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Identification of Smart Specialisations in Polish Regions in the Context of the EU's New Financial Perspective 2014–2020

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Abstract: *The smart specialisation is a new EU's concept towards the regions. It assumes upgrading of innovation and competitiveness basing on endogenous potential, in particular, in already existing branches of economy. Smart specialisations should, by definition, concentrate economic resources on chosen priorities. Having a smart specialisation will be a pre-condition for access to the UE's funds in the new financial perspective 2014-2020. Smart specialisation need to be clearly defined and only then can they contribute into economic growth combined with proper management over public financial means. The necessary pre-condition is to understand the very concept and to recognize the mechanism of identification and implementation. The expected pre-conditions also include a proper legal framework and its smart implementation through able application of administrative*

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tools. The objective of the paper is to introduce and characterise the assumptions for smart specialisations and to indicate at the progress of implementation and the necessary conditions required in Polish regions. Moreover, the paper reviews and analyses major European and national documents exposing the question of smart specialisations. The empiric part deals with identification and assessment of progress in the implementation of the concept into Polish regions.

Introduction

Smart specialisation is a new EU's concept towards the regions. It assumes improvement of innovation and competitiveness, basing on the endogenic potential, particularly in already existing branches. Putting stress on existing knowledge and know-how, and taking advantage of specialized research activities, regions will be able, as a result of the concept, to excel in a particular field of activity and to reach critical mass which will enable them to compete internationally. Smart specialisation will help to concentrate economic resources on several key priorities. Obtaining regional specialisations will also open access to the European funds in the new financial perspective 2014–2020.

Smart specialisations need to be properly defined before they are useful and ready to contribute into economic growth combined with reasonable management of public funds. The necessary pre-condition is to understand the very concept, to recognise the mechanism of identification and implementation and proper legal framework, as well as their wise implementation through clever application of administrative tools. Having considered the above, the aim of this paper is to characterise and introduce the theoretical assumptions for smart specialisations and to indicate at the conditions necessary for their proper defining. Another objective of the paper is to analyse major European and national documents stressing the question of intelligent specialisation. However, the prime goal for the research is to identify and analyze the effect of the implementation in Polish regions. The period covered by the analysis is from 2010 to 2015.

Methodology of the Research

The whole research procedure needed for this paper is based on the analysis of the existing state and directions of the undertaken actions, in order to identify smart specialisations in Polish regions. The conclusions have been based on comparative analysis of the rules and regulations resulting from both the EU's and national documents concerning specialisations accom-

modated to regional economies. At this stage, it was particularly important the review strategic documents at the level of self-governing regions. The next stage concerned assessment of the empiric material within the scope outlined by regional self-governments dealing with strategies of innovations. The following material has been used in the assessment: regional analyses, documents including strategies for the “voivodships” (the largest administrative units) and also the “RIS’s – Regional Strategies for Innovations. Among important methods, one can mention the analysis of present data, sometimes called ‘the analysis of secondary sources’, ‘desk research’ and Individual in-Depth Interviews.

Importance of ‘Smart Specialization’ in Regional Economic Development

Smart specialisation denotes maximum effectiveness in the utilisation of regional resources in order to enhance the competitiveness of the region. Being a new element of the EU’s new policies, smart specialisation is perceived as a concept promoting effective and synergic allocation of public resources in the most promising branches, which enables to enhance their innovative capacities (Kucharczyk, 2014, p. 24). Such approach aims at taking advantage of the regions’ potential and at stressing their specifics in order to avoid repeating or overlapping actions. Consequently, smart specialisation enables to identify unique features and assets of each country or region, and to put stress on a competitive advantage through focusing of regional partners and assets on the vision of successful future (Foray, 2012, p. 7-10).

