Three Essays on Communication and Coordination in Distributed Organizations

Coordination is defined as the harmonious combination of agents or functions towards the production of a result[1]. Coordination – the alignment of action is one of the central pillars of organization; the other is cooperation, the alignment of interests (Barnard, 1938; Simon, 1945; Puranam and Gulati, 2005). Hence, understanding how coordination is achieved is one of the most important problems in understanding organization structure. Though coordination has been of interest to organization theorists since the 1920's, as a field coordination theory still lacks coherence and focus, and several scholars have suggested that our understanding of coordination is over two decades old (Bechky, 2003; Gulati, Lawrence and Puranam, 2005). Though early organization scholars emphasized the importance of both coordination and cooperation to achieve organized action, several scholars have recently opined that in its development over the decades, organization theory has focused almost exclusively on cooperation to the neglect of coordination (Grant, 1996; Heath and Staudenmayer, 2000; Puranam and Gulati, 2005). My research is aimed at generating a better understanding of coordination in both intra and inter-firm settings, particularly in the context of "distributed organizations" – organizations whose components are separated in space and time, yet whose activities must be coordinated to achieve organizational goals.

Coordination only matters when actions are interdependent – when the outcomes of actions taken by A depend in some way on the actions taken by B. Interdependence places constraints on individual actions, so that coordination requires recognition and responsiveness to such constraints. Traditional efforts categorize coordination problems in terms of the nature of interdependence (eg. Thompson, 1967). The increasing coordination needs between activities with pooled, sequential and reciprocal interdependence, are expected to be met with coordination by standards, schedules and mutual adjustment. The information processing approach to coordination treats interdependence as indicating a need for information processing (communication and decision making) and posits the efficiency argument that increasing need for coordination is met by designing increasing information processing capacity (Thompson, 1967; Galbraith, 1977). Information processing capacity is achieved by means of increasing communication between the interdependent actors. Much previous research in

[1] Oxford English Dictionary

coordination has therefore focused on improving communication, and improved communication is seen as the basis for improved decision making by individuals. This is the basis for a theoretical research tradition on the impact of IT on organizations starting with Malone, Yates and Benjamin (1987) as well as bold predictions in the practitioner literature with the advent of the IT revolution (Evans and Wurster, 1997; Hagel and Singer, 1999), which have only partially materialized. Other research traditions have also emphasized communication, for example, research traditions by Malone (1987) looks at governance mechanisms that optimize on required communication, and by Daft and Lengel (1986) looks at the media richness required for communication. In the micro tradition, a very large amount of literature looks at the communication conditions necessary for groups to coordinate and make decisions (see volume by Hirokawa and Poole, 1996 for a review of this literature).

However, research in several traditions suggests that communication may neither be necessary nor sufficient to achieve coordination. Communication may not be possible due to the scale of the problem (Camerer and Knez, 1996), due to the absence of a common language by which to communicate (Crawford and Haller, 1990) or due to barriers of space and time. Another reason for the failure of coordination is that communications may be disbelieved (Camerer, 2003; Chap 7). However, even in these situations, game theorists have long known that coordination without communication is possible by means of emphasis on psychologically salient coordination strategies, also called focal points (Schelling, 1960). The study of coordination games has remained under-developed till recently. Indeed, Camerer (2003) suggests that coordination games have typically been less studied due to the assumption among many economists that with communication (which is assumed to be unconstrained) all coordination problems are trivial. However he goes on to state "*this prejudice is wrong in practice and in theory*"(p337).

In the fields of social psychology and organization theory too, recent empirical findings are suggesting that processes other than communication may be important in achieving coordination in groups. Hollingshead (2001) points out that among small groups, sometimes, communication hurts rather than improves group performance, such as when communication disrupts the working of transactive memory in the group. Wittenbaum and Stasser (1998) find that in many situations, unconstrained communication hurts coordination by incomplete sharing of knowledge. Finally, Weick

(1993a; 1993b) has shown that under certain organizational circumstances, communication with a common language is still not sufficient to maintain coordination. This suggests that coordination scholars need to pay attention to mechanisms other than communication in order to study coordination.

