BUSINESS ANALYSIS TO BOOST NEW REGIONAL INDUSTRIAL ALLIANCES

D.T3.3.1 Business analysis to boost new regional industrial alliances

Poland

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1. Global market analysis and assessment on the field of precision farming

1.1. Market demands

Investigating market needs and expectations is an ongoing process. This is a topic, in particular in regions like Silesia, highly industrialized with less focus on agriculture. Innovations are one of challenges for the region. But there are many trade-offs to be considered here. For example, how will the premise of digital technologies reducing need for human labor affect rural employment and rural-urban migration, an issue which affects many developing countries and may have large social consequences. Or, a shift to synthetic foods may reduce the size of land-based sectors which on the one hand could have positive effects (reducing livestock emissions), but on the other hand may have a negative impact on the social and economic fabric of rural areas. How to strengthen the role of the agricultural production and supply new innovative tools and financing schemes to the agri sector. While one can easily point out some parts of it as an obvious recipient of innovations (food processing), thinking about crop production as an innovative one is not so common. Although these potential social and ethical impacts have initially not been part of dominant narratives about Agriculture 4.0, they are likely to become more important as many of the technologies move towards market readiness and hence also have seen emerging policy responses

1.2. Competitiveness

In 2012 the Silesian voivodship was characterised by a lower number of business entities per 10 thousand inhabitants than the national average. The number of business entities per 10 thousand residents was lower than the national average. (982 versus 1 032). However, in the years 2008 - 2012 the growth of this indicator in the region was However, between 2008 and 2012 the growth of this indicator in the region was higher by about 1.5 percentage points than the national average (6.4% compared to 4.8%). On average in the country in urban areas, the analysed indicator was much higher than in voivodeship cities. This may result from the economic structure of the region, where many companies from the traditional sector are located. In rural areas the situation was opposite, the indicator of the number of business entities. In rural areas, the situation was the opposite, the indicator of the number of business entities per 10 thousand inhabitants significantly exceeded the average values for analogous areas in in the country. In subregional variations, the dominance of the southern subregion was noticeable. The dominance of the southern subregion, where the number of business entities per 10 thousand residents. The next subregion was the central one, with the value of 1,005. The lowest values of the indicator were recorded in the Western subregion (768). Analysis of the urban-rural relationship. The analysis of the urban-rural ratio in subregions showed a significant advantage of the number of entities operating in urban areas.

2. Regional analysis and assessment on the field of precision farming

2.1. Agricultural production

Arable land constituted on average 64.9% of the agricultural land in the voivodship (from 39% in the Bielsko subregion to 77% in the Rybnik subregion). The Bielsko-Biała subregion was characterized by the highest share of permanent grassland in the voivodship (26% of agricultural land), and the lowest share of grassland was in the Rybnik subregion - 11%. In comparison with previous years there has been a decrease in the area of fallow and fallow land, i.e. land that can and should be sown, currently 10.6% of all land (down from 35% in 2002). The worst position in this respect was recorded in the Katowice subregion, where the share was 14%. Overall, this situation has improved in comparison. In general, the situation improved due to the introduction of direct payments to field crops. The number of afforested areas also increased by 10% thanks to the introduction of a subsidy program for afforestation of land and the area of agricultural holdings increased due to the so-called "absorption" of small farms into large ones.

Crop production.
The dominant position in the structure of crops in the region was occupied by cereals. They constituted 78% of all crops in the region, with a small differentiation in subregions. Only in the Rybnik subregion their share was lower (72%). The share of cereals in the crops structure in the voivodship exceeded the limits of rational crop rotation and management in the conditions of sustainable development. There was a slight increase in the area of industrial crops, which in 2010 accounted for only 8% of the sown area. Only in the Rybnik subregion their share amounted to 16%, which was related to the concentration of sugar beet cultivation. As far as industrial crops are concerned, the highest growth was recorded in rape and colza (by 90%), which is associated with a moderately stable market and price. Oilseed rape, as a plant used in the food industry (for oil production) and in production for energy purposes, is expected to increase in the future or at least maintain its current status. On the other hand, the sown area of sugar beets decreased by 42.0%. There was also a 54.9% decrease in the area of potato crops. Potato growing area amounted to slightly more than 12 thousand hectares and is still showing a downward trend. The decrease of potato growing area in the Silesia Province was similar to the decrease of the whole country (4% of all crops). There was also a moderate increase in the area of fodder crops - by 10.5%, also observed nationwide,