Smart specialisations give regions many opportunities to develop. They bring about economic growth combined with careful management of public funds. As a result, they contribute into re-modeling and re-directing of economy, which will improve the added value and competitiveness. Smart specialisation goes beyond the classical investments in research and technology, or in traditional innovation capacity building. The following makes a smart specialisation strategy different from the average innovation strategy (*Smart Specialisation ...* 2014):

- Its evidence-base does not only consider typical research and skills issues, but looks into all assets, e.g. geographic location, population structure, climate, natural resources, and into demand side issues, e.g. societal needs, potential customers, public sector innovation. It will encourage a country or region to merge its unique local know-how and productive capacity into new combinations and innovations. Smart specialisa-

tion is not a top-down decision, but developed and implemented in a dynamic entrepreneurial discovery process involving key stakeholders in collaborative leadership.

- It has a global perspective on potential competitive advantages, markets and potential for cooperation with innovators beyond geographic boundaries.
- It is not focused on the production of new knowledge everywhere, but commends sourcing-in existing knowledge and technologies to innovate in all possible forms, including inter alia organisational, marketing, user-driven, and social innovation.
- It is about setting priorities in times of scarce resources and focusing investments on comparative advantage to accumulate critical mass and thus to excel by differentiating the country or region from others.
- Smart specialisation is not about picking winners in terms of sector or technology, but about cross-fertilisations between and among sectors and technologies. For some regions, the clustering can provide a starting point for cross-sectoral links and knowledge spill-overs, both within the region and externally with other regions.

The concept of smart specialisation comprises upgrading innovation and competitiveness on the basis of endogenic potentials of regions and, in particular, on the already existing branches. Taking advantage of the existing knowledge and R and D activities adjusted to the local social and economic conditions, the regions will be able to excel in a particular field and reach „critical mass”, which will enable them to compete internationally in future. Selection of smart specialisations should be based on the institutional and technological potential of the region taking into consideration the present state as well as predicting future trends. The process should include both, quantitative and qualitative assessment, and should be adjusted to the regional abilities, opportunities and needs. It is vital in the process of building regional strategies to avoid imitating other regions’ solutions and to support those particular areas which have been positively identified.

The concept of smart specialisation is based on the four main assumptions (Kardas, 2011, p. 133). Firstly, the necessary pre-condition of smart specialisation is to describe the area of research and innovation in which the competition involving many rivals will take place. Such areas should enable to take advantage of the effects of scale, scope and intensity. Secondly, according to D. Foray (Foray, (Ed), 2011): if all European regions or states compete to be the leader, in e.g. the same domains of knowledge, most of them will not reach the goal due to the lack of : proper critical mass or the effect of scale and scope. He points out that in such cases, the best solution is to concentrate activities on the areas of research

and innovation which will be complementary with the regional assets and contribute into creating and strengthening its competitive edge. Thirdly, the concept of smart specialisation is depicted by the, so called, technologies of general application. They can be used as supporting technologies, i.e. they can create opportunities for development, but not complete and final solutions. Lastly, the assumption refers to the method of implementation of smart specialisations, particularly the role of public administration in the subject.

Major European and National Documents Regulating the Question of ‘Smart Specialisations’ in Poland

Before the notion of smart specialisation appeared in the EU's documents related to the long term programming of European convergence policies, the very concept had long history, and its origins go back to the reform of structural funds (the first Delors package 1989–1993). The main assumption for the new philosophy of management and structural funds utilisation was to stream actions at a limited number of priority goals, so that increased financial means could ignite growth dynamics in the most backward regions. This assumption was later transferred into particular solutions in the European convergence policies for 2014–2020, first outlined in the regulations of the Europe 2020 Strategy, and its lead project named the Union of Innovation and further regulated in the new legislation for 2014–2020, approved by the European Commission. The process and methods of selecting smart specialisations in particular regions were then described in methodology guidebooks of the European Commission. The most important EU's documents on the subject and their descriptions are shown in the Table 1.

