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Regional Innovation Strategies and food industry – evidence from Polish experience

Abstract

The purpose of the paper is the assessment of the Regional Innovation Strategies (RIS) and their impact on the development of the innovation in the Polish food industry. The analysis has been carried out on the basis of secondary sources: documents and studies obtained in the process of the RIS implementation in the EU and in Poland.

The Regional Innovation Strategies have been present in Poland for more than ten years. However, most of them are only at the beginning of supporting the innovation in country. The conducted surveys indicate that the low level of innovativeness in Poland is accompanied by a strong diversity between the Polish regions. The size of innovative potential of different provinces depends on their level of economic development measured by the GDP value.

What's interesting, the interrelations between the quality of strategic documents and actions related to the preparation and implementation of RIS and the innovativeness of regions in Poland have not been observed. The level of innovation and the effectiveness of use of the existing potential do not depend on RIS, but on many other factors. Among the most important ones the awareness of entrepreneurs about the need to introduce innovations in companies must be mentioned.

It has been noted that the regions allocating larger expenses for the investment in the food industry in relation to manufacturing have been quoted in the middle of the ranking of provinces in terms of a synthetic innovation ratio of the regions. It confirms the hypothesis that regions of smaller innovative capacity are based mainly on traditional sectors.

The evaluation of RIS impact on food industry in Poland is quite difficult at the present stage. First innovation strategies contained too many priorities, if the aforementioned sector was mentioned, among others. Second an additional problem is the lack of monitoring and evaluation of the RIS. It can be assumed that the obligation to enter smart specializations and their evaluation should significantly facilitate analysis of the influence of RIS3 on agricultural-food sector. However, the concept of smart specializations is a new one and it needs time to obtain relevant information for testing.

A significant problem in the future may prove to be the choosing of the traditional specialization by some less innovative regions, which include agricultural-food sector. Then there is a risk of slowdown in their economic development in the future. For this reason, it is important to constantly seek the possibilities of creation and commercialization of innovations at the contact point of traditional and advanced industries as e.g. agricultural-food and biotechnology sectors. In addition, a good initiative would be building superregional innovation strategies forming a common system of the development of innovations based on endogenous potentials of particular regions.

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Introduction

The essence of innovation is not only the source of a new idea, but also the effect of interactions between innovators and institutions fostering or inhibiting their creative activities. Innovation systems operating in the national, regional, industry or technological dimensions (e.g. ICT) are often connected with one another and overlap owing to relations occurring among the participants of the innovative process [Weresa 2014]. The role of Regional Innovation Strategies (RIS) should be the strengthening of innovation systems by assisting authorities and other development organizations in defining and implementing these systems [Regional Innovation Strategies 2010].[2]

The Regional Innovation Strategies have been in Poland for more than ten years. However, most of them are only at the beginning of supporting the innovation in our country. According to the last Innovation Union Scoreboard [2015] Poland is still at the end among "moderate innovators" being behind Spain, Hungary, Greece, Slovakia, Croatia and before Lithuania.

The purpose of this article is to assess RSI and their impact on the development of the innovation in the Polish food industry. The analysis has been carried out on the basis of secondary sources, which included documents and studies obtained in the process of the RIS implementation in the EU and in Poland.

First Regional Innovation Strategies s in Poland

Strategy is usually understood as a direction and scope of actions that an organization/state/region intends to adopt in the long run to achieve their goals and provide long-term survival and development [OECD Science, Technology and Industry Outlook 2012]. Innovation strategy is thus a general vision of a innovation system operation in the future. It is not identical with a policy which includes the tools of impact aiming for obtaining any agreed purposes. Sometimes the boundaries between the innovation strategy and innovative policy are unclear when one indicates specific instruments in strategies which will be used for achieving the goals that have been laid out [Weresa 2014].

