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# EUROPEAN FUNDS ALLOCATED FOR INNOVATIONS IN A CONTEXT OF POLISH ECONOMY POSITION IN THE INNOVATION RANKINGS

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**Abstract:**
The paper is an attempt to analyse the main assumptions Smart Growth Operational Programme, which is currently implemented, in the context of the selected rankings of innovation, including Polish ranked in these rankings. In the article there is identified the concept of innovation of the economy and presents the most important rankings which measure innovation economies of states, including Poland. The subject of research in this issue is the Global Innovation Index and the European Innovation Scoreboard. Afterwards the author analyse the main assumptions of the Smart Growth Operational Programme scheduled for 2014-2020, which is co-financed by the European Union under the European Regional Development Fund. The Program funds projects designed to increase innovation in the Polish economy. It is also examined the current progress of implementation of the Program. This allows to explore the possibility of increasing the innovation of the Polish economy, including opportunities for advancement of innovation of polish economy in the rankings by public financing of European funds under the Smart Growth Operational Programme. The conclusions of this research can be used in the evaluation of the Programme during its implementation.

*Keywords: innovation, European funds, European Regional Development Fund, Smart Growth Operational Programme, Global Innovation Index, European Innovation Scoreboard.*

# 1. INTRODUCTION

The main purpose of this article is to look into the possibilities of making Polish economy more innovative thanks to European funds directed to innovations in the years 2014-2020. To achieve this aim it is necessary to define the concept of economy innovation itself, identify the most important rankings used to measure and compare the level of innovation in given countries as well as indicating a current Poland's ranking. The analysis covers also the assumptions of the Smart Growth Operational Programme which deals with financing projects aimed at improving the level of innovation of Polish economy.

# 2. INNOVATION AS AN INDICATOR OF THE POSITION OF POLISH ECONOMY

## 2.1. The concept of innovation

The concept of innovation was introduced into economic science for the first time by J. A. Schumpeter, according to whom innovation includes:

- launch of a new or a new brand of product;
- introduction of a new production method;
- emergence of a new market;
- development of a new source of raw materials or semi–manufactured goods;
- reorganisation of an industry (J. A .Schumpeter, 1960, p.108).

Innovation is also defined as a certain process intrinsically connected with creativity, a special tool of entrepreneurs by means of which they use a novelty as an opportunity to begin a new enterprise or provide new services (Drucker, 1992, p.39).

The concept of innovation is directly connected with the idea of innovativeness. This can be defined as a feature of economic operators or economies which enables them to create and implement innovations as well as absorb them, which is connected with active engagement in innovative processes and contributing towards them (Niedzielski, 2005, p.74) Innovativeness, then, is an ability of an economic operator to being innovate.

The way innovation is defined in economics has been reflected in the definition adopted by the European Union and the Organisation for Economic Cooperation and Development. According to a joint work of OECD and Eurostat entitled the Oslo Manual, an innovation is described as the implementation of a new or significantly improved product (good or service), or a process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations. The manual states that the minimum requirement for an innovation is that the product, process, marketing method or organizational method must be new (or significantly improved) to the firm. This includes products, processes and methods that firms develop on their own and those that have been adopted from other firms or organisations. The manual also defines the concept of an 'innovation activity' as all those scientific, technological, organisational, financial and commercial steps which actually lead, or are intended to lead, to the implementation of innovation. Some may be innovative in their own right, others are not novel but are necessary for implementation. Innovative activities comprise also research and experimental development (R&D) which is not directly connected with creating a specific innovation (Oslo Manual, 2008 , pp .46-47).

As can be easily seen, the definitions chosen for the analysis emphasise the fact that searching for some novelty, a need for a positive change, overcoming an accepted standard of action is an immanent feature of innovation. It can be said that innovation is a measurable phenomenon which can be expressed by means of numbers and presented on a comparative scale. The concept of innovation may refer to a given enterprise or to all the state economy.

## 2.2. Selected economic innovation rankings including Poland's position

The purpose of innovation rankings is to compare individual enterprises or countries with regard to the applied innovations. For the needs of this article two most popular and frequently used innovation rankings will be analysed: the Global Innovation Index and the European Innovation Scoreboard.

*Global Innovation Index (GII)*

The Global Innovation Index is an annual report prepared by experts in Cornell University, one of the largest schools of management and business in the world INSEAD and World Intellectual Property Organisation (WIPO). It aims at grasping multidimensional aspects of innovation and providing tools for helping states to improve their innovation.

