

Selected aspects of innovation strategies in the regions – case of Lower Silesian region



Wrocław
University
of Economics

Dr Jarosław Olejniczak

Dr Dorota Bednarska-Olejniczak

AIM AND SCOPE OF PAPER

The aim of this article is:

- to discuss the essence and purposefulness of regional innovation strategy on the example of the "Regional Innovation Strategy for Lower Silesia Voivodship for the years 2011-2020"
- to analyze the changes of the selected indicators that characterize the level of innovation of the region in the period of strategy implementation.

RESEARCH QUESTIONS

The key research questions posed in this work concern the following issues:

- 1) Do the regions in Poland are trying to strengthen their innovativeness in a systemic long-term manner, which is focused on the implementation of strategic objectives?
- 2) What role in the strengthening of innovativeness plays the regional innovation strategy?
- 3) Are there positive changes in the selected significant indicators characterizing innovation in the region of Lower Silesia, which can be noticed in the implementation period of the regional innovation strategy? If so, do the comparable changes apply to the entire Poland or just Lower Silesia?

METHODS

Used research methods include the analysis of literature in the field of innovation and regional development and comparative analysis of statistical data from National Statistical Office (GUS).

Due to the limited availability of data, caused by statistical confidentiality, the financial data (especially financial data concerning sources and scale of funding) are not presented.

The reference point for analyses of the statistical data concerning Lower Silesia consists of changes in the individual values of data/indicators for the entire country (mainly in the case of studying the structure of individual data groups).

METHODS

Three indicators were selected for the analysis:

- expenditure on Research and Development,
- percentage of employees in the research and development sector
(as two basic indicators that measure research and development activity)
- percentage of companies that implemented innovations in the studied period (with division into the types of companies and types of innovation).

Oslo Manual - theoretical background

In the literature, there are many types and definitions of innovation and there's no unequivocal and universally used definition.

For the needs of international research of innovation, uniform guidelines have been adopted by **OECD and Eurostat** in the scope of defining innovation and methodology of collecting and interpreting statistical data relating to the innovative activity.

They are contained in „Proposed Guidelines for Collecting and Interpreting Technological Innovation Data – [Oslo Manual](#)”

It defines innovation as the implementation of a new or significantly improved product (product or service) or process, new organizational method in business practice, organization of the workplace or relations with the environment.

Oslo Manual - theoretical background

Four main types of innovation in the Oslo Manual :

product innovation – means the introduction of significant changes in the scope of features or applications of products or services;

process innovation – associated with significant changes in the scope of methods of production and delivery of products;

organisational innovation – concerns the implementation of new organizational methods;

marketing innovation – relates to the implementation of new marketing methods - both in the design or construction of the product, as well as in packaging, marketing communications, distribution of the product/service and price shaping.

Oslo Manual - theoretical background

Its importance in the economic processes also focuses on the sectors of economy, individual countries, regions or municipalities.

Oslo Manual also emphasizes the importance of innovation at regional level, while indicating that regional differences in the scope of innovativeness should be examined in terms of the search for main factors that are favourable to innovative activity, which may contribute to a better understanding of the innovation processes.

The regional systems may develop parallel to the national innovation systems, and innovative successes of the region may be affected by e.g. presence of local public research institutions, large dynamic companies, industrial clusters, venture capital funds and strong business community

