

Effective Virtual Working through Communities of Practice

Chris Kimble

University of York, UK

Feng Li

University of Newcastle upon Tyne, UK

INTRODUCTION

Globalization is an issue currently affecting many organizations and is one that has profound consequences for the nature of work (Karimi & Konsynski, 1991; Ives & Jarvenpaa, 1992; Sachs, 1995). In order to work effectively in an international setting, companies are increasingly turning to trans-national teams (Castells, 1996; Lipnack & Stamps, 1997).

In the new, networked economy, knowledge is seen as an asset that needs to be managed and is central to the success of organizations (Boersma & Stegwee, 1996). Since the 1980s, many organizations have taken steps to outsource and downsize in an effort to remain competitive (Davenport & Prusak, 1998; O'Dell, 1998). More recently, international outsourcing, often known as off-shoring, has been happening at a rapid pace in a growing range of activities and sectors. Outsourcing, off-shoring, downsizing and programs of planned redundancy all mean that, as people leave, they take with them a valuable stock of corporate knowledge. This can be knowledge of how the work is done in practice and domain knowledge (Sachs, 1995). Some knowledge is easy to replace, but the knowledge of how a company operates is built over years and is irreplaceable in the short term.

In addition, many organizations now have to cope with the increasing internationalization of business that forces collaboration and knowledge-sharing across geographical boundaries. Working in a more internationalized setting places strains on the way a team operates, as they have to cope not only with geographical distance, but also time, culture and possibly language barriers. For such organizations, there is an urgent need to identify ways to work effectively in such groups.

BACKGROUND

The following sections of the article will introduce four key concepts used in the analysis of such environments: Virtual Workgroups; Distributed Collaborative Working;

the distinction between Physical Space and Electronic Space; and finally, Communities of Practice.

Virtual Workgroups

The concept of virtual working is not clearly defined and can include such overlapping concepts such as the virtual or networked organization, the virtual workplace, virtual communities, electronic commerce, virtual teams and teleworking (e.g., Igarria & Tan, 1997). At the most basic level, any workgroup that has members spread across several different locations could be characterized as virtual.

In this article, we will discuss workgroups that operate in the environment outlined in the introduction. Symon (2000) describes such a setting as an Information and Communication Technology (ICT)-enabled post-bureaucratic network organisation. Such groups can be classified along three dimensions (Kimble, Li & Barlow, 2000): the organizational level (same organization or different organization), the temporal level (same time zone or different time zone) and physical proximity (same place or different place).

Distributed Collaborative Working

Distributed Collaborative Working (DCW) is a form of social organization facilitated by ICT. The work is distributed either physically (e.g., carried out in different places) or temporally (e.g., carried out at different times). It can involve modes of working that are wholly synchronous, wholly asynchronous or multi-synchronous (where several activities proceed in parallel) (Dourish, 1995). It is also collaborative work, as it involves groups of people working toward a common end.

DCW is sometimes further broken into "Cold" and "Hot" DCW to reflect the different types of work that take place. Cold DCW comes about when the work being done is part of a collective activity, but is performed autonomously. For example, Kindberg, Bryan-Kinns and Makwana (1999) describe how the clinician's work is an example of

ICT-enabled, distributed collaboration, as they mostly work autonomously and at separate sites. In contrast, hot DCW is where the work undertaken is more interactive and requires the active presence of other members of the group (e.g., brainstorming).

Physical Space and Electronic Space

Since the late 1980s, numerous studies have been carried out on the geography of the information economy (e.g., Goddard, 1992; Li, 1995). One of the main conclusions is that the locational patterns of (networked) information cannot truly represent the geographical patterns of its use. For example, Li, Whalley and Williams (2001) argued that with the proliferation of ICTs and the rapid development of the information economy, organizations increasingly have to operate in two spaces simultaneously – the physical space and the electronic space.

It is clear that our notion of time has been significantly affected by the emergence of the electronic space. Global virtual teams can pass work in progress between an organization’s main economic centers (e.g., between the United States (U.S.), Europe and Asia) around the clock. Even in the same time zone, work in progress can be suspended in time (stored), which gives people the opportunity to organize their time more effectively. Similarly, with the emergence of electronic space, the nature and characteristics of place have been radically redefined.

Communities of Practice

The term Community of Practice (CoP) was coined in 1991 by Lave and Wenger (1991), who used it in their exploration of the activities of groups of non-drinking alcoholics, quartermasters, butchers, tailors and midwives. What linked these diverse groups was a mode of learning broadly based on an apprenticeship model, although the concept of CoPs is not restricted to this form of learning. In these communities, newcomers learn from old-timers by being allowed to participate in the practice of the community and, over time, newcomers move from peripheral to full participation in the community.

