Chapter 5.13

Visualizing Knowledge Networks and Flows to Enhance Organizational Metacognition in Virtual Organizations

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ABSTRACT

In today's increasingly networked world of organizational practice, information and computer technologies are enabling people and organizations to collaborate ever more virtually (i.e., even when distributed temporally and geographically). Despite the clear and many advantages enabled by the virtual organization, this increasingly common virtual organizational form is very demanding in terms of Knowledge Management. The key problem is that many otherwise knowledgeable people and organizations are not fully aware of their knowledge networks, and even more problematic, they are not aware that they are not aware. Thus organizational metacognition (e.g., an organization knowing what it knows) offers the potential to elucidate the key issues associated with knowledge networking in the virtual organization. The research described in this chapter builds upon a stream of work to understand and harness dynamic knowledge and organization for competitive advantage, with a particular emphasis upon knowledge networks and flows in the virtual organizational context.

INTRODUCTION

In the increasingly networked world of organizational practice today, information and computer technologies are enabling people and organizations to collaborate ever more closely, even when distributed temporally and geographically. Indeed, organizations themselves are becoming increasingly

virtual (e.g., see Davidow and Malone, 1992; Wong and Burton 2000): forming across formal organizational boundaries, national borders, cultures, specializations and time zones to collaborate on the accomplishment of projects that require specific mixes of expertise that the various participants possess (e.g., see Nissen, 2007).

Shekhar (2006) reviews substantial literature on virtual organizations, including a variety of definitions: "a temporary network of independent companies" (Byrne, 1993), "a bundle of competencies [. . .] pulled together to deliver a value" (Donlon, 1997), "an opportunistic alliance of core competencies" (Goldman et al., 1995), "an ever-varying cluster of common activities in the midst of a vast fabric of relationships" (Davidow and Malone, 1992), "a way of structuring, managing and operating dynamically" (Mowshowitz, 1997), and "organization in which workers are not physically but electronically connected" (Fulk and DeSanctis, 1995). Common among these is a focus on competencies and activities that are combined and managed at a distance (e.g., electronically), beyond the authority of a single organization (e.g., independent companies), and that involve dynamic interrelationships between participants (e.g., temporary network). This leads to (p. 468) a working definition that is suitable for our purposes here: *"...any organization with non-co-located organizational entities and resources, necessitating the use of virtual space for interaction between the people in these entities to achieve organizational objectives."*

By accessing, linking and coordinating the competencies and activities of multiple organizations, the virtual organization is able to increase the scope of its endeavors without the need to invest in and grow the requisite expertise internally. This can be particularly important in knowledge-intensive competitive arenas, in which opportunities are ephemeral, but the tacit knowledge required to seize such opportunities requires years if not decades to accumulate. Whereas a single firm, for instance, which lacked such tacit knowledge,

would be unable to take advantage of a knowledge-intensive opportunity within the time allowed by competitive pressure, this firm could team with one or more others, which had accumulated the requisite knowledge, and compete. Hence the virtual organization offers potential advantages in terms of the speed with which organizations can respond to ephemeral opportunities. Additionally, by teaming with one or more other firms, the resulting virtual organization would distribute the cost and risk of pursuing such opportunity effectively among each of the participating firms. Hence the virtual organization offers potential advantages also in terms of the cost and risk associated with responding to ephemeral opportunities.

Despite the clear and many advantages enabled by the virtual organization, however, this increasingly common, virtual, organizational form is inherently very demanding in terms of Knowledge Management (KM). This is the case in particular where knowledge-intensive opportunities are pursued: the same access to and integration of knowledge across participants that offers potential for competitive advantage to the virtual organization also requires identification, organization, sharing and application of such knowledge from different organizations. This serves to exacerbate a well-known KM problem that is severe even within single organizations (e.g., see Kogut and Zander, 1992; Szulanski and Winter, 2002). The problem exacerbation is even more pronounced where the key knowledge required to be access and shared across organizations is tacit: tacit knowledge is notably "sticky" (von Hippel, 1994), appropriable (Grant, 1996) and difficult to codify, substitute or imitate (Saviotti, 1998). Hence to realize the potential opportunities enabled by virtual organizations, its inherent and exacerbated KM demands must be met.

Knowledge networking becomes critically important in this context of the virtual organization. The term networking implies that the diverse chunks of knowledge are linked together—even loosely and informally—so that they can be identi-

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