Agri-food processing.
In the Silesia Voivodeship there is a well-developed processing network of products manufactured in rural areas. There is a constant tendency to diversify the range of food products with increasing consumption of processed goods and quality requirements. In Silesia the largest number of producers of meat products, including ready-made meat meals - 203, followed by establishments cutting fresh beef - 182, producers of minced meat and raw meat products - 104, producers of processed or processed fishery products - 14 and 6 producers of dairy products (including ice cream).

Fisheries in the Śląskie Voivodship.
Fishing in the Silesian Voivodeship has a centuries-old tradition. At the turn of the 14th-15th centuries, at the junction of Silesia and Lesser Poland there was one of the two largest centers of pond fishery in Poland - the Rybnik-Oświęcim center. In the following centuries pond farming developed in the whole Silesian voivodship. Currently, most fish farms are located in the southern part of the region, although even in the north there are mainly trout farms. According to data from RRW-22 forms, collected by the Institute of Inland Fisheries in Olsztyn, there are 220 fish farms in the province with a total area of 5,879.2 ha.

Livestock production
The following trends are being observed: an increase in the number of cattle caused by the unsatisfied and growing demand for milk and and dairy products with the concentration of production in large farms and in animal husbandry, especially after the abolition of milk quota, a slow increase in the stock of pigs and poultry - the demand for meat will

grow more slowly, a general decrease in the number of horses with an increase in the stock for recreational purposes, the restocking of sheep mainly in Podbeskidzie and Jura Krakowsko-Częstochowska.

Food processing sector
In the Silesia Voivodeship there is a well-developed processing network of products manufactured in rural areas. There is a constant tendency to diversify the range of food products, with an increase in the consumption of processed goods and quality requirements. The economic conditions of food production are also constantly changing. The marginal, limited and local (MOL) activity that is currently of great interest to processors includes dairy products, processed fishery products, raw meat products, including prepared meat dishes. It also includes the cutting and sale of fresh meat from beef, pork, sheep, horse, poultry, game and farmed wildlife.

2.2. Local property structure and market share

In order to determine the importance of agriculture in the Silesian Voivodeship economy the share of this sector in the creation of gross value added was used. The share of agriculture, forestry, hunting and fishing in the creation of the national gross added value in 2010 in the country amounted to 3.7%.

Silesian voivodeship, due to its specificity and high industrialization, shows the lowest share of agriculture in the creation of gross value added. This situation in the coming years may slightly improve.

The most striking feature of agriculture in the region as a whole is the fragmentation of farms and land. The most characteristic feature of agriculture in the region as a whole is the fragmentation of farms and land, which means that in many regions there is an anachronistic. The most characteristic feature of agriculture in the region as a whole is the fragmentation of farms and land. This is reflected This is reflected in unfavorable forms and effects of the ongoing transformation of agriculture, since only 1/5 of farms produce for the market, taking advantage of significant consumption possibilities of the Silesian agglomeration. According to the Agricultural Census carried out in 2010, there were According to the Agricultural Census 2010, there were 163.3 thousand agricultural holdings in the Silesian Voivodeship, including 77.6 thousand agricultural holdings with an area exceeding 1 ha. Above 1 ha of agricultural land. In this group, the majority (84.3%) were farms with an area of 1 to 5 hectares of farmland. The agricultural activity was conducted by 102.7 thousand agricultural holdings.

