



Neither invented nor shared here: The impact and management of attitudes for the adoption of open innovation practices

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ABSTRACT

Despite the massive interest in open innovation, limited attention has been expressed concerning the intra-organizational challenges in implementing it. An exemplary issue is the unwillingness of employees to undertake extra-organizational knowledge transactions in the form of negative attitudes against the sourcing of external knowledge (the not-invented-here (NIH) syndrome) and against the external exploitation of knowledge assets (the not-shared-here (NSH) syndrome). Using survey data collected from 331 firms, this article empirically assesses the theoretical assertion that the NIH and NSH syndromes have negative impacts on the adoption of inbound and outbound open innovation. Furthermore, it investigates how their effects can be reduced through competence-building programs based on the training of employees. By focusing on two attitudinal antecedents to openness, the findings offer an explanation for the problems that firms face in benefiting from inflows and outflows of knowledge and possible guidance as to how managers can disengage such attitudes.

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1. Introduction

"The management team [of our partner company] saw us as being incompetent and, in hindsight, did not recognize that it was due to their own employees unwillingness to outsource. The employees who felt the assignment belonged to their R&D department wouldn't let go of it. In a clever way, they managed to ensure that a number of things did not work out – and that can easily be done." quote from the CEO of an engineering consultancy.

This opening vignette illustrates great resistance from the employees of a partner company whose management had decided to outsource part of its R&D activities. The vignette illustrates the importance of employees' attitudes for the successful implementation of open forms of organizing for innovation. It epitomizes an issue many organizations currently face, as innovations increasingly become leveraged on the basis of collaborative practices carried with external partners (Ahuja et al., 2008; Cassiman and Veugelers, 2006). This trend, known as 'open innovation' (OI) (Chesbrough, 2003), has been increasingly recognized (Gassman et al., 2010; Huizingh, 2011; Knudsen and Mortensen, 2011; Van de Vrande et al., 2009) and acclaimed for its potential to lead to improved innovative output and firm performance (Laursen and Salter, 2006). As a result, the recommendation that companies should become more open to support innovativeness has prevailed in the discourse of academia and the business press for the past

decade (Chesbrough and Garman, 2009; Foss et al., 2011). Yet, as the experience of the engineering consultancy suggests, the way employees feel about such initiatives is decisive. Thus, in face of the increasing awareness about openness, are organizations and employees willing to receive and share knowledge with others?

The evidence available thus far is relatively scarce. Prior studies on employee attitudes to knowledge are based on anecdotal accounts or qualitative studies, with the notable exception of Herzog and Leker (2010). As a result, there is no consensus in the literature about which attitudinal tendencies prevail, and particularly how they affect the implementation of new forms of organizing for innovation such as open innovation. Besides, limited knowledge exists about how to foster the mindsets and the attitudes necessary for a company to engage in knowledge transactions in collaboration with external partners (Gassman et al., 2010; West and Borges, in press).

Empirical evidence about employee attitudes to knowledge is not only scarce, but also inconsistent, as it suggests contradictory results. While most studies have found that employees tend to be unwilling to collaborate, i.e. negative attitudes to knowledge sharing predominate (Herzog and Leker, 2010; Michailova and Husted, 2003; Mortara and Minshall, 2011; Reitzig and Sorenson, 2010), others have documented the existence of overly positive tendencies to knowledge insourcing (Menon and Pfeffer, 2003; Menon et al., 2006). Hence, although attitudes to knowledge have long been theoretically described as individual- or group-level phenomena related to the technical performance of organizations (Katz and Allen, 1982), little and inconsistent empirical evidence exists around them.

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Since employees carry a substantial responsibility for the actual adoption of new innovation management principles like open innovation, understanding the consequences and the managerial drivers of their attitudes to knowledge is of crucial importance. If the individual employee or group of employees is misaligned with top management in their desire to implement new practices, managers face significant challenges, which may threaten the very survival of companies (Huston and Sakkab, 2006; Lucas and Goh, 2009). Moreover, when confronted with undesirable attitudes, managers need to know how to mitigate them. This is important since attitudes are individual predispositions to respond to given objects which ultimately affect the actual behavior of people (Fishbein and Ajzen, 1975). Nonetheless, their effect can be diminished or strengthened depending on the context in which they operate (Crano and Prislin, 2006).

For the adoption of open innovation practices in particular, two of the most significant attitudes are the negative attitude towards the utilization of external knowledge (i.e. the not-invented-here (NIH) syndrome) and the negative attitude against the external exploitation of knowledge assets (i.e. the not-shared-here or Not-sold-here (NSH) syndrome) (Chesbrough, 2003; Katz and Allen, 1982; Lichtenthaler and Ernst, 2006), since they are related to the two dimensions of the openness concept. On the one hand, inbound open innovation corresponds to the outside-in dimension, which encompasses practices related to the absorption of external knowledge, e.g. through in-licensing or strategic partnerships. On the other, outbound open innovation corresponds to the inside-out dimension which encompasses the active use or commercialization of knowledge outside a firm's organizational boundaries, e.g. throughout-licensing or free revealing of innovations (Dahlander and Gann, 2010). This article investigates the theoretical assertion that *the NIH and NSH syndromes have negative impacts on the adoption of respectively the inbound and the outbound approaches to open innovation*.

