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Evolution of the Polish Innovation Policy

Abstract

The knowledge and technology sector is underinvested in Poland, and, furthermore, its innovation position is far worse than in the majority of most European Union countries. The technological gap between Poland and European leading countries is quite significant. One has to adopt a proper innovativenss development strategy which would then constitute the basis for implementation of the adequate innovation policy.

The innovation policy realized at present in Poland seems to be convergent with the assumptions of the EU- documents and OECD- reports. Nevertheless, numerous problems still require a solution. A key question that remains is the acknowledgement of a clear priority in the economic policy to R&D expenditure, financed both from the government's budget and the private sector. It also seems necessary to adjust the tax system and the credit policy to the needs of the innovative economy. More importantly is developing a policy of an actual support of intellectual entrepreneurship that should aim towards creating advantageous development conditions for enterprises conducting research and producing high-tech products (particularly venture capital). These activities should also contribute to increase innovativeness of the Polish economy and affect the quality and rate of future economic growth.

1. Introduction

The knowledge and technology sector is underinvested in Poland, and, furthermore, its innovation position is far worse than in the majority of most European Union countries. The technological gap between Poland and European

leading countries is quite significant. The main weakness of the Polish innovation system is connected with the fact that most finances for R&D are provided by the country's budget, not by private enterprises as it is in well-developed countries. Additionally, an insufficient level of technical knowledge commercialisation is one of the drawbacks of this system, which is reflected in the minimal share of high-tech products within Polish exports. A substantial increase in the level of Polish economic innovativeness can not be achieved merely in an automatic and spontaneous way. One has to adopt a proper innovativenss development strategy which would then constitute the basis for implementation of the innovation policy.

The aim of this paper is to present and assess some programmes of the innovation policy that have been prepared in Poland since the beginning of the transformation process.

2. Outline of the Polish innovation policy in government documents

Since the beginning of the systemic transformation a great deal of documents and programmes associated with the innovation policy in Poland have appeared. They have been prepared by three main institutions: the Ministry of Economy, the Ministry of Labour and, established in 2003, the Ministry of Science and Social Policy. The following documents have come into force:

1. "State Proinnovation Assumptions Policy"– a governmental document accepted by the Board of Ministers on 22 November 1994.
2. "International Competitiveness of the Polish Industry" – a document prepared by the Ministry of Trade and Industry, accepted in May 1995.
3. "Bases of the Scientific and Scientific-Technological Policy. Preferable Directions of the Scientific Research and Development Projects helpful in the Innovation Growth of the Polish Economy"- a document accepted in January 1996, prepared by the State Committee for Scientific Research.

4. Supportive Programme of the Regional Institutions Development", accepted by the Board of Ministers on 4 March 1996; this programme assumes support of initiatives in favour of the regional innovation systems development established *de facto* by purposeful projects for Regional Innovation Systems in June 2002[1]. These projects presumes as follows:
   - commence the cooperation between a government of the region and enterprises, research institutions, universities, financial services– and advisory suppliers and institutions of public utility,
   - increasing effectiveness of structural funds spent on research and development in the region,
   - promoting the innovative image of the region.

   Moreover, it is pointed out that the National Innovation Strategy should be treated as a condition of Regional Innovation Strategies and its main purpose is to assure the coordination of activities in favour of the growth of economic innovativenss on between the government administration and local governments (Okoń-Horodyńska, 2004, p. 34).
5. "State Innovation Policy Assumptions to 2002" – a programme prepared by the State Committee for Scientific Research in October 1999. This programme defines some purposes of the innovation policy and appoints units responsible for its realization (State Innovation Policy Assumptions to 2002, 1999). It also indicates that there is a need to undertake some legal initiatives connected with the realization of State Innovation Policy and to leave the question of technology transfer for the market (Słupińska, 2009, p. 134).
6. "Increasing Economy Innovativeness in Poland to 2006" – a governmental programme accepted by the Board of Ministers on 11 July 2000. The programme suggests implementing means of improving innovative growth of Poland's economy. It continues some direct lines for the innovation policy, established in "State Innovation Policy Assumptions to 2002". It is worth pointing out that in this programme the government is obligated to prepare and implement the law for the research and development activity. The Law that supports the innovation activity, accepted on 29 July 2005, is

