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# Structural pathologies in inter-organizational networks and their consequences

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#### Abstract

The literature about pathological phenomena within the inter-firm networks is very limited. Therefore the goal of this paper is to draw attention to the structural factors which create pathological situations in the networks and to the threat these situations pose to the development of the network system. We analyse structural pathologies associated with the position in the network, its density as well as a type of links between the companies in the network. Our analysis begins with a review of the benefits from the functioning in the network. We then presented the major structural pathologies in the networks and their threats. Finally, we described the consequences of pathologies which can be considered on three levels: the company, intra-network relationships, and the network as a whole.

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Keywords: structural pathology; inter-organizational network; network structure; network density; knowledge transfer.

#### 1. Introduction

The issues of the creation and growth of network connections have been the subject of scientific research for more than 120 years (Simmel, 1890). However, the boom in research focusing on multilateral relationships (especially in the economic and organizational dimensions) dates back to the mid-twentieth century, being particularly intense over the last thirty years. This is mainly a result of the growing importance of cooperative

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relationships (including networks) to the success of the company's growth strategy. Network connections have become a necessary condition for survival in a highly turbulent and globalized environment. Literature in the field of management mainly focuses on the creation of network connections (Larson & Starr, 1993; Iacobucci & Hopkins, 1992), taking into account multilateral strategic alliances (Child et al., 2005; Sroka & Hittmár, 2013), both between competitors (Bleeke & Ernst, 1993; Gomes-Casseres, 1996; Cygler, 2010; Brandenburger & Nalebuff, 1996), and between suppliers and customers (Provan, 1993; Yoshino & Rangan, 1995; Dyer, 1996).

Most researchers focus their research on the essence of network formation and the competitiveness of a company resulting from its functioning within a multilateral system (Jarillo, 1998; Dunning, 1995; Gulati, 1999; Wassmer & Dussauge, 2011; Michaelides et al. 2013). Network benefits arise both from collective actions, as well as the opportunity to cooperate with particular partners (which possess the key resources needed to create competitive advantage). In recent years, however, there are also studies which increasingly concentrate on the phenomena and processes preventing the generation of those benefits (Dyer & Hatch, 2006; Vrgovic et al. 2012; Hicklin, 2004; Leick, 2011).

The structural abnormalities require special attention as they may lead to the emergence of pathological situations within the inter-organizational networks. The danger of structural pathologies is confirmed both by the size and diversity of the risks which arise. They may indeed bear fateful consequences, both for the individual companies as well as for the entire system. The goal of this paper is to draw attention to the structural factors which create pathological situations in the networks and to the threat these situations pose to the development of the network system. The problem is seemingly significant because of its importance to the success of the network and its member companies, as well as the comparatively little attention which researchers have thus far devoted to structural pathologies in inter-organizational networks. Indeed the literature discussing the issues of structural pathologies is very limited, even snapshot; thus, our study aims to fill this gap. We commenced our analysis with a review of the benefits from functioning in the network; we then presented the major structural pathologies in the networks and the threats caused by these irregularities. Pathological situations in inter-organizational networks lead to certain consequences which can be considered on three levels: the company, intra-network relationships, and the network as a whole.

#### 2. Benefits of functioning within networks

Companies decide to function within network structures because of the benefits which are generated therein. These benefits can be distinguished according to the theory of transaction costs, game theory and the resource approach. Organizations will seek to create multilateral network connections if cooperation creates greater benefits than the market transactions or hierarchical structures (Williamson, 1991). Functioning in the network reduces opportunistic behaviour (freeriding) through the repeatability of the transactions and the resulting increase in the level of trust. Network connections reduce operating costs in a highly turbulent environment in which independent functioning is subject to high transaction costs (Walker & Weber, 1984). In such a case, the costs of functioning in the network structures are lower than those of independent activity. At the same time, the networks are burdened by much lower bureaucratic costs, compared to those in hierarchical structures (Park, 1996). Multilateral network links reduce transaction costs but also increase transaction value, which may lead to an increase in the bargaining power of the network members compared to the other participants in the market (Clarke-Hill et al., 2003).

Cooperation in networks is regarded as a non-zero-sum game, in which participants seek to generate common benefits (Jarillo, 1998; Brandenburger & Nalebuff, 1996). Through repetition and reciprocity of the transactions, the time horizon of the projects is extended (strategy *tit for tat*: Rapaport, 1988, *the shadow of the future*: Axelrod, 1984). Inter-relationships within the network stimulate organizational flexibility and the actions of the parties involved, allowing for specialization, a higher return on investment than the costs of investment itself, economies of scale, scope and synergies. Inter-organizational networks facilitate and accelerate the internationalization of companies as well as their industrial diversification (Dunning, 1995, 1997). It is thus easier to overcome market and cultural differences. At the same time, the risks of investment borne by the company are reduced.

Networks also generate benefits by reducing the risk associated with activities in the field of R&D. Apart from the cost reduction and opportunities for the faster, cheaper and easier acquisition of new technologies, networks promote the implementation of quality, technology and market behaviour standards (Cygler, 2002; de Man, 2004).

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