
NETWORKING AS A KEY FACTOR FOR SUCCESSFUL IMPLEMENTATION OF INNOVATIONS (COMPREHENSIVE ANALYSIS OF RUSSIAN AND EUROPEAN EXPERIENCE)

■ Abstract:

The purpose of the paper is to describe how the network of the innovative companies, government bodies and universities can provide a best solution for implementation of innovations under current turbulent business environment.

Using a sample of different Russian and European innovative companies preconditions and methods of building of successful networking were examined in order to make a comparative analysis and to analyse differences in implementation of innovations and to analyse the causes of these differences.

It was found that the differences in implementation Russian and European companies were engendered by the complex of the specific economic, politic and cultural (human) reasons. This research helps to better explain the ways to create a successful networking between different parties to provide better opportunities for implementation of innovations in current economic situation. The current research has the practical implication that it is important to understand the results of this research when deciding how to find a better way/network for the implementation of innovations. This study examines different situations in several countries using samples of different Russian and European companies.

■ Keywords:

Innovation, Networking, Venture Finance

■ INTRODUCTION

The systematic review from which the findings in this paper are presented was motivated by a quest to establish the extent to which Russian and European companies are engaged in networking activities when looking for develop their innovative capacity. Specifically, the objectives of the paper were to:

- 1.1) Establish the nature of the relationship between networking and innovation*
- 1.2) Compare the degree and impact of networking behavior in different countries.*
- 1.3) Explore examples and literature on the failure of business-to-business networks*

■ INTER-RELATIONSHIPS BETWEEN THE NETWORKING INFRASTRUCTURE AND NETWORKING INTERFACE

For the purposes of this paper a network has been defined as: "a firm's set of relationships with other organisations" [1]. The literature provides two major reasons to explain why business-to-business networks form.

The first focuses on the resource requirements of firms where they are induced to form network relationships with other firms as a way of obtaining access to technical and/or commercial resources they lack [2]. From this perspective, the availability of opportunities to form relationships tends not to be viewed as a

constraint. The second argues that opportunities to form links tend to reflect prior patterns of inter-firm relationships. A firm's ability to develop network relationships with other firms is consequently based on its existing relationships and network capability [3].

The relative ease with which business-to-business networks form was also found to be influenced by social institutions. Empirical evidence shows that these institutions can shape the cultural conditions and infrastructure for networking, as well as, acting as brokers and intermediaries in network formation. Institutions such as: the legal system; the banking and finance system; the structure of labour markets, the education system and the political system [4] all shape the development of the infrastructure that is required to assist the formation of business-to-business networks.

Alliances enable firms to gain access to resources, particularly when time is of the essence [5]. Networks enable small business owners to link into R&D that is contracted out by larger firms, to engage in joint R&D ventures and to set-up marketing and manufacturing relationships [6]. Shan, Walker and Kogut [7] suggest that the number of collaborative relationships that a firm is involved in is positively related to innovation output, while conversely, closed networks have been found to foster innovation more than open ones [8]. The nature of networks encountered in this review illustrate that the optimal design for a network is contingent on the actions that the structure seeks to facilitate.

The evidence on network configuration shows a number of key points:

2.1) The nature of network configuration and its utility for innovation and competitiveness depends on the strategic requirements of individual firms [9].

2.2) Firms will use networks in different ways and will reconfigure them if necessary [10].

2.3) Network configuration often differs between different forms of innovation required by actors; networks for product innovation are quite different from networks for process innovations [11].

2.4) All types of network configuration constantly change and adapt depending on the requirements of partners and the context within which the network operates [12].

To summarise, regarding networking formation and network configurations for innovation a number of points can be established from the empirical data. Networking can have a positive impact on innovation in all organisational contexts (i.e. within established large organisations, small businesses and new entrepreneurial start-ups).