[1] Regional Innovation Strategies due to the Polish law are realized according to the Order of the of Chairman of State Committee for Scientific Research from the 30 November 2001 in the matter of criteria and admitting of financial means settled in the State budget for the science (Dz. U. Nr 146, pos. 1642) See: E. Okoń-Horodyńska, What with the National Innovation System?, (in:) Role of the Polish Science in the Growth of Economy Innovativeness, ed. E. Okoń-Horodyńska, Polish Economic Society, Warsaw 2004, p. 31.

a result of this requirement (Law of some forms of supporting the innovation activity, DzU nr 179 poz. 1484). The aim of the law is to "increase the competitiveness and innovativeness of the economy through the growing expenditure of the private sector on R&D as well as improving the effectiveness of public means spent on R&D" (Law of some forms of supporting the innovation activity, DzU nr 179 poz. 1484). The realization of these goals has to be supported by the following actions: (a) development of the private research sector, (b) improvement of the effectiveness of the innovation policy implemented on both the country - and regional levels, (c) increasing the effectiveness of budget means (funds) devoted to the innovation policy. It should be underlined that the analysed law introduces a new financial tool in the form of a technological credit[2] and gives the status of R&D centres to entrepreneurs.

7. "Government Economic Strategy. Enterpreneurship, Development and Work", accepted on 29 January 2002, has appointed strategic aims of the economic policy up to 2006. However, in 2003 it was replaced by a new "Plan of Pre-increasing Activities in the years 2003-2004". It contains responsibilities that should help fulfil priorities formulated in the Lisbon Strategy. The analysis conducted for the needs of this document points out that the most vital condition of accelerating the economic development is to stimulate entrepreneurship and innovation through the removal of institutional, procedural and economic barriers of development (Okoń-Horodyńska, 2004, p. 31). On the basis of these assumptions it is accepted that an increase in the level of economy innovativeness requires the following actions: building support of the Regional Innovation Strategies and innovative firms, strengthening the cooperation between scientific units and firms, improving systemic solutions in favour of the growth of innovation in production, preparing research programmes, and programme Foresight[3].
8. Programme "Knowledge – Information - Competitiveness: Poland on the way to a knowledge – based economy" assumes the following activities:

[2] An enterpreneur that documents the sale of products and services being a result of a new investment (consisting in using of a new own or bought technology and starting a production of new products or modernization of "old" products) may apply for the amortization of even 50% of a credit.

[3] Programme Foresight points at future needs, chances and threats connected with the social and economic development and activities from the area of science and technics. These activities should be a guarantee of the dynamic economic development in a medium and long term. See: E. Okoń-Horodyńska, What with the National Innovation System?, op. cit., p. 31

- preparation and realization of the National Innovation Strategy - as a strategic priority,
- preparation of an integrated strategy of education, research and innovation on the basis of priorities being in accordance with the scientific policy and the policy of the information society,
- developing the innovation policy based both on the research results in the economy as well as the connection between the macroeconomic and sectoral policy of the EU.

