Chapter XV
Knowledge Management in Research Joint Ventures

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ABSTRACT

As innovation and technology management grow in complexity, the need for interorganizational cooperation increases. Part of this cooperation requires the understanding of how knowledge management and learning processes may function to support a successful research and development collaboration in multinational enterprises. To further this understanding we introduce a typology to help categorize various collaborative efforts within a research joint venture environment. The typology is based on two dimensions: the locus of the research joint venture knowledge and the knowledge management approach. This matrix leads us to deduce that different research joint venture (RJV) strategies can emerge as a result of these two dimensions. Finally, an evaluation of this relationship is completed using information and practices from data acquired from a broad-based study of European-based RJVs. Implications for research and management of these types of projects are also introduced throughout the chapter.

INTRODUCTION

New knowledge (especially technological knowledge) is viewed as the foundation for innovation, change, and sustainable competitive advantage. Today, there is no doubt that knowledge is one of the most strategic weapons that can lead to achieving competitive success (Grant, 1996). The primary role of research and development (R&D) within organizations is to create new knowledge or recombine existing knowledge in order to innovate and match with the changing market conditions. Roussel, Saad, and Erickson

(1995) suggest that the only real product of R&D is knowledge. Thus, the R&D process is knowledge intensive: it not only uses existing knowledge but also creates new knowledge, which provides competitive advantage to the firm.

Historically, firms organized R&D internally and relied on outside contract research only for relatively simple functions or products (Mowery, 1983; Nelson, 1990). From this point of view, firms adhered to the following philosophy: *Successful innovation requires control.* Chesbrough (2003) expresses this idea stating that companies must generate their own ideas that they then develop,

manufacture, market, distribute, and service themselves. Today, in many industries, global competition, product and process complexity, along with technological advances has made obsolete this idea of an internally oriented approach to R&D, forcing firms to rethink methods for new knowledge acquisition.

During the last few years, useful knowledge beyond the organizational boundary has become widespread, thus companies should not restrict their knowledge attainment only to what was developed in their internal research. For R&D to succeed, knowledge should be collected from all critical sources. This situation has made companies explore innovative ways that embrace and integrate external knowledge in conjunction with internal R&D. Thus, in recent decades there has been unprecedented growth in research joint ventures (RJVs) in order to expand firms' knowledge. Beyond competitive reasons, other explanations to this growth include greater government support and industrial policy, and relaxed regulatory policies. RJVs are seen as mechanisms enabling firms to learn and enter new technological areas, and to deal more effectively with technological and market uncertainty.

In multinational enterprises (MNEs), the success of this strategy depends on the proper transfer of knowledge developed by the RJV. Knowledge transfer concerns have impelled MNEs to provide local subsidiaries with knowledge flows from the RJV, strengthening local competences. MNEs by their nature are network firms. That means that they must be able to leverage their networks to effectively manage dispersed knowledge assets (Mudambi, 2002).

In order to interact effectively with the external environment and integrate the knowledge developed by the RJV, MNEs need to manage knowledge and its related processes. Because knowledge is a critical output of learning, successfully managing the learning process inherently involves the effective management of knowledge. Managing knowledge requires the introduction of criteria to decide which knowledge factor is most critical for the organization, and to govern these factors and conditions to guide the activities of knowledge acquisition (DiBella & Nevis, 1996). Thus, knowledge management and the knowledge-based view of the firm have become a central theme in innovation and R&D. Some scholars believe that competition is becoming more knowledge based and that the sources of competitive advantage are shifting to intellectual capabilities, away from physical assets (Subramanian & Venkatraman, 1999).

Given that knowledge management is recognized as a critical and central practice in R&D, managers and researchers have lacked management models that could be used as guides in this environment. With an absence of good conceptual models, understanding the effectiveness of knowledge management practices in RJVs is still a difficult task.

In light of this situation, MNEs increasingly demand frameworks to manage the knowledge developed by the RJV. In this chapter, a contingency theory is used to define typology of RJVs and examine the proposition that the characteristics of a RJV's knowledge base, integrated in the concept of the locus of the RJV, has an important influence on its knowledge management choice. Traditionally, contingency theory has focused on such contingency variables as environmental uncertainty, firm size, and firm technology. This chapter's approach, built on recent advances in knowledge management, establishes that the locus of the RJV, which refers to the stage of technical development at which the RJV operates, can be considered a useful contingency variable in its own right.

In order to reach this goal, different conceptualizations of knowledge management are evaluated. Essentially, the published research has these conceptualizations summarized according to two different perspectives (Daft & Huber, 1987; Mirvis, 1996; Garavan, 1997; Gnyawalli & Stewart, 1999; Hansen, Nohria, & Tierney 1999; Prieto, 2003):

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