Table 1. Major European regulations referring to smart specialisations

Document	Main assumptions	Reference to smart specialisation
EUROPE 2020 - A strategy for smart, sustainable and inclusive growth	Europe 2020 is a growth strategy of the EU for the oncoming decade. The Union has created a concrete plan comprising five objectives concerning: employment, innovation, social inclusion, education and energy together with climate changes. Within all those areas, the member states have their own	It draws up the framework for smart specialisation at the level of member states and regions. Smart specialisation is connected here especially with one of the three priorities of the Europe 2020 Strategy i.e. with intelligent development which means that economic growth is based on knowledge and inno-

Table 1 continued

Document	Main assumptions	Reference to smart specialisation
	national goals. Concrete measure on the both levels: European and national ones reinforce the realisation of the strategy.	vation as two main engines of the social and economic development.
Europe 2020 Flagship Initiative: Innovation Union	The European Union adopts a new strategic approach to innovation. The initiative presented by the Commission as part of the Europe 2020 strategy aims at improving conditions for innovation throughout all stages of research and development. This initiative should also have a positive impact on employment, green growth and social progress in the EU by 2020.	It indicates at improvement of general conditions and facilitation of access to financing of research and innovation so that innovative ideas are transformed into new products and services, which in turn contributes into economic growth and creation of new jobs.
Regulation laying down general provisions on the European Regional Development Fund (ERDF), the European Social Fund (ESF), the Cohesion Fund, the European Agricultural Fund for Rural Development (EAFRD) and the European Maritime and Fisheries Fund and laying down general provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund,	Outlines rules and opportunities of realisation of tasks related to particular funds in accordance with their goals set in the treaties. It indicates that support should be concentrated on a limited number of common thematic goals. In consequence, it sets 11 goals within which the policies of convergence will concentrate in 2014 - 2020.	Among the above mentioned documents the importance of innovation, technological development and scientific research was stressed in the regulation concerning the European Fund for Regional Development and the contest of smart specialisation was outlined in the so called general regulation. Smart specification refer in particular to the first thematic goal: „Support for research technological development and innovation”
Methodology guidebooks of the EC which describe a proper approach to the process of finding smart specialisations in regions.	Describe the process and ways of finding smart specialisations in regions.	
1	Connecting Smart and Sustainable Growth through Smart Specialisation,	Specifies how to combine smart specialisations with permanent and intelligent economic growth.
2	Guide to Research and Innovation Strategies for Smart Specialisations – RIS3,	Pointss out at the substantive contest and designing of strategies for smart specialisations. The guidebooks includes methodological guidance for political decision makers and executive organs and shows how to imagine the project, and latter, the implementation of a regional strategy smart specialisation.

Source: own research based on the documents presented in the table.

As far as national regulations are concerned the subject of smart specialisations has been raised in programmes following European regulations. In Poland, at both national and regional levels, strategic regulations and documentation have been created concerning social, economic and urban development, whose time framework has been identical with programming a new long-term financial perspective for the EU covering the 2014–2020 period or going beyond up to year 2030. References to the innovative side of the Polish economy have been included in the following documents: Long Term Strategy for the Country’s Development, Poland 2030, Concept for Poland’s Urban Development 2030, Strategy for Poland’s Development 2020, but also in the integrated strategies, as well as in documents and concepts outlining national specialisations in the field of research and innovation with the aim of supporting smart specialisations.