It takes under consideration 79 factors characteristic of innovation, divided into the following 21 groups:

- political environment;
- regulatory environment;
- business environment;
- education;
- tertiary education;
- research and development;
- information and communication technology;
- general infrastructure;
- ecological sustainability;
- credit;
- investments;
- trade and competition;
- knowledge workers;
- innovation linkages;
- knowledge absorption;
- knowledge creation;
- knowledge impact;
- knowledge diffusion;
- intangible assets;
- creative goods and services;
- online creativity (The Global Innovation Index , 2015, pp.42-47).

In 2015 economies of 141 countries which represent 95.1% of the world population and 98.6% of the world GDP were analysed by GII. The results revealed the top ten most innovative countries in the world: Switzerland, United Kingdom, Sweden, Netherlands, United States of America, Finland, Singapore, Ireland, Luxemburg and Denmark. While the least innovative countries turned out to be: Nepal, Fiji, Burundi, Niger, Sudan and Togo.

Poland is ranked 46th in the 2015 ranking, higher than United Arab Emirates and Russia, below the Republic of Moldova and Greece (The Global…,2015, pp.16-17)

The ranking highlights the strengths and weaknesses of Polish economy with regard to innovation. Among the strong points it lists political stability (ranking 20th), student PISA results(9th), the ratio student to teacher (14th), tertiary education enrolment (21st),ease of getting credit(16th), licence fees payments (23rd), citable documents H index (24th), cultural and creative services exports (14th), creative goods exports (12th), country-code TLDs (21st). Among the weaknesses it mentions tertiary mobility (ranking 80th), microfinance loans(67th), venture capital deals (53rd), join venture strategic alliance deals (76th), FDI net inflows (134th), new businesses in the population of 15-64 (86th), FDI net outflows (119th), ICTs and business model creation (95th), printing and publishing output manufactures (71st) (The Global,…,2015, p.263).

*European Innovation Scoreboard*

The European Innovation Scoreboard is a ranking designed by the European Commission which measures and compares innovation performance of European countries. One of its components is the Innovation Union Scoreboard which covers economies of 28 European Union countries.

The ranking focuses on 25 innovation indicators divided into the 8 following groups:

- human resources;

- open, excellent research system;
- finance and support;
- firm investments;
- linkages and entrepreneurship;
- intellectual assets;
- innovators;
- economic effects (Innovation Union...,, 2015, p. 7).

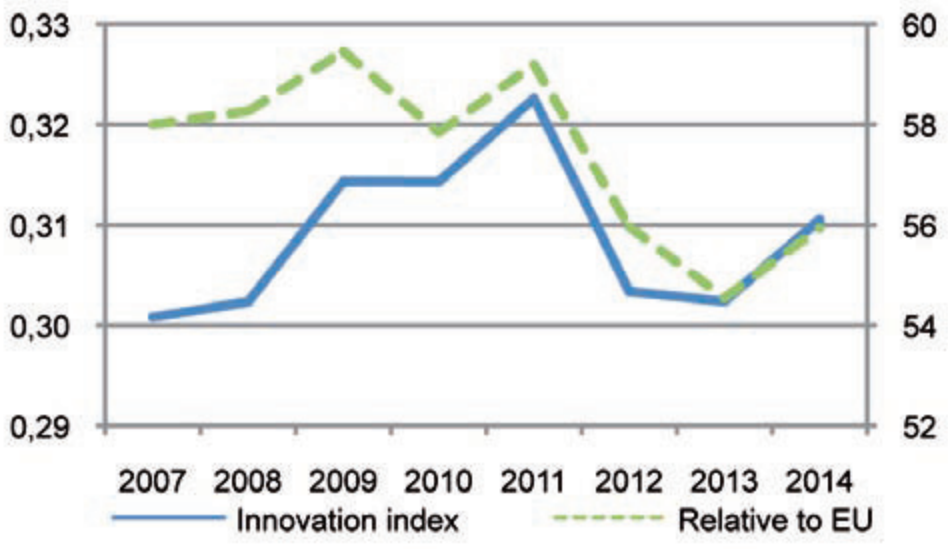
The Summary Innovation Index is a result of aggregation of 25 innovation indicators for each of the 28 UE Member States and it ranks each of the countries against the average performance for the whole European Union. The individual Member States are described as representatives of one of four groups on the basis of the ranking. The groups in 2015 were the following:

- Innovation leaders – countries whose performance was more than 20% above the UE average: Sweden, Germany, Finland and Denmark;
- Innovation followers – countries whose performance was less than 20% above or more than 90% of the EU average: Austria, Belgium, France, Ireland, Luxembourg, the Netherlands, Slovenia and the UK;
- Moderate innovators – countries whose performance was between 50% and 90% of the EU average: Croatia, Cyprus, the Czech Republic, Estonia, Greece, Hungary, Italy, Lithuania, Malta, Poland, Portugal, Slovakia and Spain;
- Modest innovators – countries whose performance was below 50% of the EU average: Bulgaria, Latvia and Romania (Innovation Union…,2015, p.10).

