

Virtual Teams Classification

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INTRODUCTION

It is a considerable challenge for most of today's organizations to cope with the rapidly changing business environment, such as global competition and technology revolution (Townsend et al., 1998; Walker, 2000). In response to these changes, organizations must be more dynamic in their organizational operations and adopt innovative approaches to survive and compete effectively (Arnison & Miller, 2002). One of the successful ways is to establish "virtual teams" as organizing units of work.

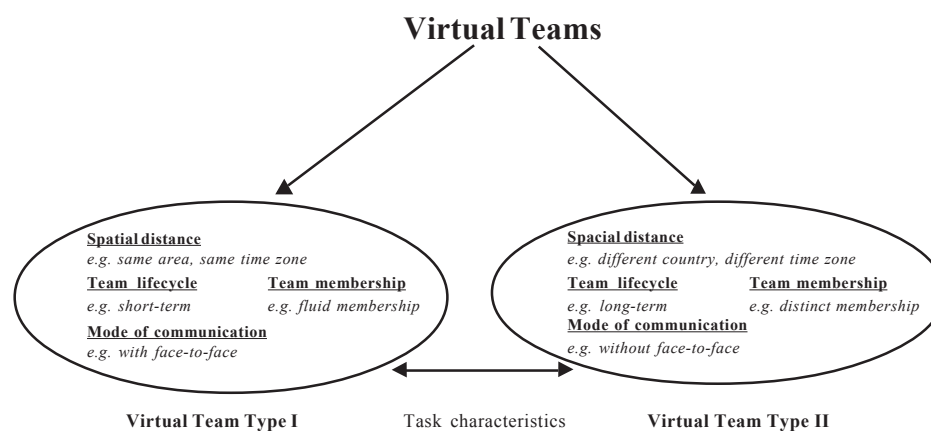
Virtual teams are groups of geographically and/or organizationally dispersed workers assembled together mainly by information and communication technologies (ICT) to accomplish one or more organizational tasks (DeSanctis & Poole, 1997; Townsend et al., 1998). Recent research has studied a wide range of potential benefits virtual teams offer to organizations, but implementations of virtual teams in organizations will be at risk if organizations fail to address many challenges faced in virtual context (Powell, Piccoli, & Ives, 2004). One of the fundamental questions is to understand the nature of virtual teams. Specially, what kind of virtual teams is the best fit with this organization and task? As Bell and Kozlowski (2002) point out, "the literature has tended to

treat virtual teams as a single 'ideal' type, yet there are several dimensions or characteristics that vary among and distinguish different types of virtual teams" (p.16). This article underlies four conceptual dimensions that distinguish different types of virtual teams from the literature review. The combination of these dimensions yields many possible types of virtual teams. We hope this classification could provide basic information for further research in virtual teams.

DIMENSIONS OF VIRTUAL TEAMS

The focus of this article is to locate key characteristics that vary across virtual teams, not to classify the types per se and give a rigid definition. There are four dimensions that can differentiate virtual teams from one another (Figure 1): spatial distance, mode of communication, team lifecycle and team membership. From the definition of virtual teams, we can see that the first two are crucial in distinguishing virtual teams from traditional ones (that is, team members use face-to-face communication). Task characteristics can be seen as a moderator in virtual team design (Bell & Kozlowski, 2002). In the following section, a description of each dimension is detailed.

Figure 1. Dimensions that distinguish different virtual teams (adapted from Bell & Kozlowski, 2002)



Spatial Distance

The most important characteristic of virtual teams is that their members are distributed across space, from local, national to global levels. The disadvantage of this geographical dispersion prevents them from face-to-face communication frequently. As the distance between team members increases, so does the chance of living in different time zones, which will make their communication more complex. For example, if team members live in different countries, they will have a great opportunity to live in different time zones. The differences in language, culture, tradition and access to different kinds of technologies will impede effective communication and collaboration in virtual teams. Spatial distance also implicates other distances, such as functional, organizational boundaries and culture boundaries (Bell & Kozlowski, 2002). Members from different organizations and different departments may bring different values, such as work methods, technology background and organizational cultures, which also make communication more complex. These distances yield many different types of virtual teams worth studying from different perspectives, such as global virtual teams (e.g., Jarvenpaa & Leidner, 1999; Maznevski & Chudoba, 2000) and Open Source Software (OSS) development teams (e.g., Gallivan, 2001; Elliott & Scacchi, 2003).

Mode of Communication

From the definition we can see that the one characteristic that distinguishes virtual teams from traditional ones is that virtual team members communicate and collaborate by using ICT. But that does not mean that virtual teams never use face-to-face communication during their team lifecycle. Studies have revealed that face-to-face communication, especially in the early stage of virtual teams, is extremely useful in establishing trust and keeping teams moving smoothly (Powell et al., 2004). Basically, there are two modes of communication in virtual teams: face-to-face (f2f) and ICT (both synchronous and asynchronous technologies). There are many types of ICT for virtual teams to use, from low interaction technologies (e.g., e-mail, voice mail, etc.), moderate interaction technologies (e.g., electronic bulletin board, chat rooms, etc.) to high interaction technologies (e.g., real-time data conference with audio/video, collaborative writing tools with audio/video links, etc.) (Duarte & Snyder, 1999). The percentage of f2f communication in virtual teams can also differentiate virtual teams, from low-level virtual teams (much f2f communication), typical virtual teams (with little f2f communication) to pure virtual teams (without any f2f communication). Which kind of communication mode

to choose (f2f or ICT) depends on many factors, such as task characteristics, members' access to technologies, financial support to get physically together and so forth.

Team Lifecycle

Team lifecycle is the time span a virtual team has from its formation to disbandment. The length of time that any virtual team needs to exist can vary greatly, which largely depends on the characteristics of tasks teams perform. For example, a virtual team working on writing a conference paper may exist only for a couple of months, while a virtual team developing a specific product may last for years. It is difficult to describe virtual teams according to exact existing time, but usually they are described into two types: short-term (weeks or months rather than years) and long-term.

Team Membership

Team membership in virtual teams may be fluid or distinct according to many factors, such as task characteristics and task progress. In some virtual teams that develop high-technology products, team members from different organizations with different backgrounds may join and leave the virtual teams as their expertise is needed, so the membership in this kind of virtual team is fluid. In other virtual teams, it is clear who is on the team and who is not, such as virtual teams performing regular and ongoing work in accounting. Virtual teams that have fluid membership may be difficult to identify from the rest of the organization, because fluid membership may lead to unclear boundaries with the organization (Duarte & Snyder, 1999).

Task Characteristics

In the above section, we discuss four dimensions that can distinguish different types of virtual teams. A particular type of virtual team can be defined by a combination of these four characteristics. Tasks virtual teams perform can influence the positions virtual teams take in each dimension. A fit between task characteristics and virtual team dimensions can result in better and easier team management.

Duarte and Snyder (1999, pp. 4-8) describe seven types of virtual teams according to task characteristics:

- **Networked teams:** collaborate to achieve a common goal or purpose.
- **Parallel teams:** carry out special assignments, tasks or functions that the regular organization does not want or is not equipped to perform.

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