9. "National Development Plan for the years 2004-2006" was prepared as an answer to the Lisbon Strategy assuming that the level of expenditure on R&D should amount to 3% of GDP (National Development Plan for the years 2004-2006, 2003). This plan covers an increase in expenditure on R&D to 2.6% of GDP in 2006 (0.6% of GDP should come from the budget means)[4].
10. "Polish Republic Data Processing Strategy – e-Poland for the years 2004-2006". The main goal is to establish an access to electronic services and introduce a general electronic education (Polish Republic Data Processing Strategy – e-Poland for the years 2004-2006, 2003). One part of this strategy is the "National Strategy of a Broadband Access Development for 2004-2006".
11. The document "Suggested Directions of the Science and Technology Development to 2005" identifies activities that will enable the Polish economy to be turned into a knowledge – based economy. This document covers the following actions: (a) an increase of employment in traditional industries and firms using new technologies, (b) establishing new small and medium firms that would be able to use knowledge but do not have adequate means, (c) stimulating large companies to implement Polish scientific-technological solutions (Suggested Directionsof the Science and Technology Development to 2005, 2004). The activities should be accompanied by promotion and modernization of industries recognized as carriers of the knowledge-based economy such as: (1) education, (2) science and R&D activity, (3) high-tech industries, (4) business services connected with knowledge and (5) the information society sector.
12. "The National Development Plan for 2007-2013", accepted by the Board of Ministers on 1 January 2005, is a strategy comprising activities for the development of the Polish economy in accordance with the requirements of the Lisbon Strategy.

[4] In the next document "Bases of Community Supporting" it was accepted that expenditure on R&D should increase to 2.6% of GDP to 2008.

13. " National Outline Programme" beginning from 21 September 2005, is part of a system of organization and financing in Poland. This programme includes distanct research areas that are of the utmost importance for the development of the Polish economic situation.
14. "Innovativeness Increase Directions for the years 2007-2013" accepted in August 2006, is a continuation of "Increasing of economy innovativeness in Poland till 2006". The document points out the directions of activities that will transform the Polish economy into a knowledge-based economy. The activities are as follows: the development of staff being able to build the knowledge - based economy, intensification of the research activity directed at the needs of the economy, protection of intellectual property, building an adequate infrastructure for innovations, understood as an access to modern data processing technologies, and consulting or facilitating cooperation between research units and enterprises.
15. "Country Development strategy 2007-2015", accepted by the Board of Ministers on 29 November 2006, is an essential document appointing priorities of the economic development. Its main goal is to increase the international competitiveness of Polish science understood as an ability to solve research problems on a worldwide level (Country Development Strategy 2007-2015, 2006, p. 20). This aim should be supported by the following activities: strengthening cooperation between science and the economy, an improvement in the level of scientific staff, an improvement in the effectiveness of the R&D sector and the development of a scientific – research infrastructure.
16. „National Strategic Frame References 2007-2013" ("National Strategy of Cohesion"), accepted in May 2007, defines the conditions and activities of the government that should assure the permanent economic growth, an increase in the competitiveness of a knowledge-based economy, an increase in employment and Poland's social and economic cohesion level (National Strategic Frame References 2007-2013, 2007). On the basis of this plan some operative programmes have been constructed and co-financed with the European Fund for Regional Development, the European Social Fund and the Cohesion Fund.
17. Operative Programme "Innovative Economy" is an element of the "National Strategic Frame References", accepted on 1 October 2007. The programme is convergent with the objectives of the Lisbon Strategy that assumes the necessity of the economic growth and employment in conditions of the balanced development. The main intent of the document is to develop the economy on the basis of innovative enterprises (Operative Programme "Innovative Economy", 2007). Other aims are formulated as follows:

increasing an enterprises innovativeness and competitiveness in Polish science, an increase in the role of Polish science in the economic development and the use of information and communication technologies in the economy. The entire amount of public financial means engaged in the realization of the programme for the years 2007-2013 totals 9.7 million Euro. To evaluate the programme it must be stated that it is a proper diagnosis of the innovative state of the Polish economy. Nevertheless, the programme does not suggest solutions for diagnosed problems and does not connect ways of growth with structural reforms – acceleration of the growth should be achieved by the allocation of means[5]. The programme also does not point out any mechanism or any specific institution coordinating activities of regional and central authorities.