According to OECD recommendations, the implementation of RIS should proceed with the use of the following six stages [Regional Innovation Strategies 2010]:

1. Initiating the dialogue about innovation in the region to achieve a consensus with regard to the proposed vision and the identification of actors who should be incorporated into the regional system of innovation.
2. The analysis of innovative needs and the potential in the region by evaluation of strengths and weaknesses.
3. The creation of RIS with the inclusion of all possible stakeholders using a discussion on a public forum in order to specify challenges and options for the innovative policy.
4. The selection of priorities to support innovation, namely the selection between many options and budget possibilities.

[2] Regional innovation system - operating in a given region and influencing private sector and public entities, dealing with the creation, modification, transfer and the diffusion of new technologies on a regional, superregional or international scale (Freeman, 1987).

5. The implementation of the strategy, development of a number of action plans, pilot projects, initiatives. These actions should be strictly coordinated with the implementing institutions and assigned goals, competences and the budget.
6. Creating and the use of monitoring and evaluation of RIS.

It should be emphasized that the actions aiming at stimulating the innovation in the regions were initiated in EU already in the 1990s, on the basis of the Single European Act introduced in 1986. The concept of strategic approach to innovation that appeared at that time affected the intended use of measures from Structural Funds for supporting the innovation. These actions were associated with the contemporary priorities of levelling up the economic state between the regions and an attempt to indicate endogenous potentials of the regions that could contribute to their further development [Polityka regionalana 2014].

The idea underwent a number of evolutions. First Regional Technology Plans were implemented in a linear manner at the level of science and industry. On the other hand, Regional Innovation and Technology Transfer Strategies included an additional element which was the technology transfer. In the next stage, i.e. in Regional Innovation Strategies the network approach was visible which engaged many actors.

The process of creating RIS in Poland was started in the period of 2001-2002 in five provinces: Wielkopolskie, Opolskie, Śląskie, Zachodniopomorskie, Warmińsko-Mazurskie, thanks to the funds from the 5th Framework Programme of Research and Technical Development of the EU. In 2003 the process of creating RIS was also continued in other provinces, using the financing from the State Committee for Scientific Research (Komitet Badań Naukowych) and marshal offices. This enabled the development of innovation strategies at the level of NUTS II. In 2005 all the provinces except Mazowieckie already had the RIS approved by provincial authorities [Klepka 2005].

The issues of innovativeness in the regions until the time of undertaking works on RIS remained on the margins of the analyses performed for the purposes of various strategic documents, including the development strategy of the provinces. It should be emphasized that thanks to the need of the development of RIS in Poland the processes connected with the innovativeness become the object of a broad discussion of the parties involved. In most provinces research teams have been created, obliged to identify the condition of innovativeness of science, entrepreneurship and business environments, the teams conducted analyses and empirical tests that were to support the formulation of objectives at the level of regions and they set the principles for the implementation of strategies and its monitoring [Gorzelak et al 2006]. RIS thus became the basis for building the modern, knowledge-based economy in Poland.

Among the disadvantages of RIS at that time was, above all, no coordination in creating these strategies at the central level. The scope of research implemented in the process of strategy creation, methods and the selection of tests were identified individually by teams conducting the research in each region. This is an important impediment with regard to assessments and comparisons of the effectiveness of strategy implementation and goals specified therein [Grzybowska 2012]. Thus the occasion to create a consistent image of the innovativeness of Polish regions did not succeed.

In addition, the first RIS were based mainly on the internal potential, ignoring external linkages and interactions occurring between different entities and processes. A region was considered as a closed self-supporting socio-business structure within the administrative boundaries. One could not at the same time identify regional mechanisms of development, specific processes and interactions taking place in the given region. Another defect was the selection of too many priorities losing the uniform and consistent development direction of the innovation in the region [Nowakowska 2007].

According to OECD [Regional Innovation Strategies 2010] RIS may be effective only when they identify specific comparative advantages of the region, as well as barriers hindering the functioning of systems of innovative processes in the region. They should be detailed enough and formulated in a way to create possibilities for solving the problems. Too general strategies, similar priorities in many regions, unclear connection with the implementation policy make RIS ineffective.

