

Cooperation Networks and Innovation Performance of Small and Medium-Sized Enterprises (SMEs)

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Abstract

In recent years, the globalization drive has removed the barriers traditionally created by dividing competitive environments of micro and macro companies. Companies of any size initiated competitive sharing. Coexistence of micro and macro companies is increasingly prospering through entering micro companies into macro companies' value chain. Since over 95% of production units in Iran classified as small and medium industries, such enterprises achieve significant portions in gross domestic production and value added. Therefore, this library study describes that how coexistence of smaller firms with larger companies, in recent years, was useful on innovation and technology of removing size inherent limitations and achieving required performance in global competition. Moreover, vertical and horizontal cooperation with customers, providers, and other participators play a significant and distinctive role in innovation process of small and medium organizations.

Keywords: Network, innovation performance, small and medium-sized enterprises (SMEs)

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Introduction

Recently, the role and significance of small and medium-sized industries has increased in industrial and developing countries. Emerging of new communication and production technologies in the two past decades led to evolution of industrial units' capabilities and production, distribution, and organizational structure of enterprises, which generally added the significance of small and medium-sized units.

In this regard, cooperation of small and medium-sized enterprises (SMEs) is increasingly developing as an industrial response to economic and technological changes of the present world. In particular, cooperation networks among SMEs under recent discussions about economic and technological necessities of inappropriate capitalisms, preventing control versus cooperation issue is inevitable. Cooperation among enterprises for innovation manifests wide changes in industrial systems. Successful cooperation networks bring "open innovation" global trend resulted from structural crisis in 1970-1980, which changed all economic divisions (Perez & Freeman, 1988).

Therefore, it is required that SMEs create a dense innovation network with different enterprises, research centers, providers, and customers to make them loyal for sharing knowledge and benefits of possible skills. Despite over 95% of small and medium-sized production enterprises in Iran, lacking developing strategy based on industrial existing structures and leaving production small units free prevented such enterprises of significant contribution in domestic gross production and creating added value. This requires directing SMEs scattered islands and associated clusters of business world toward innovation through homogenous cooperating.

Small and medium-sized business

Small and medium-sized enterprises like macro organizations possess most of basic needs and require responsiveness and agility to survive in the present unpredictable economy. Firms are less vertically independent and integrated in the last 20 years. SMEs continuously outsource non core activities so that enable to concentrate their money and time on doing activities with more added value. Thus, most SMEs associate with a providers' network for receiving supportive services. SMEs that effectively manage their business processes must find some approaches to cooperate with supplier partners. Figure 1 shows the interrelationships SMEs currently apply (Hugos, 2010).

Business model in Figure (1) represents that how SMEs transit from independent, self-contained organizations internally performing all core and supporting activities. SMEs are now involved in networks of suppliers and customers along with their primary and secondary activities. Thus, no SME operates as an island and may not succeed alone. SMEs increasingly depend on effective cooperation with their supplier partners. Business services must be reliably and predictably provided; it is a flow of information moving back and forth among SMEs through a communication network. SMEs must try to recover their activities and processes as changing conditions. Persistent failure of position changing and inability to reevaluate cause SMEs collapse. The effect of great concentration on efficiency reveals once senior management declares

‘we remove additional costs and increase efficiency in supply chain and business operations; then, the company tries implementing systems enable them to control suppliers so that achieve more efficiency’. Effective factors of SMEs’ agility and responsiveness are as following (Hugos, 2010):

