

COOPERATION OF SMALL, MEDIUM (SME'S) AND LARGE ENTERPRISES IN THE CONTEXT OF OPEN INNOVATION

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Abstract. The advent of "open innovation" is determined by such factors as globalization and the rapid development of technology and dissemination of electronic communication. The current model called "closed innovation" relies on creating innovative solutions only in the framework of single company became ineffective. Open innovation quickly penetrates sphere between businesses, organizations and even branches and sectors of the economy, becoming today a factor increasing the competitiveness of enterprises. Open innovation is usually used by small and medium-sized enterprises that use solutions and ideas of external R & D units and expert knowledge, employees and customers associated with the company. Pro-innovative activity of SMEs leads to the systematic development of both the company and its products. Consequently, this increases the ability of creativity, reduces time and diffusion of new solutions, creates a new, innovative image and allows to constantly competing companies to rapidly changing markets. Among the top three objectives of the cooperation of large Polish companies with the SME sector are creating new products, improve existing products and create new technology. As part of the R & D, majority of large companies (64%) does not cooperate in the creation of joint laboratories with the SME sector, does not create a joint research teams (45%) and expert teams (45%). In most cases, the taken activities are mostly sporadic (51%), less systematic (27%) and the most often incidental (22%). Analysis of the research indicates that the relationship between these entities in the context of open innovation occurs. The dominant role is played mostly by the large companies, in which they play essential role of the cooperation initiator in all studied areas. The research was carried out in the framework of a research project funded by the Polish government on the issue of DEC-2012/07 / B / HS4 / 03085.

Keywords: Open innovations, SME, cooperation SME, innovations.

Introduction

Globalization and increased competitiveness of markets forces companies to search for new sources of competitive advantage. One possibility is the concept of open innovation that enables quick and effective way to introduce new solutions. The idea of open innovation determines the strong cooperation between the organizations. This publication focuses on the identification of the characteristics of the cooperation existing between large enterprises and the SME sector. Among the analyzed attributes seem to be significant such elements as: frequency, purpose and character of common innovative activities.

This article is the result of research conducted within the research project NCN financed by the Polish government on the basis of the decision on issue of DEC-2012/07 / B / HS4 / 03085. The study was carried out in 2014-2015 and it concerned 100 subjects in several groups: large enterprises, research and development units and business support institutions. They were designed to make the identification of open innovation (as a phenomenon) and to determine their role in the mutual development of SME and business institutions acting on behalf of these companies.

The aim of the publication is the analysis of innovation activities undertaken in the framework of innovative processes within the concept of open

innovation. The analysis will be concerned the relationship between large entities and the SME sector. Due to limitations on the possibilities of presenting these studies, they will be discussed only fragmentarily focusing on selected aspects.

The basis essence of open innovation

The concept of innovation was introduced to the teachings of economics by Joseph A. Schumpeter, who first introduced the five cases dealing with new combinations of different cases to be determined as innovative. In the interpretation of him, innovations concern the following possibilities [16]:

- production of a new product or introduction products with new properties to market,
- the introduction of new production methods,
- opening of a new market,
- acquiring new sources of raw materials,
- the introduction a new organization of any industry, for example - the creation of a monopoly or its liquidation.

Innovations in a broad sense are described as consisting of any change in absorption of this knowledge. In the narrow sense is determined change in manufacturing processes and products (or in the organization of the production process), based on a new or used previously knowledge [17].

