managers, was ready. However, it took over five months before the first "knowledge nugget" was posted. During the initial five months, there were plenty of introductory types of postings, such as "Hi, I am Bob, I have ten years of experience in …., I like to do this…and I look forward to hearing from you". Posting such as these would be followed by personal emails to the sender and more introductory postings on the portal. It was only after their second quarterly meeting (the various senior management representatives of car dealers would meet quarterly; the meeting would be hosted by one of the car dealers on a rotation basis), did all company representatives agree to take formalized measures to get knowledge sharing going.

Three particular measures were agreed upon, (1) every week one manager from each organization would post a lessons learnt document. This document would detail any findings the manager learnt in the running of operations during that week, (2) on a rotation basis, each sales person would post their lessons learnt to the portal, and (3) every sales person and manager was required to logon to the portal at least twice a week and spend time either contributing insights or commenting on the existing insights. The measures help get the posting of knowledge initiated and it slowly started to take off. To date, eleven months after the system was commissioned there are roughly 1000 postings on the discussion lists.

5.2. *Critical Issues in Managing Inter-Organizational Knowledge Networks*

The critical issues of managing co-opetition inter-organizational networks may be segmented into two categories. First, are issues one must contend with when setting up the network. Second are the issues one must address to ensure continued and sustained participation in the network as well as the growth of the network.

5.2.1. *Issues to Construct the Network*

It is essential to have the right-mix of partners involved in the co-opetition network. Partners must share common schemas, models, motives, and ways of work in order to cooperate. They must also share similar goals that motivate them to participate. In the co-opetition network described above, each partner faced economic pressures to participate in the network. Put another way, they could not afford to be left out of the network as the dealers within the network would have superior advantages due to the sharing of knowledge and information.

It is also essential to have standards and frameworks in place to manage the competition issues between partners. It is common to find that all partners are willing to join the network, but no one is equally willing to be the first to share their knowledge. Standards are important to ensure that there are commonly agreed terminology and protocols for ensuring interaction between partners in the network. In the above case, this was found in the creation of nomenclature for identifying cars and their types. These normally followed the well-accepted standards of shorthand such a 4WD and 4D to represent a four-wheel drive and a four-door car. Without standards in place, communication will be difficult for two reasons. First, communications will be ineffective as knowledge shared will lack specify, be ambiguous, and be incomplete. This will occur, as people will use different terms to mean different things. Second, communication will also be less efficient and it will require efforts that are more laborious. For example, it requires more time to type “Four door black car” than “4D BLK”.

Frameworks help in the more tacit issues associated with co-opetition networks. Standards establish the operational rules of communication such as terminology. Frameworks help to ensure that each member is participating ideally. It is important for

frameworks to be defined upfront. These should include: (1) a clear definition of the goals of the networks, (2) key activities each member will participate in, (3) definitions of what is considered as ideal conducting of the activity and also what will not be accepted during the conduct of the activity, and (4) metrics to evaluate the participation of the members. In the co-opetition network, these were ironed out over a series of bi-weekly meetings among member representatives during a one-month period. Having a set of well-defined frameworks avoids ambiguity and reduces the incidents of future problems

It is equally important to get started with small prototypes of co-opetition. Getting a co-opetition network is one that starts with small victories rather than giant milestones. Members of the co-opetition network must start out by finding ways to enact the co-opetition attitude. In the case of the automobile dealers, it took the form of having representatives from the companies take turns and go to lunches with senior executives from the members of other dealers. This help built social ties improve the connectivity among the member participants and even get used to treating the other dealers as colleagues rather than as hostile competitors.

5.2.2. *Issues to Sustain Network Participation*

Allow participation to emerge from the bottom-up. Co-opetition networks are difficult to order or control. They must be allowed to emerge from the bottom-up. In the current case, it was up to each member to get started by participating in the portal. This involved having members post information about the vehicles, get advertisements placed, and get started with knowledge sharing. Some were quicker to get started than others; this is a natural outcome of bringing together different organizations. Trying to order member participants to contribute or enforce rules on them will not work. This is because all organizations are in un-chartered waters, they are collaborating with their competitors, hence they need the time to work out the cultural issues and then make the small steps. If there is a dominant player in the network, it must set the example by being the first to participate and encouraging organizations it has close ties with to contribute, this effect should continue until all members have begun to utilize the network.

Having top management commitment is essential. Top management should not only commit to the co-opetition endeavor but should also lead by example. In the current case, this involved having senior managers from the various dealers go to the location of other dealers, meet with the employees, and engage in dialogue. This demonstrated that the senior management was serious in their commitment to the philosophy of *cooperation*.