Results and discussion

Bloomberg 2017 Innovation Index

2017 rank	2016 rank	YoY change	Economy	Total score	R&D intensity	Manufacturing value-added	Productivity	High-tech density	Tertiary efficiency	Researcher concentration	Patent activity
1	1	0	S. Korea	89.00	1	1	32	4	2	4	1
2	3	+1	Sweden	83.98	5	11	15	7	18	5	6
3	2	-1	Germany	83.92	9	3	16	5	12	16	9
4	5	+1	Switzerland	83.64	8	6	2	11	16	14	4
5	7	+2	Finland	83.26	4	13	20	15	5	3	5
6	6	0	Singapore	83.22	14	5	12	17	1	6	12
19	22	+3	New Zealand	71.63	32	37	8	19	24	21	7
20	19	-1	Canada	71.58	21	32	14	26	30	13	20
21	21	0	China	68.89	15	19	43	9	43	43	7
22	23	+1	Poland	67.47	35	16	35	22	15	35	24
23	25	+2	Malaysia	66.98	27	12	37	21	26	34	33
24	26	+2	Italy	65.57	25	20	29	18	37	36	37
25	28	+3	Iceland	65.27	18	23	7	-	36	7	22
26	12	-14	Russia	65.24	31	48	42	24	3	27	16
27	30	+3	Hungary	63.15	24	8	40	28	41	31	34
28	31	+3	Czech Rep.	62.72	16	4	33	-	38	24	26
29	27	-2	Spain	62.51	30	29	22	36	9	32	29
30	33	+3	Greece	61.80	38	45	13	29	11	30	38
31	29	-2	Portugal	60.65	26	33	26	37	17	23	39
32	32	0	Lithuania	60.50	33	15	26	-	8	28	42
33	34	+1	Estonia	59.80	23	27	23	-	14	25	43
34	35	+1	Luxembourg	59.20	28	41	4	-	49	11	13
35	37	+2	Hong Kong	57.49	41	50	17	27	29	26	30
36	39	+3	Slovakia	57.17	36	10	24	-	40	29	44
37	36	-1	Turkey	57.11	34	26	39	35	32	42	32
38	-	-	Romania	57.06	49	14	41	25	31	46	35
39	40	+1	Latvia	54.40	43	40	36	38	33	37	23
40	43	+3	Malta	54.06	37	25	25	-	45	33	36
41	38	-3	Croatia	53.65	39	35	31	41	28	40	40

National or regional innovation strategy?

In Poland there are two levels of innovation support – there are policy papers at the central level Long Term Development Strategy 2030 (2013) and Country Development Strategy 2020 (2011) .

The basis for building regional innovation systems consists of regional innovation strategies, which determine the strategic objectives of innovation policy in the regions, as well as the ways and methods aimed at achieving them.

It results from the fact that strengthening of the regional innovation potential should have strategic character, i.e. it should relate to a period of several years and it should be based on the planning and implementation of the determined long-term objective through specified actions.

In Poland, such strategies have been defined and approved by the regional self-governments (voivodships – NUTS 2 level) in all regions.

Their original versions were created in 2000-2008 .

RSI WD – regional strategy

First strategy, implemented by the Self-government of Lower Silesia Voivodship in the years 2005-2010 required modifications, among others, due to :

- a) lack of coordinated schedule for implementation of the strategy and pilot programmes, which should be a coherent set of actions constituting the basis for implementation of the innovation policy of the voivodship.
- b) economic changes in the region and its surroundings

Lack of order, coordination and appropriate monitoring of pro-innovative activities made it difficult to create in 2005-2010 the coherent and effectively functioning system of innovation at the regional level.

RSI WD – regional strategy

“Regional Innovation Strategy for Lower Silesia Voivodship for the years 2011-2020” (RSI WD) constitutes **a tool for the implementation of innovation policy of the self-government of Lower Silesia**, which focuses on objectives associated with the promotion and support for the development, diffusion and efficient use of new products, services and processes, both within the organization and in terms of the market.

RSI WD – regional strategy

Analysis shows that the self-government implements pro-innovation activities in a systemic manner, which is **not limited only to science and technology**.

Wide systemic approach manifests itself in objectives associated with:

- promotion and support for the development,
- diffusion and efficient use of new products, services and processes, both within the organizations (public and private) and in terms of the market.

RSI WD – regional strategy

Strategic objectives	<p>1. Strengthening innovative skills and attitudes, which are essential for the knowledge-based economy</p>	<p>2. Increasing the chance for success of the innovative business projects</p>	<p>3. Increasing the innovative potential of Lower Silesia scientific units</p>	<p>4. Developing cooperation in the economy within the area of innovation</p>
Operational objectives	<p>1.1 Developing entrepreneurial and innovative attitudes 1.2 Taking into account the innovative needs of employers in the education offer of universities by including their representatives to the development process of education plans and curricula</p>	<p>2.1 Providing companies with effective support in the form of capital, knowledge and infrastructure within Lower Silesia Innovation System 2.2 Supporting research and development activities in the companies</p>	<p>3.1 Achieving the position of Polish leader in the regional scientific-technological specializations 3.2. Improving the processes of knowledge commercialization in the scientific units</p>	<p>4.1 Creating conditions for development of cooperation in the area of innovation 4.2 Increasing the number of companies cooperating with other entities in the area of innovation within clusters 4.3 Developing the cooperation of regional pro-innovative institutions for the benefit of companies</p>

RSI WD – executive plans

Self-government implements innovation policy through the implementation of subsequent Executive Plans, which define specific actions within its discretion.