Whereas, the concept of "open innovation" was introduced to literature H. Chesbrough already in

2003 [1]. He pointed out the need for changes in the system of acquiring knowledge, information and ideas for companies. One of the main determinants of open innovation are: globalization and the rapid development of technology and the dissemination of electronic communication. The current model called "closed innovation" relies on creating innovative solutions only in their own - became ineffective. The ultimate effect of guiding and financing R&D departments is to create ideas, solutions and inventions which they are implemented to the market and reflected in the developed projects and prototypes. Open innovation quickly penetrate area between enterprises, organizations and even branches and sectors of the economy, becoming a modern optimal growth determinant of the competitiveness of enterprises. The concept of "open innovation" is usually used by companies of the SME sector that can benefit from the solutions and ideas of external R & D units and expert knowledge, employees and clients that are not closely associated with the company. The popularity of the concept and its versatility confirms many Polish and foreign researchers [2, 3, 4, 5]. A significant expansion of the range of innovation sources help to shorten and optimize the process of implementing a new solution in the enterprise. The classic division of sources of innovation for the internal and external sources [6], still seems valid, but with the difference that the peripheral area has been greatly expanded with open sources of information - providing access to knowledge, usually without charge [7].

Competitiveness, which is very often associated with the position and the competitive potential, is closely linked to the long-term strategy. Among the factors that are essential for a high level of competitiveness are: the perception by customers, the hallmarks of the company on the market, economic capacity and innovation. Used by SME existing opportunities are the essential form for the innovation development [8]. They used such the company strategies to improve their competition on the market. SME aimed mainly to produce specific potential competitiveness - individually for each company. This potential can be creatively used to obtain a more favorable competitive position among the environment: competitors, customers, suppliers and buyers. Interactions between competitors under certain conditions and institutional market (volume of demand, tastes and preferences of buyers, availability of resources and services from suppliers) lead to the effective use of the potential and competitive position [15]. This is an effect of openness to the environment and cooperation to other external institutions.

Open innovation, where the key factor is the cooperation with other companies, are closely correlated with the intensity of R&D and technological innovation. Technological innovation means primarily introduction to the market: product and process innovations. In small and medium-sized enterprises the more intensity of activities in the field of R&D affects on the technological innovation [9]. The level of the companies innovation is affected by many factors, which can be classified in many ways, depending on the parting plane. One of the fundamental points of division factors are: economic, internal, external and others. More popular division indicates that the activity of enterprises to take innovative projects is determined by internal and external factors of innovation [10]. Among the group of endogenous factors may be included [11]:

- the financial condition of the company,
- market timing,
- size of the company,
- continuity of the management company,
- readiness and motivated executives to take risks,
- importance of entry barriers to market.

Whereas, the external factors (exogenous) are the following:

- the financial condition of the company,
- competitiveness of the market,
- upward trend market,
- pace of technological progress,
- the situation,
- state influence on the economy,
- synergy industry related to the choice of innovation,
- importance of entry barriers to market.

Brdulak H. and T. Gołębiowski, observe that key factors in the performance of innovative companies are: their internal skills and the ability to innovate, choosing the right innovation strategy, efficient organization of innovation processes and the ability to cooperate with other companies and organizations in the micro and macro-environment [12]. These classifications innovative factors do not exhaust all the possible combinations, but they show a wide range of existing conditions. At the level of open innovation, the key element is cooperation between the organizations, which can also run in many areas.

Open innovation in Polish enterprises

Analysis of the impact of open innovation on the development and success of companies was the research subject of many scientists [13, 14]. They

confirm the existence of a correlation between the involvement of companies in the development of the concept of open innovation and success of the company which are understood as an improvement in the financial situation.

One of the most important benefits of modern concept of open innovation is to increase the number of created ideas, concepts, technologies and solutions that contribute to a useful innovation for the company. Open innovation identified is to the interoperability skills. Cooperation between firms is when they work together to achieve a common goal. In these relations, none of the companies can compete effectively without the constant support of other partners [17]. Cooperation in the framework

of creating and implementing innovations can be developed at different levels.

In the survey, there is one of the key elements which are the identification of the purposes of establishing cooperation between large enterprises and the SME sector. The cooperation is the benchmark for innovative development. Cooperation is divided into four basic forms: cooperation in the framework of research - development activities (1), cooperation in the framework of implementation activities (2), cooperation involved in the exchange of assets (3) and cooperation of providing various services in the field of innovative development (4) (Figure 1).

