Knowledge Management in the Extended Enterprise

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Abstract. The aim of this paper is the dissemination of the concept of the Extended Enterprise and the presentation of the arguments that establish the necessity of developing a new organisational model based on the creation and exchange of knowledge. Likewise, are presented the objectives and aspirations of the strategic (CON)³ project that attempts to define this reference model for the Extended Enterprise based on knowledge.

1. The Extended Enterprise. Concept

The concept of the Extended Enterprise appears and is developed in the context of a new informational paradigm, and as a substantive element of it, overcoming and, at the same time, integrating toyotisms, flexible specialisation, the horizontal enterprise, industrial districts, the interconnection between enterprises and strategic global alliances, (Castells, 1997; 2001) [1].

According to Castells, we define the concept of the Extended Enterprise as that specific form of enterprise whose system of resources is constituted by the intersection of segments and autonomous systems of objectives. From this point of view, the components of the network are as autonomous as they are dependent and can at the same time form part of other networks and, consequently, of other systems of resources directed at other objectives.

If Ford’s Highland Park automobile plant was the paradigm of mass production in the past, Cisco Systems is, today, the model of extended production.

As such, the behaviour of a particular network depends on two fundamental attributes: its connective capacity, i.e. its structural capacity to facilitate effective communication between its constituent parts; and its consistency, i.e. the degree to which interests are shared between the objectives of the network and the individual enterprises. In this sense, this type of enterprise is the realisation of the global informational economy transforming signs in goods, by means of the process of Knowledge. (Castells, 2001: 226-7).

Clearly, in the framework of a new globally connected informational economy, the incorporation of knowledge in each and every productive and logistic process is of unquestionable value (Nonaka, 1991) [2], and the Extended Enterprise presents itself as the most adequate organisational means of achieving this.

Naturally, this new model breaks with the classic assumptions of Chandler (1997) [3] or Williamson (1985) [4]. According to these authors, the growth of multiple-unit enterprises owes itself to two factors:
- The existence of a market in constant expansion.
- The necessity of taking on board economies of scale and diversion, reducing uncertainty and minimising transaction costs by means of the appropriate use of communications technologies.

In other words, confronted by the multinational enterprise as the organisational economic paradigm (Spero, 1997) [5], the new authors defend the emergence of international networks based on business units as an alternative paradigm.

This new organisational concept currently shares geo-economic space with the multinationals and, in many cases, is formed by virtue of the collaborative links between these enterprises.

According to the studies of Dieter Ernst in 1994, some authors identify up to five classes of different extended networks (M. Castells, 2001: 246):

- Networks of suppliers to secure subcontracting deals, agreements for the production of equipment, etc.
- Networks of producers seeking agreements aimed at augmenting the capacity and competitiveness of businesses in areas of production and the management of human and financial resources.
- Networks of clients, to counter the power of alliances between manufacturers and distributors, retailers and end-users.
- Networks of technical cooperation that permit combined R&D developments through the sharing of information and knowledge, etc.
- Coalitions of standardisation with the aim of integrating the greatest possible number of enterprises under a single patent or of establishing integration standards.

This type of production process within a network would introduce, according to Castells (op cit.: 298-300), a new division of labour around three fundamental dimensions: the creation of value; the creation of relations, and the taking of decisions. Equally, different roles of the individuals in relation to their responsibilities can be distinguished for each of the three dimensions.

Naturally, alongside this type of employee that still continues to emerge from within enterprises, archaic forms of socio-technical organisation, are maintained and will continue to be maintained, as is already occurring with the extension of the phenomenon of industrialisation.

2. A new enterprise paradigm

Mention has been made of how the extended enterprise is in its turn autonomous and, as such, evolving in its management. Today, after passing through a conceptual evolution in distinct phases, enterprise strategy is based on the optimisation of its processes of business.

This conception has been established following the introduction of important initiatives in the area of process reengineering with the purpose of giving a response to vital points of business in areas such as Product Development, production and logistics.

As a result of carried-out actions, more alert enterprises have reached the point of defining processes that are acceptably adapted to their necessities and that take into account the most fitting response in terms of cost, quality and time for their markets and their clients.

