



An integrated multi-stage model of knowledge management in international joint ventures: Identifying a trigger for knowledge exploration and knowledge harvest

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ABSTRACT

This paper examines the evolution of knowledge management from the initial knowledge migration stage, through adaptation and creation, to the reverse knowledge migration stage in international joint ventures (IJVs). While many studies have analyzed these stages (mostly focusing on knowledge transfer), we investigated the path-dependent nature of knowledge flow in IJVs. The results from the empirical analysis based on a survey of 136 Korean parent companies of IJVs reveal that knowledge management in IJVs follows a sequential, multi-stage process, and that the knowledge transferred from parents to IJVs must first be adapted within its new environment before it reaches the creation stage. We also found that only created knowledge is transferred back to parents.

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1. Introduction

Research has shown that an equity alliance can be considered a valuable conduit for learning (Fang & Zou, 2010; Inkpen, 2000; Inkpen & Dinur, 1998) and knowledge sharing (Mowery, Oxley, & Silverman, 1996). Local knowledge can be acquired through formation of international alliances (Makino & Delios, 1996; Tsang, 2002) and value can be created for parent companies (Berdrow & Lane, 2003; Inkpen & Dinur, 1998). Knowledge has long been one of the core topics in the studies of management of international joint ventures (IJVs) (Berdrow & Lane, 2003; Hagedoorn & Schakenraad, 1994; Hamel, 1991; Inkpen & Dinur, 1998; Michailova & Mustaffa, 2012).

Research on this topic has shed light on the relationship between knowledge transfer or learning and performance of IJVs (Dhanaraj, Lyles, Steensma, & Tihanyi, 2004; Doz, 1996; Fang & Zou, 2010; Inkpen & Crossan, 1995; Lyles & Salk, 1996; Pak, Ra, & Park, 2009). Since knowledge must be either shared between partners or transferred to an IJV in order to enhance alliance performance, the majority of researchers have focused on

identifying determinants of knowledge transfer, such as absorptive capacity (Lane, Salk, & Lyles, 2001; Mowery et al., 1996), learning capacity (Simonin, 2004), equity arrangements (Mowery et al., 1996), and organizational characteristics (Lyles & Salk, 1996; Pak & Park, 2004). Knowledge traits such as ambiguity (Simonin, 2004), tacitness (Dhanaraj et al., 2004), and stickiness (Jensen & Szulanski, 2004) have also been shown to affect the ease of transferring knowledge.

A few crucial issues remain to be addressed after a careful examination of the extant literature on knowledge management in IJVs especially related to exploration of knowledge. A link must be established between the knowledge transferred to IJVs from parent companies and development or transformation of that knowledge which might result in creating new knowledge. Extant studies mostly address issues related to knowledge transfer or learning, but the process of knowledge creation and exploration based on transferred knowledge has rarely been examined. For instance, Zhang, Shu, Jiang, and Malter (2010) showed a direct connection between knowledge acquisition from parents and knowledge creation (as moderated by alliance nationality), and Beamish and Berdrow (2003) presented IJVs as learning vehicles in which three types of learning opportunities exist. However, there is a lack of adequate understanding of the causal mechanisms and contextual factors in relations between knowledge processes (Foss & Pedersen, 2004). Thus, the link between knowledge transfer and knowledge creation in IJVs requires elucidation. What has been

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missing in the literature is the identification of the adaptation stage that initiates these learning opportunities – we think that a knowledge adaptation stage, in which transferred knowledge from the parents is modified within IJVs, triggers the following process of knowledge management that leads to knowledge exploration and harvest back to the parents. By paying a close attention to the knowledge adaptation stage, we are able to answer the research question that when does “the potential for knowledge transformation exists” (Beamish & Berdrow, 2003, p. 288).

Transformation of knowledge, which is defined as “integration, application, and leveraging of contributed knowledge and the creation of new knowledge as a result of joint activities” (Berdrow & Lane, 2003, p. 18), presents us a methodological issue. This definition is problematic when we actually build up constructs to measure the flow or evolution of knowledge in IJVs. Too many constructs – integration, application, leveraging, and creation related to a knowledge management – exist in one variable, i.e. knowledge transformation. Such concept may be acceptable for a case study, but for a statistical analysis of the flow of knowledge management, we need to identify a clearer construct for each of the knowledge stages. Therefore, we propose two activities – knowledge modification and exploration – for the measurement of the transformation construct. As a result, we contribute to the literature by building a model which presents a clearer relationship between knowledge activities.

In examining the learning process in the context of IJV knowledge management, we focus on three parts of the process: knowledge transfer back to parents, how knowledge evolves within an IJV, and the idiosyncratic nature of the evolution of knowledge. Not all knowledge is transformed within the context of the IJV, and not all knowledge is reverse transferred back to the parent companies. In this study, a clear picture is presented of knowledge evolution within an IJV. A stepwise process of knowledge evolution and the sequential development of knowledge are described within the IJV context. We demonstrate that only created knowledge can be harvested by parents and describe a multi-stage process in the evolution of knowledge management within IJVs.