Table 2. Major EU regulations referring to the question of smart specialisation

Document	Major assumptions	Reference to smart specialisation
Poland 2030 "Long-term National Development Strategy 2030". Third Wave of Modernity (LT NDS).	Implementation of action in three target areas: competitiveness and innovation (modernisation), balancing development potentials of Polish region (diffusion) and effectiveness of the state, in order to fulfill the main goal, namely enhancement of living standard as a result of stable and high economic growth.	It was stressed in the document that the scope of competitiveness and innovation (modernisation) in the economy aims at gaining a competitive edge of the Polish economy through enhancement of human capital and taking advantage of digital technologies.
The National Spatial Development Concept 2030 (NSDC 2030),	The document presents a vision of the country's spatial development in 20 years perspective, specifies objectives and directions of the national spatial development policy that serve the purpose of its delivery as well as indicates the rules and mechanisms of coordination and implementation of public development policies having a significant territorial impact.	Reference to smart specialisations was highlighted in two of the six goals for the concept of Poland’s Urban Development 2030 with two major aims. 1) upgrading competitiveness of the main Polish cities through their functional integration into European space, with remaining structure of the settlement pattern. 2) improvement of internal cohesion territorial balancing of the country’s development through promotion of functional integration.
National Development Strategy 2020 Active Society, Competitive Economy, Efficient State,	It defines strategic tasks for Poland, crucial for expediting the development process in the next few years. This document defines three strategic areas (effective and efficient state, competitive economy, social and territorial cohesion) on which the main operations will be focused. It also defines interventions necessary in the medium-term per-	Reference to smart specialisation were included in the regulations concerning efficiency growth of the economy. Regulations assume gradual transformation of the existing economy structure towards the one which will be based on the knowledge. The concept of smart specialisation is also mentioned in the regulation concerning increase of the innovative power of the

Table 2 continued

Document	Major assumptions	Reference to smart specialisation
	spective for the purpose of expediting the development processes. It constitutes a foundation for 9 integrated strategies which facilitate the execution of goals presented in the NDS and provides detailed information on reforms it enumerates.	economy. The regulation stresses the necessity to perceive innovation in a broader sense, not only in the technological and produce dimension but also in the organisational and marketing dimension, including the sector of services.
National Strategy for Regional Development 2010-2020. Regions, cities, rural areas	This document provides solutions that will completely re-invent the thinking of regional policy in terms of ways of establishing goals, basic principles, as well as implementation mechanisms so as to enable Poland to fully use the potential of the territorial self-governance and regional advantages.	The strategy was adopted in 2010 when the concept of smart specialisation was beginning to take shape. However, the strategy evidently presents an approach to the matter which is proper for development, e.g. in regulations regarding to territorial specialisation and strengthening social and economic specialisation which is decisive for a competitive advantage of a region.
Strategy for Innovation and Efficiency of the Economy	The main objective of the SIEG (Polish abbreviation for Strategy for Innovation and Efficiency of the Economy) is to prepare favourable environment conditions for Polish companies as well as for the sectors of science and administration, which will improve competitiveness and innovation of the economy. The strategy assumes adjustment of the institutional and financial environment to the needs of innovative and efficient economy. It also assumes improvement in know-how and quality of labour, better utilisation of natural resources and more internalisation of the Polish economy.	The term smart specialisation appears in the strategy in the aspect of partner cooperation. Here it is vital to establish multilateral contacts with various partners of local communities, which will contribute into creating specialisation of the given region. Implementation of smart specialisations will be based on the principle of partnership, so it will engage all parts interest, i.e. companies, technological platforms and clusters.
Polish Road Map for Research Infrastructure	The map will include the most important, strategic R and D facilities, having key importance for upgrading of the Polish potential in the regard.	The projects follow the idea of creating strong research centres which will consolidate national scientific potential, having engaged leading teams of scientists with national and international experience and achievements.
National Programme for Scientific Research Guidelines for polish concerning research and innovation	Indicates main areas and directions for research and innovation for the long-term perspective. These guidelines are a basic for strategic scientific research prepared by The National Centre for Research and Development	Implementation of the programme should help to achieve better results in technological progress for example to increase the number of patented solutions, which as a result will improve innovation in economy and its competitiveness.

