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Importance of Technological Factors in the Creation of Cooperation

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Abstract

The purpose of this article is to specify the values of technological factors in the formation of cooperation. The article uses the method of critical analysis of literature and statistical analysis of data obtained from a survey conducted in 381 Polish companies of leading industries in Podlaskie Province. The importance of factors related to the management of technology in relation to the rest of the factors influencing the development of cooperation was analysed. Companies are interested in cooperation to a small degree. In addition, factors associated with the possibility of taking joint technology action are not essential for establishing such cooperation.

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1. Introduction

Changes in the enterprises' approach to cooperation can be observed over the last few years – the scope and types of cooperation forms are becoming more numerous, and one of the key success factors is economic effects resulting from integration of companies [1–4]. Although cooperation between organizations was in the past regarded as a facilitator of innovation [5–9], currently it is one of the ways of business operations or even a necessity [10].

Technology, however, for several years has been one of the most valuable assets of an organization, contributing to its growth and productivity increase [11]. Therefore, the question whether the selected factors related to technology affect the level of cooperation between companies in the industry, the business environment institutions and the sphere of scientific research becomes important, as well as the other question whether positive changes in these factors may improve the level of cooperation.

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The article uses the method of critical analysis of the literature and statistical analysis of data obtained from a survey conducted among 381 Polish companies in industries leading in Podlaskie Province.

2. Literature review

The concept of co-operation, commonly functioning in society, can be used in different contexts and in different areas of the economy [12]. The concept of co-competition appeared in the stream of management more than 100 years ago, but development of the research associated with it was started much later [13].

Wide interest in this issue resulted in multiplicity of definitions and synonyms of the concept – collaboration is identified with cooperation, interaction (which are used interchangeably in journals, scientific and specialist texts), alliance and outsourcing [14–17] – in the modern global economy a dynamic development of various forms of cooperation between economic operators can also be observed [18].

It should be noted that the sources of companies' advantages are dependent on the balance between competition and cooperation. There is no contradiction between cooperation and competition [17]. Cooperation means the search for synergies with inter-organizational relationships and exists in the process of creating additional value in the network, and the competition concerns division of this value [13]. Composed competition and cooperation can be identified with co-competition [19].

Cooperation is a relationship bounding at least two entities and involving collaboration, the aim of which is to achieve common goals by these entities [20, 21], or – in case of forced cooperation – achieving advantages by some of the entities [4]. The prerequisite to work together is a common interest resulting in the need to strengthen the potential in different arenas [22–24]. We should emphasize here that common objective of cooperation, often stressed in the literature, in fact, is not always present – partners can work together, but for entirely different reasons [25].

Cooperation may involve whole enterprises, organizations, their departments, individuals or groups of people. It can also refer to the mutual relationships not only between organizations, but also between regions or countries where it is defined as a voluntary coordinated action of two or more countries, taking place within legal conditions and serving a specific purpose [26].

Due to multitude of the concept definitions there are many criteria for dividing cooperation. Those considered by the author as the most important are presented in the table below.

Table 1. Selected criteria of classification of cooperation.

| Criteria | Kind of cooperation |
|---------------------------|---|
| Duration | Short-term – for no longer than one year or time of project completion |
| | Long-term – for longer than a year, but not permanent permanent |
| Kind of relationship | formal – cooperation confirmed in writing, reflected in documents, agreements |
| | informal – no formal confirmation of cooperation |
| Direction | vertical – cooperation in frames of production chain – e.g. supplier – producer; producer – distributor |
| | horizontal – between entities of similar business activities |
| Cooperating entity | sphere of industry |
| | sphere of science |
| | business environment institutions |
| | public administration |
| Financing sources | own funds – cooperation is financed exclusively with the partners' own capital |
| | external funds – cooperation is financed with the external capital |
| | mixed funds – cooperation is financed with both own funds and external funds |
| Number of engaged sectors | intra-sector – cooperation within one sector |
| | inter-sector – engaging entities from two sectors |

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