Poland with the innovation performance 56% of the average for the EU ranks 24th between Hungary and Lithuania. The report indicates the strengths and weaknesses of Polish economy innovation. The strong points (i.e. above the EU average) are: Non-R&D innovation expenditures, the percentage of population with completed tertiary education, the share of youth with completed upper secondary education, community designs and employment in fast growing firms in innovative sectors. The remaining indicators for Poland are below the EU average, the lowest being the number of Non-EU doctorate students, public-private co-publications, PCT patent applications in societal challenges, R&D expenditures in the business sector, licence and patents revenues from abroad and new doctorate graduates (Innovation Union…2015, p.65).

Despite a relatively low position of Poland in the innovation ranking, the report indicates that the distance between Polish economy innovation and EU average has shrunk over the last 8 years which is illustrated in Picture 1.

**Picture 1**. Poland's economy innovation index relative to EU average over the years 2007-2014




Source: Innovation Union Scoreboard 2015, p.65

As can be observed on the basis of the above mentioned rankings, Polish economy does not rank high with regard to innovation. Compared to other economies in the world it is in the middle of the ranking. It is preceded by most EU countries in the European ranking with its score slightly higher than half of the EU average. Both rankings recognize educational qualities such as a large number of secondary school students, university students and university graduates as the advantages of Polish innovation. The disadvantages are connected ,inter alia with lack of internationalization in education, limited possibilities of financing research and development activities and a small number of patents. It can be concluded generally that a lot can be done to improve Polish economy innovation.

# 3. EUROPEAN FUNDS AS A TOOL FOR SUPPORTING POLISH ECONOMY INNOVATION

## 3.1. European funds for Poland in the years 2014-2020

For the years 2014-2020 Poland has received EUR 120.1bn from the budget of the European Union. This includes first of all Cohesion Policy funds –EUR 82.5bn, Common Agricultural Policy - EUR 32.1bn, European Maritime and Fisheries Fund – about EUR 0.5bn. Around EUR 5bn is allocated to programmes like Horizon 2020 or Erasmus.
EUR 76.6bn from the cohesion policy fund has been directed to 6 national and 16 regional operational programmes including:

- EUR 27.41bn to Operational Programme Infrastructure and Environment;
- EUR 8.61bn to Operational Programme Smart Growth;
- EUR 4.69bn to Operational Programme Knowledge Education Development;
- EUR 2.17bn to Operational Programme Digital Poland;
- EUR 2bn to Operational Programme Eastern Poland;
- EUR 1.68bn to European Territorial Cooperation programmes;
- EUR 700 ml to Operational Programme Technical Assistance;
- EUR 31.3bn to regional operational programmes (Programowanie perspektywy..., 2014, .p.165).

Innovative projects are realised primarily as part of Smart Growth Operational Programme (SG OP)[1]. Its most important aim is co-financing research and development projects realised by entrepreneurs – individually or in cooperation with the education sector- as well as co-financing their implementation on the market. It is worth noticing that SG OP is the biggest European Union programme to finance research, development and innovation. An accurate and effective development of this programme determines not only an increase of Polish economy innovation but also an increase of its competitiveness with other economies in the region and worldwide.

## 3.2. The main premises of the Smart Growth Operational Programme

The Smart Growth Operational Programme is a continuation of the Operational Programme Innovative Economy (OP IE) which co-financed over 17 thousand projects which amount to about EUR 10.7bn with EUR 8.65bn being European funds within the European Regional Development Fund (European Fund Portal, access on 6th January 2016).

The premises of SG OP are based on the experience of the previous programming period. In the analysis of challenge in the Programme attention is paid both to the vital growth of Poland's GPD against the EU average and to the threat of the Polish economy getting into the 'middle income trap'. A suggested response to this threat is that the economic development model of Poland should be changed from imitative to innovative. Moreover, the Programme points to the problem of low innovation of the Polish economy reflected also in its distant score in the most important innovation rankings. The programme recognizes that the expenditure on research and development has more

[1] Components related to innovation activities are planned within other operational programmes as well, e.g. social innovations within the framework of the Operational Programme Knowledge Education Development or support of innovative enterprises e.g. start-ups within the framework of the Operational Programme Eastern Poland. However, the components are only a part of operations of a different character.

than doubled since the year 2007, yet, notices low share of private expenditure (Smart Growth Operational Programme, 2014, pp. 4-5, 14).