Table 2 continued

Document	Major assumptions	Reference to smart specialisation
Technology foresight of the industry - InSight 2030	The main objective of the project is to identify the key technologies and areas, having strategic importance for the Polish industry and being the priority over the next 20 years.	The results of Insight 2030 have been used in strategic documents, e.g. The Programme for the development of enterprises, and they have contributed into better selection of smart specialisations in Poland (the KIS - National Smart Specialisation)
Programme for the Development of Enterprises until 2020, including the KIS - National Intelligent Specialisation - adopt by the council of Ministers on 14.04.2014.	<p>Programme for the Development of Enterprises until 2020 is an executive programme of the Strategy for Innovation and Effectiveness of Economy,</p> <p>National Smart Specialisation is a document setting economic priorities in R and D area whose development will enable to create innovative social and economic solution to enhance the added value and the competitiveness of the economy in international markets.</p>	The KIS (National Specialisation Programme) aims at indicating smart specialisations which set priorities for scientific and innovation policies until 2020. The 18 smart specialisations have been selected within the following sectors: healthy society, organic agriculture and food industry, ecological policies, balance energy production, natural resources and waste utilisation innovative technologies and industrial processes

Source: own research based on the documents presented in the table.

The National Strategy for Regional Development 2010–2020 Regions, cities, rural areas (the KSRR) and Strategy for Innovation and Competitiveness of economy (the SIEG) have the most importance of all programmes for the development of smart specialisations. The National Strategy for Regional Development stresses the importance of selecting smart specialisations because through their choice and the support given to them, particular regions will be able to gain competitive edge in chosen fields of activity. The general and strategic framework for smart specialisations is comprised in one of the nine integrated strategies known as strategy for Innovation and Effective Economy „Dynamic Poland” (the SIIEG) which is coherent with the EU’s strategy for development „Europe 2020” and the guidelines for the medium - term Strategy for Poland’s Development 2020. The executive document to the strategy of Innovation and Effective Economy is the Programme for Development of Enterprises until 2020 which comprises a whole range of instruments to support entrepreneurship in Poland. The National Smart Specialisation (the KIS) indicates the fields of R and D within which the strategies of the SIIEG will be implemented, as well as it is an integral part of the Programme for Development of Enterprises.

Selection of regional smart specialisation in Poland has been timed with the update of the most important strategic documents in regions, i.e. the strategy of regional development and the regional strategies for innovation. The strategy for regional development is the basic and the most important tool of regional policies made by the regional self-parliaments. It is the regional development in a particular time frame.

Defining ‘Smart Specialisation’ – Comparative Analysis for Regions

Selecting intelligent specialisations is the most important for the process of their defining. In Poland, the way of defining intelligent specialisation is both regional and national.

The process of defining at the regional level is strongly connected with the preparation of regions for the new EU’s financial perspective for 2014-2020. Referring to the new dimension of the regional policy, Polish regional self-governments have updated major documents related to strategic regional issues where main fields of intervention or branches of economy have been outlined. Strategies for innovation resulting from regional development plans have also been updated. At the time being all the regions have updated strategies, however the work on the EU’s Innovation Strategies RIS3 shows mixed results.

In majority of cases, intelligent specialisations have been defined, the work is relatively advanced and consultations confirm the proper direction and shape of the solutions. It is assumed that the RIS3 are processed according to the scheme suggested by the European Commission. The scheme assumes as the first step performing analysis of the regional potential to innovation, then creating a solid and coherent structure of public governing together with a commonly shared vision of the regions future. Additionally, the scheme suggests choosing a limited number of priorities for regional development, creating a proper set of policies and integrating mechanism of monitoring and evaluation. It allows for adjustment for each particular regional or state economy so that even areas showing a low level of innovation could identify competitive advantage within R and D based on specific, local features (EDS, 2014).

What refers to the state level, the key document, whose results made the starting point to define National Intelligent Specialisations (the KIS), was the technological project for industry – InSight 2030. The project identified the key technologies and industrial areas having strategic importance for the Polish industry over the next 20 years.