- reducing fixed costs
- information technology
- cooperation

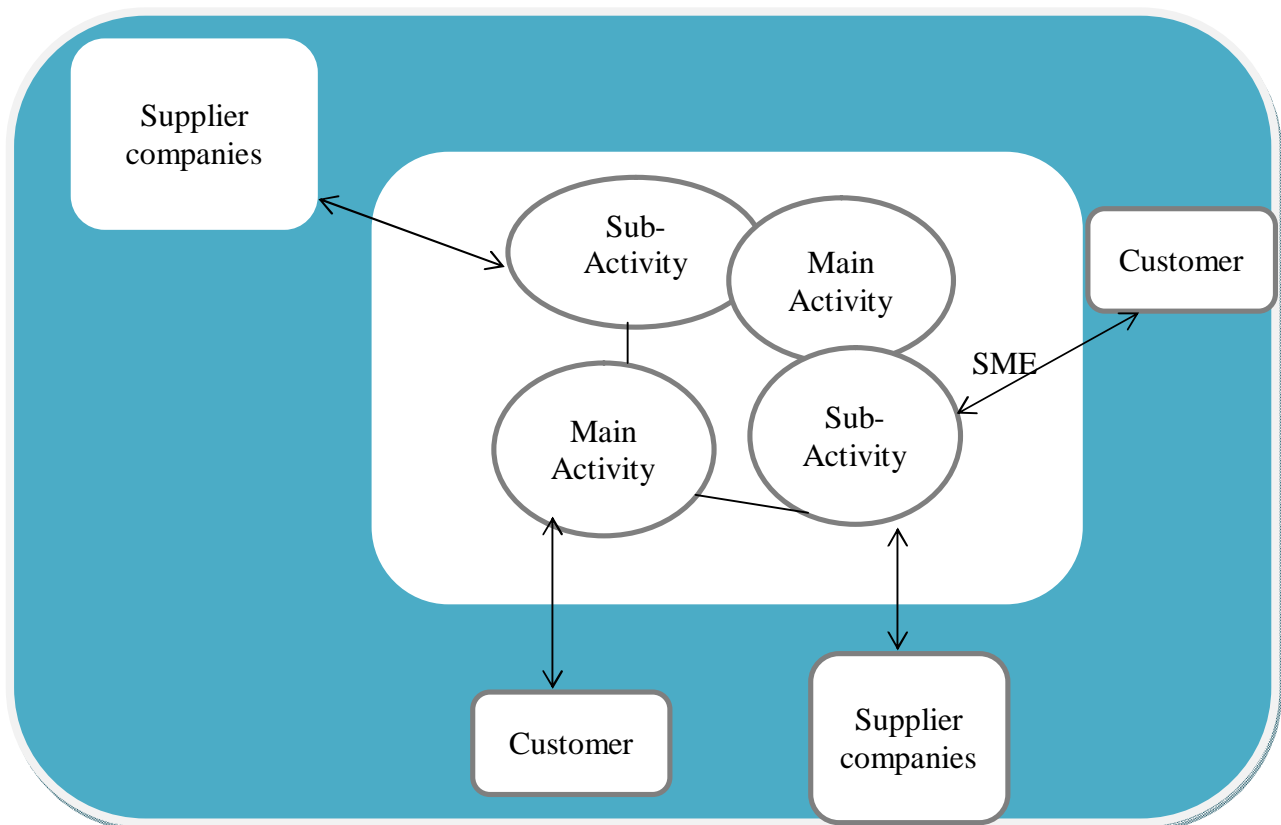


Figure 1: SMEs interrelationships (Hugos, 2010)

Enterprises’ cooperation networks

Network internal communications can be vertical, horizontal, and or lateral including sustainable relation networks among customers, suppliers, communities, etc (Hadjimanolis, 1999). Accordingly, innovation-based cooperation networks embrace a heterogeneous group of different people including representatives of companies, universities, organizations, technology and development centers (Pekkarinen & Harmaakorpi, 2006).

Cooperation can be considered as a horizontal integration creating joined agreements for technology and or information exchange of such enterprises with similar firms and

organizations. This cooperation within companies may be in a physical place or parallel studies and joint efforts to develop a particular industry. There are four types of cooperation identified in enterprising:

1. Strategic and long-term alliance (Hamill, 1989): particularly occurs in large firms containing strategic, long-term planning that leads to improved competitive situation and challenging traditional monopoly. It maybe stated that it is the greatest drive of achieving global competitors and enterprises' alliance, seeking for globalization (Devlinand Bleakley, 1988). Strategic alliance turns into a critical step in economic growth and required major investments, research and development (R&D) long cycles, production and development processes, international marketing, and crossing distribution systems (Lowell, 1988).

