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Individual connectedness in innovation networks: On the role of individual motivation[☆]

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ABSTRACT

Explanations of knowledge sharing in organizations emphasize either personality variables such as motivation or network-related structural variables such as centrality. Little empirical research examines how these two types of variables are in fact related: how do extrinsic and intrinsic motivation explain the position that an employee entertains in a knowledge sharing network within an organization? Much is to be gained from a better understanding of how, empirically, psychological variables and an organization's network interrelate (Burt et al., 1998; Kalish and Robins, 2006; Moch, 1980; Teigland and Wasko, 2009). Still, this line of enquiry is not pursued much (Foss et al., 2009). This paper integrates the structural characteristics known to be implicated in knowledge transfer typically focused on in the social network literature on the one hand, with the motivational perspective commonly identified in the organization literature. This study examines how motivation – extrinsic (expected organizational rewards, reciprocal benefits) and intrinsic (knowledge self-efficacy, enjoyment in helping others) – might explain how employees may be better connected in the full knowledge transfer network or might be engaged more in inter-unit knowledge transfer. Connectedness (closeness centrality) and inter-unit ties are well-known to contribute to knowledge transfer. Analyzing data from a survey at two large European organizations, this study, counterintuitively, shows that neither intrinsic nor extrinsic motivation explain an individual's favorable position in a knowledge transfer network.

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1. Introduction

As firms find themselves in increasingly competitive markets and realize that they must be more innovative (Grant, 1996), the importance of knowledge transfer within their company is increasingly recognized. Knowledge may be spread throughout the organization and not be available where it might best be put to use. Transfer of knowledge within the organization to gain competitive advantage has thus received considerable attention in the literature (Grant, 1996; Teece et al., 1997; Moorman and Miner, 1998; Hansen, 1999). Scholars have emphasized that effective transfer of knowledge between employees within an organization indeed increases the creativity and innovativeness of that same organization (Tushman, 1977; Ghoshal and Bartlett, 1988; Amabile et al.,

1996; Moorman and Miner, 1998; Kanter, 1985; Hargadon, 1998; Perry-Smith and Shalley, 2003). Effectively orchestrating knowledge transfer to stimulate innovative outcomes certainly requires further attention, however (Jackson et al., 2006).

As pointed out by Foss (2007), organizations can seek to influence individual actions to help accomplish favorable outcomes for the organization as a whole. Such orchestration may start with an understanding of both what motivates the individual to transfer knowledge, as well as, structurally, with whom individuals exchange knowledge. The former is relevant to develop proper HRM policy to stimulate knowledge transfer (Wasko and Faraj, 2000; Kankanhalli et al., 2005; Quigley et al., 2007). The latter is indicated by an individual's position in the knowledge transfer network of an organization (Wellman and Berkowitz, 1988; Diehl and Stroebe, 1987; DeChurch and Marks, 2006). How each of these contributes to knowledge transfer in a firm has been studied in the past. Someone favorably positioned in the network in which innovative knowledge is transferred will perhaps unintentionally contribute more to firm-level outcomes than that of someone not well-positioned (Obstfeld, 2005; Tsai, 2001). The relationship between network structure and individual motivation, however, has not received much attention (exceptions are Kadsuhin, 2002;

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Kalish and Robins, 2006; Teigland and Wasko, 2009). Researchers commonly ignore how differences between individual might affect organizational network usage and benefits (Anderson, 2008¹). Nevertheless the structural patterns of relationships that emerge in organizations and form the social infrastructure for the transfer of innovative knowledge unavoidably implicate human psychology (Moreno, 1961; Simmel, 1950). In this paper we study how individual motivation may explain an individual's position in the structure of the network in which innovative knowledge is transferred. As such we aim to generate further insights into the psychology of the intra-organizational networks that facilitate the transfer of innovative knowledge.

Although studies on the influence of intrinsic and extrinsic motivation on individuals' knowledge sharing behavior are not new (e.g. Amabile, 1993; Hung et al., 2011; Kankanhalli et al., 2005), scholars have only begun to explore the effect of individual psychological differences on network structures (Klein et al., 2004; Anderson, 2008). The number of different issues addressed remains rather limited which may in part be due to the difficulty of collecting relevant data. The question as to how individual differences predispose actors to position themselves in a network of relations thus has not received a persuasive answer as a result. Social network researchers seldom discuss the effects of individual psychological differences on network structure and particularly not in the context of knowledge transfer, while scholars in the field of HRM seldom consider social networks (Mehra et al., 2001; Minbaeva et al., 2003; Kaše et al., 2009). Although personality characteristics have occasionally been linked to network position (a.o. Burt et al., 1998; Kalish and Robins, 2006; Klein et al., 2004; Oh and Kilduff, 2008; Burt et al., 2000), motivation has not been investigated in more detail recently (with Foss et al., 2009 as a notable exception). This is somewhat surprising as the seminal work of a.o. Moreno (1961) and Simmel (1950) already emphasized the relevance of linking social structures and psychological processes. And even although more recent work has begun to link motivation to knowledge sharing (a.o. Wasko and Faraj, 2000; Kankanhalli et al., 2005; Quigley et al., 2007), these studies continue to ignore the organizational network perspective. This study explicitly investigates the way in which motivation explains an individual's connectedness in the organizational knowledge transfer network, linking the structural patterns of relationships that emerge in organizations with human psychology.