On the other hand, economic globalisation and, as a consequence, growth in competition have created a setting that demands flexible forms of action that involve:
- The continuous *putting-into-question* and adaptation of enterprise strategy.
- The quest for distinguishing innovation in products and processes.
- The creation of networks of collaboration involving clients, suppliers and supply agents of technology and consultants.

This necessity of the flexible adaptation of products, markets and new environments cannot, however, be based on those paradigms in force today that are based on the efficacy of business processes established and revised in not particularly short periods of time. The concept of innovation being the fundamental driving force that will permit the business to navigate through complex economic managerial systems, choosing at each moment not only strategies but also even the objectives of their activity, is appearing with force.

In order to confront this innovatory challenge the managerial world must confront an important change of values that permits it to pass from a conception based on the efficacy of the processes to another, based on the ability to define objectives and develop strategies. The cultural element, therefore, seems decisive. But to go forward, this change has, without doubt, to base itself on a new organisational paradigm that might be defined as the “Knowledge-based Extended Enterprise”.

This new paradigm demands that the organisation adopts, as a fundamental value, the capacity to improve and manage the competences of the individuals in the organisation and its internal and external structures, with the aim of reaching the desired effectiveness in the strategic processes of managerial innovation. From, “I am what I do” should be attained, “I am what I know”.

To progress along the road that takes the organisation towards this new paradigm in which the enterprise “learns to learn” will demand actions in various aspects of the organisation, notable among which are:

- The exchange and creation of knowledge between people and between internal and external structures of the organisation.
- The social capital that guarantees a relation/co-evolution business-environment to the benefit of a satisfactory socio-economic development.
- The strategy and change from an evolutionary perspective in order to respond to the models, the problems posed, and proposed plans.
- The knowledge worker and their form of working individually with and without a team.
- The technologies of knowledge that make the basic infrastructure for the development of the above possible.

The number of enterprises and corporations in different sectors and countries that have begun to take firm steps towards the assumption of this new paradigm is not insignificant. All of them have understood the importance that the management of know-how and the fostering of competence of personnel have in improving competitiveness.

In parallel, agents of technology and universities are developing models that extend from the scientific theory as far as the definition of methodologies, models and tools that permit the display of the strategies based on the new paradigm towards the operative processes of the organisation. However, in many of these cases, the extent of the action has not stopped it being fundamentally the same as that which the enterprise confronted at the conception of the processes.

The development of the concepts of the Extended Enterprise and of others, directly related (value networks, innovation networks, global networks, etc), changes this extent greatly and demands the adaptation of models to the new and growing reality.

In this reality, in which competition will not be between individual enterprises, but rather
between individual value systems (Bititci & Carrie, 1998) [6], the definition, itself, of Extended Enterprise is transformed from the new point of view as an organisation based on knowledge which utilizes the intellectual capacities distributed amongst its members, suppliers and clients (K-Flow, 2002) [7].

3. The management of knowledge in the managerial reality

In this new business paradigm some projects that attempt to help enterprises to evolve into the new state described above have already been realised. There are many studies undertaken by different institutions on the actual putting into practice of initiatives in the field of knowledge management. The results are significant.

A survey carried out by the IESE [8] concludes that 17% of enterprises that have initiated action directed at knowledge management have limited themselves to the development of Intranets. In addition, 71.32% affirm that the tool employed to transmit knowledge between personnel is e-mail.

According to this same study, the objectives of the developments achieved have been concentrated on actions aimed at representing the collective experience of the work-teams, documenting the know-how of the enterprise, and transmitting individual experience to the rest of the organisation.

A report produced by EKD and Tecnun [9] identifies the main achievements obtained by enterprises that had undertaken action directed at knowledge management as the following:

- Reduction of the detection-solution of the problem cycle.
- Faster development of products.
- Increased sensitivity with respect to client satisfaction.

The same study indicates that from a managerial point of view, the principal barrier encountered has been the lack of a systematic focus to accomplish knowledge-management projects. Industry confirms the absence of established methodologies and counter-arguments in this respect.

The enterprises emphasise in the report that the greatest difficulties have been in respect to the treatment of the processes related to management of customers and that, in general, the first applications achieved have been in the area of technical production.

A report produced by the SPRI [10], analyses a study undertaken by the American Management Association in 1999. It concludes that the principle difference between the application of knowledge management amongst American and European organisations lies in the fact that whilst the former focus on the securing and subsequent sharing of knowledge with the exterior, the latter have as their fundamental objective the internal knowledge explicitation.

