

Smart Specializations in Poland and the Czech Republic

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Abstract. The aim of the article is to present the assumptions and requirements and to analyse the strategy of building intelligent specializations in Polish and Czech regions. Smart specialization is a new paradigm of building a competitive advantage of European regions, exposing the territorial character of development. It is a response to the underdevelopment of the R & D sector, inefficiencies in public spending, and the declining innovation of the European economy, resulting in deepening detachment from global economic powers. It can be concluded that the basis of smart specializations is the potential of regions, community involvement and the use of their knowledge and public support. Smart specialization is at the same time a new paradigm shaping the regional innovation policy, striving to eliminate the existing barriers and failures in building the innovative capacity of the regions. The article shows the ideas of this concept and exposes its new approach. The authors undertook to present the experiences and dilemmas of Poland and the Czech Republic in creating smart regional development.

Keywords: Smart Specialization, National Specializations, Innovation.

1 Introduction

The strategies implemented by the European Union are currently focused on innovation. The reason for changes in the approach to the development of the regions belonging to the Community is the productivity, innovation and economic growth gap growing over the last two decades. It is visible especially in the sphere of research and development activity as well as in the sectors of high technology and techniques. The growing gap between the countries of the European Union and the United States, Japan and China in terms of competitiveness and innovation of the economy as well as declining dynamics of economic growth have become the basis for radical decisions regarding strengthening Europe's position in the global economy. The answer to these challenges was the development of the Europe 2020 strategy, which replaced the Lisbon Strategy introduced in 2000 [12].

The concept of innovation has many definitions in the literature on the subject. Analysing them, one can draw the conclusion that contemporarily this concept has significantly expanded. It abandoned the perception of innovation as a single event in favour of a set of phenomena and events that create new products, patterns, technologies and services [9]. Innovations are now identified with systematically

implemented activities that aim at increasing the efficiency of the enterprise, by using new processes, technologies and materials, as well as creating new business vision and complex strategies [8].

The Europe 2020 strategy is focused on innovation and applies to smart, sustainable and socially inclusive growth. The creation of a new strategy has also become necessary due to significant problems in the countries of the Community, i.e. economic crisis, rising unemployment, social exclusion, aging of the population, etc. [7] Three mutually reinforcing priorities constitute the basis of the new strategy [1]:

- smart development - development of a knowledge and innovation - based economy,
- sustainable development - supporting a resource-efficient economy, more environment-friendly and more competitive,
- inclusive growth - supporting a more resource efficient, more environmentally friendly and more competitive economy.

The priorities mentioned above indicate that the concept of creating smart specializations results from the criticism of the current innovation policy of the Community countries [17].

In the new concept of smart development, attention was drawn to the concept of smart specialization created by D. Foray, J. Goddard, X.G. Beldarraine et al. and defined as "economic areas highlighted by member states and regions, based on scientific and R & D potential developed in the region, as well as other regional development potentials, focused on a small number of priorities, based on objective data and evidence." [2] The grounds for development based on intelligent specializations are constituted by the place-based approach. It means that for development it is important to take into account the geographical location regarding institutional, cultural and social characteristics. In the policy conducted at the local level, it focuses on the use of knowledge regarding the specificity of the place and the role of the institution. Such an approach has now become the basis of regional development policy and European Union cohesion policy [13].

„The smart specialization strategy means national or regional innovation strategies setting priorities to gain a competitive advantage by developing and combining their strengths in research and innovation with business needs in order to exploit emerging opportunities and market development in a coherent way while avoiding duplication and fragmentation efforts” [14]. As noted by Wiatrak, "the national dimension of specialization is also regional in nature, because it refers to a specific country, and thus also an area that generally has specific characteristics in relation to others" [15]. And hence, the national dimension has a significant impact on the regions and their economy.

