Handbook of Research on Communities of Practice for Organizational Management and Networking:

Methodologies for Competitive Advantage

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BUSINESS SCIENCE
Reference

Chapter 2
Sharing Knowledge through Communities of Practice

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ABSTRACT

The aim of this chapter is deepening into the concept of 'Communities of Practice' (CoPs) as a useful scope to share knowledge, trying to present some key issues about a practical knowledge management approach. CoPs are a main trend inside innovation strategies, including not only management, but also knowledge creation and development, a richer focus for knowledge governance.

There is a wide range of strategies to improve intangible assets management but practical side around two case studies is the main added value for this chapter. For this reason, the purpose is not about a model configuration but CoPs as a useful mechanism to knowledge governance. First of all, a reality based on consultancy activity inside military sector, Isdefe, with a three years project aimed to knowledge management as a core business plan, taking into account a technological development. Secondly, a framework related to nuclear power plants in Spain through "CoPs Project" an initiative aimed to improve organizational performance linked to tacit knowledge transfer.

INTRODUCTION

Communities of Practice (CoPs) concept has a formal consideration in 80s describing a group of people naturally created inside an organization oriented towards sharing experiences about professional expertise (tacit and explicit) as a "knowledge space" developing a process about "training in working" (Orr, 1987 and 1990) or "cognition in practice" (Lave, 1988).

Therefore, Communities of Practice (CoPs) are groups of people in organizations that form to share what they know, to learn from one another regarding some aspects of their work and to provide a social context for that work. Although the term Community of Practice is new, formally appear the last years in 80s. Such groups have been around ever since people in organizations realized they could benefit from sharing their Knowledge, insights, and experiences with others who have similar interests and goal. One important goal is to develop innovation.

Last perspective represents the core of this work underpinning CoPs concept as a strategic tool for knowledge processes following a knowledge governance scope (Bueno et al, 2008). Obviously such approach is inside a business focus where knowledge creation is a key issue (Nonaka, Toyama & Kono, 2000) over all from a tacit dimension what is much more oriented towards competitive advantages creation (Nonaka, 1991; Kogut y Zander, 1996; & Wenger, 1998).

In the third point CoPs role is analyzed as a bridge between working and learning in order to obtain innovations (Brown & Duguid, 1991) taking into account relationships among internal and external flows of knowledge under "open innovation" atmosphere creating a more dynamic and flexible system. CoPs is a discovering organization are not he archetype of the conventional innovating organization, one which responds-often with great efficiency-to changes is detects in its environment.

Communities of Practice (CoPs) should not be confused with teams or task forces. A task force ties to a specific assignment. Once that assignment is completed, the task force disbands. A team ties to some specific process or function. A team is structured so as to deal with the interdependencies of different roles in that functions or process. In team, roles and tasks of the way; in a COP they are generally the same (Wenger, 1998).

In this sense, through an analytical methodology to support COP approach for value creation based on social networks as instrument for knowledge governance, fourth an fifth points present two study cases what showing empirical COP experiences.

First one a case developed for an engineering organization inside Spanish public sector where CoPs play an important role for knowledge management strategy. Fifth point is about CoPs for Spanish nuclear power plants in order to support a safety culture. The project has been developed during three years around knowledge retention mainly for tacit or expert knowledge as a key organizational asset.

The two business cases offer a quite significant investment in terms of today's resources and capabilities, organizations can reap huge rewards in terms of tomorrow's results.

Finally conclusions are presented to provide main ideas about CoPs taking into account intangible assets management where people share knowledge creating an interaction between knowledge model and business focus is showing impacts inside two case studies with strategic interest.

INTANGIBLE ASSETS AS ORGANIZATIONAL DRIVERS

Strategic role for intangibles is only a valid approach if organization considers knowledge as an asset, putting into practice a leadership, culture and actions to create, develop and manage it.

