characteristic of integration processes influences the division of labor. The influence of the international division of labor on competition is also important, which was one of the reasons for European integration. It is worth paying attention to the identity of the concepts of the international division of labor and specialization, which may contribute to the expansion of the country's place in the world market and the deepening of integration. It is important to consider how integration will affect the specialization of developing countries in the integration with developed countries. In today's conditions, the development of the international division of labor, in particular intra-industry trade, is one of the main reasons for successful integration, the association will not always facilitate the transfer of production. Integration affects the development of the international division of labor, although the division is the basis of the integration. In addition, it is worth paying attention to which countries are integrated, because countries that are developing for association with the developed countries are especially sensitive.

Conclusion. *International division of labor is the basis for the development of international economic integration, and in today's conditions, the development of scientific and technological progress is of particular importance. The influence of integration on the division of labor is particularly significant for developing countries, it is very important the level of economic development of countries with which they are united. At the present stage, special attention should be paid to problems of development of intra-industry trade, vertically integrated structures, which also determine the directions of integration. Given the development of integration and the possible effects, it is necessary to promote the development of scientific potential, which will determine the country's place in the international division of labor, the prospects of integration, as well as the position of the country within the group, as well as the group on the world market.*

Key words: *international division of labor, international economic integration, competitiveness, free trade area, common market, customs barriers, internationalization, foreign trade, specialization, world market, world economic relations, economic development.*

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IMPLEMENTATION OF INNOVATIVE PROCESSES IN POLISH ECONOMY AS A PART OF THE EUROPEAN UNION

Abstract. *The article entitled "The implementation of economic innovation processes in the Polish economy within the European Union" focuses on the determinants of the socio-economic development of the country, which is economic innovation. It resulted in numerous civilizational changes in the Polish national economy, especially after Poland's accession to the European Union. It turned out that it belongs to those factors which in recent years have marked the development path of our country. Hence, after identifying its concept, an attempt was made to recognize the impact of the processes which constitute it on economic competitiveness and to assess the effects of economic innovation on socio-economic changes in the country.*

Keywords: *economic innovation; competitiveness of the economy; effects of innovation.*

PREFACE. An important role in the group of determinants strengthening the socio-economic development of Poland in the first decades of the 21st century revealed economic innovativeness. Its significance has increased since our accession to the European Union in May 2004. As a result of this decision, numerous civilizational changes took place in the Polish national economy. The issue of innovation has been part of the group which in recent years has marked the development path of our country. Poland has joined the process of implementing a

common strategy for supporting innovation and competitiveness. Its principles were laid down in the "Lisbon Strategy" for the first decade of the 21st century and for the Europe 2020 strategy for 2010-2020. Taking into account the problem of economic innovativeness in the context of the title of the target article, it becomes closer to its essence by identifying its concept, recognizing the impact of its processes on economic competitiveness, and assessing the effects of economic innovations on socio-economic changes in the country during the period of Poland's integration with the Union European.

1. The concept of economic innovation

Economic innovation is a multi-faceted concept whose attributes are economic phenomena and processes that enhance economic growth, productivity and productivity, technology development and increased competitiveness. According to the OECD definition, it is to transform an idea into a product or service that can be sold, a new or improved production or distribution process, or a new social service method. It is the implementation of a new or significantly improved product or process, a new marketing method or a new organizational method in economic practice, workplace organization, or environmental relations. Its goals are, referring to the most commonly adopted literature approaches, technological goals, including product and process innovations, and neo-technological objectives, which include organizational and marketing objectives. Their rank is diversified, often with the purpose of neobiological goals.

Innovation is primarily a result of research (basic, especially applied and implemented). If basic research involves theoretical and experimental work undertaken without the practical purpose of explaining the unexplored phenomena and the discovery of new scientific laws, then they are intended to use their results in practice. In part they can be useful for practice and thus provide a starting point for implementation work that involves the development of methods and techniques for applying the results of applied research.

Economic innovation is closely linked to the idea of a "new economy," also known as "knowledge economy", "e-economy", "network economy", "information economy" "digital economy". It is characterized by a high level of education, the dissemination of entrepreneurship culture, access to financial resources and the development of scientific infrastructure and business environment, which facilitate access to information through the development of IT networks. Co-operation between the various actors involved in the innovation process is important.