The aim of this publication is to present the general concept of smart specializations with particular consideration of the specificity of two neighbouring countries, i.e. Poland and the Czech Republic. The research method used in this publication is the analysis of secondary materials, i.e.: regional innovation strategies, regional development strategies and regional operational programs, as well as the analysis of the 3S Platform, the literature on the subject and the EU program documents and expert opinions.

2 European Union Policy on Smart Specializations and the Approach of Polish and Czech Regions

In order to help the countries and regions of the Community to develop, implement and review their research and innovation strategies for smart specialization (RIS3), the European Union created the S3 Platform as part of the implementation of the adopted Europe 2020 strategy. The platform was created in June 2011 and is managed by a team of the Joint Research Centre (JRC-IPTS) in Seville.

The task of the Platform is to provide information, methodology and specialist knowledge to national and regional decision-makers. It is also intended to encourage mutual learning, national cooperation and academic debates around the concept of smart specialization [4].

Currently, participants / members of the Platform are 18 countries and 177 regions from the European Union as well as 6 countries and 16 regions from outside the Community. Not all countries and regions have already identified areas of smart specialization. (see, fig 1).

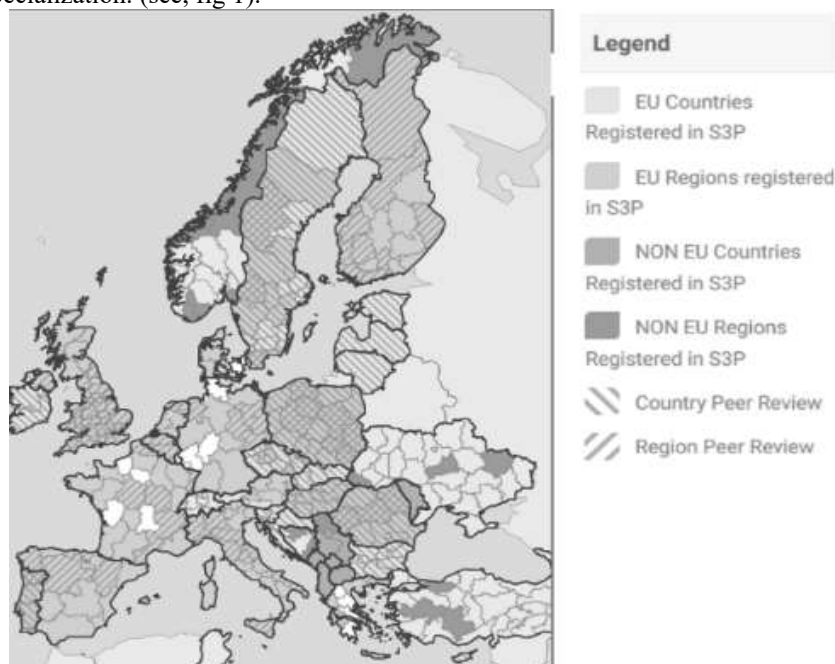


Fig. 1. Map of countries and regions registered in smart specialization platform [4].

Among the countries registered on the S3 Platform there are also Poland and the Czech Republic, wherein the framework of Regional Smart Specializations includes all sixteen Polish voivodeships, while in the Czech Republic only 4 out of 13 local governments were included.

It is possible to apply for funds to finance the so-called Smart Specialization both within the country (National Smart Specializations - NSS) and within the regions

(Regional Smart Specializations - RSS). National Smart Specializations are industries the development of which will ensure:

- creating innovative socio-economic solutions,
- increasing the added value of the economy,
- raising its competitiveness on the international arena.

Regional smart specializations are areas of economy or science identified as priority and intended for development by each of the regions. Investing in precisely defined areas allows for optimization of activities for economic development. The focus of investment activities in specific areas of the economy also allows better use of resources and financial resources [5].

However, while applying for funding, the regions need to take into account that only the projects that fall under the smart specialization will be covered by financial support. Therefore, it is important for the submitted projects to be implemented in areas compatible with smart specializations.