6. Discussion

A first insight emerging from the empirical data collected until now is that inter-organizational knowledge networks represent opportunities for individual managers to engage in new forms of collaborative learning and management development, as well as opportunities for organizations to better achieve their objectives through acquisition of knowledge critical to their processes or strategy, or through collaborative knowledge

exchanges and initiatives, as shown in Figure 2. Further benefits can appear at an even higher, e.g. regional or professional, level.

Figure 2 attempts to identify the critical dynamics of the interactive process between each network stakeholder. This interrelationship is extensively fluid as participants engage and determine their relative advantages within the virtual decision space available. For example, as market conditions vary the network may become increasing fractious and attention would need to given to its re-emergence on a different commercial basis, sustain (cooperate) or disintegrate (compete), depending upon strategic objectives. Clearly, the motivation for the networks construction and sustainability will always relate to perceived business performance. The notions identified within the change attributes of the framework (Figure 2), derived from the empirical data collection, are believed to go some way in providing useful insights into the knowledge management process.

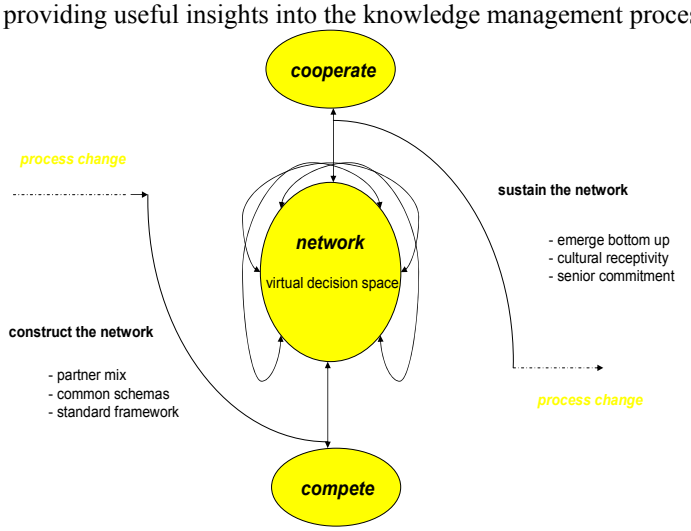

Fig. 2. Knowledge Interrelationship Network (process)

At the level of learning processes, the dominant form is still the one of traditional knowledge transfer, a context in which members do not need to engage too personally or do not need to contribute their knowledge at all. More collaborative and experiential forms of learning are still a rare. They appear to emerge only in non-critical domains and after having succeeded in helping members to develop more stable relationships and trust. Nevertheless, competitive logic can prevent individuals as well as organizations to take advantage of such opportunities. The fact that motivations and incentives for participation vary, makes the management of the coopetition dimension particularly complex. By better aligning the motivation of their members and 'selecting' them accordingly, that inter-organizational knowledge networks could reduce negative influence of the competition dimension. On the other hand, ambitious growth strategies and pressure to collect membership fees leads some of today's that inter-organizational

knowledge networks to operate less selectively when it comes to assessing and aligning the motivation of their members.

The competition dimension also strongly influences the design of value-creation processes such as 'collaborative learning', 'knowledge exchange', and 'derived initiatives'. It limits these processes to domains and formats which are perceived by members as non-competitive in terms of not releasing much critical knowledge to potential competitors. The effective membership relationship management and experimentation with more cooperative forms of learning and knowledge exchange have been seen as key factors for the success of that inter-organizational knowledge networks. They enable that inter-organizational knowledge networks members to take advantage of their participation in such inter-organizational knowledge management initiatives, acting as catalysts enabling members to progressively learn how to learn and how to act together ('knowledge and alliance incubators').

7. Conclusion

Our insights and implications must be appreciated in the light of the limitations of the present study. We clearly need further research and validation in a wider variety of contextual settings (scale). Beyond just collecting further case material, we are extending our research to also investigate technology-enabled inter-organizational knowledge networks. Some are even completely virtual ones stemming from Open Source type communities, which actively apply enhanced forms of Internet-enabled learning, collaboration and knowledge exchange management (scope). Thereby, we wish to better assess the adoption of ICTs and their impact on collaboration and competition in inter-organizational knowledge networks.

Our overall objective for this ongoing research program is to compare 'traditional' inter-organizational knowledge networks such as the one illustrated in this paper with more virtual ones. We are seeking further insights as to the actual and potential impact of innovative technologies with regard the shaping of these networks management and most critically the nature of the ***processes*** involved that sustain them. In this context, we are able to assess (a) the real potential of ICTs for the majority of today's inter-organizational knowledge networks, (b) the ICT-related challenges such organizations are likely to face, and (c) the new mindsets and competencies stakeholders of such networks will require in order to take full advantage from distributed approaches to learning and knowledge management.

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