2. The second type embraces short-term, strategic reasons that only include especial projects.

3. In this enterprise, unplanned cooperation enables companies to sufficiently use opportunism. This often takes place in cooperating with outside organizations.

4. In this type, enterprises reluctantly admit cooperation as the last way overcoming long-term problems.

Cooperation economic logic

One of cooperation strategies of SMEs, particularly in developed countries, is exchanging joint developed technologies and using possible assets (Teece, 1986). The goal of cooperation between enterprise and various organizations is not only initiating joint technology or alliance of possible assets, but also controls desirable development of such assets and technologies (Camagni, 1990). Even macro enterprises are unable to speed up with technological changes; sharing technical knowledge and skills seems important for achieving higher economic scope (Storper & Harrison, 1990). Small enterprises decrease the competitive advantage risk of a particular firm and consequently deactivating other corresponding enterprises through cooperation, venture, and investment; in addition, it follows global competition, too (Storper & Harrison, 1990).

Cooperation of small and large enterprises

Large enterprises comparing to small ones face higher cooperation alternatives (Rothwell, 1990). Large enterprises apply cooperation and venture strategies like technology access through purchasing the license using technology of other enterprises, universities, state research centers, interactive or collaborative venture with state firms, universities, and research centers to deal with current competitive challenges and globalization. However, challenges of growing large enterprises make scholars, in twentieth century, to study interrelations and capacity of small enterprises (Kindleberger, 1964).

Generally, small innovative enterprises better satisfy changing needs and are more flexible (Pavitt & Robson & Townsend, 1987). Obviously, growing small enterprises as technologic core is significant in cooperation networks.

DTI/PA (1989) recent report shows that small innovative enterprises cooperating with selected competitors can lead to creating a great and powerful cooperation network. Converting small enterprises to large ones became a significant drive in most industries. Small enterprises trying to compete in global markets encounter national and international barriers such as finance, finding a suitable place for company, sufficient human resources, market information, and marketing capability (Taylor and Thrift, 1983). Taylor (1975) described cooperation and venture as an innovative mean applied by small enterprises to overcome aforementioned barriers.

Cooperation network factors effecting on innovation performance

This section explores, in detail, recognizing and understanding the effect of cooperation networks factors on innovation process and creating competition advantage among organizations (Figure 2).

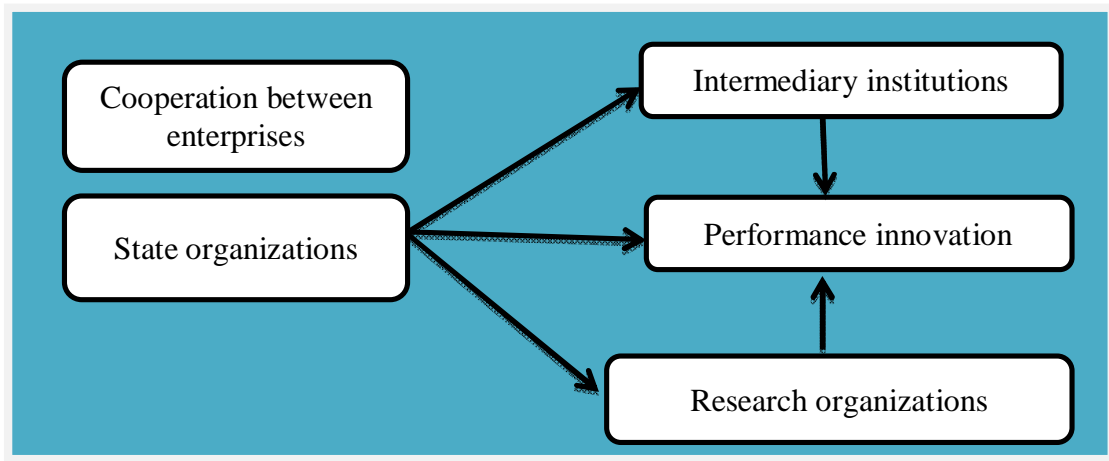


Figure 2: Integrating cooperation network elements and their effect of innovation

Performance

State organizations

Internationalized economy and politic has made local governments to develop new, proper strategies for interacting state main elements and business world (Yanez, 2008). Indeed, cooperation network of state organizations refer to general agreement on state budget for governmental research and development programs; the budgets as state subsidy indirectly help enterprises initiate new research projects or extending current ones that directly influences enterprises' innovation (Matt & Wolff, 2004).

