A CONCEPTUAL FRAMEWORK FOR "PROFESSIONAL VIRTUAL COMMUNITIES"

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Professional Virtual Communities (PVC) are emerging as human centred new organizational arrangements aimed at leveraging knowledge development, value creation and social welfare. This paper is aimed at defining a conceptual framework for the characterization of PVC, suitable for ascertaining the correlation among PVC constitutive elements and potential stakeholders' expected benefits. Such a theoretical approach leads to the identification of PVC typologies, which would optimally integrate themselves in business ecosystems, while ensuring member's motivation, commitment and welfare. The characterization of an emerging Professional Virtual Community, ESoCE-Net, is reported as a first attempt in characterizing a PVC with reference to the newly established conceptual framework. The results reported in this paper are also based on activities carried out within the ECOLEAD IP project, co-funded by the European Commission under the 6th framework programme.

1. INTRODUCTION

Virtual or online communities are important social structures emerging from an Internet-enabled society. These communities bring together people of similar interests in order to communicate, to share and exchange information, to have fun or just to fulfil the need of social belonging and empathy. Virtual communities are enabled and empowered by internet technologies such as e.g. bulletin boards, list servers, newsgroups, chat rooms, work spaces, etc. Such communities invent new social-relationships, resulting in new behavioural patterns and new ways of sharing and creating knowledge, which creates specific value from their activities.

On the other hand, Communities of Practice (Wenger, 1998) have been around for many years and are described as "groups of people informally bound together by shared expertise and passion for joint enterprise (that) share their experiences and knowledge in free-flowing, creative ways that foster new approaches to knowledge" (Wenger, Snyder, 2000). Leavitt et al. (2001) point out that Communities of Practice have become more prominent and formalized in recent years because they develop critical organizational knowledge assets. Most communities are "boundary-spanning units in organizations, responsible for finding and sharing best practices, stewarding knowledge, and helping members work better".

When communities of practice adopt computer networks and most of the practices and tools of virtual communities (Gongla et al., 2001) on one side, and

pursue an explicit business mission on the other, they become Professional Virtual Communities (PVC).

2. THE PVC CONCEPT

In the current industrial context, the rapid evolution of technology has moved the focus from efficiency to creativity, for delivering suitable products and services to the economy. Furthermore, global challenges, such as environment, resources, competition, etc., are imposing new and harder constraints. With these challenges to face, the human capital is considered as an essential competitive advantage of business entities, being those both individuals, enterprises or communities.

Despite this situation, individual human potential is scarcely realized within current organizational business entities and within inter-organization business relationships. Among other causes, this situation is also activating a trend towards the increase of the percentage of Individual Professionals (self-employees, free-lancers etc.), which already constitute a considerable share of the total EU work force, as opposed to the Corporate Professionals' one.

A new organizational arrangement, referred to as Professional Virtual Community, is now emerging as the evolution of previous organizational schemes, to address, at the same time, the objectives of increasing the European Industrial competitiveness as well as the Knowledge workers' quality of life.

The innovativeness of the Professional Virtual Community concept stays in the comprehensive and appropriate inclusion of the three dimensions that are instrumental in increasing knowledge workers productivity and creativity:

- Knowledge
- Business
- Social & Ethics

According to this general definition, the PVC is intended to give to *individuals* motivation, a mean for economical sustainability and a feel of belonging, whilst addressing the objectives of the whole *society,* respectively in terms of knowledge-based work, economical growth and social welfare.

The characterization of the PVC concept is completed by the inclusion of appropriate ICT means, transversal to all the three dimensions, acting as necessary enablers for the PVC paradigm deployment.

The optimal harmonization of the three PVC elements can be seen, in a metaphoric sense, as the blending of the three basic colours (Blue for the Knowledge, Green for the Business, and Red for the Social dimension), resulting in one determined chromatic integration. This colour represents the inherent characteristics, as well as the delivered benefits, of a PVC typology which best fulfil the needs of a certain socio-economical context.