In this context, the strategic approach of businesses in the current economy has an important part related with certain support processes linked to analysis tasks corresponding to dynamic processes of decision making, as an attempt to diminish the risks inherent to such processes. In this sense, such argument on intelligent or learning-capable organizations (Senge, 1990) gains a high value for the extraction of information and the creation of both appropriate internal and external knowledge.

Then there is a focus what insisting on the importance of basic resources for strategic

management focused on the couple information-knowledge (Itami, 1987; Vassiliadis *et al.*, 2000) and on derived individual and organizational learning. In this case, corporative philosophy should create the necessary atmosphere to recognize the value of intangible assets, very close to the understanding of the theory of resources and abilities, which does not only take into account those resources related with the tangible field but also those linked to non-physical elements located in the organizational 'roots'.

Obviously, it arises a requirement around a model or scheme of analysis; firstly, for the identification and measurement of intangibles, and also to facilitate a structured framework of reflection and analysis, an area covered by intellectual-capital (Bontis, 1999; Bueno &Ordoñez, 2007; IADE-CIC, 2003; Ordoñez, 2001).

This thematic area of intangible assets, historically tackled in organizational literature within the field of the theory of resources and capabilities (Wernerfelt, 1984; Barney, 1991; Grant, 1991; Peteraf, 1993)— had already collected, in different ways, contributions which helped to the valuation of non-tangible assets. The power of knowledge is related to "movement", that is to say, the idea of 'knowledge in action' (Davenport & Prusak, 1998).

Summing up, the intellectual capital focus is centred on a 'photograph' (Bontis, 1999) as a traditional balance showing the status of the basic intangible assets identified by the organization. While 'knowledge in action' is traditionally linked to 'knowledge governance or management', processes which develop intellectual capital looking for improving the results of the initial measurement scheme. In this sense, there is a basic difference between intellectual capital and knowledge governance, bearing in mind a static or dynamic perspective, respectively.

Organizations consider in their strategies those factors to which they recognize significant value contributions, certainly measurable or at least as presumptions. This initial argument means the possibility of different strategic approaches according to business orientation or awareness showed by the organization towards the relevance of the different types of assets it owns.

If the organization considers knowledge as an assets there is a need based on a appropriate treatment, a responsible attitude.

People and interaction play a significant role where knowledge is a resource characterized by its intangibility which is that of enriching through the exchange among the large agents owning it (Nonaka, 1994; Nonaka & Takeuchi, 1995; Grant, 1996; Kogut & Zander, 1992 and 1996; Spender, 1996; Tsoukas, 1996), which implies the consideration of certain transference and exchange schemes as means supporting its advance and development.

But for Von Krogh and Ross (1995), Spender (1996) and Cook and Brown (1999), among others, social knowledge is not merely the sum of individual knowledge, but something else, different from that, which is especially important for organization survival and development in the long run.

Anyway knowledge transference, from this perspective, is necessarily social and conclusively outdistances from the schemes of electronic transference of data and information.

Thus, taking into account the contributions done by Foss (2006), this knowledge governance is close to a double level —micro (individual) and macro (collective), where it is important to consider not just tools, but also those attitudes and motivations which come into play in this reality of behaviours.

Then, organizations are increasingly giving more importance to the administration of their intangible assets and to the forms in which such assets contribute to generate business value (Bueno, 2003 & 2005). In this sense, the processes of professional learning and development are oriented at the improvement of competences for innovation, allowing their articulation in organizational models and systems which in turn become differentiating elements to achieve competitive positioning

in markets. This knowledge approach adopts an open and systemic viewpoint of the organizational processes —in which interactions, relations and collaboration processes act as channels for new-knowledge transmission and assimilation (Bueno et al. 2008; Plaz & Gonzalez, 2005).