Research on 'innovation systems' has recently illustrated that innovation occurs more effectively where there is exchange of knowledge between systems, for example: between different industries; regions; or between science and industry [13]. Based on this work the importance of diversity of relationships in networks has been shown to have an impact on innovativeness [13]. The value of diverse partners for innovation is demonstrated in Kaufmann and Tödtling's [13] empirical research and were supported by Perez and Sanchez's [1] work on technology networks in the Spanish automobile industry and Romijn and Albu's [14] work on small high technology firms in the UK. These studies show that innovation is influenced by many actors both inside and outside the firm and that the most important partners are from the business sector, customers first (33.5% of firms) and suppliers second (21.9% of firms). Studies on partnering have also shown that the willingness of firms to co-operate outside of these 'direct' relationships was rather limited. For example, co-operation with Universities was 8.9% of firms in Kaufmann and Tödtling's work. In contrast, however, research in Germany highlights significant national differences with respect to involvement with research institutes and universities and illustrates the importance of scientific partners in some industry sectors [15].

The types of partner firms engaged in networking appears to be related to the type of innovation occurring. For example, incremental innovators rely more frequently on their customers as innovation partners whereas firms that have products new to a market are more likely to collaborate with suppliers and consultants. Advanced innovators and the development of radical innovations tends to demand more interaction with universities. This point is supported by Gemünden, Heydebreck and Herden's [16] survey of 4564 firms in the Lake Constance region (on the border between Austria, Germany and Switzerland).

The evidence shows that the innovation process, particularly complex and radical innovations benefit from engagement with a diverse range of partners which allows for the integration of different knowledge bases, behaviours and habits of thought. More risk adverse firms, however, tend to link their innovation activities and networking relationships to customers because knowledge of clients' demands as the risk of failure for the innovating firm is perceived to be lower. Innovation is no less valuable but is more incremental and productivity gains are more modest. This suggests a direct relationship between type of networking activity and innovation type (e.g. radical or incremental). The studies highlighted [15], [16] also show that firms that do not network possess much lower levels of competence in innovation.

The integration of suppliers in the innovation process has been highlighted as one of the factors leading to frame-breaking innovation [13], [1], [14].

The supply chain literature on networking behavior and innovation shows that supply relationships are one of the most important networking arrangements affecting innovation performance and productivity. Such relationships can be managed if firms are committed to collaboration are skilled in managing network relationships and are prepared to invest in research and development. Although much of the evidence points toward the important role of suppliers, co-suppliers and distributors in the innovation process it is to customers that businesses most often turn when seeking network relationships on issues associated with innovation [17].

Von Hippel [18] was one of the first researchers to highlight the pivotal role of customers or users in innovation processes. He highlights two forms of approach to innovation and networks and argues that customer focused approaches are the most effective as opposed to product focused ones. Customers should play an active role in the innovation process and are capable of identifying novel ideas for development [18].

In Gemünden et al's [16] study, for example, 75% of companies engaged customers in the innovation process and nearly 50% identified it as a precondition for innovation success. Conway [19] also found in his study of 35 successful innovations that customers were

crucially important at the idea generation stage of the innovation process. Companies that stated they received essential information from customers were more successful with technological innovation and had greater commercial success.

The nature of the value of networks with key customers needs to be treated with some caution. Such networking relationships appear to be ideal for promoting incremental innovation and customers can usefully help innovators identify market opportunities. The role of third parties, such as professional associations, trade associations and publicly funded bodies specifically aimed at promoting innovation, such as technology transfer centres, have a positive impact on the development of interorganisational networks and innovation.

Whilst the review focused principally on business-to-business networks, science partners play an important role as independent network brokers and intermediaries within business networks. The important role of informal personal relationships in networks outside of the market interface was also evident in the wider research on science partners [20], [13]. As well as direct benefits of interaction between science and industry, science partners provide an important role as intermediaries within networks acting as network nodes where the exchange of knowledge can occur [21].

