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## Shaping cross-sectoral cooperation based on smart specializations in the city of Zielona Góra

### 1. Introduction

Nowadays, cooperation between business and science is one of the biggest challenges in supporting the region's innovation and competitiveness. The role of the environment, in particular of the strategic units, is to support these processes. One of such activities is the smart specialization modelling project developed by the European Commission as part of the 2020 Strategy.

This process is complex and structured. It takes place at the following levels: from European to regional. Undoubtedly, the way to strengthen the ties of both groups is to shape relationships. The diversity of their occurrence is noticeable in terms of closer ties, duration and the role of actors involved in the report. The most adequate form of the relationship is cooperation, which does not include the obligatory persistence of relationship management, but supports the taking of long-term activities. The aim of the article was to assess the potential of cooperation relations in Zielona Góra in the light of the smart specializations of the Lubuskie voivodship. An analysis of strategic documents, literature studies and own research were used to prepare

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the paper. The article was intended to contribute to management and quality sciences through developing the subject of regional smart specializations in a relational context.

## 2. Cooperation as a form of shaping relationships

Constantly increasing technological progress and the development of innovation enforce the assurance of economic growth based on innovation. The way to achieve this goal is to focus on two sectors: science and business. Both of them have experience in joint projects understood as one-time cooperation. However, due to the constant increase in competitiveness, there is a need to deepen relationships. An example of this is cooperation, as not binding both parties to close collaboration. Fiedler and Deegan (2007) define them as a process in which entities can indicate the differences between them existing and reaching higher than their vision of expected results. A prerequisite for meeting all parties focused on the relationship is the perception of the diversity of problems and relational aspects.

Cooperation in the everyday practice of an enterprise has the form of activities that in the indirect and subconscious sense are aimed at meeting a jointly defined goal realized by the actors involved in the relationship. Such behaviours have a conscious form (competition and rivalry) and an unconscious and unintentional (coexistence), but unconsciously realizing the same goals. The subjects between whom such ties take place are not aware of their existence (Grabowska, 2014). Shaping cooperation based on joint activities allows to achieve economies of scale, increase purchases and sales, maintain production potential and production capacity (Birru, 2011).

A large number of concepts appearing in the context of activities involving a minimum of two entities obliges to define cooperation. Co-operation substitutes include: cooperation, collaboration, co-production and partnership (Depeen, Goldsby, Knemeyer, Wallenburg, 2008). It is important that collaboration is a broader concept than those mentioned. It can take a variety of forms, including the aforementioned partnership and cooperation. There is a noticeable interdisciplinary nature of the concept of interoperability and a tendency to differentiate its definition. There are general and economic and organizational definitions. General meaning is understood as contributing to something. The economic and organizational aspect notes various relationships between entities that simultaneously achieve a specific goal. It is assumed that it will

be possible and created conditions for its implementation (Kaczmarek, 2000).

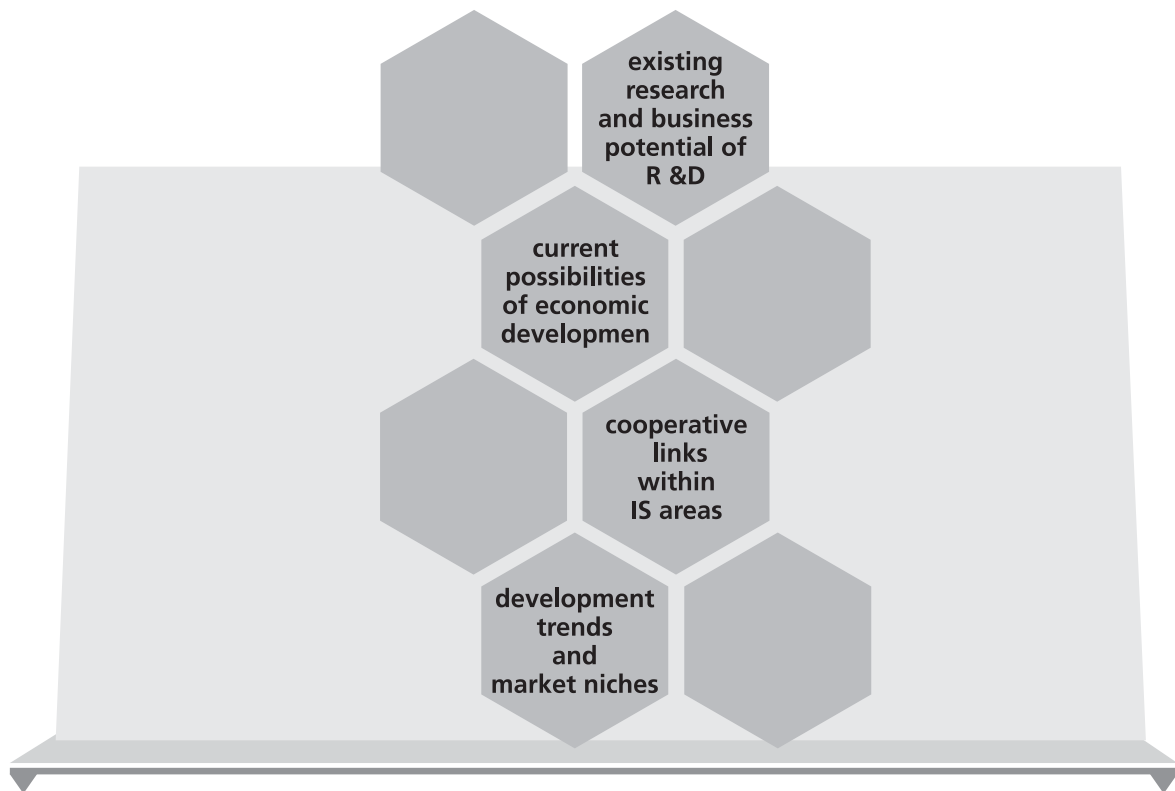
Shaping a relationship requires appropriate management on the part of the people involved and the implementation of all management functions at every stage of the process. Therefore the relationship management is important here. Relationship management includes stages analogously related to management functions (Lenart-Gansiniec, 2016), among which we distinguish planning, organizing, motivating and controlling. Planning activities in the field of conducting relationships are based on the development of the concept of cooperation, setting goals and mutual reconnaissance analysis of the parties to the relationship. Organizing focuses on disposing recognized resources, processes and systems. The motivating stage supports conducting relationships, as well as developing a common value system as a joining element involved in a party relationship. The control stage is used to assess the effects of relationships, to develop opportunities in case of crisis situations, and to summarize the whole relationship as a process.