After 2005 the activity of regional authorities increased in the sphere of the innovative policy. This change was caused by possibilities of obtaining significant EU funds in the financial perspective 2007-2013. Local government authorities thus started updating RIS in all provinces (in Mazowieckie the works on RIS were finished in 2008). This process again gained importance in the context of obtaining funds from another financial perspective for the years 2014-2020.

Smart specialization as a key element of RIS third generations (RSI3)

A new generation of innovative activities of the EU exceeding traditional understanding of the support for innovation became smart specializations. Their essence is the need for the regions specialization in terms of their distinctness which constitutes their strength and opportunities to be different from others and emphasises the importance of the identification of strengths increasing regional innovation. Hence, actions for the benefit of the determination of priorities for RIS are a process of exploration of niches where a region may have an advantage in terms of research and innovation [Smart specialization 2015].

The main assumption of the concept of smart specialization is increasing innovativeness and competitiveness in the regions by making use of their endogenous potential and industries already functioning in them. These can be specializations within one sector or inter-sectoral projects making it possible to achieve competitive advantage. Guidelines of the European Commission with regard to the so-called innovation strategies of the third generation (RSI3) postulate the need for strengthening smart specializations by applying the following four principles referred to as 4C: choices, competitive advantage, critical mass and collaborative leadership [Guide on Research and Innovation Strategies 2015].

According to the assumptions of '*Innovation Union'* one of 7 main projects of strategies *Europe 2020* Member States have been obliged to reconstruct national and regional research, development and innovation systems, as well as to correct already implemented RIS to direction of the so-called smart specialization. In practice, the recommendation to prepare smart specialization strategies by the regions became obligatory for them because in the perspective and financial planning 2014−2020 they are the basis for funds allocation under Operational Programs of the Cohesion Policy [Wyznaczenie, monitoring i ewaluacja 2014].

Identification of smart specializations and updating RIS is not a simple extension of the previous planning but it is supposed to constitute an important change. Strategic approach for building the innovativeness of the economy differs from past strategic documents for the years 2007-2013 mainly due to:

- leaving the sectorial intake on innovation towards integrated and inter-sectoral activities in building the innovative capacity and leaving the orientation of the innovative policy around the development of companies towards complementary systems and innovation environment;
- shifting the accent in execution of strategies from the level of defining activities for greater focus on the effectiveness of the policy [Słodowa-Hełpa 2013].

Polish regions are at various stages of setting smart specializations. Table 1 presents already proposed smart specializations in 16 Polish provinces related to the agricultural and food sector and rural areas.

Table 1. Selected smart specializations in Polish regions associated with the agricultural and food sector and rural areas

Province	Specialization
Dolnośląskie	Among emerging industries: **production of healthy food**. Among scientific and technological specializations: biotechnology and genetics, biochemistry, engineering of environmental protection.
Kujawsko-Pomorskie	- **safe food – processing,** fertilizers and packaging; -health tourism; -bio-intelligent specialization - natural potential, environment, energy sector.
Lubelskie	Key specialization: bioeconomy (**primary production, bio resources processing, food production – agricultural-food sector**, chemical, paper, pharmaceutical and power sectors). Supplementary specialization: medical and health-promoting services – nutrition and dietetics, functional food, **food chain of production,** production of pharmaceutics and probiotics. Emerging specialization: low-emission power engineering – energy from RSE.
Lubuskie	Specializations based on industry approach: -technologies and environmental services; -technologies and services for human health. Specializations based on inter-sectoral approach: -**green economy** ;