The main purpose of the Smart Growth Operational Programme for the years 2014-2020 is to increase the innovation of the Polish economy. This is to be achieved by higher enterprise expenditure on R&D. The most important premise of the Programme is support for research and development projects realised by entrepreneurs or science-business consortiums and bringing the results onto market. What is important, emphasis is put on supporting the whole innovation process: from the stage of creating an idea, through R&D stage, to commercialisation of R&D results (Smart Growth Operational Programme ,2014, pp.20-21).

European funds for the Programme implementation come from European Regional Development Fund and amount to EUR 8,613,929,014. The Programme assumes also national funds involvement of at least EUR 1,575,940,689[2] (Smart Growth Operational Programme, 2014, p.29).

An elaboration of SG OP for planned actions and subjects which may apply for co-financing of their projects is Detailed Description of the Priority Axes of Smart Growth Operational Programme 2014-2020 (DD PA).

The following types of projects are listed as possible to be realised within the Programme: industrial research, development work, recapitalisation of investment vehicles whose purpose is to find and verify R&D projects, recapitalisation of venture capital funds, creation and development of R&D infrastructure of enterprises by investment in devices, equipment, technologies and other necessary infrastructure, building a comprehensive support system for the process of technology transfer to enterprises in the open innovation formula, pro-innovation services connected with research and development or innovation activities, selecting and capital funding of business angel networks which plan group capital investments in enterprises whose operations are based on innovative ideas, creating and contributing to a loan fund to support innovative enterprises, projects designed to prepare documentation necessary for small and medium-sized enterprises to access capital markets, creation or development of R&D infrastructure, and also workshops, consultancy, mentoring and expert services for entrepreneurs (Detailed Description of the Priority Axes of Smart Growth Operational Programme, 2015, pp.11-113).

The description of individual SG OP priority axes with a list of target recipients of the support and funds allocated to each axis are presented in Table 1.

**Table 1.:** Priority Axes of the Smart Growth Operational Programme

| Number and name of priority axis | Target group/final recipients of the support | European Union support within ERDF (EUR) | National contribution (EUR) | Total financing (EUR) |
|---|---|---|---|---|
| I. Support for R&D activity of enterprises | Enterprises, consortia of enterprises, spin-offs ,small and medium-sized enterprises | 3 849 931 178 | 2 417 336 137 | 6 267 267 315 |
| II. Support for the environment and capacity of enterprise for R&D&I activity | Enterprises, small and medium-sized enterprises, key national clusters, research units, scientists, students, business environment institutions, socio-economic partners ,public administration | 1 043 151 560 | 387 307 641 | 1 430 509 982 |

[2] The amount of national contribution may be increased at higher stages of the Programme implementation.

| | | | | |
|---|---|---|---|---|
| III. Support for innovation in enterprises | Small and medium-sized enterprises | 2 200 878 402 | 850 520 534 | 3 051 398 937 |
| IV. Increasing the research potential | Research units, universities, enterprises, scientists, PhD students, students, technology transfer centres, special purpose companies | 1 222 973 615 | 312 585 598 | 1 535 559 213 |
| V. Technical Assistance[3] | Public administration, socio-economic partners, non-governmental organisations, media, general public | 296 994 259 | 53 939 399 | 350 933 658 |
| Total | | 8 613 929 014 | 4 021 689 309 | 12 284 735 445 |

Source: Prepared on the basis of Detailed Description of the Priority Axes of Smart Growth Operational Programme 2014-2020, p.7.

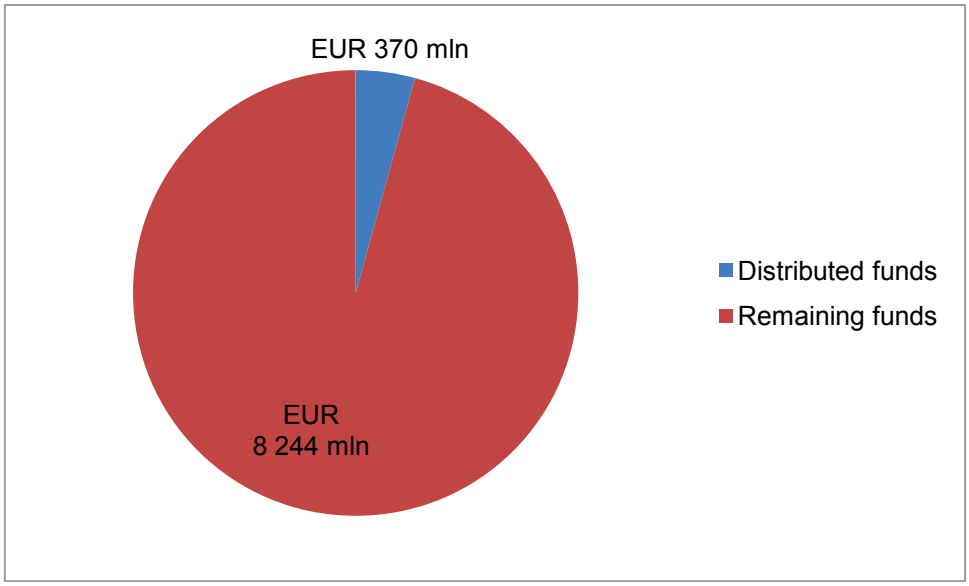
### 3.3. The current state of allocating funds within the Smart Growth Operational Programme