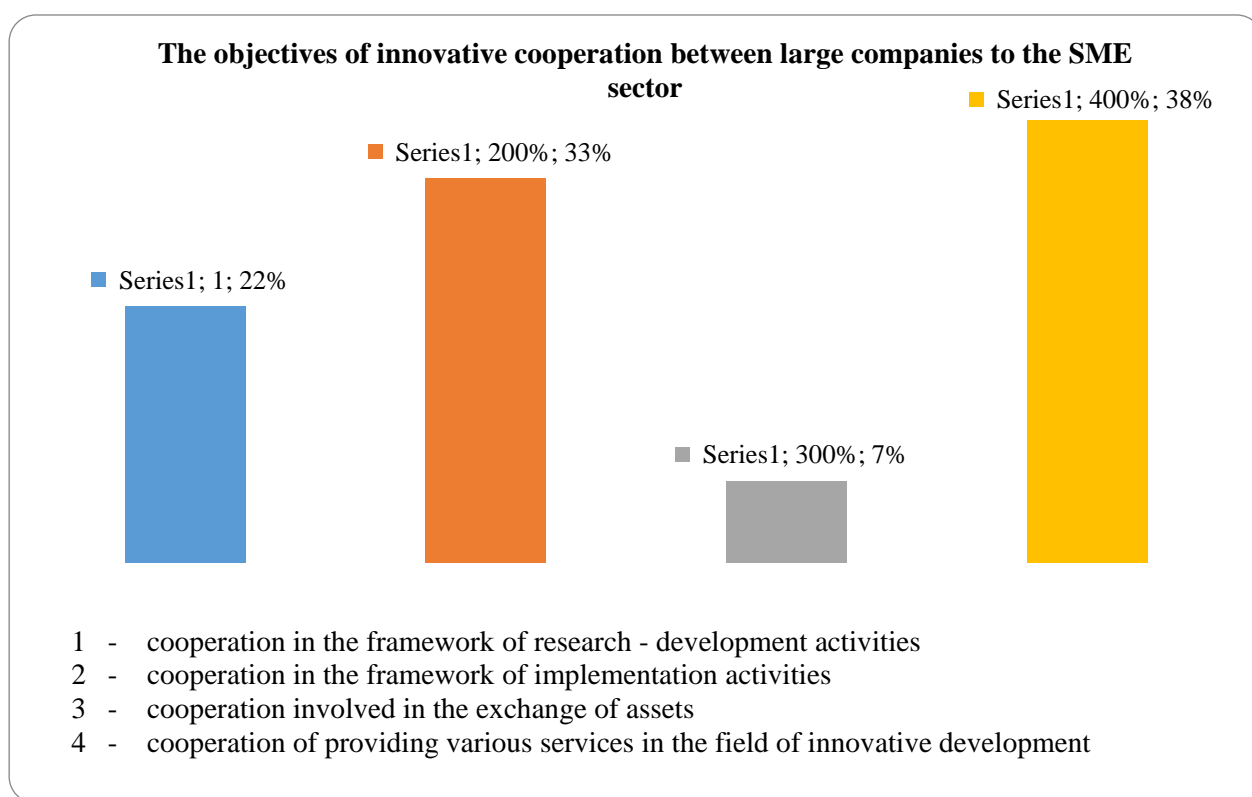


Figure 1. The objectives of innovative cooperation between large companies to the SME sector

Analyzing the results obtained in Figure 1, it can be demonstrated that the most common goal of establishing a relationship of large enterprises in the SME sector is the cooperation of providing various services in the field of innovative development. The large popularity of this form is probably due to the wide range offer in the field of training courses, consulting and expert services. Nevertheless, the least valuable area of cooperation is the activity of implementation, which is indicated by one of third respondent in the group of large enterprise. The exchange of resources is rarely taken while

proceeds cooperation (7%) - it may be due to the lack of openness to share these values.

