Impact of Structures on Knowledge Contribution in Virtual Organizations:
The Asian Case

Xi Zhang, Chinese Academy of Sciences, China

ABSTRACT

As virtual organizations are becoming more prevalent, it becomes increasingly imperative to understand how to manage knowledge contribution. This paper uses data collected in conjunction with a global virtual team project to empirically examine aspects of adaptive and proactive structuration to contribute to knowledge in this area. The authors are interested in these research questions: (1) To what extent is the influence of proactive intervention? (2) What is the impact on team dynamics, with special attention to knowledge sharing, of the interplay between aspects of adaptive and proactive structuration? Propositions are established and evidence provided based on a project involving distributed work teams. Each team was composed of participants from different locations. Discussion focuses on managing conflict and maximizing knowledge contribution.

Keywords: Adaptive Structure, Knowledge Sharing, Managing Conflict, Multi-Cultural Virtual Team, Proactive Structure

INTRODUCTION

Virtual teams are increasingly commonplace and multi-cultural by nature but vary significantly in terms of spatial, temporal and configurational characteristics (O'Leary & Commings, 2007). Research studies have addressed numerous issues (e.g., Powell et al., 2004). Rutkowski et al. (Rutkowski et al., 2007) point especially to issues in global virtual teams. Knowledge sharing dynamics in global multi-cultural virtual teams is surprising complex and volatile but is also susceptible to management guidance. This fits

well with the notion of proactive structuration proposed by Griffith et al. (2007) as an extension of adaptive structuration theory (Desanctis & Poole, 1994) building on the work of Giddens (1979). Carte and Chidambaram (2004) also describe how "the purposeful deployment of certain collaborative technology capabilities, based on temporal milestones, can help leverage the positive aspects of diversity while limiting its negative aspects."

A number of research questions arise from the interplay between elements of adaptive structuration theory and proactive structuration in global virtual team contexts. To what degree can we find evidence of the influence of selected

variables? To what extent is the influence of proactive intervention? What is the impact on team dynamics (with special attention to knowledge sharing) of the interplay between aspects of adaptive and proactive structuration?

This paper uses data collected in conjunction with a global virtual team project to empirically examine aspects of adaptive and proactive structuration to contribute to knowledge in this area. Propositions and associated evidence are provided. The study is exploratory by nature with implications for future research.

LITERATURE REVIEW

Aspect of structuration theory combined with culture to provide a background for the study at hand with special attention to knowledge sharing and the role of technology. This review is kept purposely brief and, by no means, is comprehensive. Rather, it serves to provide a background to salient issues addressed in the study at hand.

Structuration Theory

Giddens (1979) brings into focus the study of communities from an institutional perspective albeit without particular attention to computer-based technology. Adaptive Structuration Theory (AST) provides a "model that describes the interplay between advanced information technologies, social structures, and human interaction" (Desanctis & Poole, 1994). DeSanctis and Poole posit that socio-technical outcomes are based on the social interaction derived from the combination of four sources of structure: technology (features & "spirit"), task (task knowledge or rules), organizational environment (social knowledge or rules of action), and the group's internal system (e.g., styles of interacting) (Desanctis & Poole, 1994). These four sources of structure interact to create boundaries around teams, and the incentives and disincentives for developing relationships with team members.

Manzevski and Chudoba (2000) build on the work of DeSanctis and Poole (1994) by explicitly classifying AST constructs especially suitable for virtual team study. They go on to study three global virtual teams and draw a number of observations positively supporting aspects of AST. They recognized global virtual team dynamics as a series of interaction incidents with emergent patterns supporting (when effective) a relatively limited number of structures. In this sense their work is consistent with the perspective of Gersick (1988, 1989) who noted a punctuated equilibrium nature of team interactions in face-to-face teams. Manzevski and Chudoba (2000) conclude that "within interaction incidents the medium and form are selected to match the function, but across incidents over time, the function is modified to match the medium and form." This dynamic as also been noted by Rutkowski et al. (2002).

DeSanctis and Poole (Desanctis and Poole, 1994) also note that organizational actors should be able to manage Adaptive Structuration Theory's "mutual influence of technology and social processes" such that certain outcomes are more likely to result than if the systems were allowed to evolve on their own. This sets the base for proactive structuration through management intervention in the context of knowledge management. Griffith (2003) suggest technology and organizational practices in ways likely to create better knowledge flow acting as a "trigger" for adaptive structuration. Griffith et al. (2007) note that organizational practices and technology tools can be used to adjust the situation such that knowledge capabilities can be increased in high tech environments. This perspective is consistent with Carte and Chidambaram's (2004) focus on aspects of collaborative technology capabilities combined with temporal milestones leading towards team effectiveness.

Culture

Culture is an inevitable aspect of global virtual team dynamics. Leidner and Kayworth (2006) provide an especially comprehensive review of culture in the context of information systems research. They note inherent conflicts between

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