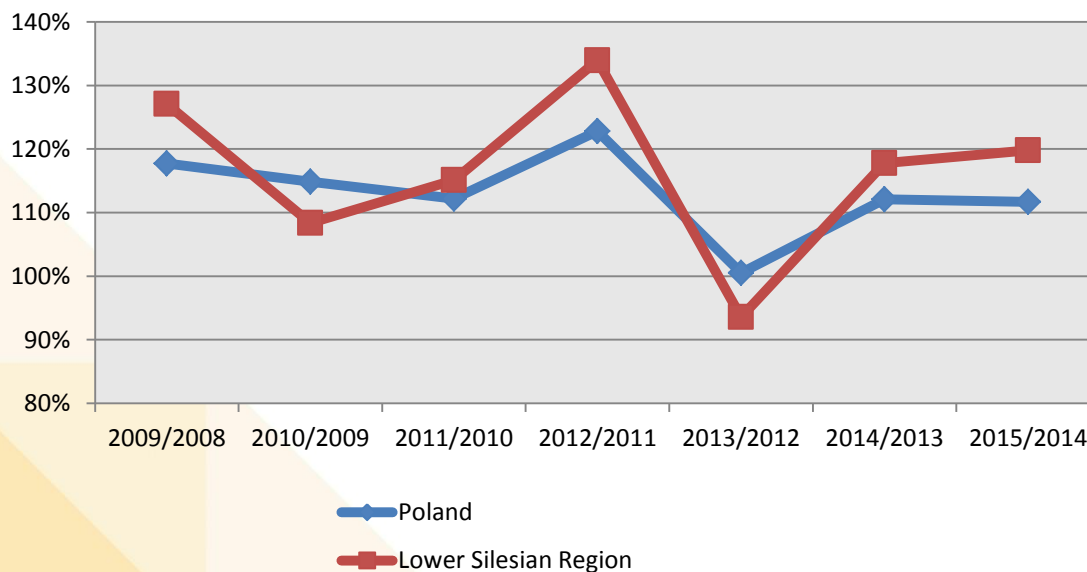
The tools of innovation policy of the self- government mainly include:

- 1) support for innovation supply by a direct impact on the entities that create innovation (this equally applies to business initiatives and strengthening of the human resources potential on the regional labour market),
- 2) generation of the demand for innovative products/services both through public procurements concerning innovation and by taking into account the innovativeness criterion of solutions as one of the criteria for the selection of contractors,
- 3) shaping of environment favourable to the innovative processes with the use of legal and administrative measures (including financial support tools).

Internal spending on R&D in Poland

Internal spending on R&D in Poland (thousands PLN)

	2006	2008	2009	2010	2011	2012	2013	2014	2015
Poland	5 892,8	7 706,2	9 070,0	10 416,2	11 686,7	14 352,9	14 423,8	16 168,2	18 060,7
Lower Silesian	298,2	457,4	581,3	630,0	725,2	971,4	908,8	1 070,1	1 282,0
YoY									
Poland			117,70%	114,84%	112,20%	122,81%	100,49%	112,09%	111,71%
Lower Silesian			127,09%	108,38%	115,11%	133,95%	93,56%	117,75%	119,80%