Following the proposition above, this article disentangles the relationship between attitudes and openness in addressing the following research questions: *are employees' attitudes to knowledge related to open innovation practices? How can management mitigate the effects of negative attitudes to knowledge?* The article intends not only to empirically test the consequence of attitudes to the adoption of open innovation (with the view of resolving the current inconsistencies in the literature), but also to provide further theoretical ground to this relationship by drawing on socio-psychological research. In addition, it develops theory about potential managerial moderators of the open innovation-attitude link by analyzing organizational procedures that may reduce the effect of undesirable attitudes, in particular those related to employee training programs. Furthermore, a comprehensive list of open innovation practices is composed with the aim of capturing the richness of the construct.

The article proceeds as follows. The following section addresses the theoretical background of attitudes. Based on these theoretical insights, three main hypotheses are developed in Section 3. The empirical work is described in the Section 4, followed by a presentation of the results in Section 5. The empirical results then lead to a full discussion of the findings in Section 6. The article concludes in Section 7 with implications for theory and practice and with suggestions for future research.

2. Attitudes to knowledge and innovation

2.1. The NIH and NSH syndromes as key attitudes for innovation

The NIH and NSH syndromes have been identified as crucial attitudes to knowledge in the context of open innovation

(Chesbrough et al., 2006; Huizingh, 2011). This is because the implementation of open innovation practices rests on an initial valuation of outside competence and know-how by the management, founded on the attitudes of employees and of management, and weighted against the organizations ability to fully exploit purposive inflows and outflows of knowledge. The recent studies by Van de Vrande et al. (2009), Mortara and Minshall (2011) provide evidence to this point, showing that the organizational and cultural issues which arise when companies start to interact with external partners were the main barrier to the implementation of open innovation strategies both in small and medium-sized firms and in large multinationals. Teirlinck and Spithoven (2013) and Pedrosa et al. (2013) add to this debate by evidencing the role of R&D personnel qualifications and managers' characteristics in the processing of external knowledge.

Although interrelated, the NIH and NSH syndromes constitute conceptually distinguishable constructs, as they are directed towards different objects, namely external knowledge acquisition (from outside-in) and external exploitation of knowledge (from inside-out). The first relates to a piece of knowledge that has been developed outside the organization, but which may possibly be appropriated and applied internally (Katz and Allen, 1982). Conversely, the latter refers to a piece of knowledge that has been developed inside the organization, but which may be applied by others outside (Chesbrough et al., 2006). Both attitudes may nevertheless constitute a misalignment between the intentions of top management and the behavior of involved employees, since they create unfavorable perceptions of the value of outside competencies and know-how, lending support only to internal development and application of ideas and technologies.

Despite being widely mentioned in the literature (Chesbrough et al., 2006; Lichtenthaler and Ernst, 2006; Michailova and Husted, 2003), few studies have attempted to assess attitudes to knowledge directly. As Katz and Allen (1982) first introduced the term 'Not-invented-here syndrome,' on the basis of communication data to explain the decrease in performance of R&D teams over time, subsequent research has to a large extent followed this tradition. Studies such as the ones of Reinholt et al. (2011) and Hansen et al. (2005) use data on intra-organizational networks to argue that an overemphasis on within-team relations and communication can be seen as manifestations of the NIH syndrome. While acknowledging the valuable contribution of these studies, this article adopts a socio-psychological lens that highlights the attitude-theoretic fundamentals of the constructs. Put differently, the NIH and NSH syndromes are conceptualized as attitudes at the individual level that can be observed among employees prior to the engagement in innovation-related activities and that can, therefore, be directly examined.

2.2. What are attitudes and why do they matter?

Given the focus of our research on the attitudinal characteristics of the NIH and NSH syndromes, we draw on socio-psychology research to discuss in greater depth the nature of these constructs. All attitudes are social in the sense that they develop, function and change within a social context. Even if expressed in individualistic terms, they are causally connected with a person's social relations and thus, with the dynamics of group processes. Prior work has gathered considerable evidence showing that attitudes are to a large extent driven by social and group influences (Prislin and Wood, 2005). In the context of firms, this implies that attitudes are deeply embedded in an organizations' culture, together with norms, values, artifacts and other social principles. More specifically, attitudes to knowledge constitute a key part of an organization's innovation culture (Herzog and Leker, 2010). Nevertheless, attitudes are a central part of human individuality serving to express values,

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