The importance of appropriate venture finance and loan finance for innovation has been widely documented [22]. The evidence base on venture capital networks and innovation shows a number of key issues. Coinvestment between venture capital firms in entrepreneurial businesses has been shown to be both beneficial for venture capitalists and provides better quality and larger funds for entrepreneurial businesses [23], [24]. The quality of links between venture capital firms, therefore, provides an important networking infrastructure for the commercialisation of innovation [25].

Examining the evidence on finance networks shows that they are important within the networking infrastructure and that cooperative investment appears to be beneficial for both investing firms and entrepreneurial businesses.

Institutional mechanisms designed specifically to create and facilitate networks come in many forms, the most common forms are clusters, incubators and centres for cooperation. Despite

the paucity of evidence, it is possible that innovation policies and regional infrastructures can assist networking activities leading to innovation.

The evidence on incubation tends not to focus specifically on the networking advantages of firms operating within incubators, however, it does illustrate some general benefits where networking is cited [26], [27], [25].

■ NETWORK MANAGEMENT

Network management is also considered crucial for successful innovation and firms need to improve their proficiency [28]. The evidence on the management of networks shows that managing informal and formal agreements, while establishing trust, means that the management of network relationships is inherently difficult. Those responsible for managing network relationships need to learn core network competencies over time, for example, being able to identify when an agreement needs a contract or should be based on good faith; the role that friendship or reputation plays in the identification of partners and, the kinds of milestones or interventions are needed to ensure a project stays on course [29].

■ NETWORK LIMITATIONS

The vast majority of the evidence analysed was extremely positive about the value of business-to-business networks and their impact on the innovation process. All networks have rules of engagement which constrain the partners' behaviour [30]. These rules are governed by the network's governance mechanisms and the infrastructure (particularly industrial culture) within which the network is embedded. Although the positive impact of networking on innovation performance appears conclusive some studies show that innovation can occur more effectively within large organisations.

Although networks have been shown to contribute to innovation and competitiveness, this paper has already demonstrated that they can also inhibit innovation by encouraging anti-competitive behaviour, suggesting that the ultimate value of a network is dependent upon what it is used for. The use of networking has also been shown to conflict with the strategic interests of particular companies at certain times.

From the review of the evidence a number of other limitations of networking have been demonstrated.

4.1) Love and Roper [31] when modelling UK, German and Irish investment in research and development in manufacturing find no link between external networking and innovation performance. Instead they find that innovation is more dependent on internal organisational networks. Tanichev [32], [33] pointed differences in the networking and innovation performance for Russian companies.

4.2) Harris, Coles and Dickson [34] find that inter-firm networking can facilitate the innovation process but it will not necessarily lead to innovation success.

4.3) Tomas and Arias [35] also point out that closely connected networks also encounter drawbacks for example, increasing the complexity of the innovation process; losing ownership control of the innovation; and, information lop-sidedness where partners have very different understandings about the nature of agreements.

■ CONCLUSION

This paper of the evidence base concerning the relationship between networking and innovation has highlighted a number of areas in need of future research. The first obvious gap in the literature concerns the relationship between networking and different forms of innovation, such as, process and organisational innovation. To date the focus of research across disciplines has been primarily on product innovations. Whilst process and organisational innovation may be, by their very nature, more difficult to study, the types of networking activity occurring in the development, diffusion and implementation of process and organisational innovation warrants serious attention. It may then be possible to compare networking activities and configurations across these different types of innovation and derive useful conclusions about the differences.

More generally, perhaps the most significant area for future research is in the area of network dynamics and network configurations. The evidence suggests that there is considerable ambiguity and contestation within the literature regarding appropriate network configurations for successful innovation. Whilst networking

configurations are clearly contingent upon such factors as sector, type of innovation (radical vs. incremental; product vs. process), far more systematic research needs to be conducted in this area.

The review also highlighted that study on innovation and networking attracts interest across many disciplines and it is useful to suggest here that funding be provided for more inter-disciplinary research in the areas that have been highlighted here. The paper has also highlighted that dense networks have a positive impact on long-term innovation.

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