Innovation is most often seen as a means to create and maintain a competitive advantage for the company and the economy as a whole. The result is innovation implemented in the national economy, qualitatively different from existing solutions for new products, processes, technical solutions, technology or in the sphere of management, material or intangible. With respect to other routine activities favoring these intentions, it is subject to high risk and uncertainty.

Innovation is a process of product innovation. National economies and companies want to be innovative, they must be able to create something new and to create an environment capable of commercializing these novelties for their rapid implementation. As such, it is an accepted indicator of modern economy. It is a phenomenon favorable for economic development, although it can not be ruled out that it can also cause negative effects in the form of so-called. unintended effects.

2. Innovation as a driver of competitiveness

Renovation, as evidenced by this practice of economic life, has proved to be an important factor strengthening the competitiveness of states, regions and businesses. This fact became noticeable during the period of Poland's membership in the European Union, thus influencing the improvement of the competitiveness of the Polish economy. This impact can be traced back to the assessment criteria identified in the Global Competitiveness Report published by the World Economic Forum WEF in the twelfth pillar of competitiveness.

In the research on the level of enterprise innovation at the national and enterprise level (in a given country) particular attention is paid to: the scope of innovation, the quality of research; Expenditures on research and development; industry cooperation with research and

development institutions and universities in research and development; government procurement of high technology products; availability of researchers and engineers; and the number of patents applied in practice. These factors are considered as GCI indicators to measure enterprise innovation in different countries. The first six indicators are assigned weighted average values over the years ranging from 1 to 7, while the seventh is the average annual number of filed patent applications.

The first indicator of the twelfth pillar of competitiveness ("Innovation") is the scope of innovation – *capacity for innovation*). Its value as described in figure 1 implies the exclusive use of licenses or the imitation of foreign companies, while the number 7 implements on the basis of their own pioneering research into new products and processes.

Referring to the indicators of expenditure on innovative activity broken down by science, the dominant and increasing share of Poland's accession to the European Union are engineering and technical education, followed by natural and medical and health care. The lowest share of social sciences, agriculture and humanities. The share of innovation expenditure in the parent industry is investment expenditure, which is very high, although it tends to decrease (Table 1).

Table 1 Indicators of the scope of economic innovativeness

Order No.	Data	2000	2005	2010	2015
1.	Expenditures on innovative activity in total industry (in PLN million at current prices), including% of total:	12235	14329	22379	28921
1.1.	- for research and development	12.8	9.5	14.6	17.7
1.2.	investments	54.0	58.6	52.3	51.4
2.	Expenditures on innovative activity broken down by science: total (in PLN million at current prices), this is in% of the total in the sciences	4796	5575	10416	18061
2.1.	- natural sciences	21.9	24.8	24.7	21.6
2.2.	- engineering and technical sciences	49.8	47.0	47.0	53.5
2.3.	- medical and health sciences	12.2	10.2	10.3	11.5
2.4.	Agricultural sciences	9.2	8.5	7.6	4.5
2.5.	Social sciences	6.9	6.5	6.2	5.1
2.6.	Humanities	-	3.0	4.2	3.8

Based on: Rocznik Statystyczny Rzeczypospolitej Polskiej 2006, GUS, Warszawa 2006,p.424-432; Rocznik Statystyczny Rzeczypospolitej Polskiej 2016, GUS, Warszawa 2016, p.427-430

The above mentioned indicators demonstrate the importance of innovation as an important element in the competitiveness of enterprises. If they want to develop or even survive, they must continually innovate, adapt to new situations and, if possible, overtake them. This involves the introduction of tangible and intangible goods in the form of services not offered by competitors.

An innovative enterprise must approach its business in the future, designing and implementing qualitative changes. It should carry out research and development to a large extent or use the results of such work carried out outside the enterprise; allocate for this activity relatively high financial expenditures; systematically implement new scientific and technical solutions; It also systematically creates innovations and introduces them to production, work organization and market.

According to the GCI index assessing the scope of innovation Poland in 2015 in 138 countries occupied 68th place (at the value of 4.1) against 70 places in 122 classified countries in 2006.

The second indicator of competitiveness is the *quality of scientific research institutions*. The number 1 indicates the very weak activity of research institutions, and the 7 best in the field in the international arena.

Innovation is a new value or quality. It can be presented as a process involving its creation, design, implementation, adaptation and use, which are aimed at the practical application of a new product or new manufacturing method.