Expenditures of Polish companies on research and development activities continue to grow - from 0.33% of GDP in 2012, 0.38% of GDP in 2013, 0.44% in 2014 and 1% in 2015. The forecasts indicate that in 2017, R&D should reach the level of 2% - which is the current EU average level [19]. The upward trend in expenditures to R & D to foresee an increase of the companies number that use cooperation in R & D. Whereas, the implementation works are activities bring new innovations to the market. The definition of innovation very often

includes the necessary condition dealing with its implementation new solution in the practice. The example is the OSLO innovation definition - in which the essential condition is the implementation of a new or significantly improved product (good or service) or process, a new marketing method or a new organizational method in business practice, workplace organization or external relations [20].

The authors of this article, in the range of resource exchange between enterprises, meant all the resources among which can be identified:

- transfer of financial resources,,
- provision of human resources,
- providing of material resources (tools, equipment, laboratories),
- providing software,
- transfer of knowledge (about products, markets, technologies),
- providing organizational resources (methods, procedures),

- providing relational resources (relations with other entities).

The next area examined on cooperation between large enterprises and SME sector was cooperation involving in the provision of various services in the field of innovative development. In this element the company identified the cooperation as a counseling, information and training (both in the form of direct meetings and e-learning), studies and analyzes in the field of innovation (including the expertise and opinions), perform audits, conducting promotional activities and marketing research, and ensuring access to markets.

In this study - not only objective of cooperation was identified - but also the frequency of actions taken together (Figure 2). The frequency also indicates the character of the cooperation; a one-time activity may have less impact on the development of innovation than systematic cooperation.