Properly shaped relations can be a tool for adapting to the requirements of the environment and be a source of competitive advantage (Klimas and Czakon, 2010). Cooperation, as one of the relations' forms, puts a significant emphasis on the long horizon of time, which is why it is important to implement a process approach in its case, in which all stages of relationship management will be emphasized.

### **3. Smart specializations of the Lubuskie voivodship**

Smart specializations are determined interchangeably by the specializations of regions. In principle, the smart specialization strategy defines the socio-economic priorities of a particular region in the area of research, development and innovation, and indicates areas of investment focus in areas ensuring the added value of a particular economy, the competitiveness of a particular economy on international markets and improving the quality of society. The scope of smart specializations is in recognizing the development potential of science, business, economy as well as existing trends and niches (figure 1). The goal of smart specializations is to focus the economy towards a rational use of available resources, including those of a natural nature and creation of innovative solutions supporting this process (National Smart Specialization, 2019).

Smart specializations within four areas of their scope support research, development and innovation, current economic development opportunities,



**Figure 1. The scope of smart specializations**

**Source:** own study based on (National Smart Specialization 2019)

already existing cooperative relations within smart specializations and development trends and market niches that consolidate the strength of a particular economy in a comparative aspect. The concept of smart specialization tends to ensure even economic growth due to the implementation of such assumptions as (Kardas, 2011):

1. Ensuring and implementing smart specialization on a sufficiently large research and innovation area aimed at ensuring competitive rivalry among many competitors. This approach uses economic effects: scale: range and spread.
2. Competing European countries and regions that have common areas of science and economic areas will not provide the expected results, because they cannot be affected by scale effects or they will not be able to achieve the critical mass for them.
3. The essence of the concept are general-purpose technologies that are justified in using them in many areas of human activity.

4. The implementation of smart specializations should be based on the concept of entrepreneurship learning, which indicates the areas of science and technology in which a particular country or region can be a leader on a European or global scale. The main entities involved in the processes are to be entrepreneurs, while public administration should have the character of a support institution.

The Lubuskie voivodship, like each of the sixteen provinces in Poland, was obliged to select intelligent specializations. The problem of the Lubuskie voivodship economy that was revealed during the research process is its heterogeneity. The solution to this problem is a dual approach to the proposed smart specializations. Therefore, they are included in the industry and area. The list (table 1) presents the area-based approach, where 4 areas were identified: Green Economy, Health and Quality of Life, Innovative (modern) traditional industry as well as collaboration and business cooperation.