The value of scientific research depends on whether or not they are just basic research, also called theoretical or pure, which includes theoretical and experimental work undertaken without the practical purpose of explaining the unexplored phenomena and the discovery of new scientific laws; Or are they used to make use of the results of basic research in practice, the effects of which are called inventions? Or are they an implementation study that involves the development of methods and techniques for applying the results of applied research?

Recalling, for the assessment of this phenomenon, the share of net revenues from sales of new or significantly improved products in sales of industrial products (in% of products put on the market), it should be noted that the tendency which was revealed in Poland after the accession of Poland to the European Union is not good, because it is decreasing. This applies to all groups of industries (Table 2).

Table 2 Quality indicators for research

Order No.	Data	2000	2005	2010	2015
1.	Net sales of new or significantly improved products in industry sales (% of marketed products) - Total, including:	16.4	21.8	12.4	10.4
2.	Net sales of new or significantly improved products in industry sales (% of marketed products) - Total, including:				
2.1.	mining	-	2.0	2.0	0.8
2.2.	Industrial processing	18.5	25.1	15.6	12.9
2.3.	production and supply of electricity, gas, steam and hot water	-	0.2	0.0	0.5
2.4.	- water supply and sewage and waste management, reclamation	-	1.9	2.1	1.5

Based on: Source: Rocznik Statystyczny Rzeczypospolitej Polskiej 2006, GUS, Warszawa 2006,p.433; Rocznik Statystyczny Rzeczypospolitej Polskiej 2011, GUS, Warszawa 2011,p.420; Rocznik Statystyczny Rzeczypospolitej Polskiej 2016, GUS, Warszawa 2016, p.435

Taking into account the impact of the quality of scientific research on competitiveness according to the GCI index in 2015. Poland occupied 54th place in 138 countries (with a value of 4.1). This was a better situation compared to 2006. When it ranked 56th of 122.

Company spending on R&D is another indicator of competitiveness assessment through the prism of innovation. Its value in the case of digit 1 means that there is no expenditure on research and development, and 7 on research and development expenditures.

Research on enterprise innovation shows at least six directions of innovative thinking leading to the creation of new markets and the reactivation of existing markets. These include: a survey of substitution industries (offering substitutes); Study of strategic groups (industry groups with similar strategies); surveying groups of buyers (paying, using, co-deciding); study of complementary groups (determining how the value of the offer influences the proposals of other branches); study of the functional-emotional orientation of the industry (product usability, customer emotional level); Studying the effects of important trends (mainly external ones influencing the functioning of the industry).

The GCI assessment of the impact of enterprise expenditure on R & D on competitiveness has placed Poland in 2015. on the 64th place (at a value of 3.4). This was a better situation compared to 2006. When it ranked 65th of 122.

In addition to the size of enterprise expenditure on R & D, the total expenditure incurred by universities, research and development units, development units, and scientific institutions of the Polish Academy of Sciences is also affected (Table 3). They were different in terms of direction and pace of change, both in terms of total expenditure and investment expenditure. Although R & D expenditures (as a percentage of GDP) were higher in 2015 than in 2005 and amounted to 1.0% of GDP (at current prices), that is still a threat to a serious economic downturn. Their level in Poland is far from the level of outlays in other countries of the world, including in the European Union. As such, they are far from sufficient to support the economic development of the country. They are also very distant from the OECD recommendations that spending on research and development should be at 2% of GDP, as well as the Lisbon Strategy's mandate to increase R & D expenditures to 3% of GDP in 2010, This is the time of the past - the European economy in the most dynamic economy of the world.

Research and development activities are carried out through research projects (called grants) and targeted projects. R & D activities in Poland are carried out by five groups of units (among them the leading role is played by PAN) The funding is provided by the resources of the Scientific Research Committee set up in 1999, and since April 1, 2003 by the Ministry of Science and Information Technology. Research and development should be developed within the framework of a state-sponsored policy (including innovation policy). In practice, there are three types of scientific policy, namely participation, regulation and advocacy.