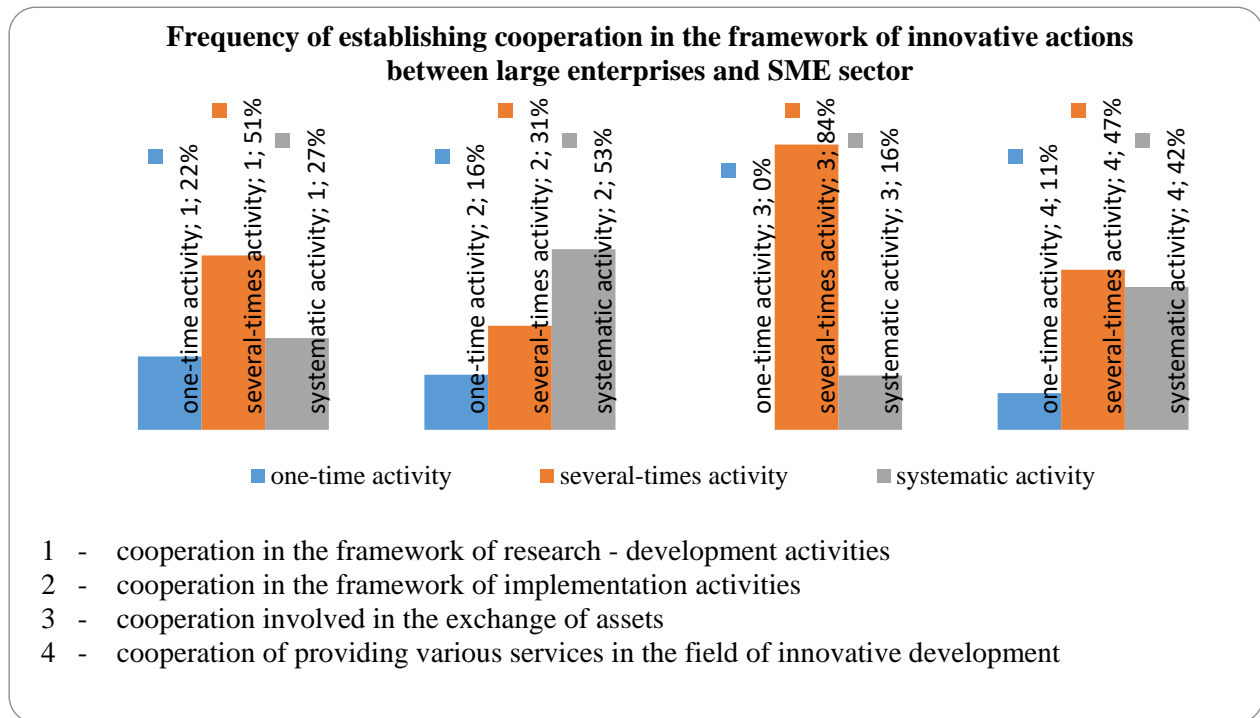


Figure 2. Frequency of establishing cooperation in the framework of innovative actions between large enterprises and SME sector

To activities that can be considered as systematic can be included cooperation in the course of implementation (over 50% of responses). About 11 percentage points less large companies regularly cooperates with the SME sector in terms of a variety of services (42%). Whereas, systematic activity is not applied to the exchange of resources, which is a form of cooperation in 84% of

surveyed companies - they characterized several-times activity.

Another question was involved in character of cooperation in terms of formal (or informal) aspects (Figure 3). The formal cooperation is understood as a basis of cooperation agreements, licenses and other evidence of cooperation.

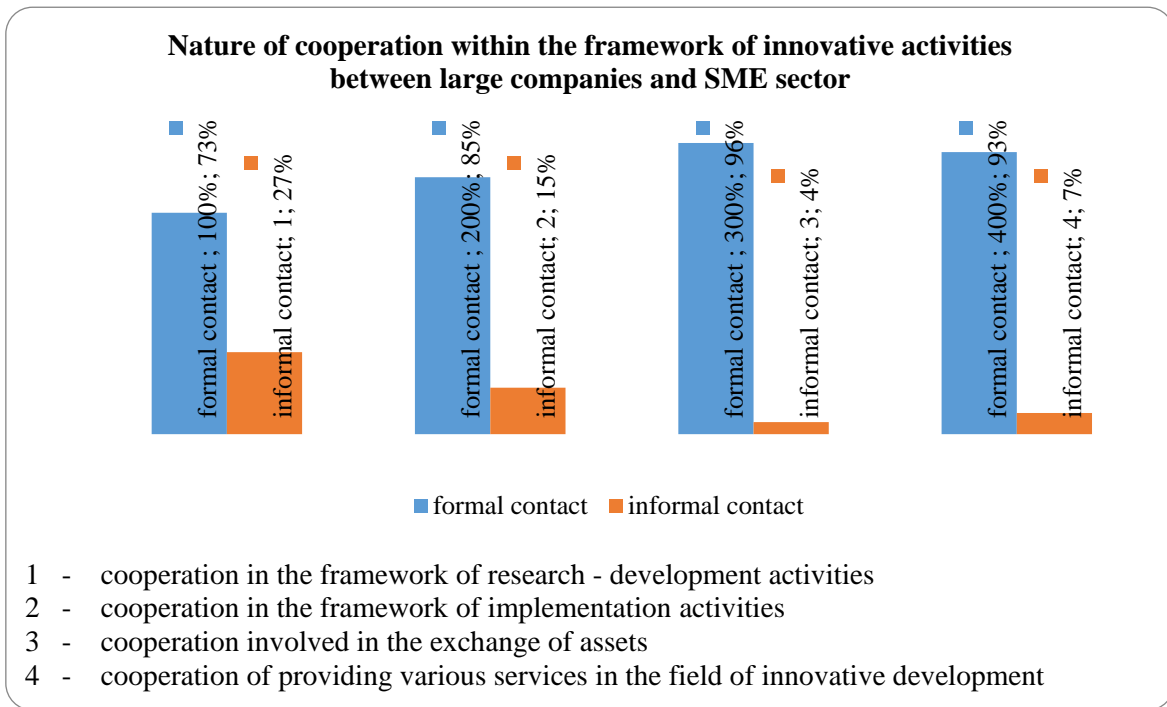


Figure 3. Character of establishing cooperation (formal or informal) in the framework of innovative actions between large enterprises and SME sector

