Chapter XX

Interactions Between Formal and Informal Organizational Networks

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ABSTRACT

In this chapter we present a model of organization aimed to understand the effect of formal and informal structures on the organization’s performance. The model considers the interplay between the formal hierarchical structure and the social network connecting informally the agents emerging while the organization performs a task-set. The social network creation and evolution is endogenous, as it doesn’t include any function supposed to optimize performance. After a review of the literature, we propose a definition of performance based on the efficiency in allocating the task of a simulated organization that can be considered as a network-based problem-solving system. We analyze how the emergence of a stable process in decomposing tasks under different market conditions can alleviate the rigidity and the inefficiencies of a hierarchical structure and we compare the performance of different hierarchical structures under variable environment conditions.

INTRODUCTION

The relation between the organizational architecture and performance has long been of concern to economists (Sah & Stiglitz, 1986; Bolton & Dewatripont, 1994). Their emphasis has been on efficiency, defined as being optimal when interactions are minimized. Traditional economics sees interactions
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in organizations from an economizing on coordination, transaction or information costs perspective. Interactions are considered as distracting valuable resources (time, attention, energy, equipment, etc.) from productive use itself (Williamson, 1985) and therefore interaction mechanisms are to be minimized. Interactions are seen as “allocative” and are used to coordinate events, functions, businesses, etc. such that these fit together and fit with predefined rules while minimizing the resources consumed to ensure the fit. They are determined by the mode in which the hierarchy and the division of labor are structured and they form an unbroken line from the top managers to the operative employees. As a result, the economics literature on organizations has mostly focused on hierarchies: by connecting $N$ nodes together with the minimum required number of $N - 1$ links and creating a chain of command that is only $L \sim \log N$ links in depth, hierarchies are almost as efficient as possible. Hierarchies require each node to interact directly with, on average, $b$ other nodes where $b \ll N$ and is generally called the “span of control” (Dodds et al., 2003). Numerous studies studied the optimality of hierarchical organizational networks for exerting control, performing decentralized tasks, making decisions, and accumulating knowledge (Van Zandt, 1998; Hart & Moore, 1999; Garicano, 2000; Visser, 2000).

This traditional economics view on organizational interactions holds true in product manufacturing-oriented organizations, in which the transaction costs are low compared to the production costs, strict hierarchical decomposition of tasks into independent units being possible. But in today’s knowledge intensive organizations, of highly transactional nature (North & Wallis, 1994), strict decomposition is not anymore possible and allocative interactions are not sufficient for explaining organizational performance. In such organizations, in addition to formal interaction of allocative nature, informal relations are important. These informal interactions can be categorized of being “generative” to the extent that they help individuals in organizations to generate new capabilities, gain new knowledge and insight in a way that allow individuals to handle complex situations (Morieux et al., 2005).

In the last decade, a growing attention has been devoted to informal interactions taking place in organizations. Empirical evidence (Nohria, 1992; Johanson, 1999; Cumming, 2004) has shown that in many organizations, informal interactions are even the primary means by which employees find information, solve complex problems and learn how to do their work. Moreover, informal networks existing in an organization and participating actively in the handling of practices can influence the formal, hierarchical design of the organization, leading to a co-evolution between formal and informal organizational networks (Volberda & Lewin, 2003).

Theoretical studies (Zander & Kogut, 1995; Garicano, 2000) have also been devoted to the role played by the informal interactions and network-related mechanisms in the behavior and capabilities of organizations. Most of them are based on the knowledge-based theory of the firm, where organizations are viewed as social communities specializing in efficient knowledge creation and transfer (Zander & Kogut, 1995). In this view, informal interpersonal networks emerge as a major component of the knowledge transfer process. Other studies, such as Uzzi (1997) focus on the association between informal network structure and organizational performance.

Under these circumstances, the main problem facing an organization is not efficiency, which is a static concept, understood roughly as being maximized when minimizing the number of costly links needed to support a specified task. When the organizational objectives become more various and less specified it no longer makes sense to speak of optimum or efficient solutions. The question is rather if the problem solving technique is robust, i.e. produces workable answers in changing task environments. The robustness, being seen as a highly dynamic efficiency, on the one hand, should protect individuals from being overwhelmed by the direct and indirect effects of changing and unpredictable patterns of
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