Table 3 Expenditure of the state and enterprises for research and development

Order No.	Data	2000	2005	2010	2015
1.	Expenditures on research and development (in PLN million at current prices)	4796	5575	10416	18061
1.1.	Expenditures on research and development in relation to GDP (%)	0.64	0.56	0.72	1.0
1.2.	Expenditures on research and development in relation to GDP	125	146	270	470
2.	Expenditures on research and development (in PLN million at current prices)/%	792 /16,5	1150 /20.6	2543 /24.4	7045 /39,0
3.	Expenditures on innovative activity in total industry (in PLN million at current prices) - of total:	12234	14329	22379	28920
3.1.	for research and development	1570	1367	3272	4838
3.2.	- purchase of knowledge from external sources and software	297	625	686	-
3.3.	- investment purchases of machinery and technical equipment	6601	8393	11712	14861
3.4.	Staff training and marketing for new or significantly improved products	392	332	504	-

Based on: Rocznik Statystyczny Rzeczypospolitej Polskiej 2006, GUS, Warszawa 2006,p.424-432; Rocznik Statystyczny Rzeczypospolitej Polskiej 2011, GUS, Warszawa 2011,p.411,418; Rocznik Statystyczny Rzeczypospolitej Polskiej 2016, GUS, Warszawa 2016, p.411,418

An important fourth indicator of the competitiveness assessment through the prism of innovation is *university-industry collaboration in R&D* Its value at 1 for this indicator means that there is no cooperation, and 7 with intensive cooperation.

From the standpoint of possible forms of innovation, we can distinguish innovations: radical and gradual, technical and managerial, productive and process. Radical innovation – these are new products, services or technologies that completely replace existing ones. And gradual innovations are new products, services or technologies that only modify the existing ones Technical innovations are related to changes in physical appearance, product parameters, production and distribution processes – that is, whether they are productive or productive. Managerial innovation involves changes in processes that drive the way of thinking, creating, and delivering products to customers Managerial innovation generally influences the broader development context throughout the organization and the way in which the organization is governed, process innovations directly affect the technology itself.

The assessment of industry cooperation with research institutions and universities in research and development can be done through the prism of different types of research (Table 4). The analysis of Poland proves that the trend towards a clear limitation of basic and applied research for development work is outlined.

Table 4 Indicators of cooperation between industry and research institutions and universities in research and development

Order No.	Data	2000	2005	2010	2015
1.	Research and development activity by type of research - (PLN m at current prices)	3982	4411	7743	13314
2.	Research and development activity by type of research - (PLN m at current prices)				
2.1.	Fundamental research	1543 /38.6	1648 /37.4	3072 /39.7	4284 /32.2
2.2.	Applied research	992 /24.8	1068 /24.2	1589 /20.5	2726 /20.5
2.3.	Experimental development	1456 /36.6	1695 /38.4	3082 /39.8	6304 /47.3

Based on: Source: Statistical Yearbook of the Republic of Poland 2006, GUS, Warsaw 2006, p.426; Statistical Yearbook of the Republic of Poland 2011, GUS, Warsaw 2011, p.414; Statistical Yearbook of the Republic of Poland 2016, GUS, Warsaw 2016, p.430

In the innovative product and process activities, several phases of the life cycle of innovation can be distinguished. These are the phases of development, application, launch, growth, maturity, decline. The stages in which companies achieve the highest economic and financial results are growth and maturity

According to the GCI, the impact of industry cooperation with research and development institutions on research and development on competitiveness was set in 2015 Poland in 85th place (at the value of 3.3). This was a situation comparable to that of 2006. When it was in the ranking of 122 countries Poland was ranked in 81 positions

Evaluation of competitiveness through prism of innovation is also made through prism of *government procurement of advanced technology products*. Its value determines the extent to which government purchasing decisions support innovation, with figure 1 indicating that government purchasing decisions do not support innovation at all, and 7 that government purchasing decisions support innovation to a large extent.

According to the GCI, which assesses the impact of government procurement of high technology products on competitiveness, Poland places in 96th place (with a 2.9 indicator value) This was a far worse situation compared to 2006. When it was ranked in 122 countries Poland was placed on 62 th position

Supplementary assessments of this situation are also provided by the analysis of the number and value of financed projects by the state (Table 5) It proves that the state supports development and individual projects.

