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Some Collaborative Systems Approaches in Knowledge-Based Environments

Mihaela I. Muntean

West University of Timisoara, Faculty of Economics and Business Administration
Romania

1. Introduction

Collaboration represents a strategic alternative to the monolithic approach to business development and competition. It involves a different approach to business – focused on managing business relationships between people, within or without groups, and within and between organizations.
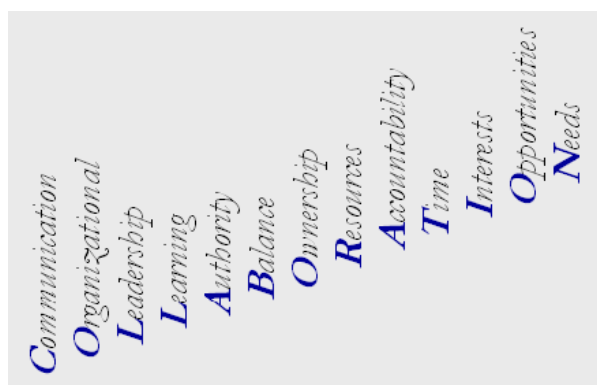

Fig. 1. Collaboration – A Business Strategy (http://literacy.kent.edu/CommonGood)

In the present global economy, strongly influenced by IT (information technology) and information systems evolution, the modern organizations try to face the challenges by adjusting their strategies and restructuring their activities, for aligning them to the new economy requirements. It is certain, that the enterprise's performance will depend on the capacity to sustain collaborative work. The evolution of information systems in these collaborative environments led to a sudden necessity to adopt, for maintaining all kind of virtual activities/processes, the latest technologies/systems that are capable to support integrated collaboration in business services.

It is obvious that, all collaborative environments (workgroups, practice communities, collaborative enterprises) are based on knowledge, and between collaboration and knowledge management (KM) there is a strong interdependence. Therefore, we focused on how collaborative systems are capable to sustain knowledge management and their impact on optimizing the KM life cycle. Some issues regarding collaborative systems are explored and a portal-based IT solution that sustains the KM life cycle is highlighted. In addition, an agile development framework for portals will be proposed

2. Collaborative environments

To collaborate effectively, people work in various virtual teams, created quickly, spread around the world, and comprising colleagues, customers and partners. Working in these global team-based environments, people establish relationships that may be short-term project-focused or long-term and are evolving over time. With each new relationship, companies invest in selecting the right people, learning how to work together, and determining how to extract the most value in terms of revenues and profits (Pflaging, 2001). Integrating collaborative services with business functions allows companies to gain a significant competitive advantage. Information is shared more effectively, communication is more efficient, and companies can make quicker, more informed decisions. More specifically, companies can shorten sales cycles, accelerate product development, generate more transactions, increase partner/customer retention, and expedite problem resolution.

Effective collaboration requires actions on multiple fronts: early involvement and the availability of resources to effectively collaborate; a culture that encourages teamwork, cooperation and collaboration; effective teamwork and team member cooperation; defined team member responsibilities based on collaboration; a defined product development process based on early sharing of information and knowledge; collocation or virtual collocation; collaboration technology.

Collaborative enterprises differ from other businesses in a number of ways and collaborative working needs to be simultaneously a business philosophy, strategy and operational working. Resuming, collaborative enterprises are (Pflaging, 2001): (1) - networked and collaborative; (2) - core-competence focused and virtual; (3) - transparent to customer and partners; (4) -customer and partners centric; (5) - multi-disciplinary, (6) - community and team-based; (7) - strategically agile; (8) - change resilient and risk taking; (9) - knowledge creating and sharing; (10) - web-enabled; (11) - empowered and responsive.

The more collaborative the environment is, the more knowledge will be available to make right decisions the first time (Collins, 2004). In non-collaborative environment, a large knowledge/decision gap exists early on. Using enterprise collaborative techniques, it is possible to make better use of a group's core understanding, thereby raising the starting level of knowledge available on an initiative and closing the gap.

Establishing business processes and strategies for collaborative environments supposes : (1) - defining virtual collaboration and what it means for an organization; (2) - assessing the activities, tasks and initiatives that would benefit from virtual collaboration or virtual team work; (3) - examining work practices and the cultural implications of working within collaborative environments; understanding the role of trust among virtual team members for better awareness of group dynamics and social interactions; (4) - exploring with senior management the benefits of collaborative environments and teamwork, and their impacts on business models; (5) - developing a set of guidelines and a framework for a clearer definition of the changing nature of current work practices; and (6) - incorporating the performance metrics and the success of virtual collaborative environments.

3. Some collaborative systems

Collaborative technologies fundament a large range of tools, systems and IT platforms that sustain collaboration in the modern global economy, contributing decisively on the consolidation of different types of virtual collaborative communities, virtual world constituting a reality superstructure.

