Industrial marketing firms and knowledge transfer: Toward a basic typology of community structures

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ARTICLE INFO

ABSTRACT

Industrial firm boundaries are dynamic, changing with every new alliance or acquisition. As boundaries evolve, managers must develop organizational structures that effectively leverage knowledge. This paper presents and explains the analytical foundation of a typology of community structures, featuring the basic structures of *Crew*, *Séance,* and *Guru*. This typology is applied to three examples of knowledge transfer in industrial marketing. A competence exploitation example examines knowledge transfer between a firm and a subsidiary established primarily for increasing existing product sales in a new market. A competence creation example examines the community structures for utilizing the product and market knowledge of a subsidiary to benefit the firm's new product development decisions. The final example examines the "tech vs. touch" tradeoffs in interpersonal communication and knowledge transfer. The back-to-basics typology of community structures helps stimulate strategic thinking, and facilitates future explorations of knowledge management in industrial marketing.

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1. Introduction

The boundaries of industrial firms are dynamic, changing with every new partnership, outsourcing alliance, research partnership, acquisition and divestiture. As firms evolve and disperse geographically, managers need to develop organizational structures that leverage knowledge more effectively. In a globally competitive environment, knowledge management is fundamental to firm survival and growth (Grant, 1996). Industrial firms are evolving into a network of networks (Ghoshal & Bartlett, 1990; Ritter, Wilkinson, & Johnston, 2004). Firms add new networks and structures with a range of objectives. The objectives or mandates of business units and subsidiaries evolve over time.

Communication across business unit, subsidiary, and geographic boundaries of the firm has become simpler in some ways, and more complex in others, as expectations rise and choices expand (Ganesan, Malter, & Rindfleisch, 2005). The choices reflect contradictions and trade-offs. Air travel is faster, but security, cost, and carbon footprint concerns are troublesome. The greater interconnectivity through electronic media has

increased the ability of individuals to interact freely, easily, and at a very low cost, but many people feel overloaded by the daily volume of email, instant messages, and text messages. The quick rise of Facebook and MySpace for entertainment and online networking in a personal context stands in direct contrast to the 1990s hype and crash of the business-to-business online communities such as Vertical Net (Kalakota & Robison, 1999). The Internet has changed the way people and organizations communicate and work, bringing along new benefits and new problems. As industrial firms develop strategies to build stronger networks for knowledge creation and knowledge transfer, questions remain on the roles of face-to-face interactions and online interactions for knowledge management.

Online and traditional communities play an important role in knowledge management. In the consumer environment, Shaikh, Rangaswamy, and Balakrishnan (2007) examine community structure in their study of the diffusion of innovation through small internet networks on Facebook. While they look at structure, the focus is on the innovation diffusion aspects and the role of opinion leaders in that diffusion process. In the business-to-business (B2B) literature, there have been extensive analyses of complex networks, especially in the context of buyer–supplier relations and supplier alliances (Ritter et al., 2004; Möller & Halinen, 1999; Möller & Rajala, 2007). Yet, there is little prior examination of the underlying structural prototypes of communities in either B2C or B2B contexts.

In the complex B2B environment, it is important to examine what can be gained from first looking at the basic structures of

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community. Identification of a typology of community structures can then facilitate future explorations of knowledge generation, knowledge transfer and the diffusion of innovation. As communities rapidly form, expand and evolve, a back-to-the-basics approach can provide clarifying benchmarks and insights for industrial managers concerned about knowledge management.

Structures and flows have been formally analyzed from multiple perspectives, initially in the sciences and engineering, with path-breaking work on group structures by Harary (1959) and Hare (1967). Issues of structure and process have philosophical roots that transcend all structures from the universe to the atom (see, e.g., Whitehead, 1979; Prigogine & Stengers, 1984; Gell-Mann, 1994; Kauffman, 1993), with more recent work examining issues related to the creation of computer networks (Tanenbaum, 2002). In the social sciences there has been considerable research in psychology and sociology (e.g., Wasserman & Faust, 1994). In the management literature, the emphasis has been on the organizational structures of firms, and the benefits or limitations of different structures in different environments (6, Goodwin, Peck, & Freeman, 2006). However, studies in management typically describe particular situations, and do not address structure at the basic or generic level. Identification of the basic structures allows structural changes to be examined as simple rearrangements in structural type. The purpose of this paper is to present a basic typology of community structures, explain the analytical foundation of community structures, and show how these structures can affect knowledge transfer in industrial marketing.