The following Figure 1 shows, as an example, the "colour" representation of a PVC which is mostly addressing the social aspects with respect to the Knowledge and Business ones, so positioning itself closer to the Social apex, within the triangular domain of all possible combinations.

Social
(red)

Example PVC
Mainly addressed to **Social** aspects
Relative importance of **Knowledge** aspects (50%)
Relative importance of **Business** aspects (25%)

Business
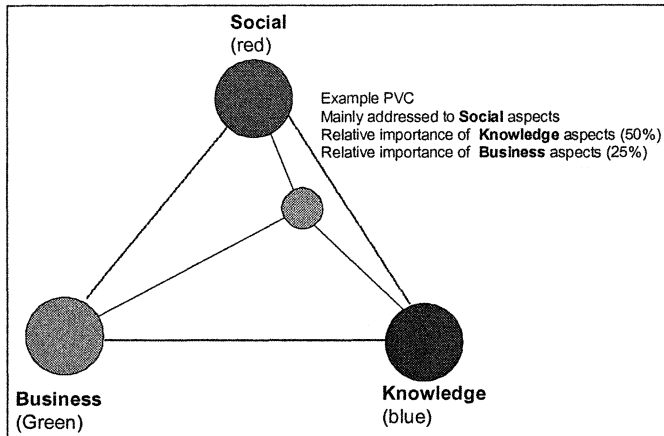(Green)

Knowledge
(blue)

Figure 1 – The PVC colors' metaphor

This model represents the three necessary elements for a sustainable, motivated and durable community. As a matter of fact, the absence of the business dimension would result in a limited activity scope, putting at risk the PVC sustainability and members' viability to spend significant time in the community activities. The lack of the social element, ensuring trusted relationships among the members, would limit the readiness to approach business opportunities and impair the free share of knowledge among members. Not addressing the knowledge development element would limit the usefulness of the community for the build-up of the knowledge society, reduce motivation of the knowledge worker and impairs his aspiration to obtain higher recognition and even economical reward.

3. THE PVC CONCEPTUAL FRAMEWORK

The Conceptual Framework for the characterization of Professional Virtual Communities has been developed through the integrated definition of:

- a framework for the identification of needs and expectations of all the PVC potential stakeholders, particularized for all the most relevant aspects of the three PVC dimensions;
- a taxonomy for the characterization of constitutive elements and governance principles of a generic PVC, suitable also for the identification of specifically related ICT means;
- a rigorous logical process for determining the correlation existing among the stakeholder expectations and the PVC distinctive characteristics.

Such a theoretical framework leads to the identification of PVC typologies, which would optimally integrate themselves in business ecosystems, while ensuring member's motivation, commitment and welfare. The same framework can also be used for the characterization of existing communities in terms of delivered benefits to both individuals and society.

The following paragraphs explain in more details the single constituents of the PVC conceptual framework.

3.1 The PVC stakeholders' expectations

The PVC stakeholder expectations have been also derived on the base of interviews from a representative sample of PVC potential stakeholders.

The PVC potential stakeholders are defined as all the entities which may be affected, in some way, by the PVC operations, in particular including:

- Knowledge worker (Employee, Individual Professional)
- Enterprise (Micro Company, SME, Large Enterprise)
- Virtual Organisation
- Virtual Breeding Environment
- Institution (Local/Regional, National, International)

The other dimension for structuring the PVC stakeholder expectations is constituted by the three PVC characterizing fundamentals, in turn sub-structured in their major elements:

- Knowledge (Single Discipline, Multi-discipline, Unstructured)
- Business (Economic wealth, Growth & Development, Welfare)
- Social (Networking, Social Relationships, Global sustainability)

The combination of those two dimensions (PVC stakeholders and PVC main characterizing issues) provides a grid for the identification of specific expectations, such as, for instance:

- Expectation of "Corporate Knowledge workers" for the Knowledge (single discipline) issue: *"Continuous incremental enhancement of own core professional discipline Knowledge and Competence (K&C)*
- Expectation of "Large Enterprises" for the same issue: *"Company hired functional experts are trained and supported in their discipline K&C development by a dedicated PVC. The Enterprise accesses the K&C of a single discipline by getting the services from the related PVC (through its members temporarily allocated)*

3.2 The PVC distinctive characteristics

The reference framework for the PVC distinctive characteristics consists of the characterization elements of a generic PVC in its mature operational phase, along with the governance principles ruling both its regular functioning as well as the dynamic PVC lifecycle phases.