The orientation toward a collaborative business represents a necessity for developing a competitive business in the actual global economy (Muntean 2006; Ghilic-Micu, Stoica, Mircea, 2008). At the end of 2008, Forrester Research Inc. surveyed business environment inquiring about companies' opening towards adopting new IT collaborative platforms; a trend was obvious, more than 50% heading to collaborative technologies. Based on our research, we propose the adoption of portal platforms at the level of collaborative communities/environments, and followed by integration of a series of systems, collaborative instruments, and enterprise applications which help to consolidate portal's SOA architecture (Service Oriented Architecture) meant to sustain collaboration as a business strategy. It is obvious that collaborative systems maintain knowledge management (KM) at the level of collaborative environments, interfering into all stages of KM life cycle (subject will be developed in paragraph 4).

Without iterating different consecrated approaches in the field of collaborative systems (Mooney, 1974; Giboin, 2000; Marakas, 2003; Crabtree, 2003; Pels, Wortmann, 2003; Cil, Altrup, Yazgan, 2005; Kurdel, Sebestyenova, 2007; Niţchi, 2006, 2007, 2008), we will develop our scientific intercession around some consideration towards:

- collaborative systems based on software agents;
- collaborative tools (in fact, conversational tools);
- portal-based IT platforms; initiative sustained by the following considerations:
1. in the actual global economy, in which collaboration is imposed as a business strategy, collaborative environments based on any kind of knowledge presume the existence of informatics systems, tools and technologies being able to maintain collaborative work, collaborative solving of different tasks, collaborative decisions and consolidating value;
2. multi-agent systems imposed themselves as facilitating collaboration, maintaining economic processes/activities, as well as collaborative solving of specific complex problems;
3. on the other hand, collaborative tools are indispensable in every collaborative organization/community, concurring on sustaining the knowledge dissemination between its members;
4. but, the IT infrastructure of collaborative communities presumes the existence of complex platforms, with various capabilities in order to virtualize a big part of the communities' reality.

This can be achieved only with the help of portal technologies, at their level being integrated multi-agent systems with specific functions as well as a diverse range of conversational tools.

3.1 Considerations regarding multi-agent systems

Multi-agent systems (MAS) are computer based environments that contain multiple software agents to perform certain tasks (Turban, 2007). Multi-agent systems offer an innovative perspective on the capacity of configuration virtual communities. But some of their capabilities must be perfected, as follows (Muntean, 2009):

- incrementing the intelligence level of the agents through perfecting their capabilities, aiming autonomy, cooperation and learning;
- introducing new valences as for agents collaboration within MAS (Multi-Agent Systems) and, maybe even new approaches at protocol level and communication languages (KQML, KIF, COOL, etc.);

-   upgrading the MAS's security level (processes, systems, respectively network security – securing communication between agents).

Agents in a multi-agent system are characterized by autonomy, adaptability, interoperability and dynamism. A multi-agent model includes a number of informative agents who share their results with a just-in-time middle agent (Maracine, 2007). The middle agent does not only suggest its own documents of relevance, but information found by other agents as well. Agents deposit information for later use by themselves or by other agents. In this way, knowledge sharing between agents is possible, but it is controlled in such a manner as to allow modular inclusion of agents within the framework.

From the knowledge management point of view different ways of sustaining this process must be developed, an important part being held by manipulation agents' knowledge in different ways.

It is obvious that developing MAS is a complex process which can raise real problems virtualizing some collaborative communities. In the last years it is ascertained the emergence of some specialized platforms for developing multi-agent systems, which contributes substantially to reducing the effort of developing those kinds of systems.

3.2 Considerations on collaborative tools

Collaboration tools or groupware, were the first tools to be used to enhance tacit knowledge transfer within an organization. Social or conversational technologies imposed themselves in the last years as tools that sustain knowledge management in collaborative environment (Wagner, Bolloju, 2004; Roll, 2004; Anghel, 2009).

Bypassing the stage of simple conversational support, these instruments maintain tacit knowledge dissemination at the community level, consolidating collaboration through offering various facilities of collaboration based on the considered environments' demands/necessities, in literature contouring the concept of „on demand collaboration anytime/ anywhere" (Marcus, Coleman, 2006). Therefore, it is recommended the integration of this kind of tools in IT virtualizing collaborative environments platforms.

We consider that:

-   collaboration within different work groups, communities, virtual environments, can't be achieved without the help of social/conversational tools. These are the first to be adopted, adding, based on the community's demands and necessities, advanced collaborative systems and technologies;
-   from the knowledge management point of view, tools such as forum, blog, wiki, etc. bypassed a long time ago the level of a simple conversational instrument, sustaining it's life cycle stages;
-   developing of some collaborative tools, in the last years, implies using technologies and web programming, because of the boom of open-source solutions, in order to reduce their development effort.

3.3 Considerations regarding portal technologies

With each portal generation, portal producers promise amending of work quality through supplying extra services for the members of collaborative communities. These services are the result of integration and unification of different applications, information system and collaborative tools, necessary to maintain current activities, business processes held at the level of virtualized environment.

