



# Alliance type, alliance experience and alliance management capability in high-technology ventures

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## Abstract

We investigate a high-technology venture's alliance management capability. Thus, we develop a model that links differential demands of alliance type and the benefits of alliance experience to an observable outcome from a firm's alliance management capability. We test our model on a sample of 2226 R&D alliances entered into by 325 global biotechnology firms. We find that alliance type and alliance experience moderate the relationship between a high-technology venture's R&D alliances and its new product development. These results provide empirical evidence for the existence of an alliance management capability and its heterogeneous distribution across firms.

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## 1. Executive summary

Building on the recent theoretical notion that a firm's alliance management capability can be a source of competitive advantage [Dyer, J.H., Singh, H., 1998. The relational view: cooperative strategy and sources of interorganizational competitive advantage. *Acad. Manage. Rev.* 23, 660–679; Ireland, R.D., Hitt, M.A., Vaidyanath, D., 2002. Alliance

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management as a source of competitive advantage. *J. Manage.* 28, 413–446], we empirically investigate the effect of *alliance-specific* and *firm-level* factors on a high-technology venture's *alliance management capability*. We define alliance management capability as *a firm's ability to effectively manage multiple alliances*.

To test the effect of alliance type on alliance management capability, we first establish that the relationship between a high-technology venture's R&D alliances and its new product development is inverted U-shaped, regardless of alliance type (i.e., upstream, horizontal and downstream alliances). Then, we posit that different alliance types place differential demands on a firm's alliance management capability due to the different types of partners involved and due to the different types of knowledge being transferred. Finally, we argue that firms build an alliance management capability through cumulative experience with strategic alliances over time. We test the effects of *alliance type* and *alliance experience* on alliance management capability by drawing on a sample of 2226 R&D alliances entered into by 325 global biotechnology firms in the 25-year period between 1973 and 1997.

We find that alliance type and alliance experience moderate the relationship between a high-technology venture's R&D alliances and its new product development. These results provide some preliminary empirical evidence for the existence of an alliance management capability. The results further highlight the relevance of alliance management capability for high-technology ventures since alliance experience appears to be a distinct construct, different from firm age and firm size. Taken together, these results underscore both the ability of a high-tech venture to create a competitive advantage based on its alliance management capability and the risks alliances pose if the firm's alliance activity exceeds its alliance management capability. Managers in high-tech ventures need to consider their current alliance portfolio as well as potential alliances within the context of their firm's alliance management capability.

## 2. Introduction

Strategic alliances are voluntary agreements between independent firms to develop and commercialize new products, technologies or services (Gulati, 1998). The use of strategic alliances has grown dramatically over the last two decades, particularly in high-technology industries (Hagedoorn, 1993). Commensurately, allying has become critical to the success of high-tech entrepreneurial ventures (Powell et al., 1996). Recently, scholars have proposed that firms differ systematically in their alliance management capability and that these differences may be a source of firm-level competitive advantage (Dyer and Singh, 1998; Ireland et al., 2002). Thus, understanding how *alliance-specific* and *firm-level* factors impact a firm's alliance management capability is an important, yet under researched, question, especially in the entrepreneurial context.

Prior research has provided empirical evidence that an entrepreneurial firm's strategic alliances enhance its rate of patenting (Shan et al., 1994), product innovation (George et al., 2002; Kelley and Rice, 2002), speed to initial public offering (IPO) (Stuart et al., 1999), market valuation at IPO (DeCarolis and Deeds, 1999) and foreign sales (Leiblein and Reuer, 2004). Other studies have generally endorsed a positive effect of alliances on entrepreneurial firm performance, but cautioned that there may exist diminishing returns to extensive allying

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