Chapter 21
CoPBoard:
A Catalyst for Distributed Communities of Practice

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ABSTRACT

Symbiotic computing leads to a proliferation of computing devices that allow linking people, favoring the development of distributed Communities of Practice (CoPs). Their members, being dispersed geographically, have to rely strongly on technological means to interact. In this context, coordinating distributed CoPs is more challenging than coordinating their collocated counterparts. Hence, the increasing role of the coordination should be supported by an adequate set of coordination tools. In this paper, we present an approach based on multi-agent systems for coordinating distributed CoPs. It includes analyzing the exchanges among members and translating this information into a graphical format to help the coordinators to follow the evolution of the participation and the domain of the community.

The notion of Communities of Practice (CoP) has interested academics, managers and consultants in the last few years. This interest is justified by the usefulness of the notion in helping to study and understand learning and collaborative work in education and management (Barton & Tusting, 2005; Cox, 2005; Gherardi, 2006; Hughes, Jewson, & Unwin, 2007; Kimble, 2006; Roberts, 2006; Soulier, 2004; Wenger, McDermott, & Snyder, 2002).

Such notion has been used in knowledge management initiatives by several organizations (for example: Brown & Duguid, 1998; Raybourn, Kings, & Davies, 2003; von Krogh, Nonaka, & Aben, 2001; Wenger et al., 2002). At the same time, the emergence of Internet based tools, rang-

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ing from email to virtual environments, facilitated the creation of distributed CoPs. Distributed CoPs use such tools to interact because they cannot rely exclusively on face-to-face interactions. The distance between members, the lack of awareness of other members, the higher number of members, the different cultural mindsets make coordinating distributed CoPs more demanding and challenging than coordinating a collocated/local one (Wenger et al., 2002). In this context, we think that the availability of coordination systems is highly desirable. A question is how to do it? Multi-Agent Systems could provide the adequate technology for supporting such an approach. Intelligent agents, being cooperative, proactive and adaptable, could perform tasks to decrease the additional workload of the coordination of a distributed CoP.

In this paper we present an approach for improving the coordination of distributed CoPs. The basic idea is to propose a tool that works as a catalyst for CoP by helping coordinators to follow the evolution of the participation in the community and the evolution of its domain (topics of interest). We first we introduce some definitions used in our research work. Then we present some requirements for supporting the coordination of CoP. Then we present the system that we developed following the requirements. Finally, we discuss the results of our research.

DEFINITIONS

We first give some definitions for the main concepts under consideration.

SYMBIOTIC COMPUTING

The concept comes from the view expressed by Licklider (1960) of man-computer symbiosis. In this view a person is tightly coupled with the digital space through traditional and new types of devices. In the neo-symbiosis approach (Griffith & Greiter, 2007) the relation between a person and the digital space can then be defined in terms of partnership, e.g. through a partner agent who has knowledge about the person and the community. Sugawara, Fujita, Kinoshita, and Shiratori (2008, p. 278) define Symbiotic Computing as "a methodology to realize human/society oriented functions". They consider that developing such functions requires integrating three types of functions: Ubiquitous/ Network Functions, Web Functions and Symbiotic Functions. Suganuma, Takahashi, and Shiratori (2008) propose to consider the Symbiotic Functions as a function space that includes Perceptual Functions, Social Functions and Mutual Cognition Functions.

Although our research and the tool presented in this paper were not developed in the Symbiotic Computing framework, we consider that they are closely related. Distributed CoP can only exist because a group of people in different locations are able to come together using Ubiquitous/Network Functions and Web Functions. On the other hand, a CoP helps to motivate people to connect using these functions. Furthermore, our tool, CoPBoard, can be considered to fulfill a Social Function. A function to acquire social information and heuristics related to communities is considered a Social Function (Suganuma et al., 2008) and it is exactly what CoPBoard does.

COMMUNITIES OF PRACTICE

Considering the development of the concept Communities of Practice, it is possible to observe three phases. In each phase, the concept undergoes important changes (Cox, 2005; Kimble, 2006). For our work, we adopted the concept presented in the third phase discussed mainly in Wenger et al. (2002) in which a CoP is defined "a group of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in the corresponding area by interacting on an ongoing basis." A CoP is an

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