Work on intelligent specialisations, on both regional and national level is independent by definition and superiority or inferiority of the one of them should not take place. As a rule, specialisations resulting from regional specifics, defined either at national or regional level should be convergent. However, the observations made so far, show that such a co-relation is difficult to achieve. At the moment, convergence and coherence of the selected specialisations is difficult to find. It is confirmed by the analysis concerning potential for development and specialisations in Polish regions, in which the following conclusions were presented (according to Dziemi-anowicz *et al.*, 2014):

1. Much differentiation and lack of compatibility appears among regional and national specialisations.
2. The highest level of capability show specialisations from the sector: “Organic agriculture, forestry and natural environment”. The three, defined in this area, national intelligent specialisations include no less than 15 regions. Moreover, the specialisation “Innovative technologies, processes and product of agriculture, food and forestry sector covers 10 regional specialisations.
3. The least compatibility is shown by specialisations covering the thematic field “Natural resources and waste utilization”. Only 4 regions are covered by national specialisations defined in the field.
4. At the national level, the specialisations like creative industry or business services have not been selected. However, these specialisations have been selected in several regions. It is assumed that omission of such important economic areas is the result of:
 - firstly – basing on the project Technological Foresight for Industry – InSight 2030 (which by definition limits the services sector),
 - secondly – resulting from inadequate, according to the representatives of the regions, consultations with their participation.
5. Analysing particular regions, Kujawsko-Pomorskie has the highest level of national intelligent specialisations (9) and Dolnośląskie has the second highest level (7). The lowest level of compatibility between national and regional specialisations have: Mazowieckie, Śląskie and Wielkopolskie regions (only 2 national specialisations).

As stated before, the updating processes of innovation strategies and of defining smart specialisations have been going on very differently in particular regions and the results of the process have been different as well. The numbers of the chosen smart specialisation vary. The fewest, only 2 specialisations have been defined in Podlaskie and the most – 8 of them in Kujawsko-Pomorskie. In the abovementioned process, dual approach towards particular choice has been observed. In some regions, smart speciali-

sations concern selected branches or sectors of economy, in other regions there appears to be horizontal approach which shows the cross-section of the chosen potential.

Table 3. Regions of Poland covered by scopes smart specialisations

Name of the scope of smart specialisations	Dolnośląskie	Kujawsko-	Lubelskie	Lubuskie	Łódzkie	Małopolskie	Mazowieckie	Opolskie	Podkarpackie	Podlaskie	Pomorskie	Śląskie	Świętokrzyskie	Warmińsko-	Wielkopolskie	Zachodniopolo-	sum
1. IT and telecommunication	x	x	x		x	x	x		x		x	x			x		10
2. Bio-economy	x	x	x	x		x				x	x				x	x	9
3. Food industries (including eco-product)	x	x		x	x		x	x					x	x	x		9
4. Healthcare and environment protection (pharmaceutical and body care industries, tourism)	x	x	x	x	x						x	x	x			x	9
5. Machinery and metallurgy	x	x		x				x					x		x	x	7
6. Energy			x		x	x		x			x	x					6
7. Chemicals	x					x		x							x		4
8. Creative industries		x									x				x		3
9. Services for business environment							x				x					x	3
10. Construction					x			x					x				3
11. Logistic and transport infrastructure		x									x					x	3
12. Timber, wood products and furniture			x											x			2
13. Mining and water supply	x													x			2
14. Production and processing of materials		x															1
15. Textiles and design					x												1
16. Aerospace and aviation industry									x								1
17. Off-shore technologies											x						1

Source: own research based on Dziemianowicz *et al.* (2014).

The specialisation mentioned most frequently (in 10 regions) is IT and telecommunications. Bio-economy, health food (within food industry) and healthcare/hospitality industry have been mentioned in 9 regions. Metallurgy/machinery and energy have been chosen by a high number of regions. The regions have also defined their specific specialisations: offshore technologies and water economy (Warmińsko-Mazurskie region).

