

Chapter 9

Cross–Border Cooperative Network in the Perspective of Innovation Dynamics

Vladimir Platonov

St. Petersburg State University of Economics and Finance, Russia

Jukka-Pekka Bergman

Lappeenranta University of Technology, Finland

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.

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

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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 & Dousset, 2005; Miller & Morris, 1999). A network provides the main mechanism for transfer of tacit knowledge (Bergman, Kässi, Saksa, & Meristö, 2004).

Cross-border cooperative network is one of the most interesting types of innovation networks and challenging research topic as well. The emerging of cross-border innovation networks between actors being divided by national border, coming from different national innovation systems and having significant cultural differences challenges the importance of geographic, social and cognitive proximity which are considered as fundamental influences on regional cooperation network formation (Verspagen, 1993; Boschma & Frenken, 2008). However it is true only for those situations when the real economic border divides countries and regions. When the countries integrated into the single market as the EU countries did the cross-border networks turned into mere cross-regional networks. The thrust for the development of the conceptual approach presented in this paper was the emergence of cross-border innovation networks between South-East Finland and North-West Russia in 2000s. The border regions of South-Eastern Finland and North-West Russia are divided by a real border with physical barriers (e.g., uncertainty over the time needed to cross the border because of the likelihood of long queues at the checkpoints) and economic barriers (e.g., customs duties). It makes this region an interesting target from the research perspective after developments of last decades when economic integration has not left many bordering regions

among neighbouring industrialized countries that are divided by a real economic border. At the same time the better understanding of cross-border innovation cooperation gives an insight into important organizational and economic interrelationships in less exotic cooperation networks such as regional or industry networks. The immediate objective of this article is the developing of a conceptual basis for empirical research to answer the question, how the emergence of cross-border innovation network affects the decisions on technological innovations implemented 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-

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