2.1 Smart Specializations Implemented within National (KIS) and Regional (RIS 3) Innovation Strategies in Poland

In Poland, as part of both national and regional programs concerning smart specializations, enterprises and other entities may apply for subsidies from 5 thematic areas, within which 17 smart specializations have been designated. [6], (table 1).

Table 1. Thematic sections and specializations assigned to them, implemented as part of national specializations in Poland [6].

Fields	National Smart Specializations
Healthy society	1. healthy society
Agri-food bioeconomy	2. innovative technologies, processes and products of the agri-food and forest-wood sectors
Sustainable energy	3. biotechnological and chemical processes, bioproducts and the products of specialized chemistry and environmental engineering
	4. high-efficiency, low-emission integrated systems for generation, storage, transmission and distribution of energy
	5. smart and energy-saving construction
Natural resources and waste management	6. environmentally friendly transport solutions
	7. modern technologies of acquiring, processing and using natural resources as well as producing their substitutes
	8. minimization of waste generation, including non-recyclable waste as well as material and energy use of waste (recycling and other recovery methods)
	9. innovative solutions and technologies in water and sewage management
Innovative technologies and industrial processes	10. multifunctional materials and composites with advanced properties, including nanoprocesses and nanoproducts
	11. sensors (including biosensors) and smart sensor networks
	12. intelligent networks and information and communication and geoinformation technologies
	13. printed, organic and flexible electronics

14. automation and robotics of technological processes
 15. photonics
 16. intelligent creative technologies
 17. innovative marine technologies in the field of specialized vessels, marine and offshore constructions and logistics based on sea and inland transport
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The national smart specializations presented in the table are not, however, to a large extent consistent with regional specializations, which can significantly influence the consistency of objectives pursued by individual entities.

Another important issue is the fact that work on innovation strategies in various regions of Poland, where the areas of smart regional specializations were indicated, were conducted at different times and using different methodological approaches. The reason for these inaccuracies was the fact that in many provinces regional innovation strategies were developed much earlier than national strategies, which significantly influenced the final selection of domains of specialization [16]. At the same time, during the identification of the areas of specialization, there were no clear guidelines and arrangements regarding cohesion policy and financing the development of regional specializations. This in turn generated uncertainty of the regions and a broad approach to determining them [11].

Another problem is sceptical, but sometimes justified, approach of some regions and industries in Poland to these solutions. They are afraid of unequal treatment, for example during the distribution of the funds available for this purpose. This is evident, for example, in the documents programming the development of the European Union for the years 2014-2020. According to this document, countries (regions) that want to use EU funds for investments supporting research development and innovation implementation are being threatened not get them unless they prepare the Regional Strategy of Research and Innovation for smart specialization.

In Poland, all voivodships have identified their specializations, indicating from 3 to 8 areas. Smart areas of specialization, however, have been defined by self-governments in various perspectives: sectoral, industrial and horizontal, which significantly impedes their compilation and classification. There are also sometimes differences in the number of areas identified in regional documents with those shown on Platform S3. The reason is the fact that they are open and each voivodeship can update them on an ongoing basis. In addition, not all specializations indicated by the regions have found a reference in the priority areas of the European Union, which means that some projects will not receive co-financing (see, table 2).

The most frequently indicated regional specialization in Poland are widely understood ICT and multimedia technologies, determined as the area of smart specializations by as many as 12 provinces. Medicine and health tourism (10 provinces) and healthy food (9 voivodships) are also frequently referred to. In addition, five areas were identified only in individual voivodships, thus highlighting the uniqueness of regional resources, these were: business services defined in Mazowieckie, spatial mobility and mining industry – in Dolnośląskie, aviation and cosmonautics – in Podkarpackie, water economics – in Warmińsko-Mazurskie and the production of so-called plastics – in Kujawsko-Pomorskie voivodeship.

While analysing the above areas, it can be observed that the choice of domains of specialization by regions is very broad and general. In addition, many areas do not

meet the theoretical requirements of the concept of smart specialization. The basic problems related to this approach listed by Nowakowska include the weakness of the bottom-up and pro-entrepreneurial approach to selecting the domain of specialization, the underdeveloped scientific base and linking the domain of specialization with the R & D sector, poor experience of cooperation within the area of specialization, unconfirmed by economic successes [11].