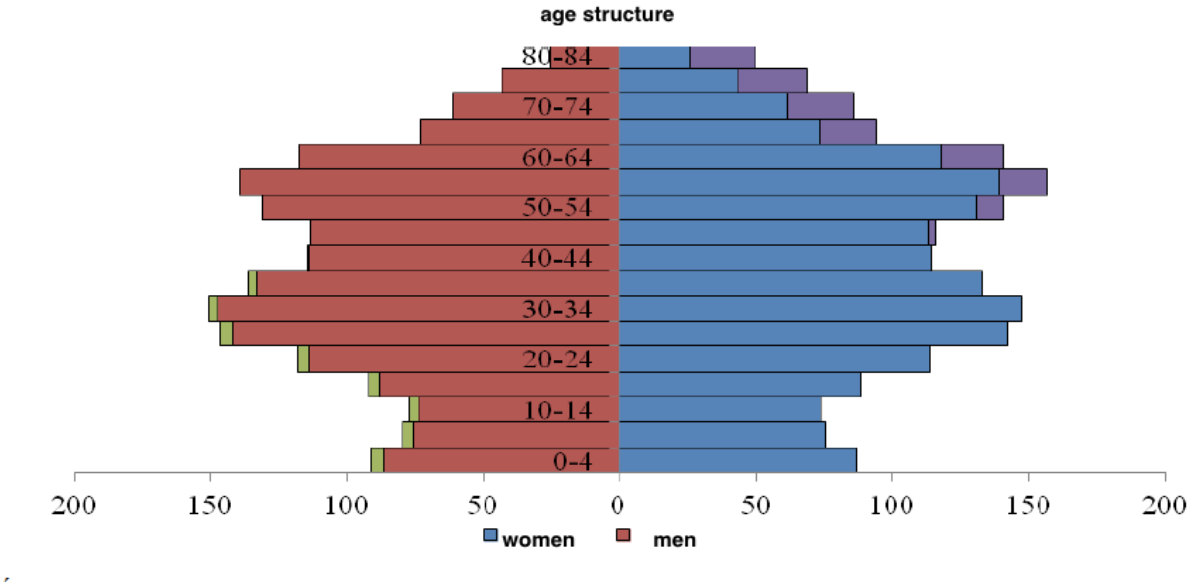
The agricultural activity was conducted by 102.7 thousand holdings, i.e. 62.9% of the total number of agricultural holdings, including 62.7 thousand units of more than 1 ha of agricultural land. In relation to the Agricultural Census of 2002 the number of agricultural holdings in total decreased by 89.8 thousand, i.e. by 35.5% and the number of agricultural holdings with number of farms with more than 1 ha of farmland decreased by 33.3 thousand, i.e. 30.0%, i.e. by 30.0%. A slight decrease in the number of farms was recorded in the area group of 15-20 ha arable land (by 1.3%).

2.3. Human resources

The age structure of the population in the Silesia Voivodeship shows that the proportion of people in the post-working age will be growing, both in towns and in rural areas. This problem will concern rural areas to a much greater extent, because the migration of people in the post-working age from cities to rural areas is noticeable, which, together with the migration of people in the working age from rural areas to cities, additionally increases this percentage.

Silesian voivodship is a voivodship with a low unemployment rate - 2nd place in the ranking of voivodships with the lowest unemployment rate, with a decreasing tendency. Most of the unemployed in Śląskie voivodship live in towns, i.e. 78%, and only 22% live in villages. Women constituted more than a half of the rural unemployed subpopulation.

The population forecast until 2035 prepared by the Central Statistical Office shows that in the forecast of population until 2035 prepared by the Central Statistical Office it can be noticed that the decreasing tendency of population size in the voivodeship will be maintained. In the Silesian Voivodeship the projected decline is the highest in Poland. The downward trend applies both to urban and rural areas, with the biggest decrease in the number of inhabitants. The downward trend concerns both urban and rural areas, with the highest dynamics of decrease in urban areas (11.9%).



In the years 2002 - 2011 in Śląskie voivodship, similarly as in the country, the level of education of the population increased. The percentage of people with at least secondary education increased by 7.8 percentage points, i.e. from 40.6% in 2002 to 48.2 percentage points in 2011. The proportion of people with at least secondary education increased by 7.8 percentage points (in Poland by 7.2 percentage points), i.e. from 40.6% in 2002 to 48.4% in 2011. The greatest dynamics of change concerned people with tertiary education, whose share among the total population aged 13 and over increased by 7.0 percentage points (from 8.9% in 2002 to 48.4% in 2011). In rural areas, the proportion of people aged 13 and over with tertiary education was 11.6% in 2011, up from 5.1% in 2002. Despite the significant increase in the number of people with tertiary education in rural areas, the rate remained much lower than in urban areas, where the percentage with tertiary education was 17.1%. The percentage of people with no completed primary education and no schooling in Śląskie decreased, which was 2.3% in 2002 and 0.9% in 2011.