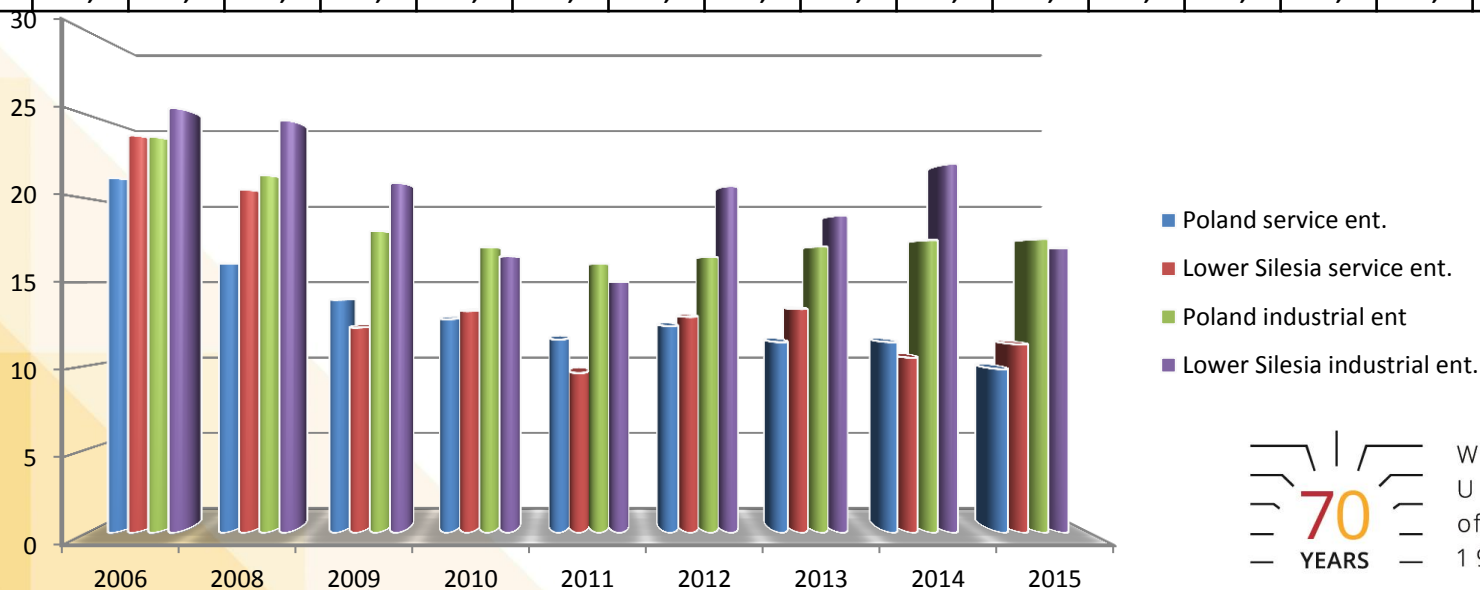
Share of Lower Silesian Voivodship in total internal spending on R&D in Poland

Share of Lower Silesian Voivodship in total internal spending on R&D in Poland

	2006	2008	2009	2010	2011	2012	2013	2014	2015
Total	5,1%	5,9%	6,4%	6,0%	6,2%	6,8%	6,3%	6,6%	7,1%
business sector	4,4%	6,6%	5,1%	7,9%	9,3%	9,3%	7,7%	8,4%	8,9%
government sector	1,9%	1,9%	2,1%	2,6%		3,3%	3,1%		3,8%
high schools sector	9,5%	9,4%	11,4%	8,1%		6,9%	7,2%		7,1%
YoY									
Total			108,47%	93,75%	103,33%	109,68%	92,65%	104,76%	107,58%
business sector			77,27%	154,90%	117,72%	100,00%	82,80%	109,09%	105,95%
government sector			110,53%	123,81%			93,94%		
high schools sector			121,28%	71,05%			104,35%		