Cooperation between enterprises

Regarding interrelation of enterprises, a network in real world situations indicates that cooperation of enterprises is the key to successful performance of all enterprises and the whole network (Mancinelli & Mazzanti, 2008). Scholars suggest that network enterprises can lead to redounded innovation in business transactions through interacting with upstream and downstream enterprises in value chain (Rao, 2000). Some studies demonstrate that cooperation among enterprises including major agreements and informal, long-term strategic alliances can lead to gradual innovations (Sammarra& Biggiero, 2008). Through studying relation between innovation and interrelation of enterprises it can be concluded that enterprise firstly operates based on vertical relations of customers, suppliers, and service providers; then, horizontal relations appears at second level (Fischer & Varga, 2002).

Intermediary institutions

Intermediate institutions such as information technology intermediaries, educational institutions, investment organizations, as well as technology transferring organizations play a critical role in innovation process (Howells, 2006). In general, intermediate institutions variously function in innovation including communication, prediction, recognition, scan, collecting information, process, knowledge, and evaluating the results (Howells, 2006).

Research organizations

Research organizations such as universities, colleges, technical institutes, research centers traditionally have no effect on innovative processes; rather, they are effective through providing new knowledge and science (Drejer & Jorgensen, 2005). Universities, for instance, gradually recognized as a strong innovation and change drive in science and technology. Developing countries focus on the significance of universities (Liefner, 2006). Research institutes refer as important partners in supporting business innovative efforts that not only present new business knowledge, but also delivers knowledge through academic research in a form of graduated skilled labors (Deiz, 2000).

Integrating SMEs with cooperation network

In the last two decades, innovative activities underwent fundamental and systematic changes that particularly represent extraordinary growth of applying enterprises cooperation networks in any sizes (Hagedoon, 2002). Inter-enterprises cooperation networks facilitating information flow, resources, and required trust introduced as a key strategy (Dewik & Miozzo, 2004). A network can be used as a complement for achieving a proper economic scale and/or integrating different skills, technology, and competence (Mancinelli& Mazzamti, 2008). SMEs capabilities and external resources accessed through integrating external innovations may be regarded as a driving factor when negatively influence due to lack of innovation and creativity (Cumbers et al., 2003). Therefore, creating cooperation between SMEs and organizations of cooperation network can lead to organizational bilateral innovation. Figure 3 represents integrating of such networks.