Integration represents the key concept, around which portal technologies developed, with the help of some integration mechanisms/schemes like portlet, gadget, iView, skin or dashboard (Guruge, 2003). Portlets became the most popular ones, being the most efficient integrator in portal type architecture (Sullivan, 2003), the majority of portal server developers adopting this concept.
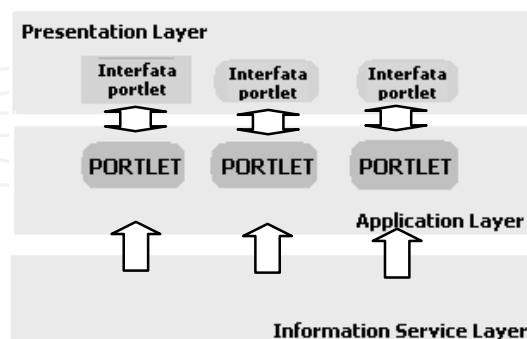

Fig. 2. Integration & Portlets

In essence, the role of portlets at Application Layer is to be in charge of the correct functioning of information systems integrated into the portal's platform management, to make the necessary links with the Presentation Layer, and with the different sources of information/knowledge at Information Service Layer (Figure 2). Portlets permit the maintaining of attached applications independent of the rest of the portal. They cover the presentation level and business logic, but are connected to information/knowledge sources from back-end.

Collaborative and integration portal platform:

- offers to all extended community members un unique, personalized, based on user roles access, to the multitude of integrated systems and applications (including enterprise applications ERP, SCM, CRM, HR); these enterprise applications can be constituted in sub-portals, being integrated into the collaborative environment, based on knowledge, unitary platform portal;
- in the last years we can ascertain the developing of some facilities of remote accessing of the portal with the help of some mobile devices and vocal systems;
- promotes dynamic and efficient communication, including virtual collaboration spaces maintained by a series of collaboration tools;
- permits business process modeling and deploying in dynamic environments, the applications that sustain them covering the whole chain value;
- offers the managers the information/knowledge and the necessary tools for making a decision in the shortest time; with the help of some dedicated portlets the integration of Business Intelligent modules that sustain decisional processes at any level is possible;
- a collaboration management is promoted at the collaborative organization level, decision making processes being marked by this desideratum.

Being an important factor from the KM triad, information technology, through collaborative systems exponents, contributes essentially to maximize knowledge value (Bair, 1998; Cain, 1999; Firestone, 2000, 2001, 2002; White, 2000; Bock, 2001; Barette, 2003; Guruge, 2003; Sullivan, 2003; Torsten, 2004; Collins, 2004; Hoolahen, 2005; Herrmann, 2006).

All these systems produce changes into the organizational structure, exercising managerial functions into business models throughout the world.

4. Developing portals

Starting from the metodologies, methods and techniques used generally in the development of information systems, an approach regarding quick development of portals will been introduced. The agile development framework, which proposes the use of prototype technique enriched with MDA (Model Driven Architecture) speciffic valences, includes the following phases (Figure 3):
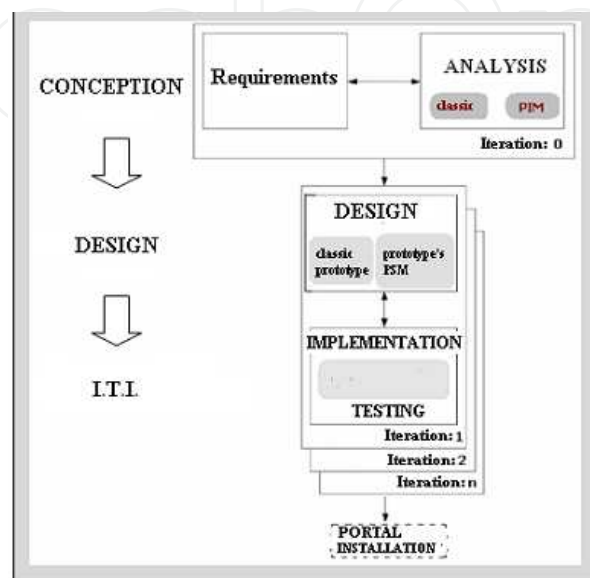

Fig. 3. Agile development of portals

* Conception: at the level of this phase the PIM (Plarform Independend Model) model elaboration is targeted, according to the requirements of the knowledge based collaborative community; Prior, a feasibility study is made for justifying the efficiency and efficacy of the project, being also made a business plan for demonstrating that the project does or does not bring a measurable benefit; the modelling of the requirements will lead to the outlining of the functionalities of the portal, of the user communities, all this being represented at a level of PIM model;
* Design: targets the elaboration of the PSM (Platform Specific Model) model specific for the portal prototype, i.e. the finalisation of the architecture of this model, taking into account all details regarding the IT infrastructure, which must sustain the unitary, integrating vision of the PIM model. The building of the PSM model will take into account the future implementaion solution of the prototype by relating the model to a certain IT platform and to certain maintenance technologies;
* I.T.I (Implementing-Testing-Installation): has the goal to implement the portal prototype according to the PSM model, followed by the testing of the prototype. Often, the prototype invalidation as a result of testing its functionality, leads to the revision of the PSM model and aims at correcting some aspects related to technology and the considered IT platform. Practically, the final version of the portal prototype is obtained by an iterative process, which regards the adjustment of the PSM, its implementation and the testing of the prototype solutions for verifying the imposed requirements. After the validation of the prototype follows the portal installation and its transfer to the users, who posess knowledge of the collaborative community.