Table 5 Indicators of government procurement of high technology products

Order No.	Data	2000	2005	2010	2015
1.	Research projects funded by the minister responsible for science in the division: number / value in PLN million at current prices				
1.1.	- individual	8193/ 367	8734/ 396	10102/ 564	7682/ 773
1.2.	- for a given purpose	1292/ 231	843/ 171	235/ 141	4/ 29.1
1.3.	- development	-	-	1143/ 612	1187/ 1245
1.4.	other	-	-	296 /147	1232 /265

Based on: Rocznik Statystyczny Rzeczypospolitej Polskiej 2006, GUS, Warszawa 2006,p.425 Rocznik Statystyczny Rzeczypospolitej Polskiej 2011, GUS, Warszawa 2011, p.412,-413; Rocznik Statystyczny Rzeczypospolitej Polskiej 2016, GUS, Warszawa 2016, p.429-429

The sixth indicator of competitiveness assessment is based on the prism of innovation is *availabity of scientists and engineers*. Its value is 1 for lack of availability and 7 for wide availability. Significant staffing potential is involved in R & D. The employment rate was regionally differentiated, which is a result of the allocation of research and development units.

By specifying the assessment of intellectual property from the point of view of innovation and its impact on the competitiveness of the economy, based on the R & D rate of R & D staff, which is calculated per 1,000 workers Poland was in 2014. the lowest in the European Union (5.0%) against 15.3% in Finland; 14.7% in Denmark; 14.1% in Sweden; 10.6% in Norway; 8.2% in Germany; 7.1% in the Czech Republic and 6.2% in Slovakia

In the group of scientists and engineers the largest number of their potential was gathered in economic entities, whereas the dominant group was composed of representatives of engineering and technical sciences, and later in nature and medical (Table 6).

Table 6 Indicators of access to scientific and engineering personnel

Order No.	Data	2000	2005	2010	2015
1.	Employees in research and development activities in thous. total /% of research staff	78925	76761	81843	123347
2.	Employed in research and development activities in% of total research staff, broken down by type of subject:				
2.1.	- scientific and research and development units	38.4	30.6	27.0	21.0
2.2.	auxiliary scientific units	0.2	0.4	0.3	0.3
2.3.	- business entities	8.7	10.6	19.3	41.6
2.4.	higher education institutions	52.6	58.2	52.6	36.4
2.5.	- other units	0.1	0.2	0.8	0.7
3.	Employed in research and development activities in% of total research staff, broken down by type of subject:				
3.1.	- natural sciences	22.6	21.0	19.4	18.3
3.2.	- engineering and technical sciences	37.1	34.6	37.9	50.4
3.3.	- medical and health sciences	12.7	14.3	13.4	10.6
3.4.	Agricultural sciences	10.4	8.5	6.6	4.8
3.5.	Social sciences	17.2	14.6	12.3	9.1
3.6.	Humanities	-	7.0	10.4	6.8

Based on: Rocznik Statystyczny Rzeczypospolitej Polskiej 2011, GUS, Warszawa 2011, p.409-412; Rocznik Statystyczny Rzeczypospolitej Polskiej 2016, GUS, Warszawa 2016, p.425-427

A separate problem posing a high risk to the Polish R & D sector is the low salaries of employees employed in the field, which forces them to look for other sources of earnings. Average monthly remuneration in R & D is about 1.5 times the average wage in the corporate sector. The result is a migration of scientists. Another noteworthy phenomenon in Polish research and development is the low mobility of researchers, considered one of the methods of stimulating scientific creativity.

The GCI evaluates the impact of the availability of researchers and engineers on competitiveness, placing Poland in the 50th position (with a value of 4.3). This was a much better situation compared to 2006. When it was in the ranking of 122 countries Poland was placed in 69 positions

The last indicator of competitiveness assessment by the prism of innovation refers to the number of patents applied in practice / million population It has an average annual number of patent applications per million inhabitants.

The choice of innovative ideas is accompanied by great uncertainty. Reducing the uncertainty of choice requires support for their analytical activities, including: creating a buyer usability map (which will provide information on the differences in usability of the new product from the usability of the existing product), defining the optimal price corridor (indication of the price range for which the novelty should apply)), as well as the outline of the business model scheme (which must include answers to questions – what should be the target cost level, who can we tie to, what price model is the most advantageous). However, choosing the right ideas does not guarantee success. You need to promote a new concept in the organization and overcome the resistance of different interest groups, and then implement an innovative idea with the possibility of various types of obstacles.

In terms of process innovation is the introduction of new ideas into practice, is the processing of new concepts into usable applications. They are characteristic of learning organizations, capable of continually changing and improving their results on the basis of experience.