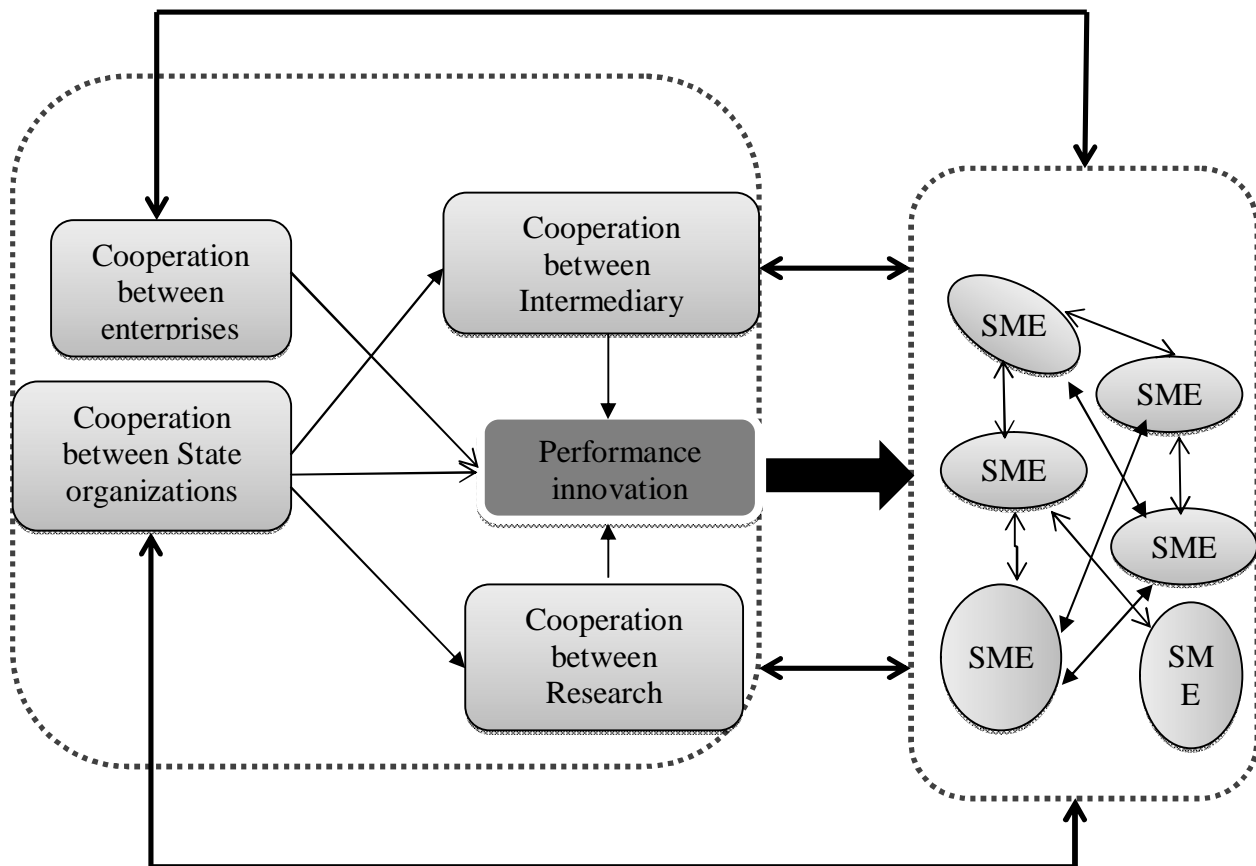


Figure 3: Integrating SMEs with cooperation network

SMEs communications with cooperation network cause enhancing bilateral innovation process. Innovation focused SMEs seek for other enterprises' partnership in a cooperation network so that achieve R&D research (Bergman, 2008). Cooperation networks, in many cases, speed up innovation and deliver access to expertise and resources (Fukugawa, 2006). SMEs relations with intermediary institutes are sources of new ideas for innovation and utilizing information technology (Doloreax, 2004). However, some studies argue the ambiguous mediatory role of such institutes such that it can operate as a medium for permanent connecting and interaction, as well as exchanging information and knowledge between university and SMEs; while, innovation is still a risky ambiguity for some institutes. Cooperation networks positively influence enterprises' innovation performance (Brioschi, 2002; Neito & Santamar'a, 2007). On the other hand, cooperation network as a trust-based social capital plays a critical role in innovation outputs and coordinating SMEs interactivities (Brioschi et al, 2002). Integrating SMEs with organizations in a cooperation network will help getting new ideas and preparing entrance into market with new products.

Summary and conclusion

This paper studying organizations' interrelations in various cooperation networks and SMEs innovation performance indicated a positive, significant relation in enterprises' cooperation, cooperating with intermediary institutes, cooperating with research centers, and innovation in SMEs. One considerable result is governmental policies significantly

improve SMEs relations with intermediate institutes, universities, and research centers. It is worth notifying that not all state policies would lead to innovation; rather, only creative and innovative policies directly depending on the country political, economic, and historical conditions can promote innovation. Disregarding the constraints preventing SMEs proper connection with network elements in most cases, following issues must be considered for further research:

First, concentrating on emerging economies in interacting small and medium-sized enterprises with other elements in network is necessary for both developed and developing countries (Kaminski, 2008), since countries' economic nature totally influences governments' performances; moreover, this performance is important for formulating strategies and policies of network interaction effecting on SMEs innovations.

Second, based on all recent findings, it is concluded that SMEs cooperation is a valid approach to improve innovation; so, it is required that SMEs and organizations of a corporation network apply various formal and informal cooperation networks to achieve knowledge and resources.

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