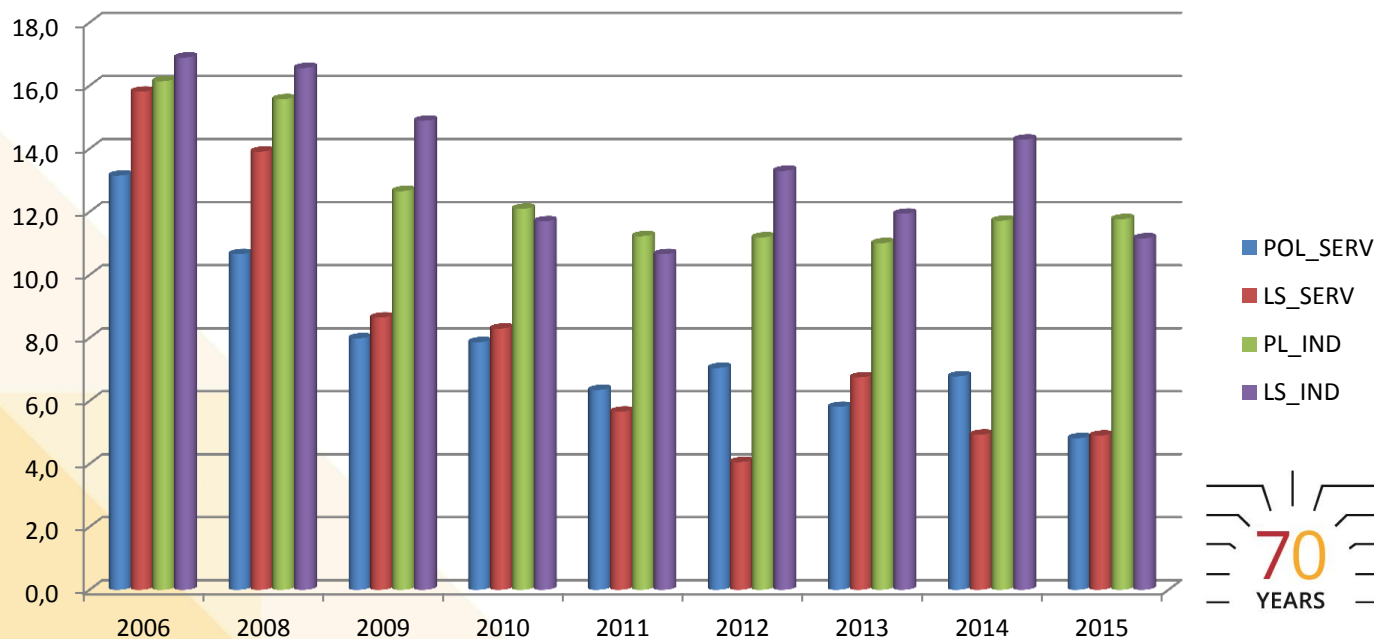
Innovative enterprises in Poland and Lower Silesia Voivodeship 2006-2015

Area	Service enterprises									Industrial enterprises								
	total									total								
	2006	2008	2009	2010	2011	2012	2013	2014	2015	2006	2008	2009	2010	2011	2012	2013	2014	2015
	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
Poland	21,2	16,1	14,0	12,8	11,6	12,4	11,4	11,4	9,8	23,7	21,4	18,1	17,1	16,1	16,5	17,1	17,5	17,6
Lower Silesia	23,8	20,5	12,3	13,3	9,6	12,9	13,4	10,5	11,3	25,4	24,7	20,9	16,6	15,0	20,7	19,0	22,1	17,1



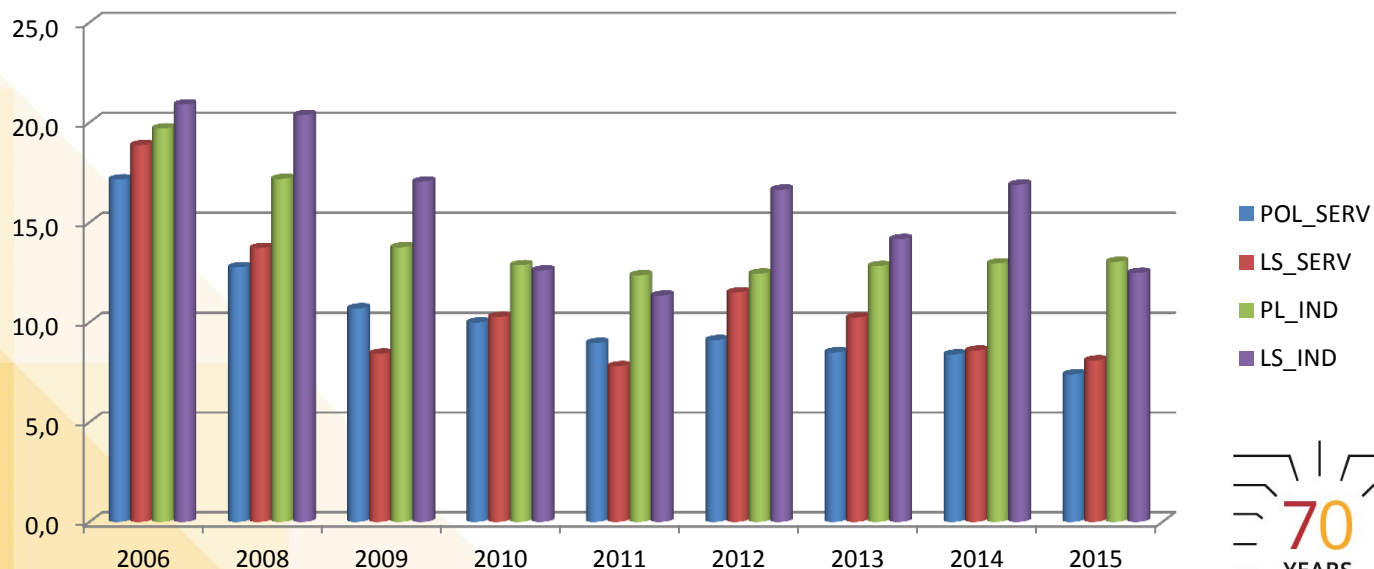
Innovative enterprises in Poland and Lower Silesia Voivodeship 2006-2015