2.4. Public administration and services

The Agency for Restructuring and Modernization of Agriculture (ARiMR) was established in 1994 to support the development of agriculture and rural areas. ARiMR was appointed by the Government of the Republic of Poland to perform the role of an accredited paying agency. It deals with the implementation of instruments co-financed from the EU budget and provides assistance from domestic funds. As an executor of agricultural policy, the Agency cooperates closely with the Ministry of Agriculture and Rural Development. ARiMR is at the same time subject to the supervision of the Ministry of Finance within the scope of managing public funds. The Agency for the Restructuring and Modernization of Agriculture is headed by a President appointed by the Prime Minister of the Republic of Poland upon the request of the Minister of Agriculture and Rural Development and the Minister of Finance. The structure of the ARMA is three-tiered: the Head Office, 16 Regional Branches, and 314 District Offices.

Within the framework of the Common Agricultural Policy and the Common Fisheries Policy for 2014-2020, ARiMR is an entity implementing aid instruments financed from the following EU funds:

- European Agricultural Guarantee Fund (EAGF), within the framework of which the Agency implements aid instruments from the first pillar of the CAP: direct payments, common organisation of the market in fruit and vegetables.
- European Agricultural Fund for Rural Development (EAFRD), which finances all activities relating to the development and increased competitiveness of Polish agriculture, food processing and rural areas (2nd pillar of the CAP).
- European Maritime and Fisheries Fund (EMFF), which supports undertakings for the establishment of sustainable and competitive fisheries and aquaculture, social territorial development of fisheries areas.

Agricultural advisory system in Poland

Agricultural advisory system in Poland consists of: Agricultural Advisory Centre in Brwinów (CDR), 16 regional advisory centers (WODR), chambers of agriculture and private advisory companies accredited by the Ministry of Agriculture and Rural Development. The services they offer, mostly free of charge, are mainly training courses, information activities, dissemination of agricultural production methods, support in applying for aid financed from national and EU funds (filling in applications and other documents). These services are directed primarily to farmers, but also to owners of small and medium-sized businesses operating in rural areas and to the residents of those areas.

2.5. Analysis of existing financing schemes and programmes

Financial framework: European Funds Silesian Voivodeship 2021-2027

Priority I: Intelligent Silesia
Specific objective: (i) Developing and strengthening research and innovation capacities and exploiting advanced technologies

Developing and strengthening Research and innovation capacities and using advanced technologies	002 Investments in fixed assets, including research infrastructure, in small and medium-sized enterprises (including private research organizations) directly related to research and innovation activities	5 500 000
	004 Investments in fixed assets, including research infrastructure, in public research organizations and higher education institutions directly related to research and innovation activities	50 000 000

2.1.1.2. Specific objective: (ii) Reaping the benefits of digitization for citizens, businesses, research organizations and public institutions

Specific objective: (iii) Enhancing sustainable growth and competitiveness of SMEs and job creation in SMEs, including through investments in to production

Strengthening the sustainable growth and competitiveness of Competitiveness of SMEs and Creating jobs in SMEs, including through productive investments	025 Business Incubators, support for spin-off and spin-out companies and start-up enterprises	10 465 719

Priority II: Greening Silesia
Specific Objective: (vi) Supporting the transition towards a closed and resource-efficient economy

Supporting the transition towards a circular economy closed and resource efficient economy	075 Support for ecological production processes and efficient use of resource efficiency in SMEs	11 000 000

Priority V: Social Silesia
Specific objective: (d) Supporting adaptation to change for employees, enterprises and entrepreneurs, supporting active and healthy ageing and healthy and well adapted working environment which takes account of health risks