This situation is also related to the effects of research and development (Table 7). In the course of integration processes with the European Union, the number of inventions and patents received increased considerably. On the other hand, the granted protection rights for utility models have decreased. During this period, the number of ornamental and industrial designs and trademarks increased. Interesting insights provide an analysis of the origins of the authors of the proposals. The structure of inventions reported by Polish artists shows that most of the applications from such departments as chemistry and metallurgy, transport and basic human needs have been the subject of patent protection. From the electronics department, which is developing quite dynamically in the world, in Poland legal protection has unfortunately received too few applications. Similar, that is, not the best situation occurs in the obtained patents. The situation in patent applications abroad seems to be better.

According to the GCI assessment of the impact of the average annual number of patent applications per million inhabitants on competitiveness, Poland is ranked 40th (with a value of 7.9).According to the GCI, which assesses the impact of government procurement of high technology products on competitiveness, Poland places in 96th place (with a 7.9 indicator value) This was a far worse situation compared to 2006. When it was ranked in 122 countries Poland was placed on 48 th position

3. Assessment of economic innovation processes in Poland

By synthesizing the indicated assessments of the development of economic innovations in Poland under the influence of integration processes after Poland's accession to the European Union, it must be noted that before this act the concept of innovation was a very rarely used term. The focus of pro-development activities was primarily on research and technological development. Such was also the nature of the provisions of the strategy "Increasing the innovativeness of the economy in Poland by 2006", binding in 2000-2006.

Table 7. Effects of research and development activities

Order No.	Data	2000	2005	2010	2015
1.	Inventions filed / granted patents	2404 /939	2028 /1054	3203 /1385	4676 / 2404
2.	Utility models submitted / granted protection rights	1274 /680	600 /829	879 /484	994 /562
3.	National inventions filed for protection at the European Patent Office (according to partial calculation)	43.39	127.94	360.52	313.49 (2013 r.)
4.	Foreign licenses used (in units)	238	337	1066	2768
5.	Polish licenses sold in Poland / abroad	6 / 7	21/ 3	23 / 22	592 / 136

Based on: *Rocznik Statystyczny Rzeczypospolitej Polskiej 2006*, GUS, Warszawa 2006,p.434-436; *Rocznik Statystyczny Rzeczypospolitej Polskiej 2011*, GUS, Warszawa 2011,p.421-424; *Rocznik Statystyczny Rzeczypospolitej Polskiej 2016*, GUS, Warszawa 2016, p.436-439

Innovation policy has only been present in the area of economic policy since 207. when it came to the strategy of increasing the innovativeness of the Polish economy under the title "Directions for increasing the innovativeness of the economy for the years 2007-2013" recommending actions in five priorities: the first, the staff for the modern economy; second, research for the economy, third, intellectual property for innovation; fourth, innovation capital; fifth, infrastructure for innovation. Their optimization focused on the 2010 adopted. "Development Strategy Plan" In the second decade of the 21st century, innovation has also become a pillar of responsible and sustainable development, which has been reflected in concrete documents. This has been reflected in the implementation since 2016. socio-economic policy.

In addition to the significant positive changes, a number of barriers to this process have also emerged. Therefore, when evaluating their significant impact on the economic development of the country, we must also perceive negatives as well as a large number of positives.

Understanding innovation barriers, any factor that slows down or even hinders investment, or makes it unpredictable, can be seen in the practice of economic life. They are most often distinguished from the company's perspective on internal and external. Internal barriers include: lack of qualified staff, lack of funding, limited internal know-how, lack of market knowledge, technical problems, too much time to return from innovation, risk of innovation, difficulty in controlling costs. On the other hand, the group of external barriers indicates; poorly implemented patent and licensing policy, lack of incentive for innovation in the enterprise, long administrative procedures, restrictive laws and regulations and lack of sufficient intellectual property rights. There is also a breakdown of the barriers to: knowledge-based, market-based, institutional and other costs. On all of these barriers, the stamp barges the funding barrier. Each of them, however, varies in scope and scale, revealing itself in the Polish realm, both at the level of enterprises and of the entire national economy.

The distinguished barrier groups can be perceived by analyzing not only the seven factors of innovation mentioned but also their synthetic assessments from the point of view of the GCI index competitiveness of the Polish economy (Table 8). They prove Poland's achievement far from the satisfactory level of competitiveness of our national economy.