Hence, as the first step in this research I study how organizations achieve coordination through mechanisms other than communication – what I refer to as tacit coordination mechanisms. The next step is to understand how these tacit coordination mechanisms interact with communication in order to achieve coordination. For this purpose, my empirical research is mainly focused on coordination situations where communication is difficult and expensive. By definition, distributed organizations as found in business process offshoring (BPO) represent situations of communication constraints that are only partially resolved through information and communication technology. Hence, the flavour of the work is along the lines of understanding some of the cognitive limitations to coordination (mainly as elaborated in literature), understanding how the tacit coordination mechanisms and communication (especially IT based communication), individually and collectively overcome these limitation to result in coordination and finally their implications for organization design. The proposal is divided into the following three studies to examine these questions.

The first study is a qualitative study that attempts to identify these "tacit" mechanisms that enable coordination without communication. In this research, I studied how global software services organizations achieve coordination of work that is (a) distributed across geographic distance (b) distributed across multiple firms and (c) the work itself is not-standardized, and thus firms are unable to coordinate by partitioning tasks into modules that coordinated via well-specified interfaces. Our findings indicate that neither coordination by plan nor coordination by feedback play a large role in achieving coordination in distributed software services. Instead, we find that global software firms coordinate action by generating common ground. Coordinated action in distributed settings is achieved by generating three types of common ground: Procedural , Cross contextual and Inter-personal. Common ground leads to coordinated action across locations by two means: the anticipation effect and the interpretation effect. We also find that firms rely on pre-existing common ground

within their boundaries, but have to rely on modularity and rich face-to-face communication to achieve coordination when working with other firms.

Drawing on insights from this study, the next study looks at how organizations can efficiently coordinate processes that are distributed across geographic and firm boundaries. Specifically, under what process characteristics do each of the coordination strategies, namely, modularity and well specified interfaces exchanging structured information, communication and unstructured and rich information transfer and finally coordination using common ground lead to efficient performance outcomes. The process characteristics of most concern are knowledge stickiness, knowledge system dependence and knowledge stability. In our pilot studies we find that firms undergo two distinct phases in the management of these processes: preparation and transition of the process, and steady-state management of the process. We expect that based on the process characteristics, firm (and inter-firm) level of competence in the three different types of coordination strategies and the investments in different process transition procedures (such as modularizing or developing common ground) we should see different efficient outcomes. In this research it is especially interesting to see the interaction between process characteristics for cooperation difficulties (such as potential for opportunism) and coordination difficulties (such as tight interdependence between offshored processes and processes retained onsite) and the corresponding efficient coordination strategies. For instance, based on modularity literature one would expect a modularization strategy when both these difficulties are present, drawing from the work tradition of Baldwin and Clark, 2000; Schilling and Steensma, 2001, while one would expect a common ground based strategy drawing on the based on coordination work on Helper, McDuffie and Sabel, 2000; Grandori, 1995; 1997; Kogut and Zander, 1996; Sobrero and Roberts, 1996; Dyer, 1996; 1997; among others. Drawing on the previous study, we should also be able to find the conditions under which developing one of the three types of common ground (procedural, cross-contextual and inter-personal) is especially important. I am not including specific hypotheses here space constraints.

This research is survey-based – surveys aimed at process managers who have offshored their processes and asks questions about the process characteristics pre and post transfer, transition mechanisms and steady-state management.

The final study also draws on the insights from the first study in terms of the need for common ground to coordinate across geographic distance. In this study we investigate the media-richness and task conditions that allows for quick generation of common ground when using communication. The literature on common ground indicates that communication achieves coordination because it is the quickest mechanism by which common ground is generated (Clark, 1996; Puranam and Gulati, 2005). The intention of this study is to identify how media richness affects the generation of common ground as well as how task conditions affect the perception of the level of actual common ground. In this study I suggest that teams emphasize certain types of common ground in certain types of tasks and they need media with certain richness characteristics to build this expected type of common ground. Specifically, I parse media richness conditions into the two dimensions of synchrony and bandwidth (Hinds and Kiesler, 1995) and I argue these media richness conditions are differentially required in order to provide the necessary knowledge conditions necessary for successful coordination of intellective and judgmental tasks (as manipulated by Laughlin and Hollingshead). Empirically, I demonstrate this theory by performing an experiment where me manipulate media richness conditions and task type. Unlike the other studies, this paper looks specifically at remote communication and the factors that affect the success of such communication as mediated by the generation of certain types of common ground.

REFERENCES AVAILABLE FROM AUTHOR