**Table 1. Smart specializations of the Lubuskie voivodship**

Green Economy	Health and Quality of Life	Innovative (modern) traditional industry	Collaboration and business cooperation
Environmental technologies	Medical technologies	Metal industry	Collaboration and business cooperation
Environmental services	Specialized forms of tourism	Automotive industry	ICT sector
Bio-economy	Regional products	Wood industry	Advisory and consulting services
Other supporting sectors, for example, the ICT sector, metal industry, logistics processes (e.g. distribution and storage), etc.	Medical services, in particular prevention and rehabilitation	Paper industry	Clusters
	Healthy, safe food (agri-food sector)	Mining industry	Business environment institutions, R & D units, scientific units
	Other supporting sectors, for example, the ICT sector, metal industry, logistics processes (e.g. distribution and storage), etc.	Furniture industry	

Source: Marshal Office of the Lubuskie voivodship 2015

Smart specializations of the Lubuskie voivodship focus on environmental protection and ecological solutions based on the innovation of ways to use them, increase the quality of life by focusing on nurturing health and promoting a healthy lifestyle. Traditional industry concerns sectors, among which the greatest potential (metal, automotive, paper, mining, furniture) has been identified. The “Collaboration and business cooperation” specialization emphasizes the role of the science and business circles in the process of generating the region’s competitiveness and supporting innovation based on research and development.

The idea of smart specializations as an instrument for supporting economic development lays emphasis on entities whose effective cooperation can strengthen this process. Generated areas for each of the studied territories give context to this relationship. An important step from the point of view of establishing an effective and long-term relationship is the analysis of the potential of the possible interaction of the involved entities.

#### **4. The potential of science-business cooperation in the city of Zielona Góra**

The research, which was conducted from October to November 2018, was subject to representatives of the Zielona Góra science and business sectors. It focused on those reinforced by smart specializations: science and business. The key to selecting these research groups was to link them to the goals of smart specializations. According to this idea, these environments will be the source of the assumed processes under smart specializations. This indicated preferences, experiences typical of the specifics of both groups. Both groups cannot be clearly defined in the context of smart specializations. The selection is justified due to the framework of National Smart Specializations. They include the promotion and financial support of business and science consortia whose activities are conducive to the development of innovation. Therefore, it can be concluded that the potential for effective interaction of these environments is located in smart specializations. Due to the adopted research methodology, a targeted selection of the research group was used. It comprised 120 subjects, where 51 of them were representatives of science, and 69 enterprises. The respondents from the business group included employees of enterprises. The researchers’ environment includes academic staff, representatives of innovation support centers and knowledge and technology transfer. The aim of the study was to get to know the answer to the question: is it possible to conclude that there is potential for establishing cooperation relations between

business and science groups? For research purposes, the following questions have been formulated:

Q1: What kind of cooperation should business and science have?

Q2: What roles should local government units play in the process of business and science cooperation?

Q3: Do the sectors studied have experience in the implementation of joint ventures?

The subject of this article (cooperation between science and business in the area of Zielona Góra) obliges to indicate the limitations of the research procedure. The context of smart specializations is given in a regional perspective, while the research focused on a research group located in Zielona Góra. Another limitation was the nature of the questionnaire in which the questions were closed and could be a problem for respondents to clearly define their position.

At the very beginning, the respondents were asked what character should business-science collaboration have? Three possible answers were specified: own tasks, tasks ordered by governmental administration and voluntary.

**Table 2. The nature of business-science collaboration**

Nature of collaboration	Science	Business
Own tasks	23.7%	29%
Tasks ordered by governmental administration	13.2%	29%
Voluntary	63.2%	42%

Source: own study

The respondents from the science group strongly indicated that the collaboration of both sectors should be voluntary (63.2% of respondents), while business representatives expressed less pronouncement in this matter, of which forty two percent indicated the same answer. This answer allows us to conclude that both groups have a homogenous opinion on this issue. The group that is more convinced of this are representatives of science. It can be stated that the research group has a liberal view on establishing relations.

The next question concerned the role of territorial self-government units in cooperation between science and business (table 3). The respondents were offered answers, among which the following functions were proposed: coordinator, observer, initiator, monitor and organizer.

**Table 3. The role of local government units in the cooperation process**

Role of local government units	Science	Business
Coordinator	31.6%	39.7%
Observer	No answers	7.4%
Initiator	36.8%	29.4%
Monitor	2.6%	2.9%
Organizer	21.1%	20.6%
No opinion	7,9%	No answers

Source: own study

According to the scientific community, local government units should have the function of initiator of cooperation (36.8%), which is understood by indicating common goals and interests of interested parties. According to business representatives, local government units should have the function of a coordinator. There is a noticeable difference in the perception of engagement of these units in the relationship management process, which refers to the scope of responsibilities and the time in which local government organizations are involved. Other issues raised by business representatives related to the lack of opinion among the respondents in the analyzed issue.

Another issue raised in the study was experience in scientific and business ventures. The structure of the responses allowed to find out whether such cooperation took place or not. The subordinate goal of this question was to obtain an answer regarding the self-awareness of participation in such projects.