We propose the following basic functional architecture (Figure 4) for a collaborative knowledge portal, having as an objective to facilitate the access to the knowledge base (as part of the organizational knowledge, which has been transposed to the portal) of the collaborative community members, the knowledge exchange between them and generally to provide a knowledge flow in the whole virtual community.

Among the functional components of the knowledge portal we have highlighted the following four major categories: process support, collaboration, content management and personalization (Note. The four major functionalities (content/document management, collaboration, process support and personalization), guide to the outlining of the service oriented architecture, unlike other functionalities, which only provide the operation of the portal in the imposed parameters or, indirectly, sustain these four.)
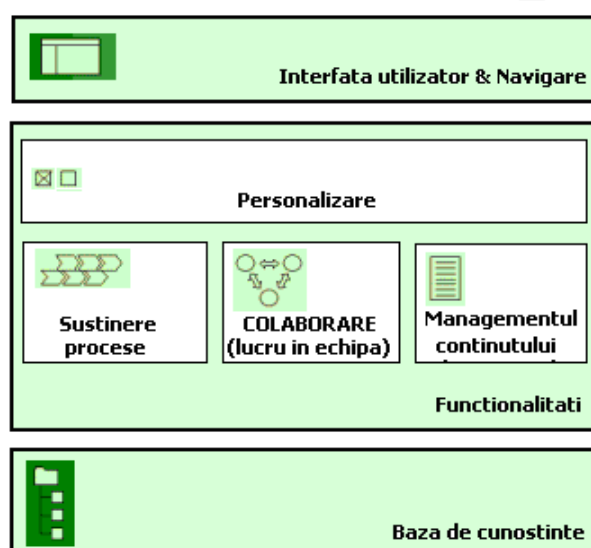

Fig. 4. The functional architecture of a knowledge portal (Jansen, Bach, Osterle, 2000)

5. Knowledge management approaches

According to the defined collaboration, knowledge management comes to consolidate the collaborative community and through the client orientation it opens the environment to the necessities and requirements of the clients. The level of interest in knowledge management has grown rapidly during recent years as enterprises recognize that they operate in a knowledge economy and that knowledge is their most valuable asset. At the same time knowledge management theories and technologies have reached the maturity level required for business confidence and endorsement.

5.1 A model for the knowledge management life cycle

Considering the knowledge management life cycle consisting of phases like (Muntean, 2009):
1. knowledge generation,
2. knowledge management/storage,
3. knowledge dissemination,
4. knowledge auditing,

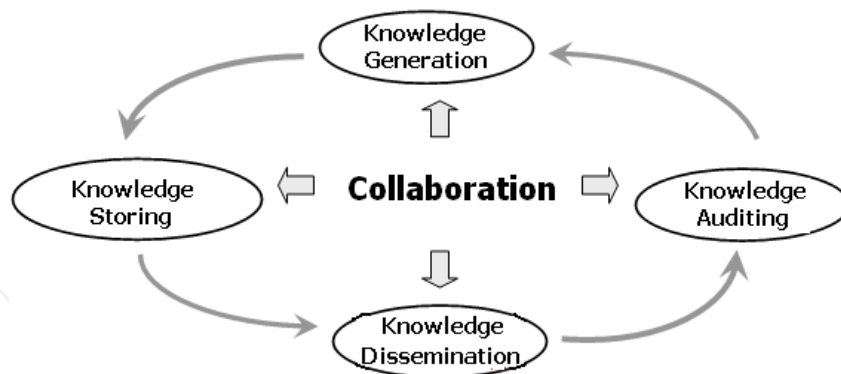we present a possible maintenance based on a knowledge portal infrastructure (Figure 6).

Fig. 5. A Model for KM Life cycle

1. At the portal level, creating new knowledge is possible through acquiring/attaining of some knowledge pieces from the collaborative organizational environment (or even external from the organization), or is a following of some intelligent reasoning made by modules of artificial intelligence incorporated in the portal's architecture. The knowledge created that way is collected and refined to eliminate unjustified redundancies and filtering the ones most "valuable" for the organization.

    Creating documents represents a significant percentage of the current activities, so the less time is allocated to this activity, more time will remain for the members of the organization to achieve the other tasks. Therefore, at the portal level, we will have to integrate some instruments that facilitates creating knowledge of a document type, such as: text editors, multimedia, Web pages, images, sounds, video editing systems, spreadsheet editors, graphic programming's.

    At the portal level, in the central or distributed knowledge database (meta-base), different kinds of knowledge are coded efficiently, assuring quality, accessibility, and their representativeness with the help of some specific tools/technologies.