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Table 2. Areas of smart specializations in Polish regions [3].

Specification	ICT/multimedia	Bio-economy	Organic food	Medicine/health tourism	Machine and metal industry	Energy (including RES)	Chemistry	Creative industries	Construction	Logistics/water and land engineering	High quality of life	Wood and furniture industry	Textile industry and design	Other
Dolnośląskie	x		x	x	x		x							x
Kujawsko-Pomorskie	x	x	x	x	x			x		x				x
Lubelskie	x	x	x			x								
Lubuskie		x	x	x				x				x		
Łódzkie	x		x	x		x			x					x
Małopolskie	x				x	x	x	x			x			
Mazowieckie	x		x								x			x
Opolskie			x		x	x			x			x		
Podkarpackie	x									x	x			x
Podlaskie		x	x	x	x									
Pomorskie	x	x		x		x				x				
Śląskie	x	x		x		x								
Świętokrzyskie	x		x	x	x	x			x					
Warmińsko-Mazurskie			x									x		x
Wielkopolskie	x	x	x					x		x		x	x	
Zachodniopomorskie	x	x		x	x			x		x				

Nowakowska points also to the key problems that emerged during the building of smart specializations and positive aspects that, if noticed by local governments, will

be an important step towards building the innovative capacities of Polish regions. (see, table 3).

Table 3. Positive and negative aspects of the process of building smart specializations in Polish regions [11]

Negative aspects	Positive aspects
<ul style="list-style-type: none"> • lack of coherence in the areas of specialization presented in various strategic regional documents, i.e. incorrect chronology of document preparation; • a different methodology of creating innovation strategies and the substantive scope, which resulted in inconsistency and modification of the recommendations of the authors of the concept as to the ways of selecting and implementing innovation strategies; • selecting too many areas of smart specializations, poor selection and focusing on strategic spheres that can create regional competitive capabilities in the international dimension; • losing the international / global perspective of selecting areas of specialization; • specialization domains indicated in many regions do not have international and global competitive abilities; • fragmentation of support addressed to the building of smart specializations under public policies and poorly defined preferences and fuzzy criteria for selecting actions and entities (recipients of support); • unsatisfactorily sophisticated and creative policy of building innovative capacities of regions - poorly identified real needs of regional entities with the proposal of universal sets of activities; • budding system of monitoring and evaluation of smart specializations in most regions, weakness of existing system and institutional solutions in this area. 	<ul style="list-style-type: none"> • increased awareness and maturity of regional authorities to build innovative capacities of regions - in regional policy we observe a strong orientation of actions and financial resources for strengthening innovation processes; • good socialization of the process of selecting smart specializations - numerous consultations, workshops, and seminars with various groups of regional actors (mainly entrepreneurs, scientists and business environment institutions); • significant improvement of the knowledge base on regional innovation processes - the process of building innovation strategies was accompanied by a growing number of analyzes, evaluations and expert opinions, which significantly enriched knowledge about regional potentials and mechanisms; • greater methodological maturity in building innovation strategies, records in most strategies are more specific, strategies go down to lower levels of detail, are well-equipped with indicators.

2.2 Smart Specializations Implemented under Regional Innovation Strategies (RIS3) in the Czech Republic

As well as in Poland, also in the Czech Republic exists National Innovative Strategy, where this strategy defines four priority axes. Every axis is consequently divided into

several subcategories, more or less connected with smart specializations. These axes are as follows [10]:

- Excellent research
 - Effective using of public resources on research and development
 - Top research infrastructures
 - European research area – the way to excellency in research
- The development of cooperation for knowledge transfer between business and academic sectors
 - The improvement of inner conditions and overall readiness of academic institutions for cooperation with companies and for commercialization of research outputs
 - The support of cooperation between companies and R&D institutions
 - The increase of quality and development of new services of support innovative infrastructure
- Innovative entrepreneurship
 - Services for innovative entrepreneurship
 - Financial instruments and development of risk capital market
 - Investment incentives, care for investors, and direct marketing
 - Internationalization
 - Quality foresight – source of strategic information for entrepreneurship and innovation
 - Public sector – source of innovative demand and creator of regulation
- Human resources – main carriers of new ideas and initiators of changes
 - Reform of higher education
 - The development of lifelong learning
 - Changes of education content – creativity, enterprise, and key competences
 - Development of quality employees on national level and facilitation of enter, stay, and employment of quality foreigners

However, also in the Czech Republic do not regional strategies comply fully with national one. Moreover, regional strategies usually exist only in form of web page; there is no generally available document with detail description. On the other hand, some of usually supported areas are for example Human resources, Cooperation and transfer of technologies, Business development, etc.

3 Discussion

As was already mentioned, the strategies implemented by the European Union are currently focused on innovation, because of the growing gap over the last two decades between the countries of the European Union and the United States, Japan and China in terms of competitiveness and innovation of the economy. It is visible especially in the sphere of research and development activity as well as in the sectors of high

technology and techniques. The answer to these challenges was the development of the Europe 2020 strategy, which replaced the Lisbon Strategy introduced in 2000 [1].

However, the problem with this strategy can be seen in the consistence of national strategies with the European aim, or with the consistence of regional strategies in every country with national. This inconsistency can be seen in Poland, as well as in the Czech Republic. In both mentioned countries can be found both the national innovation strategy and regional innovation strategies, but the content of regional strategies usually does not comply with the national one at all, or only in small measure. Moreover, another problem, which sometimes occurs, is about the content of each regional strategy. These strategies are sometimes very similar or almost the same, the differences are only insignificant or symbolic. The reasons of this similarity can be, of course, the similar conditions in every region, but more likely, one strategy has been prepared as a copy of different one with only small improvements.

That means that some of these strategies have been probably prepared only for the fulfillment of the condition about the existence of such strategy, where it is not corresponding with the reality and it is not even trying to solve the European problem. This approach is not extraordinary, but that means that good intention of European representatives cannot be applied properly because of lack of willingness from the regional representatives. The question is whether this lack of willingness is really the problem of local representatives, or it is just reaction on the growing requirements in terms of bureaucracy from the EU. The possible explanation can also be that the local representatives are not seeing the meaning in preparing of different strategies, where the final impact of such strategies is very low or none at all. If this assumption is true, it is quite understandable that the local representatives are trying to minimize the cost (both financial and time) on preparing of such strategies.

4 Conclusion

The concept of smart specialization presented by the European Union departs from the one used so far in regional policy. It consisted in supporting many different activities, which certainly did not support the building of critical mass and limited the effectiveness of implemented innovations. The assumptions of the concept of smart specializations show that their main goal is to improve the efficiency of innovation processes in the European Union countries. It should be added, however, that the concept proposed by D. Foray and co-authors is nothing new as these issues were already taken up in economic theories presented by representatives of various trends.

On the one hand, a new regional policy based on smart specializations is an opportunity for regions, including enterprises while on the other there are indications that the implementation of the concept of smart specializations will result in an even greater gap in the level of economic development between the richest and least prosperous regions.

In the case of Poland, this is visible, inter alia, in the lack of coherence between national and regional areas of smart specializations, which may significantly reduce the chances of development of a given area as its development will be based only on resources available to the regions, and it will certainly significantly weaken

opportunities to build an international competitive position, which are defined as priorities in the Strategy's assumptions.

Concerns of the regions are also raised by the way in which funds are allocated for specializations. They result from the previous experiences of the representatives of local governments, in which the most innovative regions had an advantage in competing for EU funds resulting, for example, from experience in submitting applications. There is also a fear that the increase in innovation expenditure will actually affect the region's economic growth.

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