More recently, the notion of a CoP has been expanded to encompass a far wider range of definitions (e.g., Stewart, 1996; Wenger, 1998; Wenger & Synder, 2000) that were not part of Lave and Wenger’s original idea. For example, Wenger (1998) argues that CoPs arise out of the need to accomplish tasks in an organization and provide learning avenues within, between and outside that organization. In his view, a business is not of a single monolithic community but a constellation of interrelated CoPs that can spread beyond the borders of the “host” organization.

THE CASE STUDIES

Having briefly outlined four key concepts, this paper will now analyse some of the problems faced by virtual working using evidence drawn from two sets of case studies. These case studies illustrate both the variety of forms that virtual work can take and the range of tasks performed.

Study One: The Experiences of Ten Virtual Teams

This study consists of 10 case studies of virtual teams in different organizations. The case studies demonstrate the different forms that virtual teams can take, their applicability across various sectors and the benefits they can afford organizations and individuals. It also highlights some of the potential barriers to virtual working posed by the spatial and temporal separation of team members.

Background of the 10 Virtual Teams

In these examples, virtual working has allowed different organizations to work together in a more flexible and responsive way, for a single organization to share scarce expertise across geographical boundaries, to link together groups that would otherwise have remained isolated and to offer new services to geographically remote locations.

In Company 1, a virtual team operates between a CASE tool (Computer Aided Software Engineering) supplier and their main customers in the United Kingdom (UK). As part

Table 1. Background information on the case studies

	Main Activity	Location	Organization	Time	Place
Company 1	Software support	UK	Different	Same	Both
Company 2	Software development	UK	Both	Both	Different
Company 3	Software development	UK	Different	Both	Different
Company 4	Law firm	Germany	Same	Same	Same
Company 5	Secretarial services	France	Both	Same	Different
Company 6	Research/consultancy	Italy	Same	Both	Same
Company 7	Market research	UK	Different	Both	Different
Company 8	Medical services	UK	Same	Same	Different
Company 9	Medical services	Greece	Same	Same	Different
Company 10	Phone enquiries	Portugal	Different	Same	Different

of its services, the company provides constant, high-quality, technical support to its customers. In the past, the technical support staff travelled to the customers' premises, but a hot DCW solution was produced that enabled the company to work in a more flexible way. Similar applications of virtual working were identified in Company 2 and Company 3.

Virtual working can also spread expertise within a single organization. In Company 4, a large law firm in Germany had a number of small branch offices with a limited number of clients. The provision of a full range of professional legal services in such situations is expensive. The result is that a poorer, less-extensive service is offered in rural areas. In this case, a cold DCW solution was developed, which meant that a particular legal expert did not have to remain in the main office but could offer services from a branch office electronically. Similarly, Company 5 set up an information system to support communications between its central office in Paris and its satellite offices in the suburbs.

Virtual working can use a mixture of both hot and cold Distributed Working to link groups together in a collaborative enterprise. In southern Italy, a system was developed to link together several academic and research institutions to provide a range of research, training and consultancy services needed by industry (Company 6). Company 7 and Company 10 adopted similar solutions.

In some circumstances, virtual working can have a social impact beyond the world of work. For example, Company 8 developed a system to link a large central hospital with a small clinic on a remote Scottish island. Similarly, for Company 9, a new system was developed to provide full-time medical consultancy to small clinical units in remote rural areas.

The above case studies illustrate some of the benefits that virtual working can bring and some of the forms such work can take. However, virtual working is not problem-free: To achieve the full potential, there are a number of barriers to overcome.

The Barriers to Virtual Team Working

From the case studies, the most challenging aspect of working in virtual teams was the issue of trust. This was most clearly demonstrated when team members had to share work-in-progress electronically. For example, software developers (Company 2 and Company 3) were reluctant to share half-finished programs with others. Similarly, consultants and market researchers were often unwilling to share half-written reports with their colleagues (Company 6 and Company 7).

Even when team members were prepared to share information and knowledge with each other, the time and effort

required to do so could be a serious problem. Perhaps because of this, developing trust, a shared team culture and agreed procedures for effective communication – the essential common ground (Clark & Brennan, 1991) of a successful virtual work – remains elusive.

In the following section, we argue that some of these barriers can be overcome through CoPs, which can provide a mechanism for building and maintaining trust relationships.

Study Two: Distributed CoPs

Lave and Wenger (1991) studied co-located CoPs. The investigation by Hildreth, Kimble and Wright (2000; Kimble, Hildreth and Wright, 2001) was a study of virtual CoPs in a commercial setting. This study is an illustration of the range of activities that such groups can perform.