2. Knowledge can be stored in data warehouses, knowledge databases specific to artificial intelligence, content specific structures or in a documents management system; all these will form the portal knowledge meta-base. One of the forms in which knowledge can be stored is knowledge repository, which stores knowledge that is often text-based and has very different characteristics. It is also referred to as organizational knowledge base. A knowledge repository is not a knowledge base of an expert system, the repository containing all the organizational knowledge, not only the one needed in solving a specific problem. Concordant with the different knowledge storing technologies, we will use specific methods/techniques to access/locate them.

3. Collaborative tools sustain and facilitate the transfer of knowledge. Some tools and technologies facilitates the use of knowledge: Business Intelligence tools, expert systems, simulations of dynamic complex processes, decision support systems, ERP applications (Enterprise Resource Planning), CRM (Customer Relation Management) and other enterprise applications, visualizing tools that permit understanding of some complex knowledge structures, etc.

4. Practice proved that if we don't take into account aspects of economic efficiency, the costs of maintaining the informatics systems are much more that the profit and most of the time the life cycle reduces drastically.

Auditing represents a complex activity of verifying the conformity degree of the knowledge database with the standards in that domain, and its capacity to sustain the achievement of

the strategic objectives of the organization. The main subjects tested are regarding the reliability and performance of the product, the efficiency of the operations and, not last, the security facilities (Lungu, 2003). Auditing the organizational knowledge implies analyzing its impact on decisional processes, the contribution of each piece of knowledge in optimizing business processes, therefore in raising the quality of the products and services offered. At the end of this process, it is possible to have to regenerate some knowledge pieces.
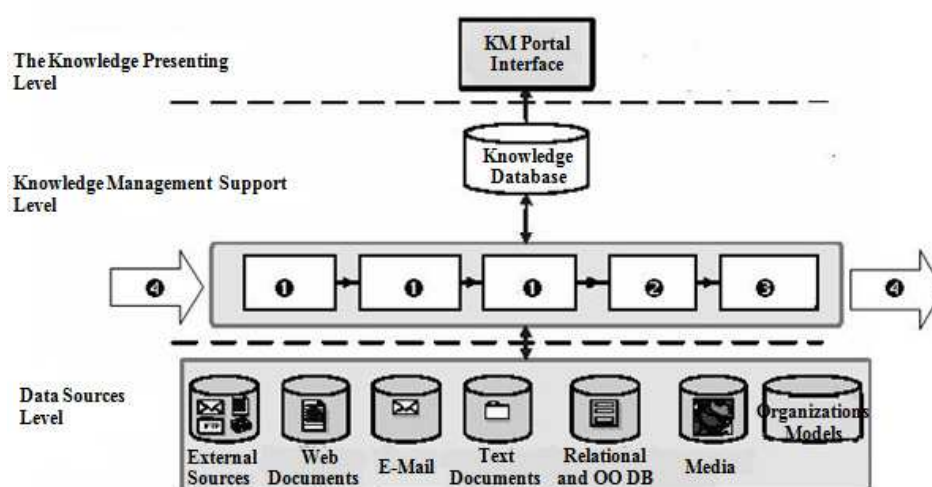

Fig. 6. KM lifecycle phases' implementation at the portal level (Kerschberg, 2003)

A collaborative enterprise represents an adequate environment for developing a strategy for a better performance of knowledge management, taking into consideration the social and cultural specific aspects and having an adequate IT infrastructure.

The portal provides a new work environment for enterprise knowledge workers, one that is aligned with, and supports and partially automates, their individual and collaborative workflow in creating, distributing and using data, information and knowledge, and in making and implementing decisions and actions (Firestone, 1999). The enterprise knowledge portal (EKP) combines enterprise information portal (EIP) aspects while also capturing tacit knowledge, integrating access to expertise and management application (Firestone, 2002). Giving users one-stop interaction with appropriate intellectual capital, applications and expertise, the EKP speeds innovation and reduces the amount of rework in an organization. EKPs also integrate and support a number of e-business processes that transcend the enterprise. EKPs are themselves eBusiness applications that web-enable knowledge processing and knowledge management within the enterprise.

5.2 Distributed knowledge management

In the global economy, interconnected organizations that forms a collaborative network can be considered, based on their cumulative know-how, to be inter-connected knowledge nodes (KN) (Bonifacio, Bouquet, Cuel, 2000, 2002). In this approach, the collaborative community becomes an environment that must sustain two different kinds of processes:
1.   knowledge management specific to each node (organization);
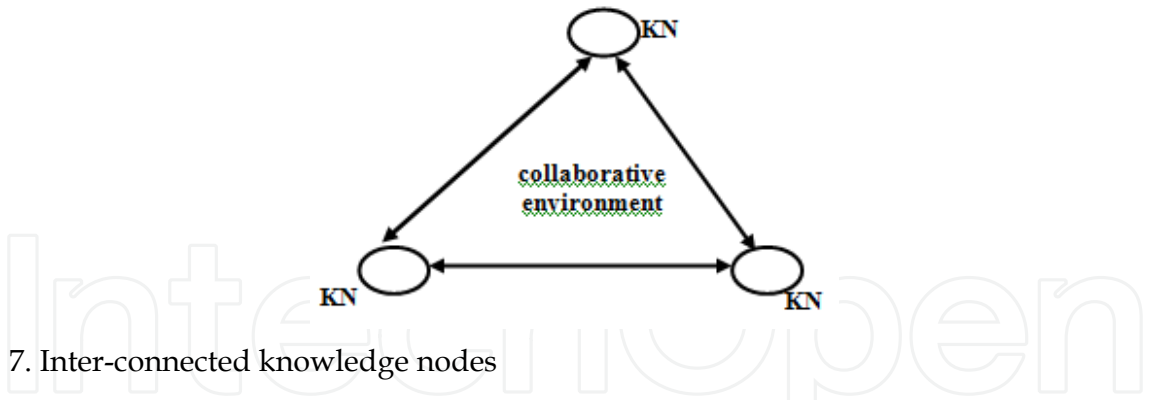2.   coordination of different knowledge nodes.

