

## Chapter III

# Can Virtual Networks Encourage Knowledge Absorptive Capacity?

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### **ABSTRACT**

*Organisations are finding it more difficult to keep abreast with the pace of change. The continuous rise of business opportunities and the increase in global competition demands a capability to acquire, assimilate, transform and apply external critical knowledge to renew and reconfigure existing capabilities and knowledge, and to innovate. Developing this dynamic capability requires, in turn, new proactive Knowledge Management tools and new organisational forms. This chapter presents a framework in which virtual networks constitute more flexible new organisational structures to absorb and create knowledge. It also describes how embeddedness in such a network can affect most of the factors identified as antecedents of absorptive capacity. In addition, it evidences the important role of the firm's relational capabilities in taking advantage of the relevant business information, knowledge, resources, technologies and capabilities circulating in the virtual networks.*

## INTRODUCTION

In the current business environment, characterised by intense global competition, rapid technological advancements, innovative managerial practices and increased pressure in demand, the importance of knowledge as a critical resource for firms' competitive advantage is widely recognised (Teece, 1998). This knowledge allows firms to create and sustain competitive advantages through, for example, management innovations, product innovations and process innovations.

Firms can generate knowledge internally by investing in the development of distinctive competences related, for instance, to R&D activities. However, because of their limited size, some firms can barely sustain all the structural costs involved in developing the necessary knowledge and capabilities internally to innovate and compete at an international level.

In addition, authors such as Chang (2004) and Phene, Fladmoe-Lindquist and Marsh (2006) find that firms operating in turbulent and unstable environments cannot be self-sufficient in creating knowledge, due to the tremendous risk it entails.

In a context where innovations are incremental or related to previous technologies, organisations can be confident of the internal development of knowledge without exposing themselves to high risks, since these kinds of technological changes are related to the firm's existing experience. However, in dynamic environments in which rapid changes and radical technological innovations occur, firms should be able to acquire external information, by focusing on the adoption of a strategy that emphasises the exploration rather than the exploitation of knowledge (March, 1991).

Similarly, Shan and Song (1997) suggest that firms in industries characterised by rapid technological change will find their competitive advantage eroded if they rely solely on internally existing knowledge and capabilities.

According to the dynamic capability view of the firm (Teece, Pisano and Shuen, 1997), in a changing operating environment, superior performance depends on the ability to recognise critical changes and knowledge and on the processes of renewing the firm's knowledge base and capabilities.

In this scenario, the mechanism for the creation and development of internal knowledge must be combined and complemented with the mechanism for the absorption of external sources of knowledge (Veugelers, 1997; Teece, Pisano and Shuen, 1997; Lowe and Taylor, 1998; Oltra and Flor, 2003). Firms should therefore manage two learning processes: an internal and an external learning process.

Despite the importance that information and external knowledge has for firms, its identification, acquisition and, above all, its implementation is a far from simple process (Veugelers, 1997). Consequently, organisations need to invest time and effort in developing their absorptive capacities (Kim, 1998). An increasing number of companies recognise that their competitive advantages are derived from knowledge resources that are deeply rooted in social relationships with other companies (Koka and Prescott, 2002; Uzzi and Lancaster, 2003).

Recent studies show how a firm's embeddedness in networks formalised in different organisational forms such as joint ventures (Vermeulen and Barkema, 2001), business alliances (Kumar and Nti, 1998; Ahuja, 2000; Lane et al., 2001; Chen, 2004), technology licences (Atuahene-Gima, 1992), and cooperation agreements with public and private research centres like universities and technology institutes (Meyer Krahmer and Schmoch, 1998) are increasingly used as knowledge sources to complement internal R&D activities that favour external knowledge absorption processes. As the market demands a shorter response time to environmental changes and a greater adaptation to varying customer needs,

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