Among the analyzed companies, the most of them determine the cooperation as formal cooperation. Only 27% companies (in the range of research and development) indicate a share in an informal framework and 15% for cooperation within the operational implementation. Informal cooperation can be understood as an advice,

suggestions and any minor actions to support the SME sector without entering into mutual agreements.

To verify the existence of a relationship between the nature of cooperation, and the frequency networking, an analysis of these two variables were taken (Figure 4).

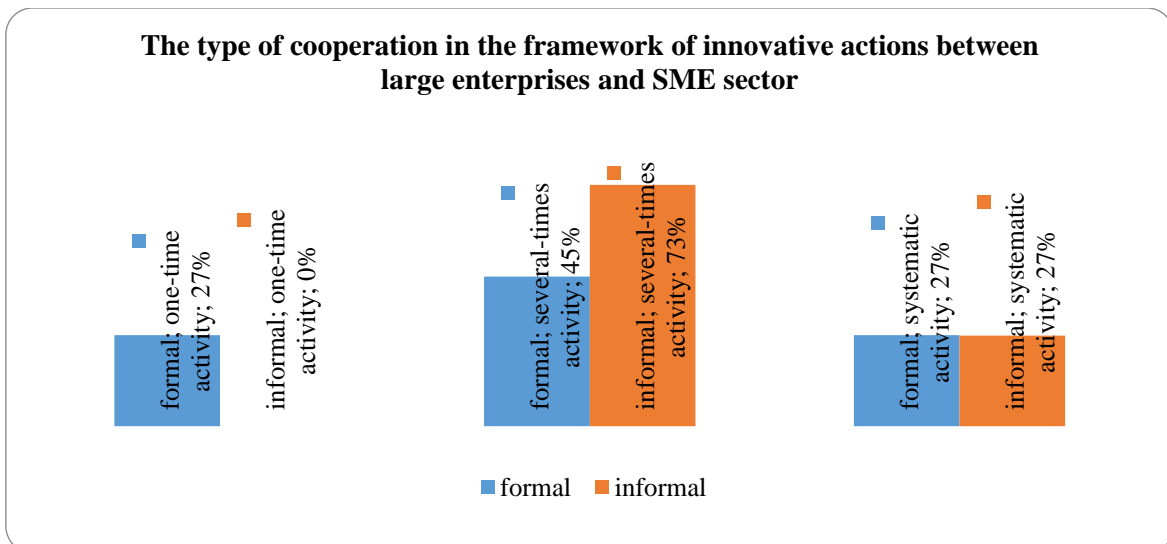


Figure 4. The type of cooperation in the framework of innovative actions between large enterprises and SME sector

Although the growth of the number of formal relationships between organizations in the case of systematic cooperation was strongly expected, these

results indicate the lack of existence of such a relationship. Surprising is also the result of the incidental relations, where none of the analyzed

large companies did not point to establish informal cooperation in the case of the one-time cooperation with SMEs.

Conclusions

In the model of open innovation, which today has become increasingly popular solution and which is a response to the systematic increase market competitiveness, cooperation is an important success factor. Analyzing the cooperation between large enterprises and SME sector, it can be indicated that the most common elements of the emergence of such relations are: the cooperation of providing a variety of services and activity

implementation. The second most common type of cooperation is a systematic cooperation, which indicated more than 50% of surveyed companies. All types analyzed existing relationships usually have a formal character. But it was failed the relations between the number of formal agreements and the incensement of the number of cooperation frequency.

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