Fig. 7. Inter-connected knowledge nodes

Each organization is an absolute manager (from conceptual and technical point of view) of its organizational knowledge. Coordinating different KN arises some problems that can be overcome from the technological point of view by adopting some knowledge-based portals with intelligent capabilities of communication at the level of the nodes. Starting from the technical architecture proposed by Firestone in 2001, 2002, 2003 for a knowledge-based portal, collaboration between KNs can be accomplished with some collaborative intelligent software agents that are integrated into the organizational portals (Muntean, 2005). These agents assist the members of a KN to formulate queries (requests of knowledge) to other nodes and they respond to queries that came from the other KNs.

We support the strategy of a distributed KM approach based on two general principles:

1. Autonomy Principle – each node/organization manages its own knowledge; the enterprise portal will represent a unique access point to the knowledge meta-base, that stores a part of the organizational knowledge;

2. Coordination Principle – each node must permit exchange of knowledge with other nodes, without having to adopt a unique interpretative scheme at the level of collaborative network, but through a mapping mechanism of the context of the node queried to its own context, taking into consideration their own perspective on knowledge.

As any distributed system, this one will also have to fulfill some requirements such as connecting users and resources, failure safety, scalability and standardization.
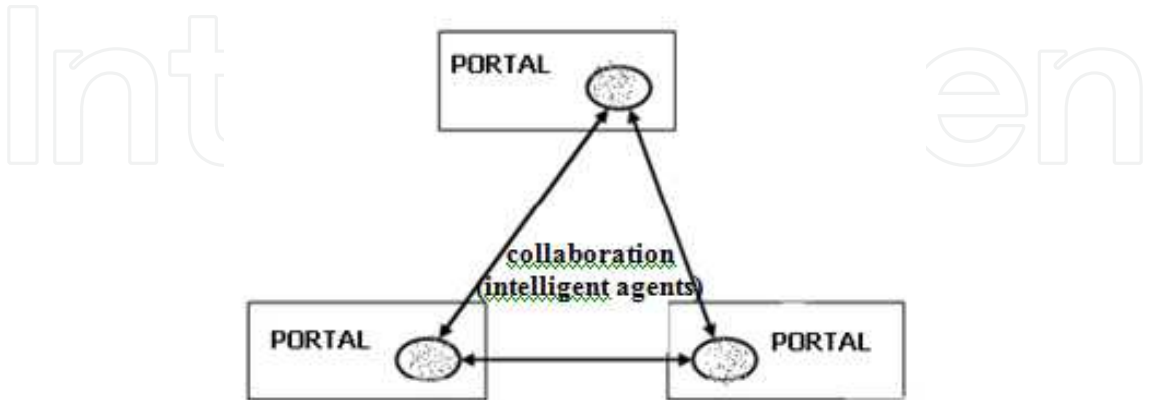

Fig. 8. Infrastructure based on portals sustaining a distributed KM

This will be achieved with the help of some collaborative intelligent agents specially integrated, with this purpose, in the nodes' portals. In these last years, software agents

evolved spectacularly, gaining unexpected intelligent capabilities being able to sustain virtual collaborative environments. (Weiss, 2000; Kimatura, Yamada, Kokubu, 2001; AgentLink, 2004; Dang, 2004; Silaghi, 2005; Sycara, Sukthankar, 2006).

Knowledge management demands cultural flexibility, strong management of knowledge management project CSFs and an adequate technical collaborative foundation. If done right, knowledge management is supposed to create a collaborative environment.

6. Collaboration & knowledge management

Collaboration facilities improve decisions, increase knowledge. They facilitate better distribution of knowledge, improve planning and development cycles and create more functional and productive relationships within teams. This in turn increases productivity and company understanding of internal and external environments. Overall, employees will begin to have a better view of corporate information and the power to make informed decisions more effectively.

A collaborative enterprise organization is a more agile organization. The ability of employees to quickly share their insights contributes to an organization's collective knowledge, and has a direct impact on its success. Successful companies continually seek and refine ways to make effective use of their employees' collective knowledge and experience. Information technologies that contribute to knowledge management solutions, such as enterprise portals, improve the enterprise's business intelligence and its collaboration capabilities. Collaboration is becoming an enterprise's business strategy sustained by IT technology. Integrating collaborative services with business functions allows companies to gain a significant competitive advantage. The benefits of collaboration within a portal are clear. It will continually facilitate and enrich the knowledge management process.