Going back to the argument on knowledge governance, such governance is obviously configured from a structure of processes acting as drivers of the business in question, assuring the exploitation of all organizational knowledge —an aspect which doubtlessly should be imbricated with a system of organizational intelligence acting as a supplier of informative inputs for the recycling and updating of the organization's knowledge base (Vassiliadis *et al.*, 2000; Merino, 2004). The dynamics of creation of value occur around the tasks of internal transference of tacit and explicit knowledge, as well as around those tasks of incorporation of external knowledge or that created by other agents, generating learning cycles which build up the new knowledge within a process of transformation of essential competences which generate intangible or intellectual-capital assets

The approach of processes which shapes the model of knowledge governance makes clear an action loop (Bueno & Plaz, 2005; Bueno et al. 2008; Nonaka, 1991; Kogut & Zander, 1992; Blumentritt & Johnston, 1999; Shin *et al.*, 2001; Alavi & Leidner, 2001; Staples *et al.*, 2001; Argote *et al.*, 2003; Zack, 2003) around the dynamics of understanding, register, storage (Walsh & Ungson, 1991; Davenport & Prusak, 1998; Teece, 2000; Staples *et al.*, 2001; McGrath & Argote, 2002), diffusion (Davenport & Prusak, 1998; Szulanski, 2000), use and improvement of information and knowledge, where the organization should consider the way of putting it into practice or value, already counting on a traditional approach based on certain support departments —namely, documentation centres, system departments, training units, quality areas, etc.— whose mission is clearly positioned in relation to a knowledge loop.

In the knowledge governance approach is clear the central position of collaboration dynamics in this matter goes further than the documental approaches which have characterized the first stages of the strategies of those companies concerned with knowledge management, in which great efforts for digitalization have also been raised. As a result, we have come to the subsequent replacement of *knowledge stock* by *knowledge flow*.

Therefore, transference and exchange dynamics appear as recipes of high strategic interest from the couple collaboration-communication, where we can reflect, design and explore areas, channels and subject matters.

From the field of collaboration, the main axes of action are centred, on one hand, on the creation of appropriate areas —attendance or virtual— which facilitate sharing ideas and documents, and, on the other hand, on establishing a culture prone to share, in which leadership, awareness and recognition exertion become key elements for its operation.

Among all options occurring nowadays on the subject of collaboration, it is to stand out communities of practice as a concept of high strategic interest, given its linkage to an area of specific knowledge and interest for organization which includes collaboration within a process from which a result is expected.

THE FRAMEWORK FOR COMMUNITIES OF PRACTICE (COP)

In this sense, the purpose of existence of the communities of practice (Wenger, 1998; Wenger & Snyder, 2000) is oriented towards the creation of a common area for individual meeting in order to interact in benefit of the generation, exchange and assimilation of experiences around specific application areas with clearly defined objectives. Interaction that facilitates the transfer of knowledge to the creation of innovation and development

of core competencies in the company (Almeida et al, 2003).

This common area should use, on one hand, the cycle of knowledge reception, diffusion, assimilation and renovation in the organizational data base, structuring the experiences and facilitating its members' searches and contributions. This way, we can apply to CoP, as an agent, the whole model of knowledge governance from the viewpoint of both the loop and seven strategies, i.e., technology and market watch, tacit knowledge management, communication model, individual and organizational learning, quality and R&D.

On the other hand, it should also facilitate the relation among community members beyond mere information exchange, which is the only way to make non-specified knowledge appear in reports of formal nature. This exchange dynamic is only possible if mission and objective internalization occurs within the context of the community, since that internalization would facilitate the flow of the interaction cycle which will favour cohesion among its members. (See Figure 1).

A consolidated CoP represents the natural place we turn to when we need to seek for advice or raise requests linked to its field. The development of practice and attention to requests raised to the community facilitates the replication of experiences in order to dynamize and accelerate the velocity of the organizational learning cycle. CoP is grounded on three basic pillars which provide it with a management framework and the necessary support tools for its operation:

- Technology provides with the necessary tools and means to create effective collaboration areas from an operational viewpoint.
- The organizational environment and the necessary culture to meet the objectives and necessities of the community, the organization and its individuals, in order to achieve an identity and generate policies and appropriate management plans grounded on a solid base of training, awareness (communication) and motivation (incentives and recognitions), and
- The management model through which the rules of the game are established, the definition of flows and work processes, identi-

Figure 1. Community of practice cycle

fication of actors (roles), knowledge types and their associated taxonomy.