	-health and the quality of life.
Łódzkie	Key specializations: -**innovative agriculture and agricultural-food processing;** -energy sector including RSE. Key areas of technology: -biotechnology; -nanotechnology and functional materials.
Małopolskie	Sustainable energy
Mazowieckie	-F**ood security**; -High quality of life.
Opolskie	Specializations: **agricultural-food technologies** Potential specializations: the processes and products of health and environment protection
Podkarpackie	-Sustainable tourism; -Health, **food, nutrition**.
Podlaskie	-Green technologies – **agricultural-food processing,** life science, renewable power engineering, eco-innovations
Pomorskie	-RSE; -Civilization diseases and ageing (technologies, therapies, quality of life).
Śląskie	-Technologies of environmental protection; -Energy sector.
Świętokrzyskie	-**Modern agriculture and food processing;** -Health and pro-health tourism.
Warmińsko-Mazurskie	-**High quality food** ; -Water economics.
Wielkopolskie	Preliminary specializations **:** **Food production** – agricultural production, food processing, biotechnology, agricultural sciences. Specializations for consultation: The quality of life – modern medical technologies and environmental ones.
Western-Pomeranian Province	-**Bioeconomy** ; -Tourism and health.

Source: Own study on the basis of: Wyznaczenie, monitoring i ewaluacja inteligentnych specjalizacji [Assigning, monitoring and evaluation of smart specializations] (red. M. Stawicki, E. Wojnicka-Sycz), Ministerstwo Infrastruktury i Rozwoju, Warszawa, 2014.

It can be concluded from the analysis that nearly all provinces, except Małopolskie, Pomorskie and Śląskie, include among smart specializations of the region the areas directly or

indirectly related to the agricultural and food sector. The broadest term of "bioeconomy/green economy" functions in three provinces: Lubelskie, Lubuskie and Zachodniopomorskie. However, it should be emphasized that the definition of bioeconomy of the European Commission is very broad, thus it is difficult at the present stage to foresee whether the principles of that economy will be actually implemented.

Other provinces (except the above three) refer to a different extent to the rural production and processing of agricultural products. The lack of detailed guidelines as to how to define smart specializations has made the provinces determine them at different levels of generality. Apart from very general ones like the quality of life they have chosen significantly narrower ones like for instance food production. Many of them are repeated in different regions, thus it was not attempted to seek specializations that would fulfil specific conditions of the region and reflect its actual endogenous potential. Many specializations were often given even within agricultural and food sector which, as a result, may cause the dispersion of activities and measures. In addition, it is interesting that most provinces have chosen more traditional specializations which include agricultural-food sector. Should it be linked to a weak level of innovation system development in these regions? Usually it is assumed that the higher level of innovation corresponds to the higher use of specializations based on techniques and services related to science.

The report prepared in 2014 by the World Bank about the review of national and provincial strategies of research and innovations towards smart specializations (RIS3) in Poland [Bank Światowy 2014] indicates the following areas which require improvement:

- The systems for strategies of research and innovations towards smart specializations should constitute a coherent whole on the national and regional levels;
- Proposed new strategic frames do not sufficiently go beyond the previous approach known from the financial perspective 2007-2013, mainly laying emphasis on the absorption of measures, and not on the results;
- The scope of actions assigned to the national, macro-regional and regional levels, together with the scope of responsibility, is not clearly defined and set out;
- More attention should be paid to building trust and improving the communication between the central government and local government authorities and strengthening the potential of the institutions operating on all three levels.

RIS and innovation development in the Polish regions

Previous efforts of the development of innovativeness in Poland has brought so far small effects. Poland is on average as compared to other EU states. What is worrying, the innovativeness in our country according to estimates of the European Commission is dropping from 58% in 2007 to 56% in 2014 [Innovation Union Scoreboard 2015]. Paradoxically, the analysis made by Deloitte [Deloitte 2013] showed that theoretical and formal preparation of regional strategies of innovativeness in Poland proves to be definitely the most developed one among five of the examined areas and does not differ in quality from the best innovators in Europe. The average for all 16 provinces was nearly six points on the ten-point scale, and the best region scored 8.3 points. Assuming the relationship between RIS and the state of the development of the innovation system, such a good evaluation of RIS would indicate a quite high development of the latter. In the research by Deloitte the average for all regions was,

however, quite low and amounted to 4.1, and the leader was assessed for 5.7 points. Hence, it should be concluded that regions are just starting in building an effective system of support for innovations.