Finally, the study undertaken by MIK S. Coop. on the application of knowledge management in MCC enterprises highlights the importance given in this industrial group to the acquisition of external knowledge and the codification of individual experience as “best practices” for other workers.

4. Extended Enterprise and Knowledge

The managerial setting of the future will be formed, accordingly, by businesses under the paradigm of the “Knowledge-based Enterprise” since this, sooner or later, will end up imposing itself due to the potential for improvement that it offers with respect to the
enterprise based in the efficacy of processes, as has been made clear in the various studies presented (IESE, EKD, SPRI, Price).

It is evident that until a certain degree of maturity is reached in lower evolutionary levels, specifically in the level which focuses on process-optimisation, it is impossible to consider the transition from “I am what I do” to “I am what I know”, presented at the beginning of the article.

In the declared evolution, the enterprise will create networks of collaboration (networks of suppliers, clients or producers, as Castells indicated), but based on the efficacy of the processes. In the new scenario that is raised in the article it is impossible to contemplate an enterprise that has evolved towards knowledge management whose networks have not also evolved towards this new paradigm.

However, the difficulties that enterprises will encounter in order that the networks they have created evolve to the same state to that which they have evolved in an autonomous manner, are numerous and many of them form part of the basis of knowledge-management presented along the road of the enterprise that “learns to learn”.

One of the obstacles is that enterprises do not wish to share their knowledge with others because they consider it a competitive advantage and, on many occasions, it is theirs knowledge. From this point of view the Extended Enterprise obliges this barrier to be overcome since these stable relations with suppliers, clients or other entities often take shape when the work-teams are created. An example would be mixed work-teams of suppliers and clients to solve technical or organisational problems. Another case would be a team for the design of a new product in which the clients would participate. In these cases knowledge is not only shared, but also generated. This is additionally significant, taking into account that according to the IESE [9] report the most important way to learn is from various employees to coordinate themselves in order to undertake work in a team.

But not everything is problematic, and the Extended Enterprise also favours the creation and exchange of knowledge.

The flexibility to adapt to a changing environment is one of the most important reasons that favours the appearance of the Extended Enterprise and it is also what makes essential that enterprises are concerned about knowledge. In order to survive in this rapidly-changing environment the enterprise must constantly learn. Knowledge is a resource of vital importance. The Extended Enterprise can use the intellectual capacities distributed within its members with the aim of increasing its value.

The trust, the stability and the participation, in part at least, of the shared strategy facilitates the exchange of knowledge between individuals of the different organisations that form part of the Extended Enterprise. As has already been pointed out in the TECNUN-EKD study, the success of the knowledge-management projects depends on the people, on their training and expertise. Stable and trustworthy relations make the smooth exchange of knowledge possible.

It might seem that automation of productive processes might diminish the importance of people in the world of industrial production. In the Extended Enterprise these people acquire even more importance. The capacity of people to learn is vital for the business and often knowledge can be found at other different points of the network. Today it is important to become skilled in the way to acquire competence since rapid technical evolution rapidly renders abilities obsolete. The cultural element seems to be decisive, again.

T. Kinder (2003: 503-523) [11] reports, as other authors have also done, that for PYMES, the relations that emerge from the Extended Enterprise benefit them because they produce knowledge that is tacit, explicit and know-how. He affirms that a network of enterprises is a conduct that allows flow of knowledge. For this reason it is a key element in the relation production-technology-knowledge.
5. Conclusions

In the article it is verified how enterprises need new tools that combine the actions necessary to develop those enterprises autonomously towards a new autonomous management and, at the same time, towards the knowledge-based Extended Enterprise.

Extended Enterprises are networks constituted by segments of different autonomous systems. Communication amongst elements of these networks makes possible not only exchange of information but also exchange and generation of knowledge. The value of the Extended Enterprises increases as they use the intellectual capacities distributed within its members.

It is in this field, where the CONex project attempts to position itself, developing a reference model that helps each enterprise to know where it is situated in the present framework and what stages it must achieve in order to attain progress towards a state of reference. The aim is to reflect on the causes, to give answers and to act as catalyst of companies in their strategies.

References