Therefore, monitoring of practice in the community is carried out through indicators linked to four dimensions —namely, people, group, organization and business— which allow measuring the impact of the results, the generated and seized know-how and, through that, establishing strategies of impulse/monitoring which contribute to the creation of improvements and the alignment of objectives and actions.

CoPs are operational instruments for knowledge development at organizational level trying to support intellectual capital based on main intangible assets. Organizations needs a new space and channels to provide a scheme related to "open innovation" paradigm, where CoPs play an important role for operational and practical side developing networks based on functional knowledge.

Finally, the creation of a CoP may be mainly linked to two approaches, a push one, declared by the organization, in which practices structuring the community are decided and chosen by headship, involving a previous exercise of strategic reflec-

tion, and a pull one, whose approach is based on providing resources and support to those groups developing a certain successful collaboration labour within the organization.

Obviously, success expectancy of both options may turn out to be very unequal, especially if we bear in mind the predisposition to collaboration showed by both alternatives.

Horizontal value about CoPs is clear in the next examples from two different approaches creating a framework what is relevant due to its versatility as a model to propose inside other companies or institutions. Internal and external flows of knowledge are supported by a platform to active available know how following resources and capabilities theory (see Figure. 2).

SYSTEM AND DEFENSE ENGENEERING FIRM (SDE)

CoPs Project for a Business Based on Knowledge

Engineering and consultancy market has a clear trend towards knowledge Management consid-

Figure 2.Flows of knowledge in a community

eration as key processes Framework to promote quality standards and exploiting organizational know how. In this case, SDE (Systems and Defence Engineering) as Public Sector Company has a market very focused on military market where knowledge management approach is critical for competitiveness, taking into account knowledge as a core asset.

Inside this viewpoint, SDE has developed a strategic action involving different business areas to create a consensus about added value from knowledge, creating four action lines project:

- Organizational Intelligence, that is to say, systems to capture information about market and technology.
- Document Management, looking for a useful treatment of documents associated to a traditional framework for project management.
- Resources, Capabilities and Outputs Management, with the objective of identifying and exploiting internal services offer and obtained know how from different projects and actions lines.
- Experts Management, expert tacit knowledge management, through CoPs what promoting knowledge transfer among experts.

These four modules are the answers for the strategic plan about knowledge management not only from different schemes, but also taking into account an integration exercise, that is to say, creating a model to capture, register, exploitation, diffusion and sharing of knowledge. All of it inside an argument close to the business, clear results, in the sense of saves, synergies, improvements or client satisfaction.

CoPs approach inside expert knowledge management scope has a set of basic requirements for SDE:

- Definition of criterions to identify experts, creating channels and incentives.

- Participation spaces without geographical considerations.
- Spaces creation and agenda for experts sharing with an incentives plan.

This scheme creates a basement for a strategy planning what supporting successful CoPs development, inside key processes what are very important for the business. Project characteristics and employees geographical dispersion has technological needs what are supported by a virtual share space where CoPs have their "home" to:

- Include high value document and resources for sharing and comment.
- Open discussion lines about new subjects and opportunities for SDE business.
- Create internal documents and resources in order to evidence tacit knowledge, as way for organizational learning.
- Plan a useful offer (on line and physical) with offer and knowledge available in CoPs.

SDE market dynamic characterized by subjects as defence, security, transport, aerospace, ICT, etc; open a set of specific areas very wide then CoPs have to promote general scopes, that is to say, CoPs related to R&D and innovation.

CoPs activity has commitments around indicators established by top managers, because CoPs are useful tools to SDE business, as technology observatories supporting "intelligence unit", creating institutional "radar" to capture external information based on a set of keywords defined by such managers.