3.2.1 The PVC constitutive elements

The PVC constitutive elements are the *static* elements that characterize a PVC, in term of its ontological, business strategy and composition characteristics:

- Ontological elements
  - o PVC Scope (field of knowledge / competence)
  - o PVC Mission
  - o PVC delivered Value (deliverables)

- o   PVC Shared ethical values (deontological code)
- Business strategic elements
  - o   PVC strategic objectives
  - o   PVC Business model
  - o   PVC Market orientation
  - o   PVC Lifecycle temporal horizon
- Composition characteristics
  - o   PVC Organisational elements
  - o   PVC dimension (Number of members)
  - o   PVC geographical/cultural spread
  - o   Members' characteristics (profiles)

As reported in the following Table 1, addressing the PVC specific requirements corresponding to a specific stakeholder expectations, each single element of the taxonomy is intended to identify both the PVC attributes and the related ICT enabling means.

Table 1 – Example of constitutive elements requirements and corresponding ICT means related to a specific stakeholder expectation

Stakeholder expectation		PVC Constitutive elements: Ontological elements			
		PVC Scope (field of knowledge / competence)	PVC Mission	PVC delivered Value (deliverables)	PVC Shared ethical values (deontological code)
E-K1 Employee – Knowledge (single discipline) Continuous incremental enhancement of the core professional discipline knowledge and competence (K&C)	PVC attributes	PVC scope precisely identified PVC scope coincident with the individual professional core discipline PVC Discipline Body of Knowledge	The PVC mission shall include the community increase of Knowledge & Competence on the PVC scope.	Community deliverables shall include documental formalisation of developed knowledge in terms of theory and practices relevant to the PVC professional core discipline The individual is also a client of the community deliverables	The strategic value of formalized knowledge is zero. The real strategic value is the capability of producing new knowledge. Hiding personal knowledge reduces that capability. Value=Knowledge sharing attitude
	ICT enablers	Structured Repository Ontology management	------	Document management Common repository	

3.2.2 The PVC governance principles

The PVC governance principles consists of the characterization elements of PVC management processes and governing rules, which have been grouped into the following clusters:

- Membership management (including, among others, the member qualification process, membership agreement, member profile management processes)
- Knowledge management (including all the processes aimed at supporting the Community Knowledge development)
- Business Process Management (including all the management principles and processes ruling the Community business activities)
- General Management and Support (including administration, PVC Management roles nomination and renewal processes, dispute resolution etc.)
- PVC lifecycle elements (i.e. the governing processes specifically aimed at ruling the PVC incubation, constitution, evolution, and dissolution phases).

As for the PVC constitutive elements described in the previous paragraph, also the PVC governing principle taxonomy can be used for both characterizing an existing PVC as well as identifying PVC requirements along with the corresponding ICT means.

3.3 The correlation process

The correlation existing among the stakeholder expectations and the PVC distinctive characteristics has been logically derived as follows:
- Identify specific stakeholder expectations
- For each stakeholder expectation:
  o Detail needs & expectation
  o Define Actual average situation
  o Ascertain the "reason why"
  o Determine how a PVC can provide a solution for reaching the stakeholder expectation by identifying the PVC constituent elements' and governance principles attributes. For each of them, define corresponding ICT enablers

Once determined, the established correlation among the stakeholder expectations and the PVC distinctive characteristics are used for identifying PVC typologies and characterize existing PVCs.

4. THE ESOCE-NET CASE

The characterization of an emerging Professional Virtual Community, ESoCE-Net, is reported as a first qualitative attempt in characterizing an actual Professional Virtual Community with reference to the newly established conceptual framework.

