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# Designing interorganizational networks for innovation: An empirical examination of network configuration, formation and governance

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### ABSTRACT

Strategic SME networks have received significant policy attention, yet a review of the current literature reveals limited attention to the factors that contribute to network innovation. This study examines the influence of the number of member firms (network size), the extent to which a network is based on firm incentives (bottom-up formation), and the extent of development of the governance structure (size of administrative function) on a network's innovative performance. Latent growth modeling with longitudinal data from 53 networks reveals that larger networks and bottom-up formed networks achieve greater innovative performance, and that the administrative function partially mediates these effects.

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## 1. Introduction

Moving away from individualized business with local and regional customers and competitors, small- and medium-sized enterprises (SMEs) are increasingly required to be innovative to confront globalization and ever-increasing competition. Such demands have historically been met with the establishment and maintenance of strong interpersonal relationships among entrepreneurs, dyadic business relationships with a few selected partners, and the development of cooperative capabilities (Collins and Hitt, 2006; Tyler, 2001). However, in addition to such relationships and activities, SMEs increasingly involve informal networks of interorganizational relationships among several SMEs that

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work together as independent firms but with shared objectives. As a more formal cooperative form, strategic SME networks have been defined as “intentionally formed groups of small- and medium-sized profit-oriented companies in which the firms: (1) are geographically proximate, (2) operate within the same industry, potentially sharing inputs and outputs, and (3) undertake direct interactions with each other for specific business outcomes” (Human and Provan, 1997, p. 372).

This view on such networks is consistent with what has been reported in the existing literature (see, e.g., Fukugawa, 2006; Huggins, 2001; Lipparini and Sobrero, 1994; Sherer, 2003; Vanhaverbeke, 2001; Wincent, 2005a,b), where specific business outcomes are related to various forms of process, product, and technological innovation. These networks can be rather large in size (there are networks that comprise up to 100 member firms), wherein the member firms join together as independent firms under a common trademark and aim to develop innovation by joint forces. For example, the Swedish network YWOOD includes approximately 50 manufacturing firms that work together to develop new products related to the wood industry and experiment with complementary product concepts. The idea is that all customers will find what they are looking for within the network and that the network will offer competitive products to consumers on the international market. The idea is also to have a competitive and innovative product base to offer to large global retailers. Within this network, the participating firms have developed both manufacturing equipment to process wood in new ways and various new products that the member firms have successfully exported.

Obviously, there are no guarantees for success and there are many networks that have failed to produce innovation for their participants (Rosenfeld, 1996; Sherer, 2003). Despite the current significant policy attention and widespread implementation of SMEs as a tool to strengthen innovation and competitiveness (Hanna and Walsh, 2002; Rosenfeld, 1996), the academic study of how to design strategic SME networks is apparently still in its infancy. Even though a literature stream on strategic SME networks has started to develop and to research a variety of questions, scholars face a situation in which practitioners must design strategic SME networks without much specific support from the research community to guide their decisions (see, e.g., Ahlström-Söderling, 2003; Chaston, 1995).

Thus, in an economy where innovation is increasingly important, we organized the research for this paper around the following two questions: what factors are important to consider when developing strategic SME networks that support innovation? What broad areas of influential factors have been mentioned in the research so far and how important would a selection of such factors be for innovative performance in strategic SME networks?

We believe that addressing these questions makes important contributions to the literature. To present the positioning and contribution of this study, we describe the field of research (i.e., as is published in academic journals) on strategic SME networks in Table 1. Various studies have addressed questions related to strategic SME networks without providing direct guidance for network design, but most efforts in Table 1 report evidence from small-scale research (including one or two networks) of an exploratory character (83 percent did not test *ex ante*-developed hypotheses), which leaves anecdotal evidence for the cases they are designed to examine. The studies are also highly fragmented and research a host of problems that does not directly focus on the key outcome of strategic SME networks, namely, innovation.

Although the studies make important contributions and descriptions related to phenomena such as knowledge transfer from science to SMEs in networks (Major and Cordey-Hayes, 2000), the creation of strategic SME networks (Ahlström-Söderling, 2003), the role of broker competences in facilitating the progression of such networks (Chaston, 1995), and even ways to reduce opportunism in strategic SME networks (Hammami et al., 2003), there are no efforts that attempt specifically to systematically test potential key factors that influence innovative performance in strategic SME networks, the relative impact of possible factors, or the existence of possible relationships among such factors. Supported by the notion of the importance of integrative research and acknowledging the use of prior work, a study that includes indications or suggestions of possible influences on innovation from earlier studies and that integrates efforts and key ideas should provide a foundation for progress in a research field (Cornelius et al., 2006).

To this background, we developed and tested a model of influences on innovative performance in strategic SME networks on a large longitudinal sample of such networks in Sweden. We expanded

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