

NETWORKING AND COOPERATION IN THE AREA OF INNOVATION ACTIVITY AMONG ENTERPRISES IN POLAND

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ABSTRACT

The dynamic process of social and economic changes requires that innovative enterprises change the existing model of innovation, in which it is created within an enterprise, into an innovation model focused on cooperation with enterprises in their environment, i.e. through innovation networks. The aim of the paper is to identify factors that are significant for establishing cooperation to implement an innovation process, and to present the situation in terms of activity in the area of innovation cooperation undertaken by enterprises in Poland. The paper is a result of literature studies and analyses of statistical data, treated by the authors as inspiration for further, more detailed studies, including empirical ones.

Keywords: innovations, innovation networks, cooperation

INTRODUCTION

In the modern economy, innovations are the key to an enterprise's success. However, in order for an enterprise to face up to the dynamics of changes that take place in its environment, it has to bring new products and services to the market more and more quickly. Increased costs of research and development works as well as the level of advanced technologies make it increasingly difficult for an enterprise to create innovations on its own.

Moreover, strong competition makes enterprises more interested in cooperation with other external entities. Therefore, it should be noted that the place of innovation is being shifted from an enterprise to a network. [1]

Network cooperation gives enterprises an easier access and possibility to get creative people who are willing to solve existing problems and meet new challenges involved in innovation processes. Network cooperation between enterprises creates new possibilities for enterprises in the area of creation and/or adaptation of innovations. [2]

Economic and market conditions for the creation and use of innovations in economic practice indicate the need to build a network model of an innovation process in which the knowledge of institutions, enterprises and customers cooperating in a network [3] is effectively managed in order to develop innovations.

INNOVATION MANAGEMENT IN NETWORK ORGANISATIONS

Innovativeness through introducing changes to products and services allows enterprises to improve their competitive position and increase their market value. An enterprise, in order to develop, needs not only changes, but above all innovations, i.e. new products and services, new technologies, new organisation, management and marketing systems, etc.[4] Innovation is a multidimensional and complex category of technical, economic and social character. Innovation in an enterprise refers to any intentional, advantageous change in any area of an enterprise's activity which occurred in an enterprise or its environment. [5] Modern innovations are created as a result of cooperation between specialists from numerous fields and require the use of significant resources of an enterprise, while the innovation process itself is becoming increasingly complicated.[6] Complexity of innovation processes makes it necessary to manage innovations in an enterprise in order to maintain continuity of search for, creation and implementation of innovations.

Of particular importance in this context is management of innovations in network enterprises, where innovations are created as a result of network cooperation between many enterprises. An innovation process requires that managers of an enterprise have skills in the area of innovation management. Innovation management is a continuous process in which five main phases can be distinguish:[7]

- analysis of a company's micro and macro environments,
- selection of appropriate innovation projects taking into account possessed resources,
- ensuring resources for the implementation of innovation,
- implementation of innovation,
- monitoring of the course of an innovation process.

In a traditional enterprise, all phases of innovation would be managed in an enterprise. Thanks to cooperation in a network, an innovation process can be divided into parts implemented by a number of enterprises.

Management of innovations in a network enterprise consists in specified enterprises managing the individual phases of an innovation process, with the leading enterprise (network coordinator, orchestrator) managing the whole process of innovation.[8]

CONDITIONS FOR CREATING A COOPERATION NETWORK

A network can be defined as long-term cooperation relations established by equal partners in an environment of mutual understanding and trust.[9] A network is a system comprising elements and connections between them which is characterised by a flow of information between its links and joint activities undertaken by all or only some of the links - depending on the need. There is some hierarchy in the structure of these connections, as they take form of interactions, relations and bonds.[10] In the context of an organisation, we can distinguish contract-based relations (formal, established principles of cooperation), quasi-contract relations (determined by generally binding regulations) and non-contract relations (informal, often unconscious).[11]

Discussions on the development of modern organisations also highlight organisational connections (power relations, mechanisms for financial or advisory support), cognitive connections (related with knowledge creation, use and sharing) and social connections (relations based on trust).[12]

The issues of an enterprise management include communication as well as defined and respected principles of partnership-based relations between participants interested in cooperation. Existence of objectives is an important argument for creating relations of cooperation and joint action between enterprises. Enterprises decide to cooperate in order to implement specific objectives. They are usually guided by transactional logic, seeking deficit resources (material and immaterial ones) to improve their competitiveness.[13]

Each network of cooperation between enterprises has its leader who initiates cooperation and creates the structure of the cooperation network. The role of the leader is to select participants of the network and define their usefulness for the whole network.[4] Cooperation between enterprises allows them to exchange their knowledge and experiences connected with the implementation of a specific project. The existing multidimensional and varied information, knowledge, experience and competence base of the different enterprises cooperating in a network is used to create combinations of more advantageous conditions for the implementation of a planned project and offer an expected, unique value on the market. [15]

The aim of networking is to increase competitiveness and innovativeness of enterprises. A specific form of cooperation networks are innovative cooperation networks understood as "an organised form of cooperation (agreement) between enterprises, strengthened by trust, norms and principles of cooperation that stimulates innovation activity of enterprises.[16]

Cooperation between innovative enterprises in cooperation networks brings various benefits, which include:

- increased competitiveness (creation and/or absorption of new products and services),
- access to a bigger idea and information base,
- exchange of knowledge, experiences and competences,
- possibility of access to and exchange of new technologies,
- diversification of risk and costs connected with implementation of a new project,
- access to new markets.