Inputs from "intelligence unit" resources and expert knowledge provide strategic raw material to create "state of the art" reports very useful to make decision process, monitoring market information. As an example, indicators about time to prepare commercial dossiers is decreasing because experts are now providing information to create

a database with all projects details in order to support business development plan.

In this way, CoPs orientation is focused on knowledge exploitation, especially tacit one, where organizational background explicit a critical requirement based on knowledge retention around a set of "core experts".

SPANISH NUCLEAR POWER PLANTS

CoPs as a Tool to Promote "Safety Culture"

Energy generation is a key issue in the last years promoting discussion about different options to obtain it. Creation and development of nuclear energy has been a difficult policy item taking into account a negative social perception.

The majority of arguments are involved inside a safety framework, strategic line very important for nuclear power plants (NPP), that is to say, a key challenge for quality systems.

Approach is related to "safety culture" where there are non technological factors what are located at the core of such culture. Knowledge management plays a significant role in this scheme, above all for human factor impact inside operational side of NPP.

NPP in the world develop an action line very focused in networking to promote routines and best practices sharing, in many occasions to much for assimilation levels of managers.

Traditional preventive scope has been positive, however, it has been created an incredible amount of document about procedures what needs order, structures and supports to access and exploitation, where there is a big pending list because non formal networks still are the way to obtain information and knowledge.

This reality has in Spain a particular background related to the end of professional career for a large set of employees. They were first employees

in the NPP, for this reason, their know how is a key asset for the mentioned "safety culture". In this sense, all NPP in the world have "knowledge retention" as a strategic work line.

This is the Spanish are after three years project for all Spanish NPP funding by UNESA, (Asociación Española dela Industria Electrica) taking into account USA "Standard Performance Model (SPM)" to identify key practices inside NPP activity.

Based on SPM project scope has been non invasive, supporting existing thematic group where there was a purpose to share information and knowledge, creating a technological platform and a set of objectives to measure business impact. In this way, it has been created different CoPs related to:

- Organization and human factors.
- Quality of Plant.
- Suppliers Evaluation.

Such communities were running as work teams with several yearly meetings, and a virtual environment to manage resources and developments, beyond geographical approach with continuous options to share information and knowledge.

Project has important considerations for the business apart of academic value about CoPs, sharing information and knowledge about real or possible incidents, taking into account negative approach to share them.

However, flow of shared knowledge is enough wide to find areas with direct impact on the NPP "business", including economical one. This is a specific case about "supplier evaluation" community where a common certified supplier's database allows saves in the evaluation process, avoiding an evaluation per plant. Such save is complemented by technological functions to control certification deadlines, cross-section analysis, supplier incident reports, etc.

CoPs approach inside nuclear sector is an International recognised tool showing its value

for "elicitation" process, where tacit knowledge requires a space and involved agents to create a useful flow for knowledge transfer.

FINAL CONSIDERATIONS

Current trends for knowledge Governance or Management have an important academic view developing models and proposals to support business decisions. Operational cycle about transition information to knowledge has been a key approach to create different strategies what are involved on organizational or technological tools. Perspective that facilitates the transformation process from a position of Knowledge Knowledge stock to another flow.

Knowledge governance projects go beyond papers taking into account values, culture, background, motivations and previous experiences, above all inside a knowledge management market very damaged by expansive software solutions.

In a knowledge management project technology is "free" because functional specifications are the main value, the model, objectives and processes. In this sense, CoPs must be a useful tool inside "the whole picture", not a trend or fashion project.

CoPs need a clear purpose, preliminary it is an internal reference, later can be an international one, as expert panel, observatory or worldwide site. Figures are a requirement to justify their contribution, and then it would be useful the creation of a scorecard to identify business impacts from CoPs.

CoPs should be developed by voluntary individuals, because institutional push (top-down) is generally a wrong way. Knowledge sharing requires attitudes closer to the soul of participants, and then organizations should to create a good atmosphere about "knowledge conditions".