Conclusions

Summarising the above considerations, it must be stated that the Polish public administration has made much progress at identifying and selecting smart specialisations, although the necessary products undertaken on both regional and national levels are not easy to implement. At present, it is necessary to establish formal relations between specialisation selected at the regional and national levels. It will allow to eliminate discrepancies existing in results of research at each level. Also, we need to verify some of the already selected specialisations which are too general and contradict with their prime goal, i.e. innovation and originality and unique features.

In addition, it seems that a part of the selected specialisations, chosen by some (but not many) regions have universal specialisations (creative industries, services for business, high standard of living), so these specialisations should be defined more precisely.

The attitude and commitment shown so far by public and regional administration stress their friendly approach to the issue and positive assessment of the Polish economic potential. The recommended actions in order to ensure proper development of particular regions and the whole economy is exchange of experience and know-how at the both regional and national levels, and also introduction of a common process of monitoring and updating.

The cooperation should involve establishing rules for implementing, monitoring and updating intelligent specialisations. It needs to be stressed that the processes of monitoring and updating at the national and regional level should be connected with each other, so in the new financial perspective 2014–2020, the UE's financial support should be interchangeable involving both the national and regional levels as one system.

References

- Asheim, B., Lawton Smith H. & Oughton CH. (2011). Regional Innovation Systems: Theory. *Empirics and Policy*, 45(7), <http://www.tandfonline.com/doi/full/10.1080/00343404.2011.596701>.
- Bottazzi, G. & Gragnolati, U. (2011). *Cities and Clusters: Economy-Wide and Sector-Specific Effects in Corporate Location*, <http://dx.doi.org/10.1080/00343404.2012.739281>.
- Dziemianowicz, W., Szlachta, J., & Peszt, K. (2014). *Potencjały rozwoju i specjalizacji polskich województw*. Warszawa: Geoprofit.
- Europe 2020 Flagship Initiative Innovation Union SEC(2010) 1161: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions*. (2011). Luxembourg: Publications office of the European Union.
- Foray, D., Goddard, J., Beldarrain, X. G., Landabaso, M., McCann, P., Morgan, K., Nauwelaers, C., Ortega-Argilés, R., & Mulatero F. (2011). *RIS3 Guide*, Draft 12/12/2011.
- Foray, D. (2012). *Guide to research and innovation strategies for smart specialisation (RIS 3)*. Brussels: EU.
- Kardas, M. (2011). Inteligentna specjalizacja – (nowa) koncepcja polityki innowacyjnej. *Optimum Studia Ekonomiczne*, 2(50).
- Kucharczyk, A. (2014). *Kierunek: Inteligentne specjalizacje – priorytety wspierania rozwoju gospodarczego Unii Europejskiej w latach 2014-2020*. EDS 1(25).
- Mccanna, P. & Ortega-Argilés, R., (2012). *Smart Specialization, Regional Growth and Applications to European Union Cohesion Policy* <http://dx.doi.org/10.1080/00343404.2013.799769>.
- National/regional innovation strategies for smart specialisation (RIS 3)*. Retrieved from: http://ec.europa.eu/regional_policy/sources/docgener/informat/2014/smart_specialisation_en.pdf (20.12.2014).
- Ortega-Argilés, R., (2014). *Working Regions: Reconnecting Innovation and Production in the Knowledge Economy*. *Regional Studies*, 48(8), <http://dx.doi.org/10.1080/00343404.2014.938467>.
- Pugh, R. E., (2014). 'Old wine in new bottles'? Smart Specialisation in Wales, *Regional Studies, Regional Science*. 1(1), <http://dx.doi.org/10.1080/21681376.2014.944209>.
- Smart Specialisation. The driver of future economic growth in Europe*. Retrieved from: http://ec.europa.eu/regional_policy/sources/docgener/panorama/pdf/mag44/mag44_en.pdf (20.12.2014).