We use the broadly accepted psychological construct of intrinsic and extrinsic motivation (Vallerand, 1997; Osterloh and Frey, 2000; Kankanhalli et al., 2005) to examine whether individuals with certain predispositions are indeed (1) better connected than others in a knowledge transfer network, in terms of closeness centrality, or (2) more engaged in inter-unit knowledge transfer. Individuals that are well-connected within the full knowledge transfer network of an organization, for instance, contribute significantly more to beneficial outcomes including to innovative knowledge transfer in particular (Nerkar and Paruchuri, 2005). We use the concept of closeness centrality to indicate the individual's position in the full knowledge transfer network, rather than merely observing her immediate connections. The connections an individual has may be within the own unit, while also knowledge transferred from other units, crossing unit boundaries, is believed to contribute to innovation in an important way (Burt, 2004; Aalbers et al., forthcoming). We thus also determine how individual motivation might positively influence her tendency to be involved in inter-unit knowledge transfer. By relating network structure elements to motivational variables, this paper thus contributes significantly to

the understanding of knowledge transfer within organizations and potentially benefits corporate innovation policies aimed at increasing employee participation in knowledge transfer and innovation.

2. Knowledge transfer within an organization: connectedness and motivation

Finding the person within a multi-unit organization who possesses the knowledge that one is looking for may be difficult (Szulanski, 2003; Hansen, 1999; Hansen and Haas, 2001). The relative autonomy of units within a multi-unit organization structure can create a lack of awareness of each other's activities on an individual and a unit level, limiting knowledge-transfer. Within a unit that specializes in one knowledge field, knowledge may also be of the tacit kind. The advantage of the tacit nature of knowledge is that imitation by competitors is relatively difficult (Nonaka and Takeuchi, 1995), but at the same time the tacitness of the knowledge requires a high degree of personal contact to disperse it throughout a company (Teece, 1998; Hansen, 1999). An individual's capacity to contribute to the innovation processes in a firm then depends not just on his own (absorptive) capacity originating from earlier experiences (Cohen and Levinthal, 1990), but also depends on the social, professional and hierarchical relations within the organization.

If one is not well-connected one's contribution to knowledge transfer and thus the innovation process can be limited. There have been a number of recent calls to focus on the specific role of individuals in leveraging knowledge transfer (Felin and Hesterly, 2007). While the literature on networks has been very helpful in suggesting the beneficial role of informal interpersonal ties for knowledge transfer (e.g. Granovetter, 1973; Hansen, 1999), the actual process through which organizational knowledge is transferred remains relatively under-explored in the literature (Schulz, 2003; Reagans and McEvily, 2003).

In this paper we focus on the social network characteristics known to particularly stimulate knowledge transfer within an organization (Ibarra, 1993; Tsai, 2002; Nerkar and Paruchuri, 2005; Teigland and Wasko, 2009; Mäkelä and Brewster, 2009), and study how an individuals' motivation helps explain how individuals will be well-positioned. More specifically we look at how an individual's motivation – extrinsic or intrinsic – explains their connectedness in the organization-wide knowledge transfer network at large, and also affects the maintenance in particular of inter-unit ties. Overall connectedness and inter-unit ties in a knowledge transfer network are each argued to be beneficial, as we explain below.

Individual motivation is indicated as the primary trigger for knowledge transfer (Osterloh and Frey, 2000; Lin, 2007) and as key determinant of successful or appropriate behavior by individuals within organizations in general (Deci and Ryan, 1987). When an employee is motivated it means he/she is moved to do something, which turns motivation in a main concern of any manager (Hung et al., 2011; Wasko and Faraj, 2005). Several prior studies explored conceptual (Bartol and Srivastava, 2002; Damodaran and Olpher, 2000) or qualitative approaches (Weir and Hutchings, 2005; Yang, 2004) to study the motives fundamental to knowledge sharing behavior. Motivation is believed to positively influence the amount of knowledge transferred (Gupta and Govindarajan, 2000; Tsang, 2002), and conversely lack of motivation in accepting knowledge from others leads to 'stickiness' or difficulties in the transfer process (Szulanski, 1996). Motivation is central to learning and lack of motivation can hinder knowledge transfer (Pérez-Nordtvedt et al., 2008).

In line with Osterloh and Frey (2000; Vallerand, 2000; Lin, 2007) we identify two broad classes of motivation – extrinsic and intrinsic motivation. Extrinsic motivation focuses on the goal-driven

¹ See Ibarra (1992, 1995) for one of the few exceptions related to gender and race.

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