A statistically rigorous treatment of the process of knowledge development, that is, how knowledge management is related to value creation in the IJV context, has been lacking (Foss & Pedersen, 2004; Inkpen & Dinur, 1998). Nonaka, Von Krogh, and Voelpel (2006) suggested that organizations take evolving paths to create knowledge. They found that knowledge creation is a continuous process constrained by individual boundaries, past learning, and new knowledge. Inkpen and Dinur (1998) discussed creation of alliance-based knowledge, accentuating a process of learning. Transfer, transformation, and harvesting have been identified as processes of learning or knowledge exploration (Beamish & Berdrow, 2003; Berdrow & Lane, 2003). However, statistical examination of these multiple stages of knowledge management is required. Previous studies identified the evolutionary or process-oriented nature of knowledge development, but failed to outline the sequential process supported by rigorous statistical methods.

In this study, the idea of knowledge process, or the evolutionary path of knowledge creation, is extended to the context of knowledge management within an IJV. A trigger of knowledge exploration, i.e., knowledge modification, is examined. Built on the findings of studies of knowledge transfer (Dhanaraj et al., 2004; Jensen & Szulanski, 2004; Mowery et al., 1996; Simonin, 2004), acquisition (Lyles & Salk, 1996), adaptation (Jensen & Szulanski, 2004; Szulanski & Jensen, 2006), and transformation (Beamish & Berdrow, 2003; Berdrow & Lane, 2003), an integrated multi-stage model of knowledge management is presented in the IJV context. While the extant literature highlights each of the knowledge stages, we try to answer Foss and Pedersen (2004) and show the

causal mechanisms and contextual factors in relations between knowledge activities. Our model posits an adaptation stage that mediates between the stages of knowledge migration and knowledge creation, which becomes a precedent to a reverse migration stage.

The goals of this study are as follows: to establish and demonstrate this integrated model of knowledge flow through the progressive and multiple stages of knowledge management in IJVs; to examine the relationships among the multiple stages of knowledge flow; and to show the stepwise process of knowledge evolution in IJVs by means of structural equation modeling.

Each step of knowledge management is reviewed and a proposition suggested regarding the model of knowledge process from knowledge migration to reverse knowledge migration. Methods and results are presented, followed by a discussion and interpretation of the study's findings, and a conclusion.

2. Literature review and theoretical framework

2.1. Knowledge management in international joint ventures

The existing literature on knowledge management in the IJV context can be classified into three groups: studies that discuss the simple transfer of extant knowledge from parent companies to IJVs (Berdrow & Lane, 2003; Chen, Chen, & Ku, 2012; Dhanaraj et al., 2004; Lane et al., 2001; Lyles & Salk, 1996; Makino & Delios, 1996; Oxley & Sampson, 2004; Oxley & Wada, 2009; Shenkar & Li, 1999; Simonin, 1999a, 1999b, 2004; Steensma & Lyles, 2000), those that examine new knowledge creation or knowledge exploration activities in IJVs (Berdrow & Lane, 2003; Fang & Zou, 2010; Inkpen & Dinur, 1998), and those that investigate how knowledge is transferred back to parents, or reverse transfer of newly created knowledge from IJVs to parent firms (Beamish & Berdrow, 2003; Berdrow & Lane, 2003; Inkpen & Dinur, 1998; Rabbiosi & Santangelo, 2013) (see Table 1).

2.2. Multiple stages of knowledge management

As summarized in Table 1, extant studies tend to group knowledge management in IJVs into three categories. Building on the literature, we suggest a framework of knowledge management within IJVs, a sequential process of knowledge flow within IJVs, in this study. Four distinct stages of knowledge management in an IJV include (i) migration of existing knowledge from parent firms to the IJV, (ii) adaptation of the knowledge transferred from parent firms within the IJV, (iii) creation of novel knowledge through exploration by the IJV, and (iv) reverse migration of newly created knowledge back to the parents. A multi-stage model of knowledge management is depicted in Fig. 1. This model includes many knowledge-related activities and the location of each knowledge stage. In the following section, each knowledge stage and activity is explained in more detail.

These four stages constitute a series of knowledge activities in which the sequential path of knowledge management is displayed in the IJV context. Each stage calls for a unique corresponding activity of knowledge management: (i) knowledge transfer in the migration stage; (ii) knowledge modification in the adaptation stage; (iii) knowledge exploration in the creation stage; and (iv) knowledge harvest in the reverse migration stage.

2.3. Knowledge migration stage

The knowledge migration stage is initiated with the formation of an IJV. In this stage, each parent transfers its organizationally embedded knowledge to the IJV. This knowledge becomes the basis of new knowledge creation in the IJV. At this stage, parent

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