Area	Service enterprises										Industrial enterprises								
	total										total								
	2006	2008	2009	2010	2011	2012	2013	2014	2015	2006	2008	2009	2010	2011	2012	2013	2014	2015	
	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	
New or significantly improved products																			
Poland	13,2	10,7	8,0	7,9	6,4	7,1	5,8	6,8	4,8	16,1	15,6	12,7	12,1	11,2	11,2	11,0	11,7	11,8	
Lower Silesia	15,8	13,9	8,7	8,3	5,7	4,1	6,8	4,9	4,9	16,9	16,6	14,9	11,7	10,7	13,3	11,9	14,3	11,2	



Innovative enterprises in Poland and Lower Silesia Voivodeship 2006-2015

Area	Service enterprises										Industrial enterprises								
	total										total								
	2006	2008	2009	2010	2011	2012	2013	2014	2015	2006	2008	2009	2010	2011	2012	2013	2014	2015	
	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	
New or significantly improved processes																			
Poland	17,2	12,8	10,7	10,0	9,0	9,1	8,5	8,4	7,4	19,7	17,2	13,8	12,9	12,4	12,4	12,8	13,0	13,0	
Lower Silesia	18,9	13,7	8,4	10,3	7,8	11,5	10,2	8,6	8,1	20,9	20,4	17,0	12,6	11,3	16,6	14,2	16,9	12,5	



Level of employment in R&D in Poland and Lower Silesia Voivodeship 2006-2015

		2006	2008	2009	2010	2011	2012	2013	2014	2015
	Poland	121 283	119 682	120 923	129 792	134 551	139 653	145 635	153 475	157 921
	LS	8 819	8 520	8 614	8 651	9 302	10 183	11 174	11 716	12 258
LS/PL	Total	7,3%	7,1%	7,1%	6,7%	6,9%	7,3%	7,7%	7,6%	7,8%
LS/PL	Business	5,6%	6,9%	7,1%	5,8%	7,5%	7,3%	7,7%	8,2%	7,8%
LS/PL	Govt.	2,4%	1,9%	2,4%	2,4%		3,4%	3,9%	3,8%	3,6%
LS/PL	High sch.	9,1%	8,6%	8,5%	8,3%		8,6%	9,0%	8,6%	9,1%
PL	Business	15,0%	15,8%	15,3%	17,5%	19,8%	23,2%	26,1%	28,1%	31,0%
PL	Govt.	18,8%	17,7%	19,1%	20,1%	20,0%	19,2%	18,7%	18,0%	16,8%
PL	High sch.	66,1%	66,4%	65,5%	62,3%	60,0%	57,4%	55,1%	53,7%	52,1%
LS	Business	11,5%	15,4%	15,2%	15,1%	21,4%	23,1%	26,1%	30,2%	31,0%
LS	Govt.	6,1%	4,7%	6,5%	7,1%		9,0%	9,4%	9,0%	7,8%
LS	High sch.	82,3%	79,9%	78,3%	77,8%		67,9%	64,4%	60,7%	61,2%

Findings - conclusions

- 1) Do the regions in Poland are trying to strengthen their innovativeness in a systemic long-term manner, which is focused on the implementation of strategic objectives?