In relation to examples, both showing CoPs approach as a way to create a formal knowledge valuation, identifying the framework for several questions, transactions and responsibilities around a thematic practice where CoPs play a significant role previously internal and possibly external (see Figure 3). This dual role, internally and externally,

Figure 3.Cycle of implementing community of practice projects
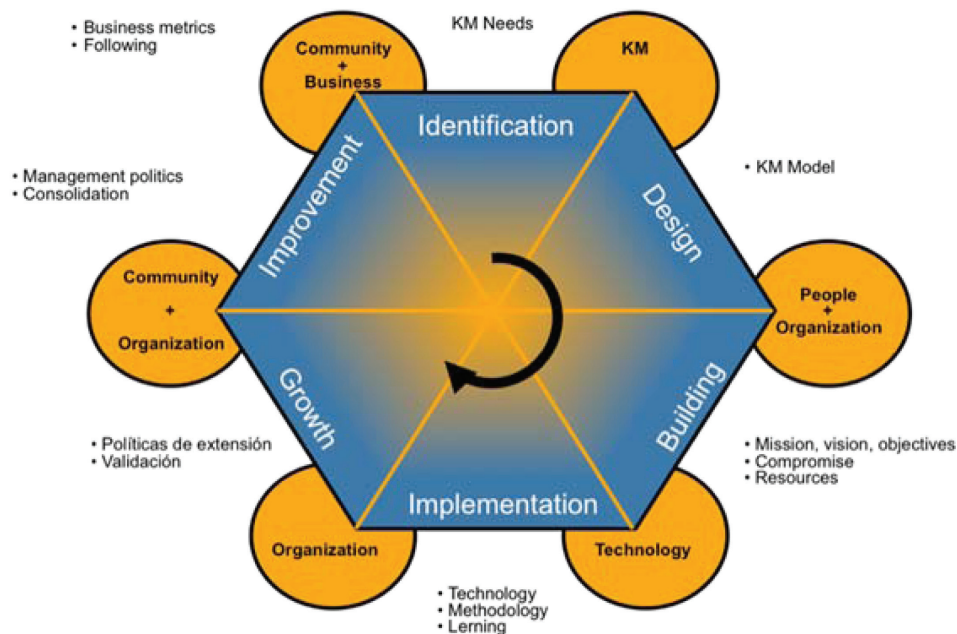
is what justifies the importance of COPs in current developments in open innovation systems.

Inside consultancy sector, CoPs are useful to create formal practices (methodology) and sharing operational experiences. Quality is on the basis of this behaviour and the main objective is about profits from knowledge management. Even more, CoPs can be important radar for organizations as an observatory around a concrete practice.

In the nuclear example, CoPs are tools for safety culture, creating standards around operational experiences where last objective is about knowledge retention, the most important challenge for the next NPP generation.

Finally, CoPs initiatives have a timing related to maturity level of the company, that is to say, if knowledge management is a relevant attitude, a recognized value, then CoPs could be a reality sooner than projects inside organizations where information and knowledge area considered properties and the main assets for personal development without any socialization process (Wenger, 1998). Organizational maturity what is showed through a knowledge governance model represented by CoPs in order to share knowledge and experiences among members, besides learning and collaborative working trying to support knowledge transfer based on technological platform as a best practice for innovation open systems.

In conclusion, this chapter has pretended to show CoPs as an innovative scheme for organizations, promoting learning processes with two clear examples. In this sense knowledge governance model is based on CoPs in order to support innovation as a core focus for sustainable development in current economy.

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KEY TERMS AND DEFINITIONS

Communities of Practice (CoPs): Tools for knowledge governance, mainly related to sharing strategies.

Knowledge Governance: Creation, development and management of knowledge.

Intangible Assets: Non physical resources what providing value to organizations.

Intellectual Capital: Identification and measurement of intangible assets.

Organizational Intelligence: Systems to capture external information about strategic areas.

Core Competences: Sources of expert knowledge.

Organizational Learning: Formal scope to improve knowledge flows inside organization.