Promoting adaptation employees, enterprises and entrepreneurs to change, Promoting active and healthy ageing well-adapted working environment that takes into account health risks	146 Support for adaptation of workers in, enterprises and entrepreneurs to changes	107 500 000

3. Research and innovation

According to data for 2018, there were 622 research-active units in the Silesian Voivodeship, which constituted as much as 10.8% of the units in the country and was the second result after the Mazovian Voivodeship (1,404 units). The number of research units per 100 thousand inhabitants in the region was 13.7, less than the national average (15). Among the research units in the region, 571 (91.8%) are in the business sector. It should also be mentioned that from 2019 the Silesian University of Technology, as one of 10 universities in Poland, has obtained the status of a research university. However, agricultural specialized research and development units are very limited.

Scientific and research facilities working for agriculture and rural development include research and development units, agricultural schools and Polish Academy of Sciences units. Recently, the role of these units operating in the area of agricultural production and rural development has increased due to the adaptation of rural areas and agriculture to new challenges related to market economy. Similarly, the situation is with agricultural advisory services provided by agricultural advisory centers and private advisory bodies.

Starting from the basic educational unit, i.e. school providing secondary agricultural education, there is one institution run by the Ministry of Agriculture and Rural Development in Śląskie voivodship - Complex of Schools of the Agricultural Training Centre named after the 1000th anniversary of the Polish State in Nakło Śląskie. In comparison with other voivodships, it does not look satisfactory. The situation with schools managed by local government units is better. Such schools are located in Międzyświecie, Cieszyn, Wisła, Lubliniec, Herby, Ornontowice, Myszków,

Pszczyna, Racibórz,Tychy and Żarnowiec. There are also private schools granting vocational titles in agriculture, e.g. in Częstochowa.

There is no higher school of agriculture in Śląskie voivodship, nor is there any branch of any institution where one could obtain a professional title of Master of Science in Agriculture. The nearest universities are located in Kraków and Wrocław. In the region at a high level of access and diversity of services, there are research institutes research institutes and agricultural advisory unit. Among the institutes, the following stand out: Instytut Ochrony Roślin - Państwowy Instytut Badawczy Oddział Sośnicowice, Zakład Doświadczalny Instytutu Zootechniki Państwowego Instytutu Badawczego Grodziec Śląski Sp. z o.o. In the voivodship there is also the District Chemical-Agricultural Station in Gliwice, which has 6 district centres and the Experimental Station for Variety Evaluation in Pawłowice - established by the Central Centre for Research on Crop Varieties Cultivar Testing Centre (COBORU) in Słupia Wielka. The key advisory role in the voivodship is played by the Silesian Agricultural Advisory Centre in Częstochowa, which conducts advisory services on the basis of 17 Poviat Agricultural Advisory Services Departments (PZDR). Each PAC has qualified specialists who are on duty in each municipality, which enables direct contact with farmers and significantly improves the availability of agricultural advice.

4. Development policy and subsidies by government

Vision of the rural areas development of the Silesian Voivodeship

*(Śląskie Strategia Rozwoju Obszarów Wiejskich do roku 2030)

Rural areas of the Silesian Voivodeship in the perspective of 2030 will be characterized by the following positive features:

1. competitive, diversified economic structure developing around traditional economic activities for rural areas, in particular agriculture and food production; among strong specializations of rural areas in the Silesian Voivodeship the leading role played by modern agriculture developing in connection with processing activity, with ecological activity and special divisions of agricultural production;

2. developing new economy sectors based on the use of unique values of rural areas, including natural and cultural ones, while maintaining their quality and innovations based on cooperation with cities: renewable energy production; care and rehabilitation services related to demographic changes; service and production activities whose competitiveness is based on access to clean natural environment;

3. Developing: scientific and research activities in ecology, agriculture, forestry, ethnography and other fields that are closely related to the activities and potentials characteristic of rural areas;

4. exceptional living conditions resulting from positive relationships between residents, the quality of the natural environment, a high sense of security, accessibility to services and amenities in rural areas, and accessibility to higher-level services in easily accessible urban areas;

5. consolidated local communities nurturing their cultural and natural heritage and at the same time open to the future and creative, involved in the adoption and implementation of local policies;