2. A basic typology of communities

Fig. 1 presents the three generic or basic community structure types of Crew, Séance, and Guru. The first three forms are fundamental and represent open and closed communities. Crew, Séance, and Guru are the basic atoms, and everything else can be built from them. The initial emphasis is on the elements and connections in the figure, not on the flow. As drawn, the connections among the elements in the figure do not show any particular direction (arrow) or flows. It is the difference between flows and connections that gives certain structures different practical characteristics.

The Crew structure may be characterized as "we are all in the same boat, but someone (the coxswain) is in charge to see where we are going". This is a basic linear structure which in most cases is a "top down" or from a single source like an opinion leader. Replicated, the linear segments generate the standard organizational chart (Molina, 2001), which is a larger and more complex boat, but a boat just the same, with a common fate. The coxswain in this case only directly interacts with the next closest neighbor and is dependent on each succeeding member to reach the goal.

Fig. 1. Basic community structures.

In Séance structures everyone is linked in a circle. There really is no head, as the medium is a facilitator. Each individual must stay connected to the individuals on either side or nothing will happen. If one person breaks the chain, the community cannot function. It is a closed structure that cannot be deformed into an open structure. There is also no end-point as one could start any place.

Guru structures are open structures with open nodes. The Guru interacts with every element (member) directly and there is no linkage between non-Guru members. In this structure everything is centralized, and very tightly controlled by nature of the structure.

This basic typology draws on past research across several fields. Each of the basic types of Crew, Séance and Guru is presented in Table 1, with examples from the management literature. For example, Séance has been described as a non-hierarchical enterprise network (Jagdev & Thoben, 2001). What we call the Guru has also been called a hub (Goyal & Joshi, 2003; Anderson & Jack, 2002, Bangens & Araujo, 2002; Kranton & Minehart, 2001) and a star (Billand & Bravard, 2004).

The literature on structures and networks is quite extensive. Although not intended as a comprehensive literature review, Table 2 offers a more in-depth look at how the recent literature has identified community structure. The Crew structure has illustrated an approach to coordination of organizational activities (Harris & Raviv, 2002). Séance has described the structure of global R&D projects (Chiesa, 2000). The Guru structure has been used to describe industrial supply networks (Kranton & Minehart, 2001).

The summary provided in Table 2 indicates the widespread recognition of a need to describe organizational phenomenon in more than words. It also indicates the lack of consensus on terminology and description. As noted by Easley and Kleinberg (2008), the anthropologist John Barnes described graph theory as a "terminological jungle, in which any newcomer may plant a tree" (Barnes, 1972).

The extensiveness of applications provides a strong argument for a "back-to-basics" approach of the typology of Crew, Séance and Guru, as these constitute the building blocks for more complex communities. Fig. 2 depicts two evolved structures, the Connected Caveman (Watts, 1999) and Ivy. Each cave (pentagon) can be considered as a unit or element (e.g., a division that works as a unit). The elements are connected in essentially the same way as the Séance structure in Fig. 1. Within each cave are several linear connections that represent a folding of a basic Crew structure. Consequently, the Connected Caveman structure is at its essence a combination of the Crew and Séance structures.

The Ivy structure is also a composite structure, as it contains elements of Crew, Séance and Guru. Whereas the three basic typologies are regular and symmetrical, Ivy can "grow" in what appear to be random directions or ways. Ivy's unique property is its random and non-regular structure. Ivy tends to grow based on the need of the participants in a random way by linking individuals according to interest or need just like an informal organization chart (Molina, 2001). It can have both open and closed segments, but cannot be deformed into either a crew or séance structure, hence has its own characteristics. In such communities, opinion leaders may emerge at the center of nodes, still others may form a smaller closed community within the larger structure as a group of friends might do on Facebook or MySpace, yet still be part of the larger group through external connections of the group members. It is not uncommon in an Ivy structure for closed groups to arise with only minimum connectivity to the larger group. This is similar to terrorist cells that operate almost autonomously (Krebs, 2002).

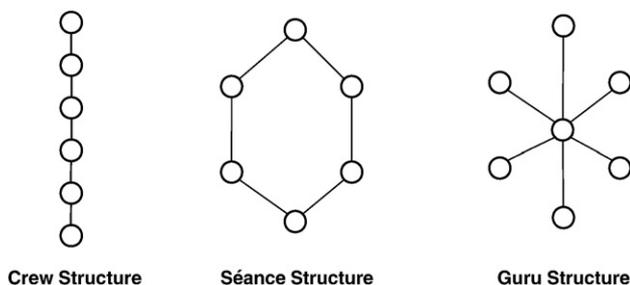The simple diagrams of Figs. 1 and 2 provide a helpful way to show the roots or foundations of the complex realities of