On the other hand, the research conducted by PARP [PARP 2013] indicates that in general the low level of innovativeness in Poland is accompanied by a strong diversity between regions. The first position (in the sequence from the highest value of the general synthetic innovation ratio) occupies Mazowieckie province. The second is formed by Śląskie and Dolnośląskie provinces. Małopolskie, Pomorskie and Podkarpackie are slightly lower. The next class is formed by Wielkopolskie and Łódzkie. The largest group is the fifth group made up of the following provinces: Opolskie, Kujawsko-Pomorskie, Lubelskie, Świętokrzyskie and Podlaskie. The lowest innovation potential characterizes two last two groups. The first one consists of Lubuskie and Warmińsko-Mazurskie provinces. And the greatest distance from the leader of the ranking characterizes Zachodniopomorskie province. The size of innovative potential of different provinces is considerably associated with their general level of economic development measured by the GDP value.

The conducted analysis indicates the lack of relations between the quality of strategic documents and actions related to the preparation and implementation of RIS and the innovativeness of regions in Poland. The most consistent with the development strategy of the region were RIS in the following provinces: Kujawsko-Pomorskie, Warmińsko-Mazurskie, Świętokrzyskie and Zachodniopomorskie, namely the provinces characterized by low or at most average innovativeness [PARP 2013]. It is thus clearly visible that the level of innovation and the effectiveness of use of the existing potential do not depend on RIS, but on many other factors. The most important is the awareness of entrepreneurs about the need to introduce innovations in companies.

Innovation of food industry in the Polish regions

In the case of innovation of a sectors one considers the structure and growth of their development with regard to developing new products and relations between companies operating in the sector and other organizations which cooperate with them. The system of innovation and production is based on various organizations and their interactions (market and non-market) participating in the preparation, adaptation and use of technologies for designing, production and using innovative products included in a given sector [Weresa 2014].

Agricultural-food sector belongs to the sectors characterized by a small degree of innovation. This results from the specific nature of manufacturing processes, type of applied materials or technologies. At the same time, this sector is classified into vital areas of the economy in Poland, due to the size of production, export and the number of employees. According to Evenson and Pingali [Handbook 2007] only about 1% of innovation comes from the agricultural sector, while more than 80% of agricultural patents are delivered by other sectors such as chemical, pharmaceutical or machine. The research by Józwiak and others [2012] indicated that farmers in Polish farms used their financial means mainly for the purchase of machines, tractors and equipment in the period of 1995-2009. A similar situation occurred in the case of the Polish food industry. In the opinion of Szczepaniak [2014], the share of expenses for R+D and purchase of ready knowledge in the form of patents, licences

or technical services in the expenses for innovations was from 1 to 5% in the period of 2003-2011. The expenditures on machines and technical devices, tools and means of transport prevailed.

Considering particular provinces the food industry companies located in Mazowieckie are solid leaders. They spent in the period of 2005-2011 ca 40% of national funds disbursed for innovative activities in this sector. The lowest ranked was Świętokrzyskie (0.8%) [Grzybowska 2012]. The ranking of provinces changes when we consider the share of expenses for investment activities in the food industry in relation to manufacturing. The leading role is played by Podlaskie province, but also Lubelskie, Opolskie, and Mazowieckie. They bear significant outlays for food industry in relation to their manufacturing. In these provinces the production of food products has a significant impact on the economy of the region.