6. specific, attractive landscape resulting from the high quality of the natural environment, well-preserved tangible cultural heritage, pro-ecological attitudes of the residents and consistent spatial planning;

7. well-developed internal cooperation networks, including strong relations between farms, broad intersectoral cooperation, structures and institutions combining the potentials of various entities, as well as projects created and implemented in partnership;

8. strong relations with cities contributing to knowledge and technology transfer, connecting producers with consumers, complementary use of potential in cities and rural areas;

9. communication openness to the surroundings, the components of which are: developed transport infrastructure, convenient connections by public transport, availability of ICT networks;

10. respecting the principles of sustainable and balanced development manifested by rational space management, full infrastructural equipment, as well as high level of residents' responsibility for the natural and cultural heritage.

5. S.W.O.T. analysis

Strengths	Weaknesses
1. specialization of farms 2. developed processing sector in the dairy and meat processing industries 3. well-developed non-agricultural activities of farms 4. areas in the voivodship with a large share of high-yield farms 5. occurrence of favorable conditions for the development of agriculture with 6. organic farming in many regions of the voivodship 7. good conditions for the production of vegetables occurring on large areas of the voivodship 8. good structure of agricultural land (large share of permanent grassland) 9. increasing number of agritourism farms 10. functioning of educational homesteads	1. limited access to innovative solutions 2. limited access to market services in rural areas 3. lack of a higher-level services 4. fragmented structure of farms 5. small research and development base 6. Lack of strong producer links
Opportunities	**Threats**
1. increased investment in new technologies with a high degree of specialization 2. increased importance assigned to rural areas in the region's development policy	1.insufficient funds allocated for technical progress 2. low interest of external investors in rural areas 3. decreasing share of agricultural production in the gross production of the region

3. change in the perception of rural areas and improved cooperation in the urban-rural relationship 4. promotion of healthy lifestyle 5. supporting development and planning of functional arrangements 6. New financial perspective of EU for rural areas in 2021-2027 7. Improving ecological and regional awareness 8. possibility of obtaining funds for non-agricultural activities in rural areas 9. Availability of funds for professional activation of residents	4. declining interest in working in agriculture 5. decreasing base of national research and development resources represented in the region 6. progressing urbanization and decreasing importance of agriculture in the region 7. Less funding for the province's economic transformation and high-tech development due to the need to reallocate funding to deal with the effects of a pandemic. 8. Slowing down the pace of convergence of the Polish economy in relation to the average level of economic development of the EU and the accompanying growth of internal disparities in the social, economic and territorial dimension. 9. low level of cooperation and weak links between the R&D sector and other sectors (knowledge transfer) 10. Low level of expenditure on research and insufficient innovativeness of enterprises.

6. The objectives to be achieved Possible outcomes

Strategic goals	Specific goals
A1. High competitiveness agricultural products of the region and development of agriculture using local environmental conditions.	K.1.Increasing the profitability of agricultural production. K.2.Improvement of farm structure. K.3.Synergic development of agriculture and processing. K.4.Development of agricultural specialization - development of farms in niche directions of production. K.5. Development of ecological agriculture and increasing competitiveness of ecological products. K.6. Improving of cultivation and breeding culture. K.7. Development of fishery and activities in fishery environment. K.8.Finding new markets for agricultural products. K.9.Increasing the use of research and innovation activities for agricultural development. K.10.Adaptation of agricultural production to climate change.
A3. Growing potential for the rural area economy to generate and absorb innovation.	K.16. Implementation of innovative solutions in agriculture, forestry, ecology based on results of experiences of scientific and R&D institutions. K.17. Increasing attractiveness of rural areas for companies with high innovation potential.

	K.18. Using the potential of immigrant population for development of innovative activity of rural areas
A5. Availability of amenities that enhance the business attractiveness of the rural area.	K.22. Improvement of skills and qualifications of inhabitants (trainings, courses). K.23. Implementation of pro-investment policy encouraging investors to invest capital in rural areas.
B.1. Availability of public services and technical infrastructure enabling the development of residents in rural areas.	K.26. Ensure a high level of education in schools at various levels.