Cross-Border Cooperative Network in the Perspective of Innovation Dynamics

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ABSTRACT

This study proposes a framework for the empirical research of cross-border innovation networks dealing with network characteristics, resource and information flows, and decision-making concerning technological innovations. The authors develop a conceptual model that relates network properties, flows of knowledge, and tangible resources with the likelihood of a decision on open innovation, closed innovation, and business expansion without innovations. The model decomposes knowledge flows, considered as the most significant factor for innovation dynamics, into flows of information, trust, and technological competence. The likelihood of strategic decisions in a cross-border innovation network environment is supposed to be dependent on the peculiarities of these flows, network properties such as structural cohesion, autonomy, equivalence, as well as cognitive distance. The paper discusses some distinctive features of this type of network between the North-West of Russia and South-East of Finland.

Keywords: Cross-Border Economic Cooperation, Innovation Dynamics, Innovation Networks, Knowledge Flows, Open Innovations

INTRODUCTION

According to Leonard and Sensiper (1998), the innovation process is a sequentially diverging and converging interactive social knowledge creation process. The diversity of the participants in the process is essential to the creation of new knowledge. Rothaermel and Hess (2007) and Von Von Korgh, Nonaka, and Aben (2001) claim that the significance of knowledge intensive networks increases with the growing importance of innovations for economic performance. Among examples of the dependence of innovations on inter-firm networks are strategic alliances between competitors emerging out of necessity to create innovations (Brockstedt & Carr, 2005) or the need for joint usage of co-specialized assets that makes their application economically feasible even when markets for these assets are "thin or nonexistent" (Helfat, Finkelstein, & Mitchell, 2007, p. 23). Though mechanisms by which the specific network structural properties affect organizational efficiency still remain unclear, there is consensus on the importance of networking for success in industries with high innovative dynamics (Gaya,...

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by actors located on both sides of the border. The other objective is to build a conceptual framework that relates the properties of the innovation network, resource flows and likelihood of managerial decisions that conditioning innovation dynamics under the knowledge-based approach. Under the knowledge-based approach innovation networks are considered as a coordination device enabling and supporting the diffusion of technological know-how, the exploitation of complementarities (crucial for technological solutions characterised by complexity) and synergies by the amalgamation of different technological competences (Pyka & Küppers, 2002). “Such know-how cannot be exchanged via markets without a common knowledge base … and networks represent a mechanism for innovation diffusion through collaboration” (Pyka, Windrum, Fuglsang, & Frenken, 2008, p. 22).

The article is organized as follows. First comes an overview of the main blocks of the model. Next section defines and decomposes resource flows in cross-border network as well as discusses their sequence and logic of their formation, two following sections introduce independent (network properties) and dependent variables (innovation dynamics) of the model, next section sets the interrelationships between properties of the cross-border cooperation network and the decisions of organizations located in border regions to innovate or not to innovate, and final two sections specify South-East Finland and North-West Russia cross-border innovation network and give an illustration of the application of propositions that could be derived from the model in examples of decision-making in cross-border network.

THE CONCEPTUAL MODEL OF CROSS-BORDER INNOVATION NETWORK

To apply the knowledge-based approach to network analysis we consider the innovation network as a mechanism that coordinates resource flows on a common knowledge base for
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