It is worth pointing out that the provinces assigning larger expenses for the investment in the food industry in relation to manufacturing (Podlaskie, Lubelskie, Opolskie) can be found in the middle of the provinces ranking in terms of a synthetic innovation ratio of the regions. The exception is Mazowieckie province that occupies leading places in all comparisons of the Polish provinces. It confirms the theory that regions of smaller innovative capacity are based mainly on traditional sectors.

Innovation of food industry and smart specialisations

RIS analyses rarely cover sectoral issues as separate research topic. This results mostly from the difficulties related to the measurement of the innovativeness of sectors and industries. Particularly in the assessment of the first RIS the agricultural and food sector was not investigated. Emphasis was mainly put on the analysis of the process for creating and implementation of the strategies. More dependencies with the agricultural and food sector may be found in RSI3 which is based on smart specializations. Although the assumption of this concept is to depart from sectoral activities in favour of creating integrated, inter-sectoral innovation systems, nevertheless many Polish regions pointed out to bioeconomy or food sector as the leading specialization.

An interesting initiative reaching beyond RIS are the superregional strategies such as for instance "The development strategy for socio-economic development of Eastern Poland until 2020" covering five provinces: Lubelskie, Podkarpackie, Podlaskie, Świętokrzyskie and Warmińsko-Mazurskie. A common denominator for the provinces of Eastern Poland is their similar socio-economic situation. According to the strategy, until 2020 the development of the macroregion should consist, above all, of:

- raising the innovativeness of the economy,
- developing skills of working people so that they meet the needs of modern economy and counteracting social exclusion,
- constructing modern transport infrastructure and electrical power one [Strategie ponadregionalne 2015].

Undoubtedly, similar economic specialization of the whole region, based on agricultural and food sector and other economic specializations rooted in the macro-region, may bring substantial benefits in the long run. It is purposeful to concentrate the support on the

industries where it is possible to observe the development based on endogenous factors, especially where there is already a sufficient critical mass with regard to clustering the companies, staff equipped with appropriate competencies and skills and accompanying institutions. Superregional support towards the development of systematic raise in innovation will bring better results than building advantages based on new, not-yet-rooted specializations in region. It is also important to constantly seek the possibilities of creation and commercialization of innovations at the contact point of traditional and advanced industries as e.g. agricultural and food and biotechnology sectors [Słodowa-Hełpa 2013].

It is interesting how the extent to which the need for identification of smart specializations will actually contribute to a higher innovation of agri-food sector and rural areas. The benefits include the identification of current strengths and weaknesses of a particular area, the need to create a long-term vision of regional development, commitments and interactions of many partners of the public sector, world of science and the environment of entrepreneurs.

However, with the implementation of the concept of smart specializations there also come difficulties and potential hazards. Smart specializations in the highly industrialized regions are usually based on the innovative industries from the group of the so-called high technology, on the other hand less affluent regions are based on the traditional industries from the so-called low technology group. Hence, the deepening of differences between regions may even come to be. Regions can imitate the development profile of other regions, not looking for own comparative advantages, or vice versa, they can focus on supporting traditional industries and rooted interest groups, not thinking about the long-term development. In the opinion of Kukliński [Transformacja 2012], regions must avoid "strategic blindness". Smart specializations are supposed to help the regions in reaching the leader's position in certain areas, it is however, particularly difficult for regions with a low level of innovativeness.

The concentration of funds on a limited number of the key research-development and innovative priorities which are the regional smart specializations involves the risk of failure to reach goals assumed in RIS owing to a too general or too narrow, or too short-sighted definition of regional areas of smart specialization and/or stopping public aid for significant endogenous development potentials located currently outside the areas of smart specialization. In such a case the following actions could be foreseen:

- stimulation of the effective network of business environment institutions, market and financial services, essential for the growth in demand for innovations on the part of all companies, both these located within regional and superregional areas of smart specialization and outside of those areas;
- support for endogenous development potentials outside the borders of regional areas of smart specialization, by including the province into a global chain of innovation and the development of the cooperation inside the regions and interregional one and international as well;
- the possibility of redefining regional areas of smart specialization in the future years (expansion or narrowing and adding new ones.