18. Another element of the "National Strategy of Cohesion" for the years 2007-2013 is an Operative Programme titled "Human Capital". The main goal of the programme is to use human resources in an optimum way through the increase of employment and adaptive potential of firms and their employees, increasing education, supporting administrative structures, and a decline of the social exclusion areas. The advantage of the programme is underlining the importance of human capital in increasing the competitiveness of the economy and of appointing priority areas requiring special support. On the other hand, the programme does not precisely identify the tools connected with the transfer of knowledge between universities and enterprises and, in addition, it does not explain the assumptions of a higher educational reform.
19. The programme "Technological Angle", accepted on 10 November 2006, assumes support of coordination between science and enterprises and also support of the process of innovation implementation and commercialization. As a result of this program encouraging innovation, there should be an increase in technological companies, thus, creating an upswing in economic growth in Poland.
20. The Technological Initiative "IniTech", prepared by the Ministry of Science and Higher Education, accepted in March 2007, initiates, for the first time, the financial means for the implementation of technology. Up to this point, only research could be financed from funds designated for science and the production of new products – from funds designated for

[5] A suggested allocation threatens to support inefficient traditional industries at the cost of priority and more developed areas. See: S. Pangsy-Kania (2007), Innovation Policy of the State and the National Strategy of Competitive Development Strategy, University of Gdańsk, Gdańsk, p. 275.

development. On the basis of this initiative a budget is created within the limits of which high-tech firms can be financed (E. Okoń-Horodyńska, A. Zachorowska-Mazurkiewicz, 2007, p. 16-17). It is vital that this scheme support new firms which have the opportunity to apply for large amounts of zloty.

21. "Country Development Strategy 2007-2015", accepted by the Board of Ministers on 29 November 2006, is in regard to the improvement in the quality and level of life in Poland attained as a result of the increase in R&D expenditure.
22. "Science Development Strategy for 2015", accepted in April 2008, is a part of the "Country Development Strategy 2007-2015"; this document appoints general aims, directions, priorities and instruments for the development of Polish science up to 2015.

In conjunction with other activities in support of increasing economic innovativeness, the following initiatives are also mentioned:

a. amendments of the law concerning support of investments that strengthen preferences for investments in technological innovations; the term "technological park" is defined in this law; the law gives way for new investments located in a technological park the possibility of applying for financial support;
b. a project of the law about National Capital Funds that provides creating a number of instruments supporting small and medium enterprises from EU structural funds, an increasing engagement of private firms in the support, and creating an independent financial institution in order to support such firms;
c. amendments of the law norms concerning industrial property;
d. adaptation of the industrial property protection laws in accordance with requirements resulting from international agreements;
e. the law regarding some forms dealing with supporting the innovative activity (Law about some forms of supporting the innovative activity (Dz.U. Nr 179, poz. 1484) that introduce tax instruments aimed at the adaptation of new innovative solutions, the following activities which are included, among them must be mentioned : (a) reducing the time of amortization of completed R&D research from 36 to 12 months, (b) a tax expense deduction for the purchase of new technologies from science units, not more than 50% in reference to small and

medium enterprises, and 30% in reference to other firms, (d) the VAT rate of 22% for science and research services[6];

- the law from 8 October 2004 about the rules of science financing that introduces a centralization of the scientific policy, strengthens the position of the Minister of Science (the Minister with the Science Council is responsible for the scientific and technological policy (the Minister of Science is responsible for the technological policy with the Minister of Economy) and makes decisions connected with the distribution of financial means designated for science (Goldberg, 2004, p.25); the law creates the possibility of restructuring research units, introduces new types of research projects, and allowes the Minister of Science to establish frame programmes that are the basis of financing integrated, multidisciplinary research projects in priority areas of science and technology. The law also assumes the development of promotion and diffusion of science achievements that may be used in economic practice (Okoń-Horodyńska, 204, p. 28-29);
- the law from 25 July 1985 about R&D units.

