Intranet Use and the Emergence of Networks of Practice

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INTRODUCTION

Communities of practice (CoPs) are key to today's knowledge management (Schultze & Leidner, 2002; Von Krogh, 2002). Moreover, the capability of exchanging professional knowledge beyond distance has become a strategic asset for innovative firms. How can members of local CoPs exchange knowledge with remote colleagues and create networks of practice (NoPs)? This article contends that the use of information technology (IT), and more specifically, of intranet systems, is especially suited to link local CoPs to an overall network of practice.

BACKGROUND

Communities of practice are social groupings whose members work in the same material context, interact frequently, acquire common knowledge, and experience similar professional concerns (Brown & Duguid, 1991; Lave & Wenger, 1991; Wenger, 1998). Members of CoPs work together and achieve activities that are for some similar and for others complementary (Gherardi & Nicolini, 2000). As they share the same work environment, they have frequent occasions to discuss directly about their job and unusual issues (Orr, 1990). Communities of practice unfold from a shared situation that creates a context favorable to direct encounters, mutual assistance in practice, and collective goals (Iverson & McPhee, 2002). Even though members of a CoP may not spontaneously name their workgroup a community, they usually acknowledge their membership to their occupational group and value its rules and principles.

CoPs display three distinguishing features: mutual engagement, joint enterprise, and common repository (Wenger, 1998).

- *Mutual engagement*: People join a CoP by committing themselves in actions whose meaning is mutually negotiated. Members of a CoP are related to each other through their mutual engagement in social practices.
- *Joint enterprise*: The community exists and provides social support and identity to its members to favor the achievement of common goals. These objectives may be explicit or not, officially defined or not, but members of the community engage themselves to complete them.
- *Common repository*: Over time, shared practices, repeated interactions, and the emergence of a shared culture provide traces of the community. Its members may refer to a common repository to deal with daily or more unusual issues. This repository may be material and concrete (files, forms) or more intangible (routines, specific idioms).

The network of practice extends the notion of CoPs beyond geographical distance. NoPs relate local CoPs whose respective members share occupational competences, job duties, and tasks, but who do not directly interact because of geographical distance (Brown & Duguid, 2000, 2001). As the literature on this notion is extremely recent, the appellation has not been stabilized yet. Some refer to "constellations of practice" or to "virtual communities of practice" (Gherardi & Nicolini, 2000). This article relies on the notion of "network of practice" as the most direct extension of CoPs beyond geographical distance. This phrase also explicitly accounts for the practice foundation of both communities and networks of practice.

People who are not collocated and do not necessarily know each other, but still achieve the same kinds of activities and experiment with similar identification processes belong to an NoP (Vaast, 2004). The relationships among members of an NoP are looser than the ones that characterize CoPs. Members of the NoP can nevertheless exchange on occupational issues. Although each local community displays idiosyncratic features, the overall network is characterized by shared knowledge, culture, and patterns of action. To some extent, the NoP also experiments mutual engagement, joint enterprise, and common repository.

The ways in which local CoPs may get connected to each other and favor the emergence of an NoP are, however, anything but obvious. Given that CoPs rely heavily on the sharing of a material context and on situated recurrent direct interactions, how may these local CoPs get connected into a network of practice?

It has been proposed that specific IS may favor CoPs (Brown, 1998) and may help spread knowledge among communities (Pan & Leidner, 2003). More specifically, the use of intranet systems seems especially suited to relate communities and networks of practice (Vaast, 2004).

INTRANETS, IDEAL TOOLS FOR COPS AND NOPS

Intranets are internal networks based on Web standards that aggregate and integrate various computing applications, such as e-mail, databases, groupware systems, or forums (Bansler, Damsgaard, Scheepers, Havn & Thommesen, 2000; Curry & Stancich, 2000; Ryan, 1998). Since 1995, intranets have represented a major growth area in corporate computing thanks to the availability of standard network technologies like Ethernet, TCP/IP, Web browsers, and servers. They have become increasingly more sophisticated and have integrated dynamic databases and various occupational applications. *Intra-nets are private networks that favor flows of information and applications among members of an organization or parts of it (Newell, Scarbrough & Swan, 2001). Specific groups may implement and appropriate their own intranet, and protect it with passwords and various levels of security. Moreover, intranets may easily be customized to various contexts and end-user needs.

Key features of intranets seem appropriate to fulfill the needs of CoPs and NoPs:

Interoperability: Based on universal Web standards, intranets connect local computing networks and unify multiple software systems. Interoperability is useful to connect various local groups, to create room for communication, and to share applications among members of diverse communities.

Cost- and time-efficiency: The wide availability of standard TCP/IP protocols and of other network standards have recently made the implementation of intranets easy, fast, and reasonably priced. Basic intranets only require the availability of one server and of local computers equipped with a browser and connected to the network. Thus, even informal communities may implement and appropriate their own intranet. This ensures that the specific needs of occupational groups are taken into account in the system.

Flexibility: Typical of the new generation of information systems, intranets are also highly flexible and may include multiple applications. IT professionals as well as end-users may thus customize them to take into account the specific needs of their occupational groups. Flexible intranets may also be transformed and enriched over time. As agents become more familiar with the network, they

can upgrade or introduce changes. Moreover, the flexibility of intranets makes it possible to adapt them, along with the emergence of an NoP from local CoPs. In particular, as the NoP emerges, communication features (through e-mail, FAQ or forum systems, chat) may become increasingly critical to create and maintain links among local communities.

Privacy: Intranets are private networks. Their design and architecture restrict access to authorized users. For instance, firewalls screen requests to the servers to make sure that they come from acceptable domain names and IP addresses. Mobile users may access the private network thanks to secure logon procedures and authentication certificates. Various levels of confidentiality also ensure that members of CoPs feel that their computing network is to be used only by peers and that outsiders will not intrude into the most private parts of the system (such as the ones that deal with occupational applications). Moreover, access rights and authentication procedures allow for differentiated uses by localized employees. For instance, an intranet may simultaneously present information relevant to all local CoPs and include sub-parts or folders dedicated to specific CoPs. Discriminate access in and among local communities favors the exchange of information and encourages the building of trust throughout the NoP.

User-friendliness: Based on hypertext interfaces and on graphical commands, most intranet systems are intuitive to use. Thus, no matter whether end-users are computer literate or not, they can easily learn how to make good use of the resources the intranet systems provide. As human-computer interactions are made easier and more intuitive, even members of CoPs who are not familiar with computers and computing networks may nevertheless consequently spontaneously appropriate their intranet. User-friendliness also favors end-users' willingness to improve features of the system and to adapt it to fit the communication needs of the NoP.

Two Examples of Intranet Use Creating Links Between CoPs and NoPs

The following examples show how an NoP emerges from the use of an intranet system by members of local CoPs.

Insurance Company Vendors

Thirty-five hundred vendors of an insurance company were geographically dispersed and worked in local teams of about 15 people. Vendors in any one team had many activities in common with vendors in other teams, but traditionally most felt that they were in competition with other teams from the same geographical area. The central headquarters of the company introduced an intranet sys-

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