Positives include the effectiveness of the obtained aid funds raised from the European Union. They have emerged as an effective form of innovative economic support, encouraging companies to fund R & D projects with partial state support, and encouraging R & D entities to undertake research that is of interest to the economy. These actions have affected the level of modernization of the economy, its international competitiveness and efficiency. They also often contributed to the acquisition of new export contracts, the

Table 8 The development of the competitive position of the Polish economy under the influence of factors of innovation and specialization according to the edition of the report

No.	Data	2006 /2007	2008 /2009	2009/ 2010	2010 /2011	2011 /2012	2012 /2013	2013 /2014	2014 /2015	2015 /2016	2016 /2017
1.	Number of coutries listed	125	134	133	139	142	144	148	144	140	138
2.	GCI Competitiveness / position	4.3/ 48	4,3/ 53	4.3/ 46	4.5/ 39	4.5/ 41	4,5 / 41	4,5/ 42	4,5/ 43	4.5/ 41	4.6/ 38
3.	Index of innovative and specialized factors, including:	3.8/ 51	3.7/ 61	3.8/ 46	3.8/ 50	3.6/ 57	3.7/ 61	3.7/ 65	3.7/ 63	3.7/ 57	3.7/ 55
3.1.	Specialist business factors: value / position	41/ 63	4.2/ 62	4.3/ 44	4.2/ 50	41/ 60	4.1/ 60	4.1/ 65	4.1/ 63	4.1/ 55	4.1/ 54
3.2.	Innovations	3.5/ 44	3.2/ 64	3.3/ 52	3.3/ 54	3.2/ 58	3.3/ 63	3.2/ 65	3.3/ 72	3.3/ 64	3.4/ 60

Based on: The Global Competitiveness Report 2016–2017, edited by The Global Competitiveness Report; 2006-2007, p,326-327; 2008-2009, p 278-279; 2009-2019, p.258-259; 2010-2011, p.276-277; 2011-2012, p,296-297; 2012-2013, p.294-295; 2013-2014, p.316-317; 2014-2015, p.310-311; 2015-2016, p.298-299; 2016-2017, p.298-299.

implementation of new technologies and products characterized by energy efficiency and environmental performance. Estimates of achieved economic effects indicate that they brought about 3 - 20 times the economy in relation to the expenditures incurred for their implementation.

In the group of negatives, there is a lack of good cooperation between research and development units and enterprises and, consequently, the desired adjustment of the research and development sector to the country's economic needs. The close co-operation of R & D units with the industrial sector is reflected in the dominance of expenditures on basic research, which should be regarded as not very positive because they are often undertaken without a practical goal, and if they can bring economic effects, it is only in the longer perspective.

In our country, an important problem, apart from the proportion of research and development spending, is the weakness of the links between the main research areas.

However, there is also a noticeable systematic deterioration of the conditions of implementation of innovative projects, which is mainly due to: a significant prolongation of the cycle of the procedure of establishing targeted projects; extending the cycle from project proposal to implementation of new technology; as well as too low expenditure from the state budget.

An important aspect of R & D that is difficult to see in recent years is the improvement of the competitiveness of the economy, which is driven by the ability to develop and implement new technological and organizational solutions, and as a result of the launch of new products and services. It seems to be a result of insufficiently good levels of development of mechanisms, structures and links between public and private institutions, national and foreign, guaranteeing the rapid flow of information and capital needed to implement new technologies and organizational solutions.

Conclusions. The reflections in the article encourage many reflections and reflections. First Innovation plays a key role in increasing the competitiveness of the national economy.

With the accession of Poland to the structures of the European Union, it has been subjected to many complex processes of European integration and the conditions of national innovation systems, innovation policy, state of the art and technology in a given country. Its effects should depend on both basic, applied (agricultural and industrial) research and, to a large extent, on development (implementation and technical). All these depend on the level of funding for innovation, both internal and external.

Second The development of innovation should consist in: promoting innovative attitudes in the society, supporting the development of the innovation market, disseminating industrial property rights, supporting patent applicants outside Poland, improving the use of existing patents, strengthening the common innovation policy at European, national and regional level; development of e-economy (eg universal access to the Internet for public administration offices), development of e-business (including e-commerce) Achieving its desired level should be linked to the effective use of development resources and necessary institutional reforms.

Three Research and development plays an increasingly important role in the modern economy. It is considered a strategic factor determining the future development and prosperity of societies. Among the many goals facing society and the state, the economic and social development, which is strictly dependent on the introduction of educational, technical, technological, organizational and managerial innovations, is the first priority. You have to play a leading role in creating such attitudes and behaviors.

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