According to the data made available on SG OP website from 9th January 2016 there have been 17 competitions announced altogether under the Programme, 4 of them have been completed, 10 continue calls for projects or have been closed and applications for co-financing are being evaluated, for the remaining 3 competitions the calls for projects are to be announced later (European Funds Portal, access from 9th January 2016).

As of 3rd January 2016 there are 96 projects being implemented within SG OP which total PLN 1 098 388 555.33 (about EUR 250 ml), out of which the amount of PLN 588 752 194.21 (about EUR 130 ml) comes from European Regional Development Fund. These are projects developed within the framework of 1st Priority Axis i.e. devoted to industrial research and development for enterprises and consortia of enterprises. Moreover, one recipient (Foundation for Polish Science) whose task will be to support the process of creating International Research Agendas received co-financing in an non-competition procedure. The support for this project amounts to PLN 532 029 620 (about EUR 120 ml) (European Funds Portal, access from 9th January 2016).
The current state of distribution European funds within the framework of the Smart Growth Operational Programme is presented in Picture 2.

**Picture 2**. State of distribution European funds within the framework of the Smart Growth Operational Programme as of 3rd January 2016.

[3] These are activities that support the process of implementation of the program including remuneration of officials and experts involved in the implementation process or the cost of promotional activities.




Source: Prepared on the basis of data received on the European Funds Portal https://www.poir.gov.pl

As can be noticed, so far only about 4.3% of European funds within the framework of SG OP have been distributed. At the same time the data on real spending of funds within the Program is unavailable. It is connected with a specific character of European funds allocation which require preparing proper programme documentation beforehand and then following a long and transparent competition procedure. However, the process of implementing SG OP is currently entering a crucial stage. According to the information received from the Programme website, there are 27 competitions scheduled for the year 2016 which amount to the total funding of almost PLN 8bn (about EUR 1.9bn) of European funds and national contribution from the state budget) (European Funds Portal, access from 9th January 2016).

## 4. SUMMARY

The above presented evaluation of the possibilities of making the Polish economy more innovative can be summarised as follows:

1. The rank of Polish economy in the most popular innovation rankings is of little significance both on the world scale and in the European Union itself. This is to a large extent a result of limited possibilities of financing innovative operations, which in themselves are at risk of not bringing the expected results;
2. The implementation of the Smart Growth Operational Programme for the years 2014-2020 is a chance to improve significantly the innovation of Polish economy, mainly due to a lot of funds available through the Programme and the experience gathered by Poland during the previous financial perspective of allocating European funds;
3. The premises of Smart Growth Operational Programme take into account the results of innovation rankings and respond to the weaknesses of Polish economy innovation diagnosed by them. A wide range of various steps have been proposed in the framework of the Programme which are intended to engage research units together with their scientists as well as entrepreneurs. The Programme also provides instruments for extending systems of capital support for research and development activities. All these contribute to the opportunity for SG OP to have a considerable impact on improving the innovation of Polish economy;
4. The current stage of implementing SG OP is not advanced, primarily because of the delays resulting from the need to prepare the proper procedures. Yet, the results of the first competitions indicate that entrepreneurs are highly interested in realising the projects in the framework of the Programme. The amount of funds distributed as part of SG OP will increase in the successive years of the Programme implementation;
5. The increase of Polish economy innovation will not depend only on the allocation of European funds for innovation support. What is also crucial in this case is the attitude of Polish enterprises, which should increase their financial contribution to research and development activities. Participating in SG OP may become a substantial source of funds for such

operations and also help to gain precious experience connected with cooperation with research units. However, the public intervention alone will not be effective enough unless it encourages the enterprises to contribute private funds to the innovative activities. Innovations demand continuous support and public funds will be significantly reduced after SG OP implementation is completed. It is vital for the enterprises to become aware of this problem so that a high level of Polish economy innovation may be ensured.

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