An interesting aspect of the increased globalization of the business world is the cultural diversity of the workforce involved in collaborative virtual work. As a result, the performance of a global virtual team may be contingent not only upon technology and task factors, but also upon a virtual group's cultural homogeneity or heterogeneity. A culturally heterogeneous group is expected to display types of behavior and interactions that are different from those displayed by a culturally homogeneous group. In a virtual setting, the impact of cultural heterogeneity on group performance might ultimately result in performance outcomes that are different from those generated by a culturally homogeneous group. Managers may reduce the influence of national cultures and cultural differences in collaborative enterprises by developing a strong organizational culture. Internalization of a strong organizational culture is done through training, suitable knowledge management approaches, developing appropriate information systems, using integrating practices such as enforcing quality, super ordinate goals, promoting linking between different cultural groups.

There are many different approaches toward knowledge management. Many concepts focus on social and cultural aspects only and ignore the role of technology. There are other approaches that are very technology-minded but provide no solutions to cultural challenges of knowledge management. Therefore, many companies have sophisticated concepts on how to manage knowledge, but have little understanding of how to implement and deploy them. The implementation of efficient knowledge management solution often proves to be very challenging.

7. The place of our debate within the european research programs

Organizations that promote collaboration within them and in their extended environment, that contains different actors from economic/business environment, are identified by the name of collaborative organizations, presenting the following specific features (Skyrme, 2003):

- collaborative – from the business philosophy, the strategy adopted and all the operational activities;
- team-work oriented;
- centered on collaborative formation of organizational competences & knowledge;
- client and partner centered;
- adaptable to changes;
- agile from the strategic point of view.

IT represents an indispensable sustainer of collaborative organizations, of collaborative environments in general [Harmon, Rosen, Guttman, 2001]. These represent (virtual) communities which, even if they are not subordinated to a business objective, adopt the collaboration and elaborate knowledge management principles.

Strategic demarches are scheduled in order to achieve this objective, at the level of different research networks specialized in setting up visionary studies – business models evolution collaborative enterprises related (Figure 9). The focus on collaborative business processes orientation dictates identification and configuration of the collaborative technologies capable of sustaining these processes.

1. Business perspective
2. Work-place perspective (interconnected environments)
3. Social perspective
4. Potential-clients perspective
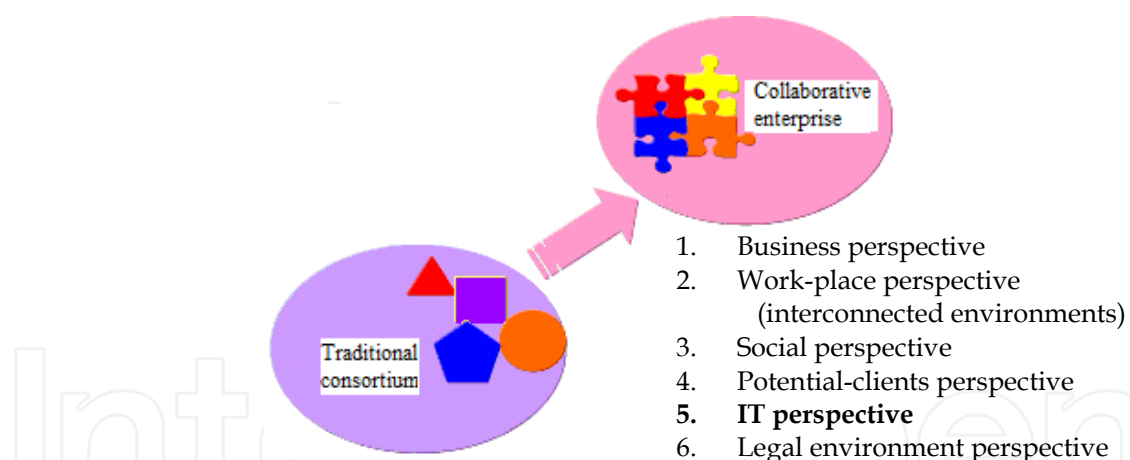5. **IT perspective**
6. Legal environment perspective

Fig. 9. Strategy to evolve to the collaborative enterprise model (CE-NET Consortium, 2004)

Portal technology that permit building a fundament for a collaborative virtual environment based on knowledge was imposed, the presented approaches being an innovative scientific demarche of the IT perspective indicated in figure 9.

We consider that:

1. it is important for the organizations to have the capacity of underlying and putting forward tacit knowledge pieces (individual or collective ones, belonging to an informal group, being the result of some accumulated practical experience; they can be categorized as being „contextualized", non-fundamented, less accessible, difficult to describe and maybe unconscious) through their integration within organization functions. We refer to an organizational learning process sustained by KM and

collaboration, developed at the collaborative environment level and which contributes decisively to the process of competitive knowledge pieces generating (Kim, 1993; Nonaka, Takeuchi, 1995; Malhotra, 1998; Flood, 1999; Bontis, 2002). At the collaborative organization level, creation of a knowledge capital is the main desideratum, organized under the form of organizational knowledge (best practices, expertise, learned lessons, competences), in the same time focusing on the best IT solutions, capable of incorporating as much as possible from the organization know-how, under the form of a knowledge base (meta-base).