**Table 4. The experience in scientific and business projects**

Experience in projects	Science	Business
Yes	35.9%	7.4%
Rather yes	25.6%	16.2%
Rather no	30.8%	42.6%



No	5.1%	25%
Difficult to say	2.6%	8.8%

Source: own study

The distribution of responses in the scientific community did not indicate strong and unambiguous answers, which differentiates them in relation to the business environment. The researchers stated that they definitely have experience in research projects (almost 36%), but the second most-ordered answer was “rather not” (30.8%). Science representatives seem to be a group that has more experience in the implementation of scientific and business ventures. Noteworthy is the small percentage of affirmative answers among the surveyed entrepreneurs. It can be presumed that these respondents are not aware of the specifics of research and science projects. Incomplete belief in the experiences of the studied groups may indicate too long a time of such cooperation or incomplete awareness that you have participated in such a project.

In conclusion, the study confirmed that business and science collaboration should be voluntary and its form should assume a role that will result from the consensus of representatives of both groups. Another question regarding the role of the environment in supporting cooperation between science and business indicated that local government units should have the role of initiator or coordinator. It can be presumed that both groups defined this function on the basis of joint projects of a scientific and business nature, where administrative units were also a party. This is indicated by the recognition of the professional experience of the respondents in the field of business-science collaboration (researchers: 61.5%, entrepreneurs: 23.6%). The key to cooperation between the two groups is the adoption of common positions by the groups concerned. The difference in the structure of the response may result from other needs regarding the role of the environment in the process of collaboration or subjectivity based on previous experience. The cooperation of both environments hides its potential in previous experience related to the relationship and in the appropriate location of resources appropriate for the specificity of both sectors, the availability and the possibility of mutual use becoming a key factor in the success of the conducted relationship. A good predictor of the future is the noticeable liberal view of the nature of potential cooperation. Divergent positions were adopted in indicating the role of local government units in the process of cooperation. Representatives of science

assigned them to the role of initiator. They expect an impulse for them to act. In turn, entrepreneurs expect them to fully coordinate their activities. It may indicate the abolition of responsibility for potential results on local government units.

## 5. Conclusion

In the analytical light, cooperation is created in the most appropriate form of establishing relationships on the basis of business and science. It is important in the conditions of orientation towards the selected smart specializations. The essence of cooperation as a relationship is long-term orientation, which includes short-term types of collaboration. The goal of selecting smart specializations is to strengthen the region's competitiveness, its innovativeness by supporting projects that have research and development characteristics and knowledge management. The need to promote cross-sectoral collaboration is demonstrated by the selection of smart specialization that supports collaboration and cooperation. The potential of collaboration on the basis of business and science in the city of Zielona Góra lies in the compatibility of positions, whose context and basis for further ventures should be included in smart specializations. People from academic centers are more willing to increase their workload and resources as part of this process.

## Summary

### **Shaping cross-sectoral cooperation based on smart specializations in the city of Zielona Góra**

Among a big number of forms of relations, which the collaboration of a minimum of two entities may be based on, it is important in the context of the science and business environment to find a reference point connecting these entities. If it is necessary to integrate two sectors, this process is complex. The solution to this problem is to find a common point of reference. On the example of strengthening the ties between business and science sectors, the merging function is adopted by selected smart specializations in the European, national and regional areas. This article uses the example of Zielona Góra, analysing the smart specializations of the Lubuskie voivodship and the research group specifying entrepreneurs and scientists performing their activities in this city the potential of permanent relationship was assessed, which

may become the basis for identifying barriers and opportunities in the context of building a lasting relationship.

**Keywords:** *science, business, Lubuskie voivodship, smart specializations, Zielona Góra.*

### Streszczenie

**Kształtowanie współdziałania międzysektorowego w oparciu o inteligentne specjalizacje na przykładzie Miasta Zielona Góra**  
Spośród wielu form relacji na jakich opierać się może współpraca minimum dwóch podmiotów istotne w kontekście środowisk nauki i biznesu jest znalezienie punktu odniesienia łączącego te podmioty. W przypadku konieczności zintegrowania dwóch sektorów proces ten ma charakter złożony. Rozwiązaniem tego problemu jest znalezienie wspólnego punktu odniesienia. Na przykładzie wzmacniania więzi między sektorami biznesu i nauki funkcję scalającą przyjmują wyselekcjonowane inteligentne specjalizacje na gruncie europejskim, krajowym i regionalnym. W niniejszym artykule posłużono się przykładem Zielonej Góry, analizując inteligentne specjalizacje województwa lubuskiego oraz na grupie badawczej wyszczególniającej przedsiębiorców i naukowców wykonujących swą działalność w tym mieście oceniono potencjał trwałej relacji, który to może stać się podstawą do wyłonienia barier i szans w kontekście budowania trwałej relacji.

### Słowa

**kluczowe:** *nauka, biznes, województwo lubuskie, inteligentne specjalizacje, Zielona Góra.*

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**Classification:** R1, L14

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