Distributed CoPs

Kimble, Hildreth and Wright (2000, 2001) describe the work of a virtual CoP in the research arm of a major international company. The CoP in question was the management team of the IT support function of the organization. This group had both a distributed and a co-located aspect and used a blend of hot and cold DCW. The group had four co-located members in the U.K., five co-located members in the U.S. and one member in Japan.

The main activity during the case study was the development of a planning document for use by both the U.K. and the U.S. arms of the company. In this case, it was the degree of trust and “team spirit” that existed in the CoP that was the essential element for successful distributed working. Because they had already developed strong working relationships with their peers in the U.S. and knew them so well, the U.K. core would continue to work on the planning document when “off line,” knowing that their peers in the U.S. had confidence in them.

Although a lot of the work was undertaken separately within the U.K. and U.S. cores, members met physically on a 6-monthly basis. Between these physical meetings, they maintained communication via e-mail, voice mail, telephone conferences and Microsoft NetMeeting. They felt that during the periods of electronic communication, the momentum of the group gradually slowed, until another meeting picked it up again.

The importance of having a good personal relationship with the other members was regarded as essential by all of the members, as this carried the community through the periods of electronic communication. As one respondent described it, “... you need that personal relationship if you are to go the extra half-mile for someone.”

CONCLUSION: EFFECTIVE VIRTUAL WORKING

We have seen from the two studies outlined above that virtual working can take many forms and undertake a variety of different tasks. However, today only a small proportion of virtual teams reach a level of performance beyond that which the individuals concerned could achieve independently. Further research is needed to understand the problems faced by virtual teams if they are to achieve their full potential.

Working in virtual groups poses problems not usually encountered when groups of people work in the same building. For example, developing a team culture and common patterns of behavior are essential for the development of credibility and trust among team members. To be effective, geographically distributed groups have to develop new ways of sharing knowledge and understanding in the electronic space.

The implications of the “two spaces” for virtual teams are profound. Instead of living in the physical space and place, and overcoming distance by transportation, organizations and individuals now have to deal with different combinations of work in both physical and electronic spaces. The geographical and organizational flexibility derived from these combinations mean that organizations need to adapt the way they manage both internal activities and external relations.

The CoP appears to be one way to facilitate more effective virtual team working and make some inroads into the complexities and challenges of the new business environment. The willingness to go “the extra half mile” in a CoP may help to overcome some of the problems of forming trust relationships in virtual environments. The feelings of trust developed in this way provide a sound basis for subsequent hot and cold electronic collaborations. Group, organizational, cultural and national boundaries can be crossed by building trust and understanding, and subsequently, the CoP becomes a vehicle for sharing organizational knowledge.

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KEY TERMS

Communities of Practice (CoP): The concept of a CoP was first introduced by Lave and Wenger in 1991 in relation to Situated Learning. Lave and Wenger (1991) saw the acquisition of knowledge as a social process in which people participated in communal learning at different levels depending on their authority in a group; that is, newcomers learn from old-timers by being allowed to participate in tasks relating to the practice of the community. Since 1991, the concept of CoPs has been extended and applied to areas such as Knowledge Management and virtual working.

Electronic Space and Physical Space: These concepts have been coined to describe the role of geography in the information economy. Rather than marking the “end

of geography” and the “death of distance,” the rapid development of telecommunications networks combined with the informatization of the economy and other activities, have enabled individuals and organizations to establish and maintain new forms of relations across time and space, often in ways impossible in the past. This essentially overlays a new electronic, virtual space on top of the physical space in which we live. For a detailed discussion of these concepts and their implications see Li, Whalley and Williams (2001).

Information Economy: This concept was created to illustrate a fundamental change in the business environment. The nature of the economy has changed as measured by the informational (intangible) elements of our products, services and production processes; and the proportion of the workforce whose primary activities are informational. Information has become the most important resource upon which the efficiency and competitiveness of all organizations depend. This is true in not only services or high-tech industries, but also across the board in primary and manufacturing industries—and in both private and public sectors.

Teleworking: The concept of teleworking was originally conceived during the oil crisis of the early 1970s to describe the possibility of working from home by means of computers and telecommunications to avoid the day-to-day commuting to the central office – telecommuting. Its connotation has since been extended to include all work-related substitutions of ICT for travel. Today, teleworking is generally used to refer to a variety of flexible work organizations with different combinations of work in the central office, at customer sites, in satellite centres, on the road or at home.

Virtual Teams: Lipnack and Stamps (1997) defined virtual teams as work groups that cross organizational boundaries and use ICTs to create “virtual spaces” that are real to the groups that inhabit them, yet are different from physical places. Since 1997, the use of the term has been extended to include a whole range of ICT-enabled flexible working arrangements. Today, a virtual team is defined as being a group of people who collaborate in the execution of a specific task while being distributed across space, time and organization boundaries where their collaborative efforts are supported by some form of ICT.