4.1 The Professional Virtual Community ESoCE-NET

The ESoCE-NET, European Society of Concurrent Enterprising Network, is a non-profit Association bringing together academics, researchers and industry

practitioners to stimulate the exchange of ideas, views, practices and latest research and developments in the field of Concurrent Enterprising:

Concurrent Enterprising is the co-operation among Companies, possibly geographically dispersed, harmonising their processes and involving Customers and Suppliers for the design and manufacturing of products and services. Concurrent Enterprising conjugates the Virtual Enterprise concept and the Concurrent Engineering approach into a new business paradigm.

ESoCE-NET is offering to its Members the full potential of a Knowledge Community, to provide members with most useful support in their way to competitiveness through the Concurrent Enterprising paradigm, and with professional opportunities to exploit their expertise.

As a Community, ESoCE-NET has the mission of promoting and enacting the sharing and exchanging of latest developments in CE, as well as to act as catalyst of CE adoption in Industry, and to promote initiatives to widen the knowledge on CE and to complete the methodological focused framework for the industrial deployment of CE Concepts.

4.2 A first characterization per PVC dimensions

From the first characterization of the ESoCE-Net community, carried out with the limitations already indicated in the present chapter, the following qualitative outcomes yielded:

- As far as the **knowledge** dimension is concerned, the distinctive elements of ESoCE-Net are very well correlated only with a specific sub-dimension, the "multi-discipline Knowledge", for the majority of the considered potential stakeholders. This confirm the specific intrinsic characteristic of ESoCE-Net as a Community whose knowledge scope can be defined a "multidisciplinary incipient discipline". This means that the knowledge dimension for this community is focused on the interaction of already established disciplines (such as engineering, economics, legal, social sciences, ICT) instead of the development of single disciplines. An identified gap consist of the lack of a theoretical foundation for the constitution of the CE body of knowledge. This point could also suggest the early identification of two PVC typologies, one dedicated to the development of an established discipline, the other dedicated to the tentative establishment of an incipient discipline as a composition of multidisciplinary knowledge.
- As far as the **business** dimension is concerned, it was observed that the distinctive elements of ESoCE-Net were very well correlated for the totality of the considered sub-dimensions, but only for some stakeholders, and in particular for the Individual Professionals.
- As for the **social** dimension, a well developed face-to-face interaction among members (e.g. ICE Conference and Industrial Forum) was not balanced by a virtually supported interaction.

In order to get an integral view of the ESoCE-Net characterisation, the position of this Community within the identified characterisation domain was also derived in a qualitative way. Figure 2 shows the graphical characterisation.
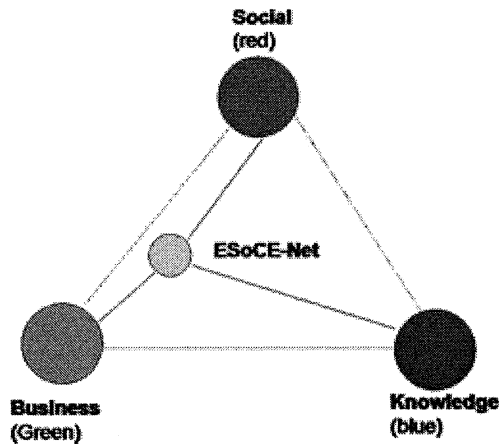
Figure 2 – The ESoCE-Net first qualitative characterisation

5. CONCLUSIONS

This paper presented the definition of a newly developed conceptual framework for the characterization of Professional Virtual Communities, suitable for ascertaining the correlation among PVC constitutive elements and potential stakeholders' expected benefits. Such a theoretical approach leads both to the identification of PVC typologies, which would optimally integrate themselves in business ecosystems, as well as to the characterisation of existing ones. In order to get the flavour of the possible outcomes of such a characterisation process, the ESoCE-Net case was considered, and the first qualitative results reported. The established conceptual framework will constitute the theoretical base for the identification of viable PVC business models as well as for the definition of PVC advanced collaboration platform requirements. The results showed in this paper are also based on activities carried out within the ECOLEAD IP project, co-funded by the European Commission under the 6th framework programme.

6. REFERENCES

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