It should be noted that network enterprises that achieve successes in the global economy are subject to a continuous process of changes to better adapt themselves to changing conditions. Successes of a modern enterprise are an effect of consistent work and activity aimed at acquiring new skills to create and absorb innovations. One can say that such enterprises: [17]

- are great at generating and seizing new ideas - often cooperating with the most important users,
- show an effective ability to manage innovation processes,
- are able to concentrate on learning at every step - sensing the significance of a new chance, testing viable ideas, seeing the path of value creation as a priority and assessing the size of chances.

Direct cooperation between enterprises in an innovation process is necessary in the current type of global competition to ensure that enterprises maintain competitiveness. Enterprises that undertake joint activities based on mutual trust can obtain benefits [18] from mutual relations, although they are still bound by the regulations of law and competition. However, the competition between enterprises in a network is at a smaller scale and the main competition effort is directed at enterprises outside of the network.

COOPERATION IN INNOVATION ACTIVITY IN POLAND

Cooperation in the area of innovation activity[19] means active participation in joint projects with other enterprises or non-commercial institutions. Such cooperation may be prospective and long-term in character and does not have to entail direct, measurable economic benefits for its participants.

In accordance with Oslo Manual[20], the following types of partner institutions are distinguished in the study of innovative activity:

- other enterprises belonging to the same group of enterprises,
- suppliers of equipment, materials, components and software,
- customers,
- competitors and other enterprises from the same area of activity,
- consultancy companies (consultants), commercial laboratories, private R&D institutions,
- Polish Academy of Sciences scientific organisations
- research institutes,
- foreign public R&D institutions,
- universities.

Between 2011 and 2013, 28.4% of innovatively active industrial enterprises (compared to 33.8% in the period 2010-2012) and 23.0% of services companies (27.3% respectively) cooperated as part of innovation activity in Poland. The bigger an enterprise, the more often it cooperated in the area of innovations; 51.4% of industrial enterprises with 250 and more employees cooperated in the area of innovations, while for enterprises with 50-249 employees this percentage was 31.2%. The same applied to services companies (46.1% and 23.3% respectively).

Taking into account divisions of the Polish Classification of Activity, between 2011 and 2013, cooperation in the area of innovation activity was most often established by industrial enterprises under the division *Production of the other transportation equipment* (58.1%), whereas in services such cooperation was most frequent among entities under the division *Insurance, reinsurance and pension funds* (56.8%).

Analysis of entities cooperating in the area of innovation activity between 2011 and 2013 by territory shows that the biggest percentage of such enterprises in industry was registered in Opole Voivodeship (33.1%), whereas the smallest one - in West Pomeranian Voivodeship (18.2%). In the group of services companies, entities from Kuyavian-Pomeranian Voivodeship cooperated most often (42.2%), whereas those from Lesser Poland Voivodeship - did so least often (10.9%).

Among enterprises from the section *Industrial processing*, between 2011 and 2013, cooperation with other entities in the area of innovation activity was most often established by high-tech entities (45.8%), whereas least often - by low-tech enterprises (17.0%). The percentage of entities cooperating in this area was lower than in the period 2010-2012 for all enterprises, from high-tech to low-tech, with the biggest decrease observed for low-tech enterprises - by 6.6 percentage points.

In the ICT sector, the percentage of enterprises cooperating in the area of innovation activity was higher than the figure for industry and services in all accounting for 34.9%, a 3.2% increase on the period 2010-2012. The highest value of this figure was registered in ICT production, where the percentage of cooperating enterprises was 16.0% higher than the figure for ICT services companies.

The main partners in innovation activity cooperation between 2011 and 2013 in industry were entities from the same group of enterprises, whereas in services - suppliers equipment, materials, components and software. Among industrial enterprises cooperating as part of innovation activity, 22.2% of entities (compared to 22.6% in the period 2010-2012) best evaluated cooperation with the above-mentioned group of partners, whereas among services companies - this figure was 39.6% (30.4% respectively).[20]

SUMMARY

Cooperation with other entities is an important element of an enterprise's activity. It enables wider access to knowledge and new technologies. It makes it possible to reduce costs and risk of business activity, and is conducive to exchange of experiences and knowledge. Networks create a specific cooperation environment. Possibility of their use for implementation of joint innovation projects is determined by the network structure, ease of access and security. Starting cooperation, partners, i.e. network participants, offer various resources, with knowledge and intellectual capital being the most valuable and most desired one today. Knowledge sharing is connected with the possibility of using it in innovative processes/products and generation of added value, but on the other hand, it requires that actions are taken to ensure protection of intellectual property.

Between 2011 and 2013, only around a quarter of enterprises active in the area of innovations in Poland established innovation activity cooperation. Larger enterprises more often cooperate in the area of innovations than smaller ones. Similarly, high-tech enterprises and ITC enterprises more often establish innovation activity cooperation than low-tech enterprises and enterprises from traditional industries. Polish industrial enterprises most often cooperate in the area of innovations with entities from the same group of enterprises, whereas services companies more often cooperate with suppliers.

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