Chapter 12
Dimensions of Team Distribution within a Software Team

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ABSTRACT
This chapter broadens the definition of distributed teams to include facets beyond geographic, cultural, and organizational boundaries. Through the example of a typical software development team and its version control process, it shows how varying the ability to share network resources adversely affects collaboration. This network connectedness dimension of variability is solved through progressive adoption of newer tools and techniques, which in turn have unexpected strategic benefits beyond solving the immediate need. From this example, a pattern is extracted that can be applied to any team by identifying a dimension of distributedness, implementing solutions, and capitalizing on those solutions.

INTRODUCTION
Typical Dimensions of Distributed Teams

We usually define a distributed team as one whose members are separated by distance, such as when team members are in different countries. We assume the distribution is either in (a) time, (b) distance, (c) culture, or some combination of these aspects.

Distributed teams have grown dramatically in recent decades accompanying a broader globalization of industry, decreasing hierarchical management barriers, and cross-organizational collaboration using virtual and often dynamically formed teams. Distributed teams have even pierced our popular consciousness. In the popular book The World Is Flat Friedman (2007) links the rise in globalization to a stark rise in telecommunications infrastructure spawned by the dot-com boom and by a simultaneous rise in affordable worldwide travel. Technological advances have dramatically lowered the obstacles to distributed teams and “businesses and multi- and international
organizations are assembling teams of experts who work together and participate in projects while remaining physically dispersed in geographically distributed locations” (Evaristo, Scudder, Desouza, & Sato, 2004, section 1).

Literature on distributed teams addresses the communication and managerial challenges that arise from such physical disconnection. Jarvenpaa and Leidner (1999) identify ways to improve communication and trust that dispersion usually damages, but limit their analysis to dispersion in time, geography, and culture. Others assess management challenges generally (Hertel, Geister, & Konradt, 2005), offer specific coping strategies for distributed teams’ communication conflicts (Hinds & Bailey, 2003), and techniques for measuring effectiveness of distributed groups (Maznevski & Chudoba, 2000).

Indeed physical distance and the resulting communication challenges are so pervasively assumed that researchers often burrow exclusively into communications solutions alone. Some address broad communications issues (Powell, Piccoli, & Ives, 2004), while others examine niche solutions like web-based conferencing as stepping-stones toward virtual team nirvana (Warkentin, Sayeed, & Hightower, 1997). The rise in distributed teams is predictably accompanied by a veritable boon in new software and infrastructure promising to meet the challenge. A number of silver bullets are just inches away from slaying the distributed team beast.

**Atypical Dimensions of Team Distribution**

What are we missing by so narrowly defining distributed teams? Are there other dimensions or defining characteristics that need to be equally solved for a virtual team to reach its full potential? Can we examine distributedness in aspects beyond geography and culture?

Some authors address the dimensionality of distributed teams in an attempt to add formality to this problem. In “A Dimensional Analysis of Geographically Distributed Project Teams” (Evaristo et al., 2004), the authors acknowledge that current research consistently overlooks defining exactly what distributed means. Rather than seeing a team as either distributed or not, they decompose a distributed project into facets like perceived distance, the types of stakeholders a team has, the type of project, or the systems methodologies at work. This formality certainly helps propel us toward a more disciplined treatment of distributed teams but, I argue, these still rely on the assumed nature of what makes a distributed team: communicative separation. We are left with the same core assumptions albeit decomposed more formally.

Other researchers have attempted to broaden the discussion of distributed teams into other dimensions besides distance and culture disparity. Examples include the degree of electronic dependence (Gibson & Gibbs, 2006), the degree of team member interdependence required for tasks (Axtell, Fleck, & Turner, 2004), and the degree of virtuality a team adopts in its daily routine (Kirkman, 2005). These all can affect the distributed team’s nature and therefore its effectiveness.

Missing from each of these treatments, however, is a meta-discussion of distributed team dimensions. That is, how can we define the distributedness of a team as a function of what aspects are most varying among the team members?

I propose we broaden the definition of distributed teams to break out of these assumptions:

*A distributed team is one whose members vary from one another in any dimension which significantly impacts the normal functioning of the team.*

By considering any variability as a form of distributedness we can attack it directly and seek remedies to the challenges it brings. We become aware of important disparities affecting our team’s efficacy we may otherwise overlook. This generalized approach also encompasses