

Chapter X

Knowledge Management and Interaction in Virtual Communities

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ABSTRACT

This chapter provides a classification of virtual communities of practice according to methods and tools offered to virtual community members for the knowledge management and the interaction process. It underlines how these methods and tools support users during the exchange of knowledge, enable learning, and increase the user ability to achieve individual and collective goals. In this chapter virtual communities are classified in virtual knowledge-sharing communities of practice and virtual learning communities of practice according to the collaboration strategy. A further classification defines three kinds of virtual communities according to the knowledge structure: ontology-based VCoP; digital library-based VCoP; and knowledge map-based VCoP. This chapter also describes strategies of interaction used to improve the knowledge sharing and learning in groups and organizations. It shows how agent-based method supports interaction among community members, improves the achievement of knowledge, and encourages the level of user participation. Finally, this chapter presents the system's functionalities that support browsing and searching processes in collaborative knowledge environments.

INTRODUCTION

The increasing achievement of the Web has led organizations to exploit collaborative technologies in order to cooperate in the generation of knowledge by developing new organizational capacities and encourage partnerships among different groups.

The cooperation can be achieved by a social-networking that improves and facilitates social interaction and enables one to remain in touch with friends exploiting the pervasive nature of information devices and services. In this context, an important role is performed by virtual communities.

A Virtual Community (VC) can be defined as an information source or the place of the knowledge creation (Kurabayashi et al., 2002) in which people share interests and information. The community participants have different knowledge or expertise and they can exchange useful information by communicating with each other.

VCS should be information rich, and they should allow information available for sets of people and not just for individuals. They aim to improve and encourage social processes allowing information sharing among colleagues, friends or people who share interests.

A virtual community aims to support shaping of a community memory and a knowledge base.

A particular kind of virtual communities are Virtual Communities of Practice (VCoPs) that represent just new organizational forms of cooperation using Information and Communication Technologies (ICTs) to carry out a collaborative environment. In 2002 Wenger (Wenger et al., 2002) defined the term Community of Practice (CoP) as a community that “binds together groups of people who share a concern, a set of problems, or a passion of the topic, and who deepen their knowledge and expertise by interacting on an ongoing basis.”

In a CoP the communication among partners occurs through face-to-face meetings. However, nowadays organizations are geographically distributed so that their activities have to be coordinated and integrated using ICT. This has reduced the use of face-to-face meetings that are too expensive and time-consuming. It has also led to choose collaborative technologies facilitating communication, and do not impose spatial and temporal constraints. Therefore, CoPs have become increasingly VCoPs.

Consequently, ICT is a key element for the development of a VCoP because it enables individuals and organisations to virtually access and share their knowledge. In particular, two main ICT aspects are relevant for VCoPs: *knowledge management* and *interaction process*.

ICT support is required for a range of different tools and services necessary for *knowledge management*, which is used for sharing knowledge and increasing collaboration to achieve organizational purposes.

The most frequently used technologies are the Collaboration Technologies that allow synchronous, real time manipulation of common data (network chats). An example of a collaborative virtual environment is a Web-based virtual community (Bouras et al., 2005) that provides collaborative functionalities and synchronous and asynchronous interaction services.

This chapter provides taxonomy of virtual communities based on knowledge management and interaction strategies. With respect to knowledge management, we consider the main functions of knowledge management within VCoPs and we infer that it mainly allows the collaboration among community members and the organization of community knowledge. Consequently, we classify VCoPs according to collaboration strategies and the knowledge structure. We distinguish: between (i) virtual knowledge-sharing communities of practice and (ii) virtual learning communities of practice; and among (a) ontology-based VCoPs, (b)

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