In Poland, such strategies have been defined and approved by the regional self-governments in all regions.

Their original versions were created in 2000-2008 and they were passed by the provincial assemblies of individual regions, becoming the applicable documents that constitute a part of the development strategy of the voivodships.

In the subsequent years, they were subject to updates resulting from the changing needs of the entities in individual regions, which were diagnosed in the studies.

At the regional level, they constitute the basic instrument for implementing innovation policy (in the entire EU), on the basis of which the regional authorities take on the challenge of building the foundations for economic development based on scientific research, technology and innovation.

Findings - conclusions

2) What role in the strengthening of innovativeness plays the regional innovation strategy?

Firstly, it should be stated that the regulations discussed in the article concerning the creation and implementation of the development strategy of innovation, as well as the strategies themselves, **only in part provide support for the growth of innovativeness** of the regions.

The primary problem here is **the lack or delayed update** of the strategy at the regional level **and their infrequent evaluation**.

Also, another important **problem is determination of actual effects of the given strategy on the increase of innovation, due to the overlapping of the effects of other activities of the country** on decisions in the enterprises.

The **very creation and functioning of the strategy as a resolution of provincial assembly and its coexistence with international and national strategies is a positive manifestation of the fact that the regions in Poland try to strengthen their innovativeness in a systemic and long-term manner, which is focused on the implementation of strategic objectives.**

Findings - conclusions

3) Are there positive changes in the selected significant indicators characterizing innovation in the region of Lower Silesia, which can be noticed in the implementation period of the regional innovation strategy? If so, do the comparable changes apply to the entire Poland or just Lower Silesia?

In the case of Lower Silesia Voivodship, based on the indicators selected to illustrate the changes in the level of innovativeness of this region, their high diversity may be concluded.

In the case of R&D, there's a visible tendency (which is different in the scale of entire country) to concentrate activities in the higher education sector - in terms the share of employment, and in business sector in terms of the scale of investment.

As it was mentioned before, Wrocław as the capital of the region is one of the strongest business and academic centres, which may translate into such situation.

With the changes in RSI WD after 2013 year we can observe positive effect of new strategy implementation combined with positive trends in our country economy.

Thank you

Innovative enterprises in Poland and Lower Silesia Voivodeship 2006-2015

Area	Service enterprises									Industrial enterprises								
	total									total								
	2006	2008	2009	2010	2011	2012	2013	2014	2015	2006	2008	2009	2010	2011	2012	2013	2014	2015
	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
Poland	21,2	16,1	14,0	12,8	11,6	12,4	11,4	11,4	9,8	23,7	21,4	18,1	17,1	16,1	16,5	17,1	17,5	17,6
Lower Silesia	23,8	20,5	12,3	13,3	9,6	12,9	13,4	10,5	11,3	25,4	24,7	20,9	16,6	15,0	20,7	19,0	22,1	17,1
New or significantly improved products																		
Poland	13,2	10,7	8,0	7,9	6,4	7,1	5,8	6,8	4,8	16,1	15,6	12,7	12,1	11,2	11,2	11,0	11,7	11,8
Lower Silesia	15,8	13,9	8,7	8,3	5,7	4,1	6,8	4,9	4,9	16,9	16,6	14,9	11,7	10,7	13,3	11,9	14,3	11,2
New or significantly improved products for market																		
Poland	7,2	6,5	4,4	4,3	3,4	3,4	2,8	4,0	2,3	7,8	9,4	7,0	6,8	6,1	5,6	5,7	6,2	6,5
Lower Silesia	9,9	8,4	6,0	5,0	3,5	2,6	2,9	2,8	2,0	9,1	10,2	7,6	6,4	5,6	7,3	6,2	7,1	5,8
New or significantly improved processes																		
Poland	17,2	12,8	10,7	10,0	9,0	9,1	8,5	8,4	7,4	19,7	17,2	13,8	12,9	12,4	12,4	12,8	13,0	13,0
Lower Silesia	18,9	13,7	8,4	10,3	7,8	11,5	10,2	8,6	8,1	20,9	20,4	17,0	12,6	11,3	16,6	14,2	16,9	12,5