Since 2006 the government has begun another stage of reforming research activity (Law about research institutes. Project from 2 December 2008 r., Ministry of Science and Informatization, 2008). It is particularly worth mentioning the project of the law referring to research institutes. It presumes that R&D units may be transformed into some research institutes. These institutes will be subjected to strict rules of control and audit. The main task of these institutes should be realization of the research directed to needs of the economy and also the transfer of technology. In the beginning, the top institutes will be transformed, and the ineffective institutes will be closed or reorganized (Słupińska, 2009, p. 141). Another proposal is the establishment of a National Centre for Research and Development (Law about the National Centre of Research and Development. Project from 2 December 2008 r., Ministry of Science and Informatization, 2008) that should develop the innovation policy through the realization of strategic research programmes, defined by the Minister of Science. Other tasks of the Centre should be as follows (Goldberg, 2004, p. 25): (a) support for the commercialization of science research, (b) support for fresh scientists, particularly those engaged in the realization of

[6] The solution is controversial. It aimed to an abolition of barriers in the cooperation between enterprises and research units that can not deduct (odliczyć) the VAT tax and are less competitive. Nevertheless it is difficult to call the solution proinnovative. See: S. Pangsy-Kania, op. cit., p. 262.

research programmes, (c) realization of international programmes of scientists mobility and (d) realization of other tasks entrusted by the Minister. The main directive of the Centre's activity should be the transparency of competitive financial decisions. In the next stage of reforms the formation of a Cognitive Research Agency is considered. The Agency should finance basic research whereas the proposals of research should come from scientists. It is worth pointing out that the development of the National Centre of Research and Development and the Cognitive Research Agency should reduce the bureaucracy and depoliticize the process of the distribution of public funds designated for R&D. Due to assumptions of the realised reform, the Minister of Science will receive innovation policy support from the National Council of Science which is an advisory organization, consisting of scientists, representatives of economic and social organisations, the Polish government, and the local government. Moreover, this reform covers the following actions: (a) reduction of the scale of subjective subsidies, (b) an increase in the importance of funds awarded by way of competition, (c) a simplification of financial flows - a reduction in their number, and they will be determined on the basis of the goal of the project, (d) realization of strategic research programmes.

3. Conclusion

To conclude the discussion regarding the evolution of the Polish innovation policy it must be stated that this policy meets the current challenges from the theoretical point of view, both on the European and international level. The analysis of the above documents leads to the conclusion that the goals of the Polish innovation policy are convergent with the assumptions of the EU-documents and OECD- reports (Policy Mix for Innovation in Poland – Key Issues And Policy Recommendations, Working Party on Innovation and Technology Policy, 2007). Nevertheless, numerous problems still require a solution. A key question that remains is the acknowledgement of a clear priority in the economic policy to R&D expenditure, financed both from the government's budget and the private sector. It also seems necessary to adjust the tax system and the credit policy to the needs of the innovative economy. More importantly is developing a policy of a actual support of intellectual entrepreneurship that should aim towards creating advantageous development conditions for enterprises conducting research and producing high-tech products (particularly venture capital). These activities should also contribute to increase innovativeness of the Polish economy and affect the quality and rate of future economic growth.

References

Country Development Strategy for the years 2007-2015 (2006), Ministry of Science and High Education, 20 November

Directions of Innovativeness Increasing for the years 2007-2013 (2006), Ministry of Economy, Warsaw, 19 August

Innovations in the Development of the Economy and Enterprises: motive powers and barriers (2007), ed. E. Okoń-Horodyńska, A. Zachorowska-Mazurkiewicz, Institute of Knowldge and Innovations, Warsaw

Law of some forms of supporting the innovation activity, Dz U nr 179 poz. 1484

Law about research institutes. Project from 2 December 2008 r., Ministry of Science and Informatization

Law about the National Centre of Research and Development. Project from 2 December 2008 r., Ministry of Science and Informatization

National Development Plan for the years 2004-2006 (2003), the Board of Ministers, 14 January