2. knowing the clients represents an important asset in all business. To remain competitive, organizations must collaborate with clients (or suppliers and even competitors) in order to remix their capacities with the ones of possible partners.

3. At the level of network organizations, KM applies within each organizational entity, considered a knowledge node, as well as to sustain collaboration between these KNs. A portal based IT infrastructure, like the one presented in figure 7, is vital to sustaining management strategy of distributed knowledge.

4. For developing portals an agile framework is recommended; the desired functionalities, like content/document management, collaboration, personalization and business process modeling are obtained. By means of the facilities offered by the UML language the specifc models of these functionalities are built; the PIM and PSM model are consolidated. The developed portal will satisfy the requirements of the collaborative environment, being able to store the knowledge from certain area of expertise, concern and activity.

8. Conclusions

It is obvious that inside every collaborative environment, starting with small work-groups or practice communities (of interests, scope, action, etc.) and ending with the collaborative environment, there is a strong fundament based on knowledge and a powerful interdependence between collaboration and knowledge management. Collaborative communities represent organizational manifestation forms that wish to remain competitive in the competitive environment. Being entirely or partially transposed into the virtual environment, they have to adopt a malleable business strategy, to take fundamental decisions based on knowledge regarding consumers, suppliers, stockholders, investors or even competitors.

Collaborative systems, tools and technologies sustain work teams, communities and collaborative enterprises, portal type IT platforms proving their efficiency as infrastructures of those environments:

- depending on particularities of each organization/community (organization dimension, working needs, etc) it can be chosen from an unique portal solution or one based on a distributed model;
- in a distributed approach, collaborative community can be assimilated with a network of knowledge nodes at which level it is recommended a policy of distributed knowledge nodes;
- portal based IT infrastructure must sustain KM distributed strategy, therefore knowledge management at the level of each node and the communication between them;
- integration of necessary collaborative tools, MAS and enterprise applications at each portal's level in order to satisfy its needs.

Collaborative enterprises represent the solution for companies, which wish to remain competitive in the business environment. Being entirely or partly transposed in the virtual environment, they have to adopt a malleable strategy, to make decisions based on knowledge, which regards the consumers, suppliers, shareholders, investors or even competitors. Many innovative companies have long appreciated the value of knowledge management to improve their processes, products and customer service and to create competitive advantage. Research studies show that by managing the knowledge of their customers, corporations are more likely to sense emerging market opportunities before their competitors, to constructively challenge the established wisdom of "doing things around here", and to create economic value for the corporation, its shareholders and its customers.

In our future work our attention will be focused on optimizing the technical architecture of the referred portals, studies that will be made by the research interdisciplinary team of the on-roll grant[1]. But, paradoxally, the success of any portal-based collaborative environment (any new technology-enabled business model) relies, more than ever, on people's ability to build relationships based on mutual trust. Further research will also refer how to manage business relationships between people, within or without groups, and within and between organizations according to a knowledge management approach. Future research streams will include work in intercultural communication and collaboration, temporal coordination, and trust in virtual teams.

For Romania, as well as for the countries were these approaches are not familiar, the relevance of the collaborative enterprise concept results from the engagement of the states in the evolution of the informational society – knowledge society. It would be risky to assume, that given the differences with highly developed countries, the collaborative (knowledge based) enterprise would represent, on national scale, only a future problem or an exaggerated sophistry.

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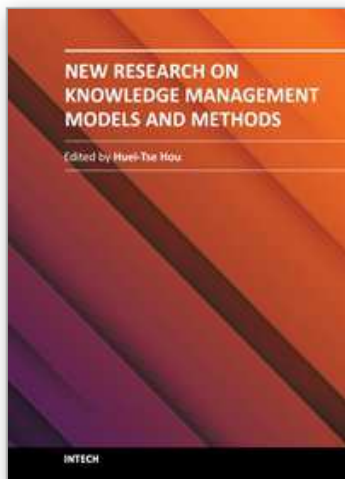
New Research on Knowledge Management Models and Methods

Edited by Prof. Huei Tse Hou

Due to the development of mobile and Web 2.0 technology, knowledge transfer, storage and retrieval have become much more rapid. In recent years, there have been more and more new and interesting findings in the research field of knowledge management. This book aims to introduce readers to the recent research topics, it is titled "New Research on Knowledge Management Models and Methods" and includes 19 chapters. Its focus is on the exploration of methods and models, covering the innovations of all knowledge management models and methods as well as deeper discussion. It is expected that this book provides relevant information about new research trends in comprehensive and novel knowledge management studies, and that it serves as an important resource for researchers, teachers and students, and for the development of practices in the knowledge management field.

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