Impact of RIS on the Polish food industry in coming years

The research of RIS impact on agricultural-food sector and rural areas is quite difficult at the present stage. First, innovation strategies contained too many priorities, if the

aforementioned sector was mentioned, among others. Second, an additional problem is the lack of monitoring and evaluation of RIS. It can be assumed that the obligation to enter smart specializations and their evaluation should significantly facilitate analysis of RIS influence on agri-food sector. However, the concept of smart specializations is a new one and it needs time to obtain relevant information for testing.

Considering the results of the previous analyses one can try to evaluate the effect of RIS on the region's innovativeness, and in this indirect manner also on agricultural-food sector. As has already been mentioned, RIS should strengthen innovation systems by supporting regional authorities and other organizations of regional development in defining and implementing these systems. Paradoxically, the results indicate missing relations between the quality of strategic documents and actions related to the preparation and implementation of RIS and the innovativeness of regions in Poland.

On the other hand, the assessment on the basis of smart specializations may also prove ineffective, since already in their assumption it is necessary to depart from the sectoral intake on innovation towards integrated and inter-sectoral activities. For this reason, regions suggest such specializations as e.g. bioeconomy the scope of which covers many sectors and industries. A lot depends on those adopted principles of monitoring and evaluation of RIS and apart from this the consequences in their application. So far, under works on RSI3 in the regions one has been assumed different concepts depending on the progress of works on updating strategies, awareness of competitive advantages or methods and techniques used for the identification of innovative potential. As a consequence, each region has a different vision as to how the processes of monitoring and evaluation should proceed. Some of the regions only see the need for monitoring RIS, its goals and activities. In turn, other regions see the need to also monitor executive plans relating to smart specializations. Others intend to monitor spending funds from the Regional Operational Programs which support smart specializations at the level of the region and the effects of their activities [Wyznaczenie, monitoring i ewaluacja 2014]. Hence, one common model of consistent monitoring and evaluation of RIS is needed in the future in Poland, one taking into account not only the indicators of the assessment of the effectiveness in RIS implementation, but also of the innovation of sectors/industries.

An important problem in the future may prove to be the selection of the traditional specializations, less innovative, by some provinces which include agricultural-food sector. Then there is a risk of slowdown in their economic development in the future. For this reason, a good initiative is to create superregional innovation strategies forming a common system of the development of innovations based on endogenous potentials of particular regions.

Previous results of the research on RIS in Poland indicate which areas of innovativeness in the regions are the weakest and should be improved in the future. According to the earlier mentioned analysis prepared by Deloitte the weakness of Polish innovation is the quality of research system, first of all, the transfer of scientific achievements to companies. The barrier in creating the innovation is also low social capital which, in turn, generates consequences in the form of excessive bureaucratization. It is also necessary to increase the operational quality of RIS by binding it with the development strategies of the provinces which will increase the real impact of RIS on the increase of the regions innovativeness. It is also advisable to improve the functioning of mechanisms of views exchange, cooperation and transfer of

knowledge between partners in accordance with the principles of partnership and the share of key stakeholders of RIS [Deloitte 2013].

What is interesting, both in the past and present RIS there are no references to rural areas. It may also be assumed that if they relate to agricultural regions they also refer to rural areas. However, it is necessary emphasise that Polish rural areas are less and less dependent on agriculture. Rural economy today is the composition of local economic as well as social entities representing all three sectors of the economy: agriculture, industry, including processing and market and public services. The number of people for whom agriculture is the sole or main source of maintenance is only 1.1 million (7% of the rural population). According to estimates, approximately 25% of companies registered in the REGON system operate in rural areas (out of 1.7 million active companies registered in Poland in 2011). Non-agricultural rural businesses are rarely large entities which saw their chance of development in the location in the country. Microenterprises with no employees dominate [Polska wieś 2014].

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