National Strategic Frame References. National Strategy of Cohesion (2007), Ministry of the Regional Development, Warsaw, May

Okoń-Horodyńska E., What with the National Innovation System?, (in:) Role of the Polish Science in the Growth of Economy Innovativeness (2004), ed. E. Okoń-Horodyńska, Polish Economic Society, Warsaw

Operative Programme "Innovative Economy" 2007-2013. National Strategic Frame References (2007), Warsaw, 1 Oktober

Pangsy-Kania S. (2007), *Innovation Policy of the State and the National Strategy of Competitive Development Strategy*, University of Gdańsk, Gdańsk

Poland and the Knowlegde Based Economy. Towards the Increasing of Poland`s Competitiveness in the European Union (2004), Ttzhak Goldberg, World Bank, Region of Europe and Central Asia, Department of the Development of the Private and Finance Sector, Washington D.C.

Policy Mix for Innovation in Poland – Key Issues And Policy Recommendations, Working Party on Innovation and Technology Policy (2007), DSTI/STP/TIP (2006)13/FINAL, June, Warsaw

Polish Republic Data Processing Strategy – e-Poland for the years 2004-2006 (2003), Ministry of Science and Informatization, Warsaw, December

Słupińska M. (2009), *Evolution of the innovation policy in conditions of Poland`s membership in the European Union*, (in:) Building of innovation abilities of regions , ed. A. Nowakowska, University of Lodz, Lodz

State Innovation Policy Assumptions to 2002 (1999), Scientific Research Committee, Warsaw, Oktober

Strategy of Informatization of the Polish Republic – e- Poland for the years 2004-2006 (2003), Ministry of Science and Informatization, Warsaw, December

Suggested Directions of the Science and Technology Development to 2020 (2004), Ministry of Science and Informatization, Warsaw

Streszczenie

EWOLUCJA POLSKIEJ POLITYKI INNOWACYJNEJ

Powszechnie wiadomo, że sektor wiedzy w Polsce jest niedoinwestowany a luka technologiczna między naszym krajem a wysoko rozwiniętymi krajami Unii Europejskiej wciąż znacząca. Nakłady krajowe na działalność B+R w relacji do PKB kształtujące się na poziomie poniżej 1% grożą w długim okresie osłabieniem sił napędowych rozwoju gospodarczego i postępu społecznego. Uniknięcie tej groźby wymaga politycznej woli dokonania zasadniczych zmian w podejściu polityków i opiniotwórczych elit do roli nauki i techniki w polskiej gospodarce.

Celem artykułu jest analiza i ocena polityki innowacyjnej, zarysowanej w dokumentach rządowych. Polityka innowacyjna realizowana w ostatnich latach odpowiada pod względem koncepcyjnym współczesnym wyzwaniom zarówno na poziomie europejskim, jak i światowym. Z analizy programów polityki innowacyjnej wynika, że jej cele są zbieżne z założeniami przyjętymi w kluczowych dokumentach unijnych i raportach OECD. Wciąż jednak wiele problemów wymaga rozwiązania. Kluczową kwestią jest zatem przyznanie wyraźnego priorytetu w polityce gospodarczej nakładom na działalność B+R, zarówno finansowanym z budżetu państwa, jak i ze środków przedsiębiorstw. Konieczne wydaje się także właściwe dostosowanie systemu podatkowego i polityki kredytowej do potrzeb gospodarki innowacyjnej oraz opracowanie polityki rzeczywistego wspomagania przedsiębiorczości intelektualnej, której celem jest stworzenie korzystnych warunków rozwoju przedsiębiorstwom prowadzącym prace badawczo-rozwojowe i wytwarzającym produkty high-tech (w szczególności venture capital). Działania te powinny przyczynić się do zwiększenia aktywności innowacyjnej gospodarki oraz wpłynąć na tempo i jakość przyszłego wzrostu gospodarczego.